



Pennsylvania Public Water System Compliance Report - 2002

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1.

Introduction

Pennsylvania's Safe Drinking Water Program

Section 1414(c)(3)(A)(i) of the amended federal Safe Drinking Water Act (SDWA) requires States with primacy to prepare and submit to EPA an annual report on public water system violations. This report fulfills that requirement by providing a summary of the incidence of Pennsylvania public water system (PWS) maximum contaminant level (MCL), significant monitoring/reporting (M/R), and treatment technique (TT) violations for the calendar year 2002. The level of compliance and efforts being undertaken to provide safe drinking water to the residents and travelers of Pennsylvania are also highlighted. The full report minus Appendix A, which is a list of public water systems having MCL violations during 2002 is available on the Department of Environmental Protection (DEP) web site and in hardcopy. See the last page of this report for details.

Public Water System - Definitions

Public Water System (PWS): A system that provides piped water for human consumption to at least 15 service connections or serves an average of at least 25 people for at least 60 days each year. PWSs can be community, nontransient noncommunity, or transient noncommunity systems.

Community Water System (CWS): A PWS that provides water to the same population year-round. Examples are municipal systems, authorities, and mobile home parks or residential developments with their own water supplies.

Large CWS - Serves greater than 50,000 people.

Medium CWS - Serves 3,301 - 50,000 people.

Small CWS - Serves 3,300 or fewer people.

Nontransient Noncommunity Water System (NTNCWS): A PWS that is not a CWS, but that regularly serves at least 25 of the same people at least six months of the year. Examples include schools, factories, and hospitals that have their own water supplies.

Transient Noncommunity Water System (TNCWS): A system that caters to transitory customers in non-residential areas such as campgrounds, motels, and restaurants having their own water supplies.

Background

Under the authority of the 1974 Safe Drinking Water Act (SDWA), the US Environmental Protection Agency (EPA) established the Public Water System Supervision (PWSS) Program. With the 1986 Amendments to the SDWA, the US EPA set national limits on contaminant levels in drinking water to ensure that the water is safe for human consumption. These limits are known as maximum contaminant levels (MCLs). For some regulations, EPA established treatment techniques in lieu of an MCL to control unacceptable levels of contaminants in drinking water. The Agency regulations also establish how often public water systems monitor their water for contaminants and report the monitoring result to the states or EPA. Generally, the larger the population served by a water system, the more frequent the monitoring and reporting requirements. In addition, EPA requires PWSs to monitor for unregulated contaminants to provide data for future regulatory development. Finally, EPA requires PWSs to notify the public when they have violated these regulations. The 1996 Amendments to the SDWA require public notification to include a clear and understandable explanation of the nature of the violation, its potential adverse health effects, steps that the PWS is undertaking to correct the violation and the possibility of alternative water supplies during the violation.

Drinking water first came under regulation in Pennsylvania in 1905 with the passage of the Public Water Supply Law. The 1905 Law was passed in response to wide spread disease outbreaks that had been attributed to microbiological contamination of public water supplies. Approximately 1,200 systems were regulated under the Law for about 20 contaminants for which the US Public Health Service had established drinking water standards. Public water supplies were regulated under the 1905 Law for almost 80 years when a new wave of waterborne disease outbreaks necessitated the establishment of better authorities to protect public health.

The SDWA allows states and territories to seek EPA approval (primacy) to administer their own PWSS programs. The Pennsylvania Safe Drinking Water Act was signed into law in 1984 after several communities experienced waterborne disease outbreaks caused by the presence of *Giardia* in their drinking water. In the following year Pennsylvania was awarded primacy under the SDWA. The PWSS program is administered by the DEP, Bureau of Water Supply and Wastewater Management. Under the 1905 Public Water Supply Law, Pennsylvania led the nation in waterborne disease outbreaks, averaging eight to ten per year. Today, DEP regulates over 10,000 public

water systems serving over ten million people. Through improved water quality regulation under the 1984 Act, waterborne disease outbreaks are now a very rare occurrence in Pennsylvania's public water systems.

Sources of Drinking Water Contamination

Contaminants may enter drinking water before, during, or after treatment. The majority of PWSs treat their water, as necessary, to ensure that their customers receive water that is safe to drink. Some sources of drinking water contaminants are as follows:

Before Treatment

- Bacteria from human or animal sources
- Turbidity in water caused by suspended matter such as clay, silt, and microscopic organisms
- Overflowing storm sewers
- Defective storage tanks
- Leaking hazardous landfills, ponds, and pits
- Saltwater intruding on depleted aquifers near seashores
- Pesticides, fertilizers, and other agricultural run-off
- Run-off from oil-slicked or salt-treated highways
- Underground injection of hazardous wastes
- Naturally-occurring fluoride and metals such as arsenic and cadmium
- Decay products of radon, radium, and uranium
- Industrial chemicals, such as solvents

During Treatment

- By-products of disinfectants such as trihalomethanes and haloacetic acids

After Treatment

- Lead, copper, asbestos, and other materials from corroding pipes
- Bacteria and dirt entering through leaking pipes
- Improper connections with other systems or cross-connections with non-potable water that allow contaminants to enter drinking water pipes
- Permeation of contaminants through certain pipe materials

Improved Public Health Protection

The reduction in waterborne disease outbreaks in Pennsylvania over the last 15 years is due in part to Pennsylvania's filtration requirements. In 1989, regulations were established requiring about 275 public water systems with surface water sources to be filtered. Filtration plants have been constructed for nearly all of the state's unfiltered surface water sources and work on the remaining seven sources is scheduled for completion in the near future. To assure that Pennsylvania's 338 filtration plants maximize public health protection for their customers, DEP initiated the Filter Plant Performance Evaluation Program in 1988. The program is a cooperative effort between DEP and plant personnel to assure workers optimize the removal of disease-causing organisms at their facilities. See Chapter 3 for additional information.

DEP is also helping to prevent waterborne diseases through the Partnership for Safe Water program. The Partnership, which is voluntary, encourages water systems to self-assess and optimize their surface water treatment plants and prepare for new regulations. Partnership participation exemplifies a system's strong commitment to providing safe drinking water to consumers by minimizing breakthrough of disease-causing microorganisms into the finished water. The DEP contract with the Pennsylvania Section of the American Water Works Association to encourage filtered water systems to enroll in the program has resulted in membership for 117 of the state's filter plants. The state holds over 25 percent of the 425 plants enrolled at the national level. In fact, Pennsylvania has more members than any other state in the nation. To date, 41 filter plants have completed detailed self-assessment reports that include action plans to voluntarily correct identified problems and ultimately optimize treatment. Altogether, the 117 filter plants serve over 5.2 million people, which is a large portion of the 8.3 million people who receive some or all of their drinking water from Pennsylvania's surface water systems.

In addition to these special efforts to improve the microbiological safety of drinking water, DEP currently regulates 92 contaminants – an increase from about 20 in 1984. Current regulations are set for 20 inorganic contaminants, 4 radionuclides, turbidity, 8 microbial contaminants or indicator organisms, and 60 organic contaminants. Maximum contaminant levels (MCLs) have been set for 83 contaminants, and nine contaminants have treatment technique requirements. See Chapter 2 for additional information.

Source Water Assessment and Protection Program

EPA approved Pennsylvania's Source Water Assessment and Protection (SWAP) Program in March 2000. The SWAP Program was required under the 1996 Amendments to the Safe Drinking Water Act and describes how Pennsylvania will assess all sources of public drinking water for their susceptibility to contamination. The keystone to the SWAPP is the state's Wellhead Protection Program (WHPP) that was approved by EPA

in March 1999. All assessments are to be completed by September 24, 2003. All contracts and grants for source water assessments of over 14,000 sources serving public water systems will be completed by August 31, 2003.

Projects to support development of local, voluntary source water protection are in place and include grants with the League of Women Voters of PA Citizen Education Fund to administer community based education grants to coalitions of local and regional organizations involved with water resources education projects and for statewide education and promotion projects, and a grant to the PA Rural Water Association for water supplier assistance in developing local WHPP development. A source water protection grant program has been established and, over the last 3 years has awarded grants to 58 public water systems or municipalities to develop and implement local source water protection programs. A guidebook for developing local source water protection has been completed, and is available on CD and on the web.

Financial, Technical, and Educational Assistance

To offset the increasing cost of complying with drinking water regulations, Pennsylvania offers a number of financial, technical and educational assistance programs. The largest and most successful assistance initiative is PENNVEST, the Pennsylvania Infrastructure Investment Authority created in 1988. Since then, PENNVEST has funded over \$1.1 billion in water supply infrastructure improvement projects benefiting Pennsylvania residents. PENNVEST also serves as the financing agency for drinking water state revolving loan funds (DWSRF) authorized by the 1996 Safe Drinking Water Act Amendments.

To provide more focused attention toward helping small water systems, the Pennsylvania Legislature established the Technical Assistance Center for Small Water Systems (TAC). An advisory board directs the activities of TAC, which administers incentive grant programs for small systems.

Currently two grant programs are implemented by the Division of Technical Assistance and Outreach: Small Water System Regionalization Study grants (created as part of the TAC), and Small Water System Consolidation Construction grants. To date, 45 regionalization studies and five consolidation construction projects have been completed. An additional 2 regionalization studies and 3 consolidation construction grant projects have also been awarded. A total of \$6.5 million has been awarded under these grant programs.

The Division of Technical Assistance and Outreach continues to provide both classroom training and on-site technical assistance to drinking water systems. Through the use of the Environmental Training Partnership's 82 peer trainers, on-going assistance services are provided to public and privately owned drinking water systems. Seventy-three sites are currently receiving services from the partnership.

The training being offered by the Environmental Training Partnership Program is currently being re-structured as the result of new Operator Certification program legislation. A contractor is creating training modules that reflect the new technology based operator testing. The traditional Sacramento Courses will be more technology specific. When completed, peer trainers will be assigned to teach specific technologies where their expertise is focused. The ETP provided 29 basic water system training courses throughout the state and 8 on-site training courses. These courses cover material provided by the Sacramento Training Courses, Corrosion Control, Water Math and Pumps and Pumping. ETP training provided training to approximately 303 potential water system operators this year. The request for training was reduced this year because of the pending new Operator Certification Act.

The Division completed the third year of implementation of its Capability Enhancement Program. As part of that strategy, every community and nontransient noncommunity water system was prioritized. An evaluation was also completed that identified the most common technical, financial, and managerial capability shortcomings suffered by most drinking water systems. The demand for Capability Enhancement Services was overwhelming. To date, over 40 drinking water systems have participated in the program.

The Governor's Office signed the amendments to the Sewage Treatment Plant and Waterworks Operator Certification Act. These amendments were necessary to meet the Federal Guidelines for Operator Certification Programs. The Division of Technical Assistance and Outreach has successfully developed an "Interim Program" that will meet EPA requirements until final rules and regulations are promulgated. These guidelines were effective July 2002 and have the force of law to implement the program. This past year draft regulations and additional guidelines have been developed for the DEP and the Certification Board. These regulation are now in the public participation phase and will soon be forwarded to the Environmental Quality Board for first consideration.

The DEP regional training network continues to offer technical and regulatory training to help the regulated community comply with appropriate drinking water laws, rules and regulations. In 2002, regional trainers concentrated their efforts on the requirements of the Public Notification (PN) Rule and the Lead and Copper Minor Revisions.

Over the past year, DEP made considerable progress on the development of an on-line university, including the storyboards for several training courses. DEP intends to provide training, mainly on regulatory topics, over the Internet, starting in 2003, to help water suppliers to comply with the regulations. The first courses to be deployed will cover the D/DBP Rule.

DEP Technical Training Section staff and Pennsylvania State University at Harrisburg staff continue to work together to develop and deliver a series of hands-on

training courses using the pilot treatment facility constructed in 2000 and hands-on training stations that have been completed over the past two years.

The Small Drinking Water Systems Engineering Services Program (ESP) has been developed to provide various engineering services/activities to assist small drinking water systems with special situations occurring within their systems. A joint approach involving representatives of the water system, DEP, and a contracted engineering firm is used to determine an approach to help solve technical issues at small water system's requesting assistance.

A fact sheet containing information on program priorities and assistance provided through the Small Drinking Water Systems Engineering Services Program has been developed and is posted on the web at:

<http://www.dep.state.pa.us/dep/deputate/watermgmt/WSM/Facts/fs2375.htm>

Since implementing the program in December 1999 efforts have continued to assist as many small drinking water systems as possible. Assistance is provided to help address various public health and safety concerns, such as recurring water shortages, nitrate contamination and other site-specific situations. Forty-one small drinking water systems have expressed an interest in the program to date. Project-scoping meetings and site visits have been held with 33 systems, resulting in 28 of the systems moving forward with a variety of projects. Of these 28 projects, five have now gone to construction where a solution to the problem has been implemented. Three projects are currently on hold due to project timing, funding, or other issues. The remaining 20 systems have projects at various stages of completion.

Active projects include source yield studies, nitrate assessments and several capability enhancement projects consisting of interconnections, feasibility studies to address sources that are under the direct influence of surface water, development of new ground water sources, treatment to address water quality concerns and waterline replacements to eliminate major distribution system leaks. In an attempt to reduce costs and provide assistance to more systems, DEP staff is being utilized to provide preliminary hydrogeologic assessments for projects involving source yield studies and/or development of new ground water sources. The contractor then incorporates these hydrogeologic assessments into the Feasibility Study being prepared for that specific water system. As project priorities and program funds allow, assistance will be provided to as many new small drinking water systems that express an interest in the program as possible.

Eliminating Lead Sources

Water coolers and home plumbing have been identified as sources of lead in drinking water. In cooperation with federal and other state agencies, DEP has been educating the public about the dangers of lead. For example, DEP has been implementing the Pennsylvania Lead Ban and Public Notification Act since 1991.

Under this legislative initiative, materials not meeting the definition of “lead-free” are banned from sale or use in all plumbing systems in Pennsylvania. Lead Ban surveillance has been done throughout the state by summer interns to locate retail facilities in which banned lead solder is still available for sale. This effort has resulted in fewer violations over the years as the retail facilities are educated and then periodically reminded about the law. Under the Lead and Copper Rule, DEP is also working with water systems to further reduce lead levels that may be contributed by the distribution system and house plumbing fixtures.

Monitoring/Reporting (M/R) Requirements

All PWSs are required to monitor, report and comply with the MCLs for total coliform bacteria and nitrate. In addition, CWSs are subject to M/R requirements for other microbiological contaminants, chemicals and radiological contaminants, and to adhere to MCL and treatment technique requirements. Because NTNCWSs can contribute significantly to an individual's daily water intake, M/R, MCL, and TT requirements apply to NTNCWSs as well as CWSs. A PWS is required to monitor and verify that the levels of contaminants present in the water do not exceed the MCLs and treatment technique requirements.

In addition to MCL and TT violations, this Annual Compliance Report summarizes the number of *significant* M/R violations that occurred during the report year. For this report, significant M/R violations are generally defined as having taken no samples or no results were submitted during a compliance period for a particular contaminant. For the Surface Water Treatment Rule, a significant M/R violation occurs when fewer than 10% of the required samples are taken or no results are reported during a reporting interval. Also included are the new M/R violations for large systems under the Interim Enhanced Surface Water Treatment Rule.

To further encourage routine monitoring and timely reporting of results, DEP initiated a pilot program in 1999 to offer a financial incentive for CWSs and NTNCWSs serving less than 3,300 people. If a target system performed all required compliance monitoring during the year, they were eligible for reimbursement for some or all of their chemical and radiological monitoring. This program resulted in total reimbursements of over \$259,000 in 2001 among 864 water systems. In 2000 reimbursements totaled \$395,000 for 833 water systems. The total amount for reimbursement for 2002 monitoring is currently being determined.

Variances and Exemptions

Variances and exemptions to specific requirements under the Safe Drinking Water Act may be granted under certain circumstances. If a PWS cannot meet the MCL (due to the characteristics of the raw water sources reasonably available), a primacy state can grant the PWS a variance from the applicable primary drinking water regulation upon finding that the system has installed and is using the best available technology, treatment techniques, or other means which the EPA Administrator finds are available (cost is not a consideration in PA). The state must find that the variance will not result in an unreasonable risk to health, and shall prescribe (at the time the variance is granted) a schedule in accordance with which the PWS must come into compliance with the MCL. There were no variances and exemptions in effect for any Pennsylvania PWSs during the 2002 report period.

Consumer Confidence Reports

To ensure that customers are aware of the quality of the drinking water supplied to them, community water systems have been required by Federal regulations to prepare an annual Consumer Confidence Report (CCR) since 1999. The CCR covering calendar year 2001 was due by July 1, 2002 and about 76% of the community systems voluntarily met that deadline. DEP continued to work with the Pennsylvania Rural Water Association (PRWA) to revise their electronic template as well as provided technical assistance to help suppliers comply. In an effort to remind community water systems to submit their next annual CCR, covering 2002, before July 1, 2003, PRWA was again contacted and asked to place a reminder in their periodical to their members as well as on their website. The Environmental Quality Board approved DEP's final form rulemaking for the CCR at its meeting of May 22, 2002. The final CCR rule was published in the *Pennsylvania Bulletin* on August 10, 2002. DEP submitted a Primacy Revision Application to EPA on August 15, 2002. EPA has found this rule to be consistent with the Federal rule and primacy is expected in the near future. DEP will make compliance determinations for the 2002 CCRs that are due before July 1, 2003.

Regulation Development

The proposed *Microbial and Disinfection Byproducts Corrective Amendments* rulemaking was commenced and added to the rulemaking calendar for 2003. This proposed rule was presented for comment to both the Technical Assistance Center Advisory Board and the Water Resources Advisory Committee in November of 2002. Both committees approved the rules with no changes.

The federal *Arsenic and Clarifications to Compliance and New Source Contaminants Monitoring Rule* was analyzed for conformance with Chapter 109 regulations. It was determined that the requirements of this federal rule are captured by current provisions in Chapter 109 and that a rulemaking is not necessary for this federal rule. Primacy for this federal rule was then applied for to EPA.

The proposed *Radionuclides Rule* was approved by the Environmental Quality Board (EQB) on December 17, 2002. The proposed regulation was published in the PA bulletin on March 8, 2003, and the public comment period concluded on April 7, 2003. No hearings were held on the proposed regulation. No major issues were raised during the public comment period. The Water Resources Advisory Committee (WRAC) and the Technical Assistance Center (TAC) Advisory Board will be involved in the development of the final Radionuclides Rule amendments to Chapter 109. It is anticipated that WRAC will review a draft of the final regulation at their July 2003 meeting and the TAC at their August 2003 meeting. The final rule will be submitted to the EQB for approval in their December 16, 2003 meeting.

The proposed *Filter Backwash Recycling Rule (FBRR)* was approved by the Environmental Quality Board (EQB) on December 17, 2002. The proposed regulation was published in the PA bulletin on March 8, 2003, and the public comment period concluded on April 7, 2003. No hearings were held on the proposed regulation. The Water Resources Advisory Committee (WRAC) and the Technical Assistance Center (TAC) Advisory Board will be involved in the development of the final FBRR amendments to Chapter 109. No major issues were raised during the public comment period. It is anticipated that WRAC will review a draft of the final regulation at their July 2003 meeting and the TAC at their August 2003 meeting. The final rule will be submitted to the EQB for approval in their December 16, 2003 meeting.

DEP continued work on a rulemaking package to incorporate the provisions of the *Federal Public Notification Rule, Consumer Confidence Report Rule* and minor revisions to the *Lead and Copper Rule* into the PA Safe Drinking Water Regulations (Chapter 109). The following activities were completed during 2002:

- Final rulemaking language was drafted and presented to the DEP Advisory Committees (WRAC and TAC) in January. The committees approved the language.
- The final rulemaking package was presented to members of the Environmental Quality Board on May 22, 2002. The EQB approved the final rulemaking package.
- The final rulemaking package was published in the *Pennsylvania Bulletin* on August 10, 2002
- A primacy revision application was submitted to EPA on August 15, 2002.
- Additional information to support the DEP primacy revision request was submitted to EPA on December 24, 2002.

2.

PWS Profile and Compliance Summary

The following pages display some fundamental Pennsylvania PWS statistics, a table of the incidence of MCL, significant monitoring, and TT violations, and graphics to illustrate the general picture of PWS compliance in Pennsylvania in 2002.

With the exception of violations relating to the filing of Consumer Confidence Reports, the violation data for Pennsylvania is transmitted by DEP to the EPA several times a year. Although the federal data (SDWIS) has its origin in the Pennsylvania data (PADWIS) a few differences can be found. Eleven MCL chemical violations and 10 total coliform rule MCL violations exist in PADWIS that are not in SDWIS. Sixteen violations for failure to filter at unfiltered systems show in SDWIS but not in PADWIS. Of these, 12 systems are no longer using surface water. The remaining 4 are at known surface water systems without filtration. Under the lead and copper rule, PADWIS shows 9 treatment technique violations (type 57—failure to do study or recommend treatment) but SDWIS shows only 7 violations (type 58—failure to install treatment). Six of these seven water systems have installed treatment and the enforcement actions in PADWIS will be updated to reflect return to compliance. The state of the one remaining system is being checked. The differences in the significant monitoring and reporting violation counts cannot be reconciled without more detailed listings from SDWIS. The 719 violations at 633 water systems with respect to the Consumer Confidence Report are generated in SDWIS and are not part of this report.

General Statistics

- Total Population of Pennsylvania: 12,281,000
- Percent of Population Served by Individual Wells: 12%
- Percent of Population Served by Community Water Systems: 85%
- 95 of 104 drainage basins in Pennsylvania are used as sources for public water systems. Major river basins include the Delaware, Susquehanna, Potomac and Ohio.
- There are 478 ground water basins in Pennsylvania.
- 8% of the population was covered by source protection programs.
- 90% of all CWSs have received a source water infiltration (SWIP) evaluation.
- There were no confirmed water-borne disease outbreak during 2002
- 2,443 On-Site Assessments (Full Inspections) were performed.
- 99% of the population served by CWSs with surface-water sources or ground water under the direct influence of surface water receive filtered water.
- 83% of all surface-water systems have optimized filtration treatment.
- 97 Filter Plant Performance Evaluations were performed.
- 97% of the population served by CWSs are protected by optimized corrosion control .

- 89% of all children at day-care and school facilities which have their own water supply are protected by optimized corrosion control treatment.
- Over 99% of the population served by CWSs are protected from nitrate/nitrite.
- Over 99% of the population of CWSs are protected from carcinogenic contaminants

Compliance Actions

Action	Number
Compliance Letters	8,227
Consent & Administrative Orders	96
Consent Assessments	20
Boil Water Advisories (Community Systems)	136
Boil Water Advisories (Noncommunity Systems)	82
Civil Penalties Collected	\$286,170

PA PWS Profile - 2002

Figure 1. Number of Systems and Population Served by Size Category

	NUMBER OF PWSs			POPULATION SERVED		
	CWS	NTNC	TNC	CWS	NTNC	TNC
SMALL	1,842	1,235	6,649	954,824	448,302	806,955
MEDIUM	290	10	6	3,557,480	62,453	22,950
LARGE	32	0	0	5,873,276	0	0
TOTAL	2,164	1,245	6,655	10,385,580	510,755	829,905

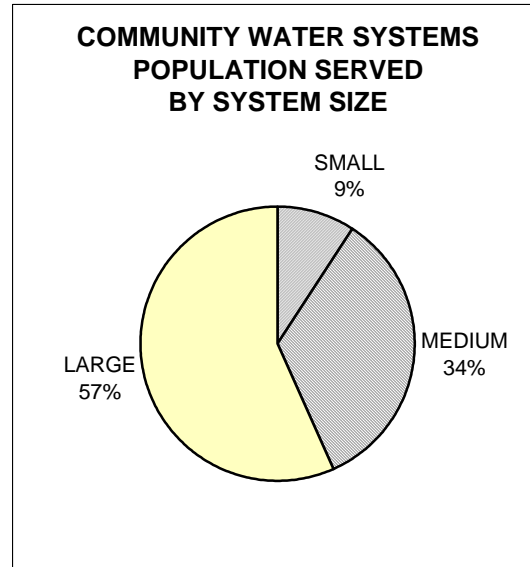
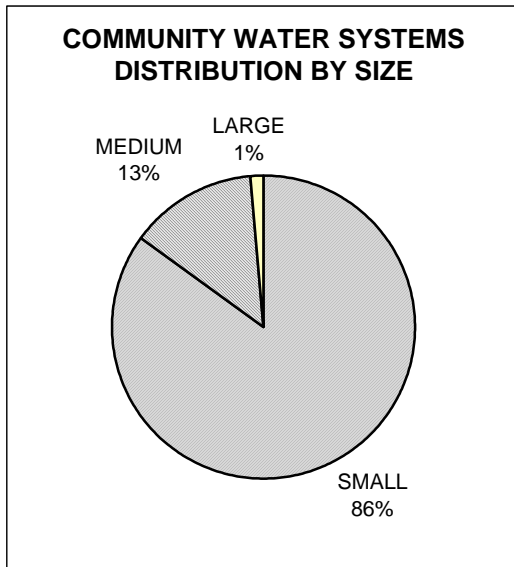


Figure 2. Number of Systems by Source Type

PWSs BY SOURCE AND SYSTEM TYPE								
	CWS		NTNC		TNC		TOTAL	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
GROUND	1,672	77.3%	1,220	98.0%	6,599	99.2%	9,491	94.3%
SURFACE	492	22.7%	25	2.0%	56	0.8%	573	5.7%
TOTAL	2,164	100.0%	1,245	100.0%	6,655	100.0%	10,064	100.0%

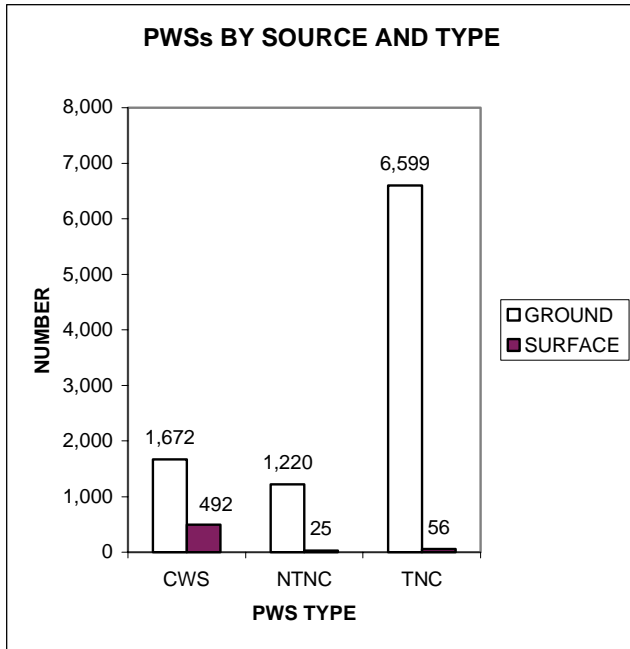
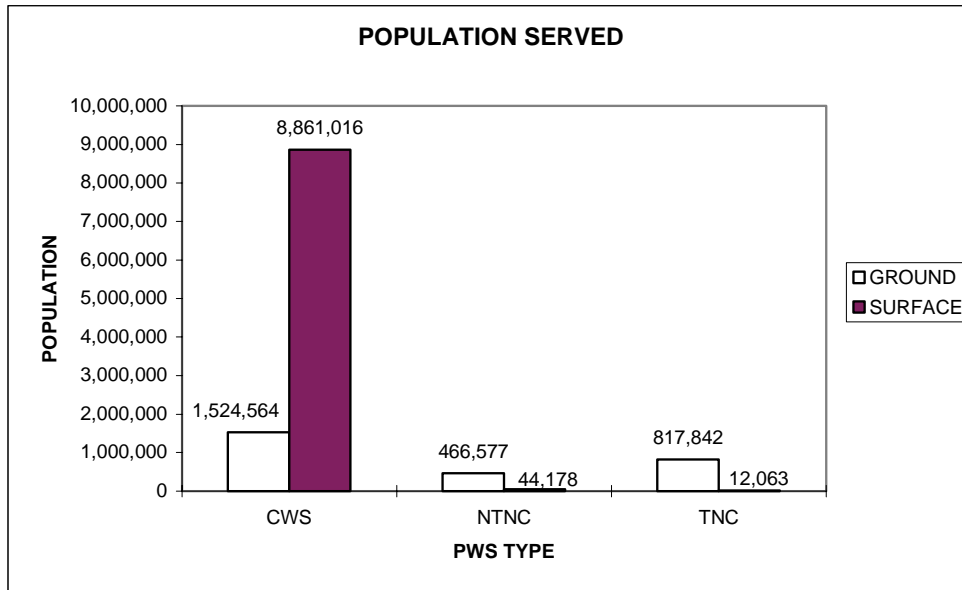


Figure 3. Population Served by Source Type

PWSs BY SOURCE AND SYSTEM TYPE								
	CWS		NTNC		TNC		TOTAL	
	POPL SERVED	PER CENT	POPL SERVED	PER CENT	POPL SERVED	PER CENT	POPL SERVED	PER CENT
GROUND	1,524,564	14.7%	466,577	91.4%	817,842	98.5%	2,808,983	24.0%
SURFACE	8,861,016	85.3%	44,178	8.6%	12,063	1.5%	8,917,257	76.0%
TOTAL	10,385,580	100.0%	510,755	100.0%	829,905	100.0%	11,726,240	100.0%



Summary of Violations

Definitions: The following definitions apply to the Summary of Violations table.

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

Inorganic Contaminants: 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. Pennsylvania reports violations of the Lead and Copper Rule in the following six categories:

Initial lead and copper tap M/R: 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 M/R: 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 which would reduce lead and copper levels in water at the tap. [One number is to be reported for the sum of violations in both categories].

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 (parts 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 four types of radionuclides: radium-226, radium-228, gross alpha, and beta particle/photon radioactivity [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.

Reporting Interval: Annual Compliance Reports are to be submitted to EPA by July 1 for the preceding calendar year.

SDWIS Code: Specific numeric codes from the Safe Drinking Water Information System (SDWIS) have been assigned to each violation type included in this report. The violations to be reported include exceeding contaminant MCLs, failure to comply with treatment requirements, and failure to meet monitoring and reporting requirements. Four-digit SDWIS Contaminant Codes have also been included in the chart for specific MCL contaminants.

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]. The Surface Water Treatment Rule was amended in 2001 to include the Interim Enhanced Surface Water Treatment Rule requirements for surface water and GUDI systems serving at least 10,000 people. 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. [One number is to be reported for the sum of violations in these two categories.]

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].

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

Figure 4.

**Pennsylvania -- SUMMARY OF VIOLATIONS
MCL and MCL Significant Monitoring/Reporting
Annual Compliance Report -- January 1, 2002 to December 31, 2002**

	MCL (mg/L)	MCL Violations		Significant Monitoring/Reporting Violations	
		Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
ORGANIC CONTAMINANTS					
1,1,1-Trichloroethane	0.2	0	0	168	134
1,1,2-Trichloroethane	0.005	0	0	168	134
1,1-Dichloroethylene	0.007	1	1	169	135
1,2-Dichloroethane	0.005	2	1	168	134
1,2-Dichloropropane	0.005	0	0	168	134
1,2 Dibromo-3-Chloropropane (DBCP)	0.0002	0	0	14	8
1,2,4-Trichlorobenzene	0.07	0	0	168	134
2,3,7,8-TCDD (Dioxin)	3X10 ⁻⁶	0	0	0	0
2,4,5-TP (Silvex)	0.05	0	0	0	0
2,4-D	0.07	0	0	18	13
Alachlor (Lasso)	0.002	0	0	18	12
Atrazine	0.003	0	0	21	16
Benzene	0.005	3	2	168	134
Benzo (A) Pyrene	0.0002	0	0	20	12
BHC-gamma (Lindane)	0.0002	0	0	12	7
Carbofuran	0.04	0	0	12	7
Carbon Tetrachloride	0.005	0	0	169	134
Chlordane	0.002	0	0	13	8
cis-1,2-Dichloroethylene	0.07	4	1	169	135
Dalapon	0.2	0	0	0	0
Di(2-Ethylhexyl) Adipate	0.4	0	0	20	12
Di(2-Ethylhexyl) Phthalate	0.006	0	0	21	13
Dichloromethane (Methylene Chloride)	0.005	1	1	167	133
Dinoseb	0.007	0	0	0	0
Diquat	0.02	0	0	1	1
Endothall	0.1	0	0	8	3
Endrin	0.002	0	0	0	0
Ethylbenzene	0.7	0	0	168	134
Ethylene Dibromide (EDB)	0.00005	0	0	13	8
Glyphosate	0.7	0	0	0	0
Heptachlor	0.0004	0	0	0	0
Heptachlor Epoxide	0.0002	0	0	0	0

Pennsylvania Public Water System Compliance Report - 2002

	MCL (mg/L)	MCL Violations		Significant Monitoring/Reporting Violations	
		Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
Hexachlorobenzene (HCB)	0.001	0	0	0	0
Hexachlorocyclopentadiene	0.05	0	0	19	11
Methoxychlor	0.04	0	0	12	7
Monochlorobenzene (Chlorobenzene)	0.1	0	0	168	134
o-Dichlorobenzene	0.6	0	0	168	134
Oxamyl (Vydate)	0.2	0	0	12	7
p-Dichlorobenzene	0.075	0	0	168	134
Pentachlorophenol	0.001	0	0	20	12
Picloram	0.5	0	0	11	6
Simazine	0.004	0	0	20	12
Styrene	0.1	0	0	168	134
Tetrachloroethylene	0.005	8	4	170	136
Toluene	1	0	0	168	134
Total Polychlorinated Biphenyls (PCB)	0.0005	0	0	0	0
Toxaphene	0.003	0	0	0	0
trans-1,2-Dichloroethylene	0.1	0	0	168	134
Trichloroethylene	0.005	8	4	171	136
Vinyl Chloride	0.002	4	1	0	0
Xylenes, Total	10	0	0	172	136
Total trihalomethanes	0.10	0	0	0	0
Subtotal		31	11	3,656	157
INORGANIC CONTAMINANTS					
Antimony, Total	0.006	0	0	4	4
Arsenic	0.05	0	0	4	4
Barium	2	2	2	4	4
Beryllium, Total	0.004	0	0	5	5
Cadmium	0.005	0	0	4	4
Chromium	0.1	0	0	4	4
Cyanide	0.2	0	0	4	4
Fluoride	2	3	1	4	4
Mercury	0.002	0	0	4	4
Nickel	0.1	0	0	4	4
Nitrate	10 (as Nitrogen)	119	85	405	327
Nitrite	1 (as Nitrogen)	0	0	238	206

Pennsylvania Public Water System Compliance Report - 2002

	MCL (mg/L)	MCL Violations		Significant Monitoring/Reporting Violations	
		Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
Selenium	0.05	0	0	4	4
Thallium, Total	0.002	0	0	5	5
Subtotal		124	88	693	367
RADIONUCLIDE CONTAMINANTS					
Combined Radium (-226 & -228)	5 pCi/l	0	0	0	0
Gross Alpha, Excl. Radon & Ura	15 pCi/l	0	0	5	5
Gross Beta & Photo Emitters	Mrem/yr	0	0	1	1
38-Strontium-90	8 pCi/l	0	0	1	1
Tritium	20,000 pCi/l	0	0	1	1
Subtotal		0	0	8	5
Total Chemical Contaminants		155	99	4,357	490
TOTAL COLIFORM RULE					
MCL, Acute	Present	77	77		
MCL, Monthly	Present	415	344		
Monitoring Routine & Repeat Major				1,489	1,083
Subtotal		492	350	1,489	1,083

NOTE: Community and noncommunity water systems are on a four-year sampling cycle for gross alpha due in June 2004.

Figure 5.

**Pennsylvania -- SUMMARY OF VIOLATIONS
Treatment Techniques (TT) and TT Significant Monitoring/Reporting
Annual Compliance Report -- January 1, 2002 to December 31, 2002**

	Treatment Technique Violations		Significant Monitoring/Reporting Violations	
	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
SURFACE WATER TREATMENT RULE/IESWTR				
Filtered systems				
Monitoring, routine/repeat			83	36
Treatment techniques	70	4		
Unfiltered systems				
Monitoring, routine/repeat			30	5
Failure to filter	0	0		
Subtotal	70	4	113	41
LEAD and COPPER RULE				
Initial lead and copper tap M/R			20	20
Follow-up or routine lead and copper tap M/R			2	2
Treatment installation/technique	9	9		
Subtotal	9	9	22	22

Figure 6.

**Pennsylvania -- SUMMARY OF VIOLATIONS
MCL, Treatment Technique, and Significant Monitoring/Reporting
Annual Compliance Report -- January 1, 2002 to December 31, 2002**

	Number of Violations	Number Of Systems
GRAND TOTAL	6,707	1,773

Violations Summary by Violation Type and PWS Type and Size

Figure 7.

**COMMUNITY WATER SYSTEMS
NUMBER OF VALID VIOLATIONS
TOTAL COLIFORM RULE**

	M/R	MCL
SMALL	255	43
MEDIUM	7	5
LARGE	0	0
TOTAL	262	48

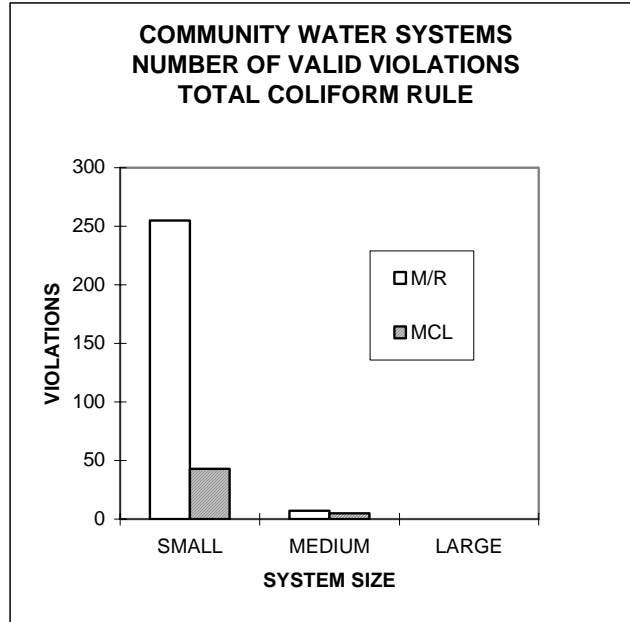


Figure 8.

**COMMUNITY WATER SYSTEMS
NUMBER OF VALID VIOLATIONS
CHEMICALS - RADIONUCLIDES**

	M/R	MCL
SMALL	2,235	28
MEDIUM	230	0
LARGE	23	0
TOTAL	2,488	28

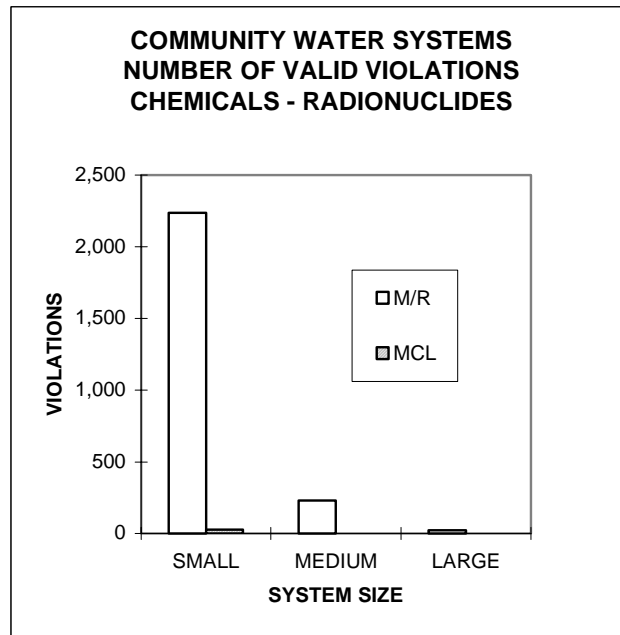


Figure 9.

**COMMUNITY WATER SYSTEMS
NUMBER OF VALID VIOLATIONS
FILTER RULE**

	M/R	TT
SMALL	71	56
MEDIUM	25	14
LARGE	1	0
TOTAL	97	70

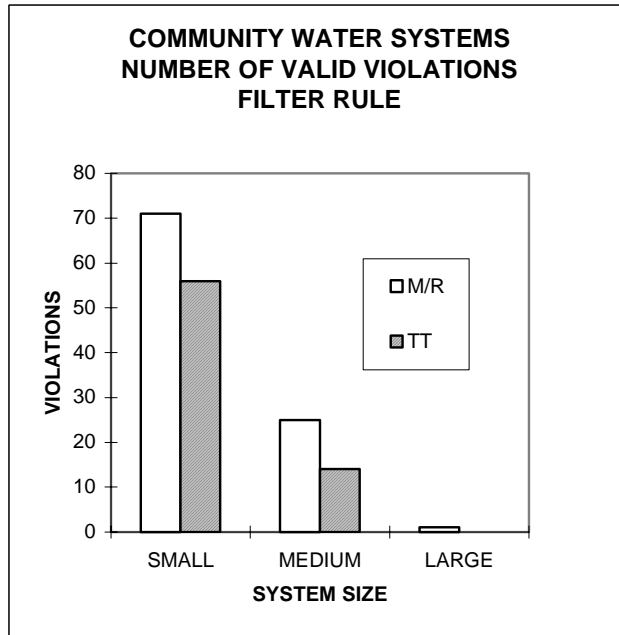


Figure 10.

**COMMUNITY WATER SYSTEMS
NUMBER OF VALID VIOLATIONS
LEAD AND COPPER RULE**

	M/R	TT
SMALL	10	2
MEDIUM	0	0
LARGE	0	0
TOTAL	10	2

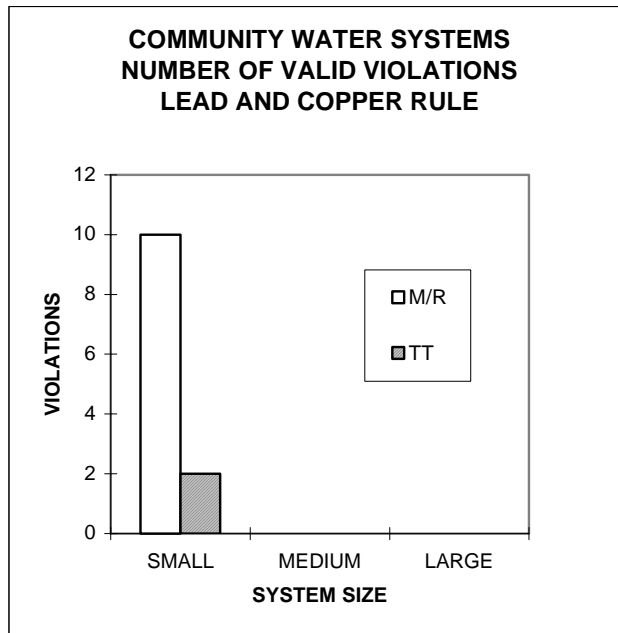


Figure 11.

**NONTRANSIENT NONCOMMUNITY WATER SYSTEMS
NUMBER OF VALID VIOLATIONS**

	M/R	MCL	TT
TCR	92	53	0
CHEM/RAD	1,459	53	0
FILTER	9	0	0
LCR	12	N/A	7
TOTAL	1,572	106	7

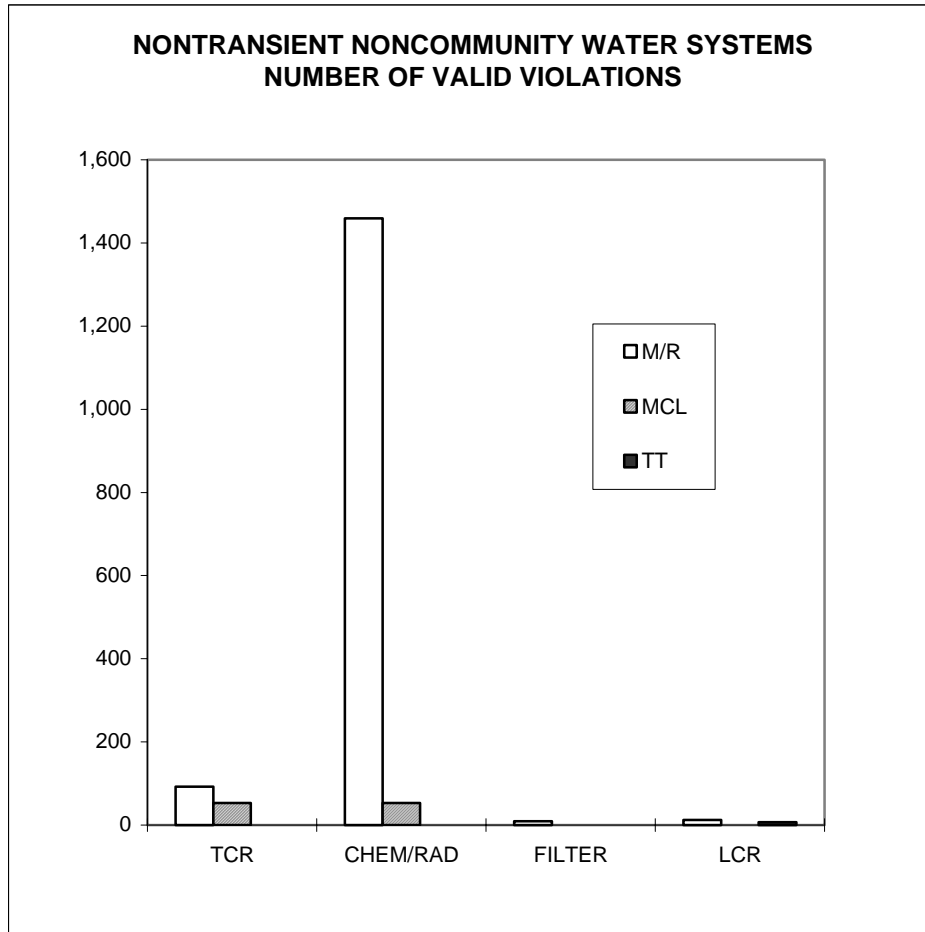
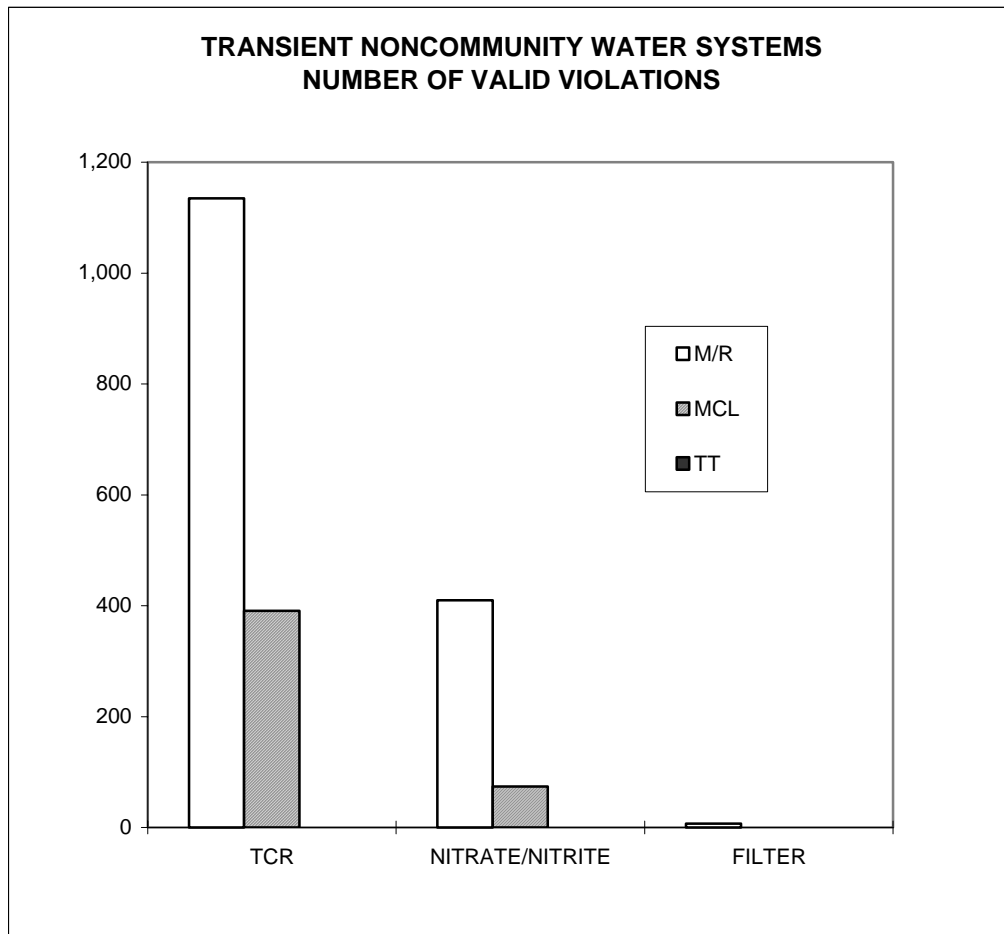


Figure 12.

**TRANSIENT NONCOMMUNITY WATER SYSTEMS
NUMBER OF VALID VIOLATIONS**

	M/R	MCL	TT
TCR	1,135	391	0
NITRATE/NITRITE	410	74	0
FILTER	7	0	0
TOTAL	1,552	465	0



Compliance Rates

Figure 13.

**COMMUNITY WATER SYSTEMS
PERCENT IN COMPLIANCE FOR
MONITORING AND REPORTING**

	SYSTEMS POPULATION	
SMALL	83.6%	84.4%
MEDIUM	90.7%	91.9%
LARGE	90.6%	95.2%

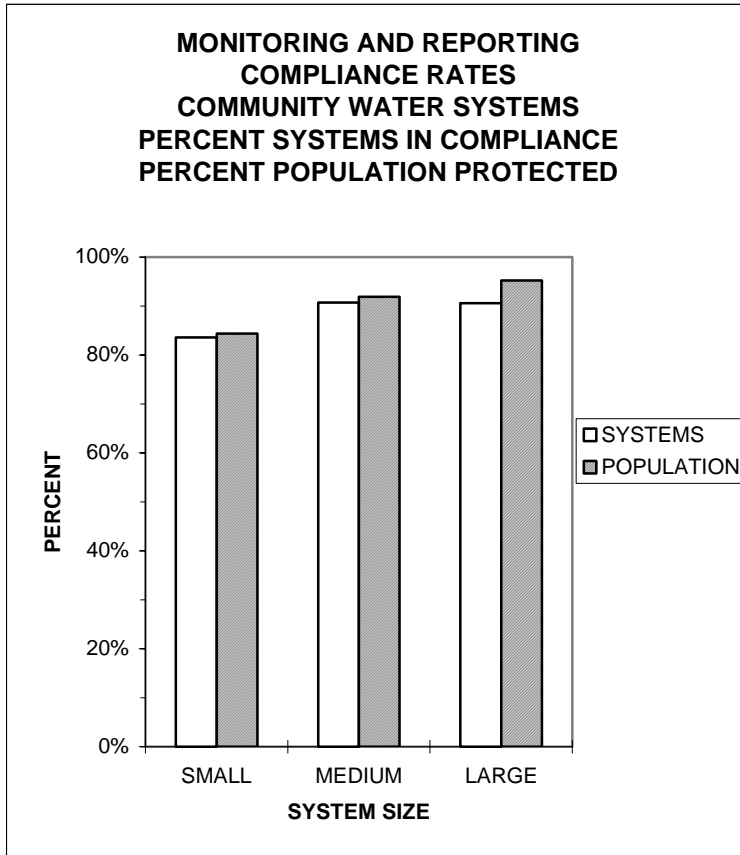


Figure 14.

**COMMUNITY WATER SYSTEMS
PERCENT IN COMPLIANCE FOR
MAXIMUM CONTAMINANT LEVELS**

	SYSTEMS POPULATION	
SMALL	97.3%	97.2%
MEDIUM	98.6%	98.4%
LARGE	100.0%	100.0%

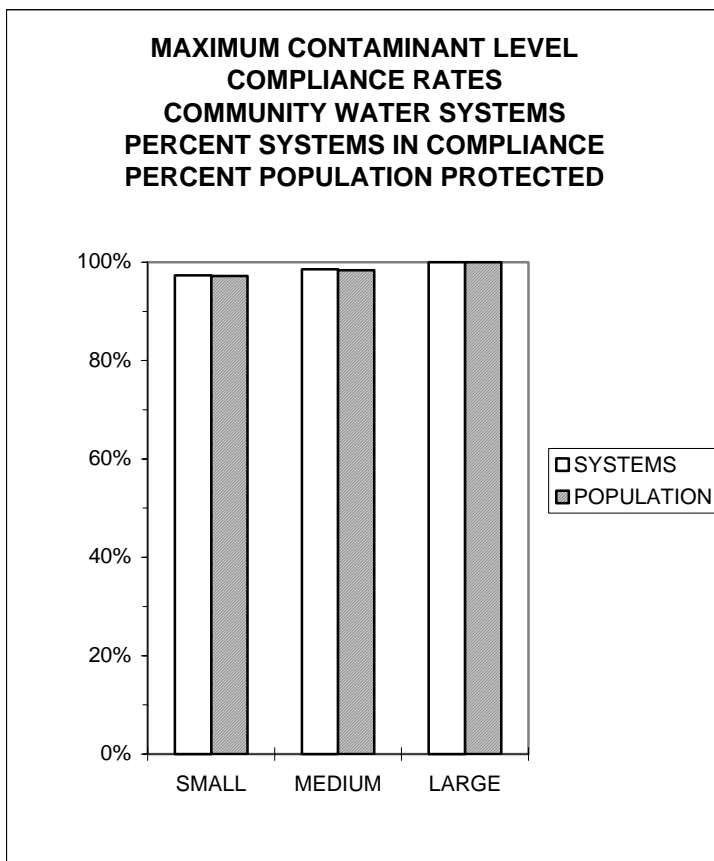


Figure 15.

**COMMUNITY WATER SYSTEMS
PERCENT IN COMPLIANCE FOR
TREATMENT TECHNIQUES**

	SYSTEMS POPULATION	
SMALL	99.8%	99.7%
MEDIUM	99.3%	99.1%
LARGE	100.0%	100.0%

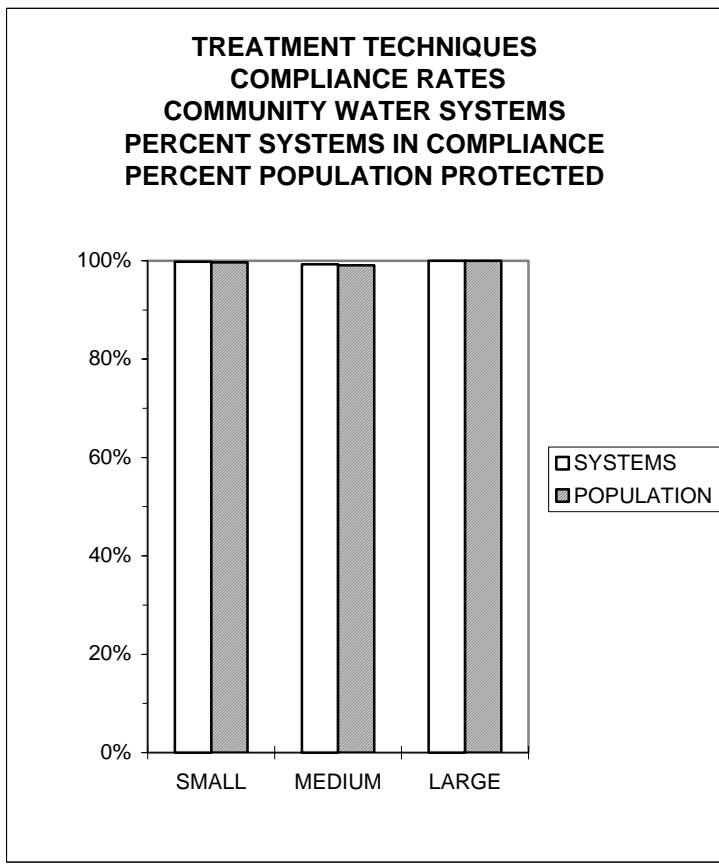


Figure 16.

**NONTRANSIENT NONCOMMUNITY WATER SYSTEMS
PERCENT IN COMPLIANCE**

	SYSTEMS POPULATION	
M/R	86.5%	89.9%
MCL	94.8%	95.0%
TT	99.5%	99.6%

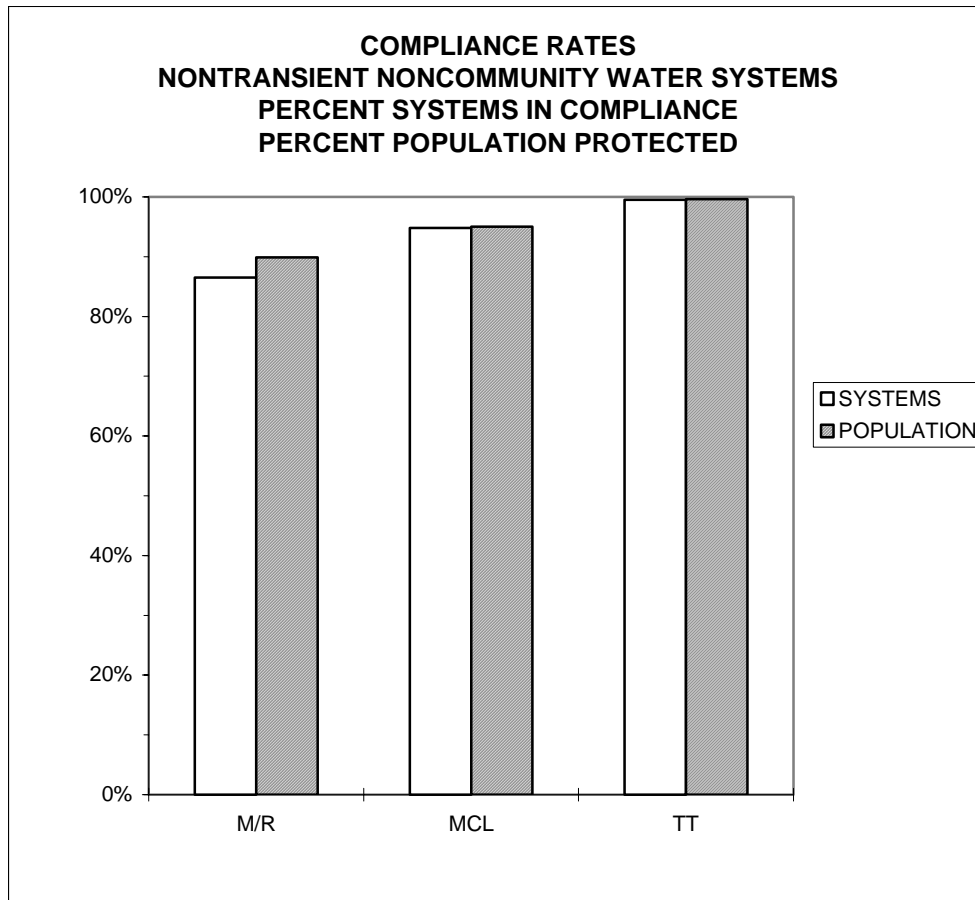


Figure 17.

**TRANSIENT NONCOMMUNITY WATER SYSTEMS
PERCENT IN COMPLIANCE**

	SYSTEMS POPULATION	
M/R	85.8%	87.1%
MCL	95.4%	94.6%
TT	100.0%	100.0%

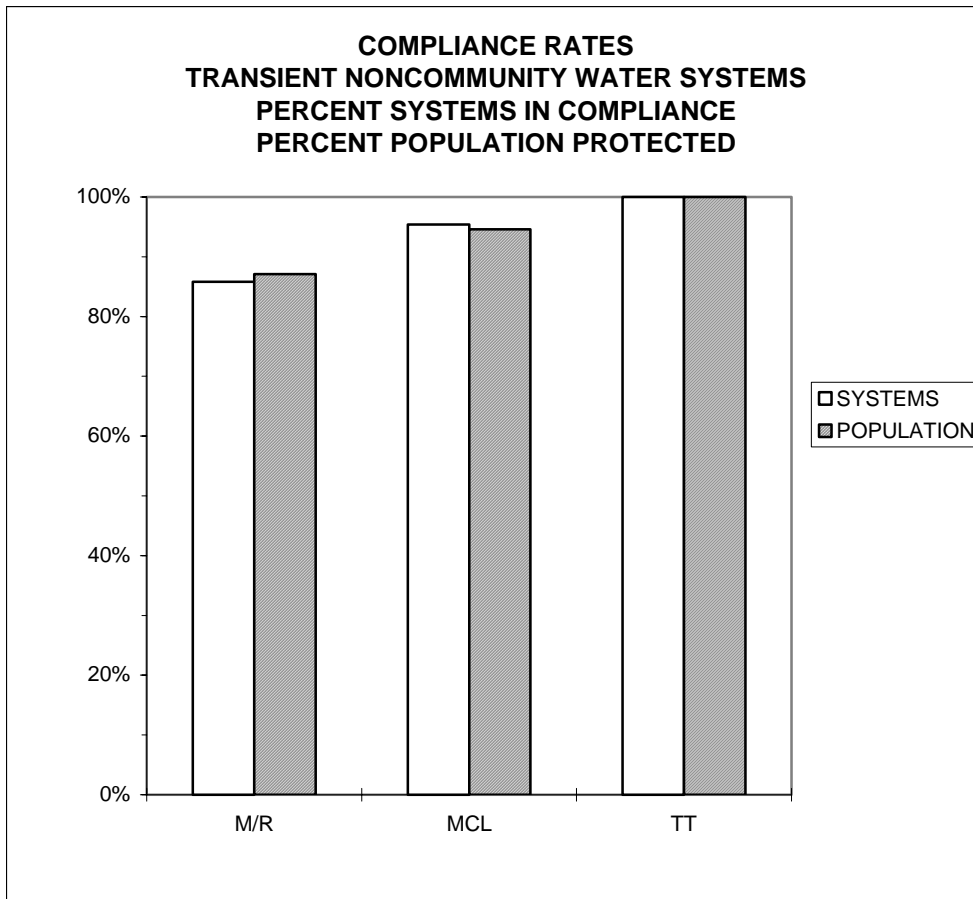
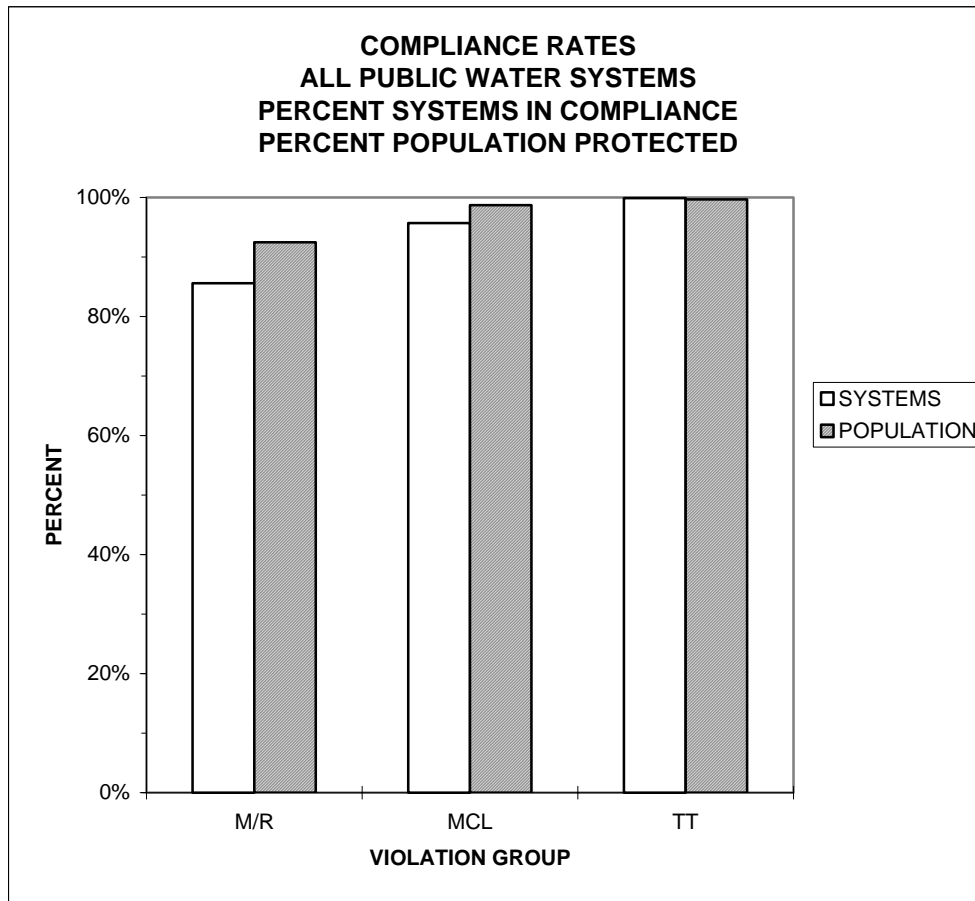


Figure 18.

**ALL PUBLIC WATER SYSTEMS
PERCENT IN COMPLIANCE**

	SYSTEMS POPULATION	
M/R	85.6%	92.5%
MCL	95.7%	98.7%
TT	99.9%	99.7%



3.

Filter Plant Performance

The Pennsylvania DEP has the responsibility of assuring that the drinking water industry delivers a safe and reliable supply of water to consumers through efficiently operated facilities. Water systems that derive some or all of their drinking water from surface water sources (including groundwater under the direct influence of surface water) serve 8.3 million Pennsylvanians as well as millions of visitors to the state. As a result, Pennsylvania has a tremendous interest in the potential for waterborne diseases associated with surface water. Between 1971 and 1980, Pennsylvania reported 20 percent of all waterborne outbreaks in the United States – more than any other state in the nation. Since 1979, eight documented waterborne giardiasis outbreaks and one cryptosporidiosis outbreak have occurred in the Commonwealth. These outbreaks had widespread health implications and cost families, businesses, and local/state governments millions of dollars. While the more significant outbreaks took place among communities that were served unfiltered surface water, the adoption of Pennsylvania’s mandatory surface water filtration regulation has shifted the focus to filtration facilities that use surface water.

DEP uses a detailed assessment called Filter Plant Performance Evaluation (FPPE) to help prevent waterborne disease outbreaks at public water supplies using surface water. The FPPE program involves a method of determining the effectiveness of a water treatment plant in removing disease-causing organisms from the incoming raw water. Of particular concern is the removal of microscopic particles down to the three-micron size. This level of filtration reliability is needed to ensure removal of pathogenic protozoa including *Giardia* and *Cryptosporidium*. Both of these pathogens provide a measure for a filter plant’s capability of protecting consumers from waterborne diseases, since they are some of the more difficult pathogens to remove and inactivate.

During the evaluation process, DEP staff conduct an on-site survey of plant operations and general physical conditions and sample the facility’s raw and filtered water for subsequent microscopic evaluation in the laboratory. DEP rates the plants as “Acceptable” or “Unacceptable” for their ability to remove *Giardia* cysts and *Cryptosporidium* oocysts. In 2003, the rating system will change to “Commendable,” “Satisfactory,” or “Needs Improvement.” Each rating is based on an operational and equipment survey, water quality data, and the microscopic analysis. The purpose of this performance evaluation and rating system is to determine adherence to sound operational practices and proper functioning of the facility, and to also provide oral and written technical assistance for improving the plant’s performance. The program also helps to ensure that water systems are correctly monitoring water quality information as well as helping to reduce violations. Pennsylvania is one of only a handful of states conducting these types of extensive filter plant evaluations.

In light of new research indicating that a higher level of plant performance is necessary to remove pathogens, and in anticipation of more stringent federal regulations, DEP’s on-site FPPE reviews continue to become more rigorous in order to encourage

systems to produce finished water quality that is better than current regulatory standards. Since the program's inception in 1988, this philosophy has positioned Pennsylvania's filter plants for compliance with future regulations and the prevention of waterborne diseases. In fact, the program has been so successful that DEP provided expert training in 1999 to ten additional field staff who are now taking the lead on FPPEs and providing more localized assistance to water systems.

DEP's participation in the Partnership for Safe Water is a complimentary effort to the FPPE program in helping to prevent waterborne diseases. In addition to DEP's evaluation efforts, water systems may voluntarily self-assess and optimize their surface water treatment plants using Partnership tools. DEP's contract with the Pennsylvania Section of the American Water Works Association to encourage filtered water systems to enroll in the program has resulted in membership for 117 of the state's filter plants. Impressively, Pennsylvania has more members than any other state in the nation. Altogether, these filter plants serve over 5.3 million people, which is a large portion of the 8.3 million people served by surface water systems in Pennsylvania.

For Pennsylvanians, the bottom line to these and other efforts is that waterborne diseases are on a steep decline. In fact, waterborne disease outbreaks associated with public drinking water are at an all-time low in Pennsylvania. The US Centers for Disease Control and Prevention (CDC) and the US Environmental Protection Agency released disease information in a summary titled, "Surveillance for Waterborne-Disease Outbreaks" published in a November 2002 *Morbidity and Mortality Weekly Report* (CDC Surveillance Summaries, November 22, 2002 / Vol. 51 / No. SS-8). The summary showed no Pennsylvania waterborne disease outbreaks for 1999 and 2000, which follows previous reports that revealed no outbreaks for 1996 through 1998.

CDC's reports typically lag a few years while the agency compiles and analyzes national outbreak data from all fifty states. The Pennsylvania Department of Health provides DEP with more current information on waterborne disease outbreaks. The health department reported one outbreak in 2001. An outbreak of gastrointestinal illness occurred at a private church camp classified as a transient water system. Nineteen people became ill from a suspected Norwalk-like virus after a storm damaged disinfection facilities at the system's three groundwater wells. No one sought medical care, no one was hospitalized, and there were no deaths. All of the individuals recovered with no lasting ill effects.

Not all outbreaks are recognized, investigated, and then reported to federal agencies. The sensitivity of the disease surveillance system is affected by the following factors: the size of the outbreak; severity of disease caused by the outbreak; public awareness of the outbreak; routine laboratory testing for organisms; requirements for reporting cases of diseases; and resources available to the local health departments for surveillance and investigation of probable outbreaks. Thus, the surveillance system probably underreports the true number of outbreaks because of these factors. With the help of local public health agencies, DEP and the Pennsylvania Department of Health are continuing to even further improve the state's disease detection, investigation and reporting system.

The following graphs represent the yearly performance of Pennsylvania's surface water treatment plants. Pending a major transition in new federal turbidity standards, set to take effect between 2002 and 2005, some of the graphs only contain data through 2001.

Figure 19. *The number of water systems using unfiltered surface water sources has dramatically declined, while the number of filtered surface sources has increased from 204 to 338.*

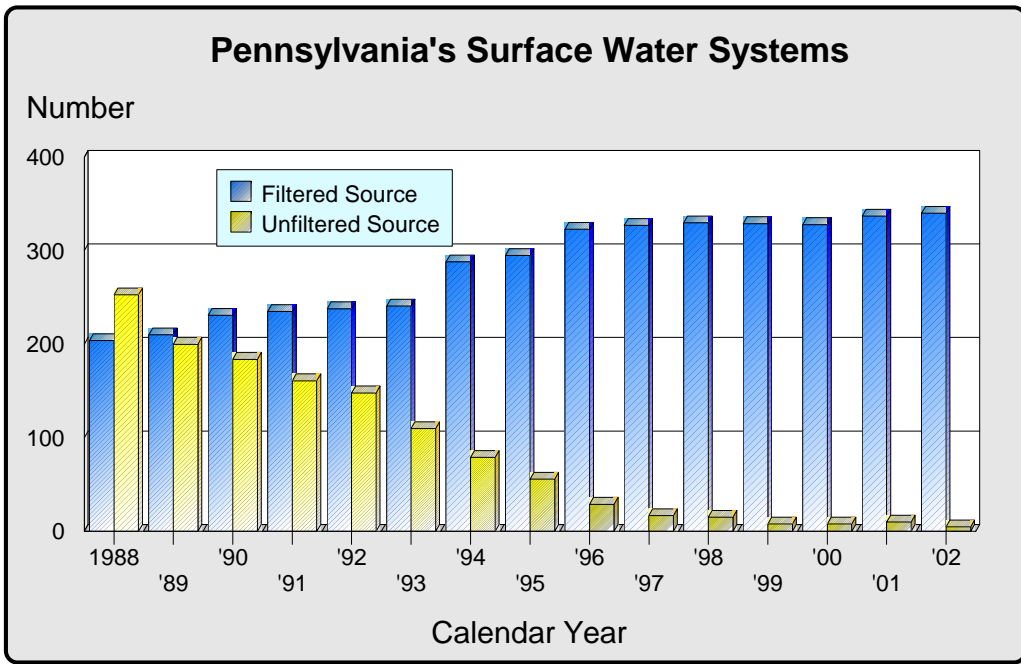
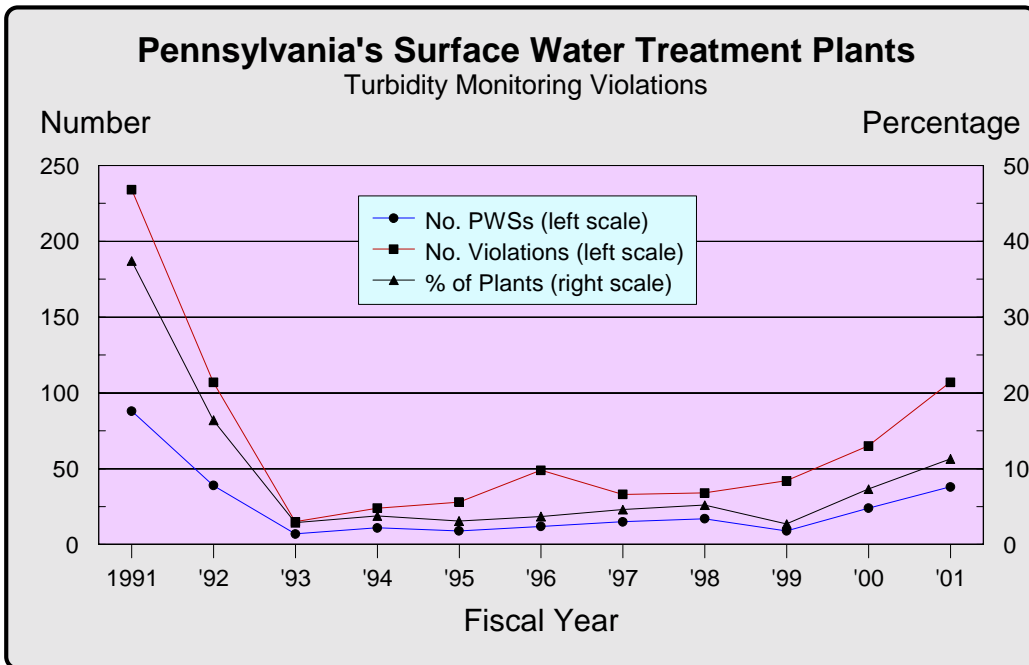
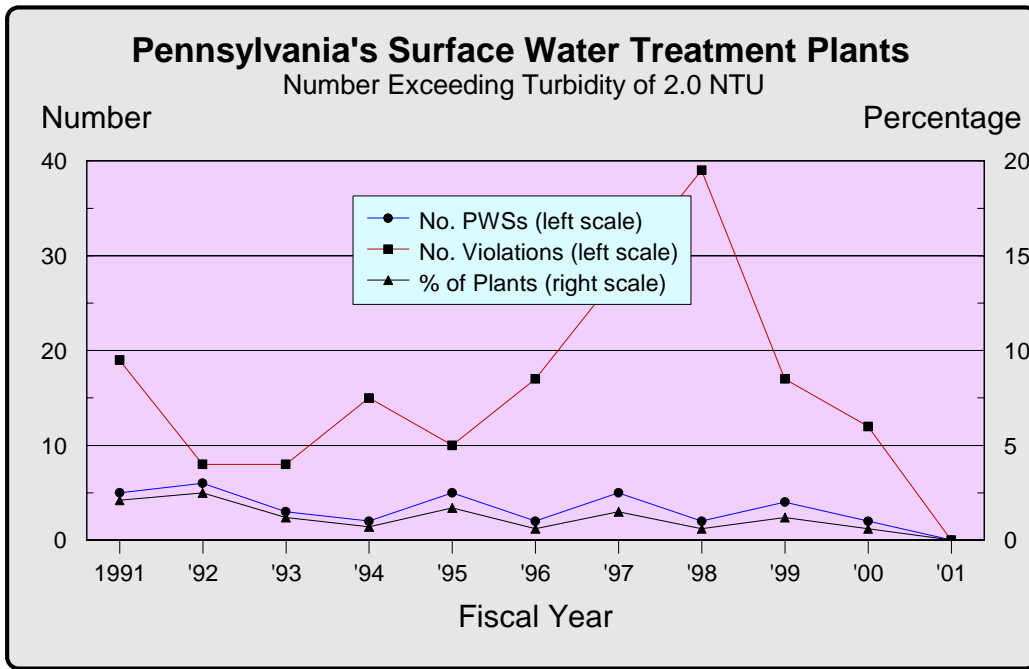
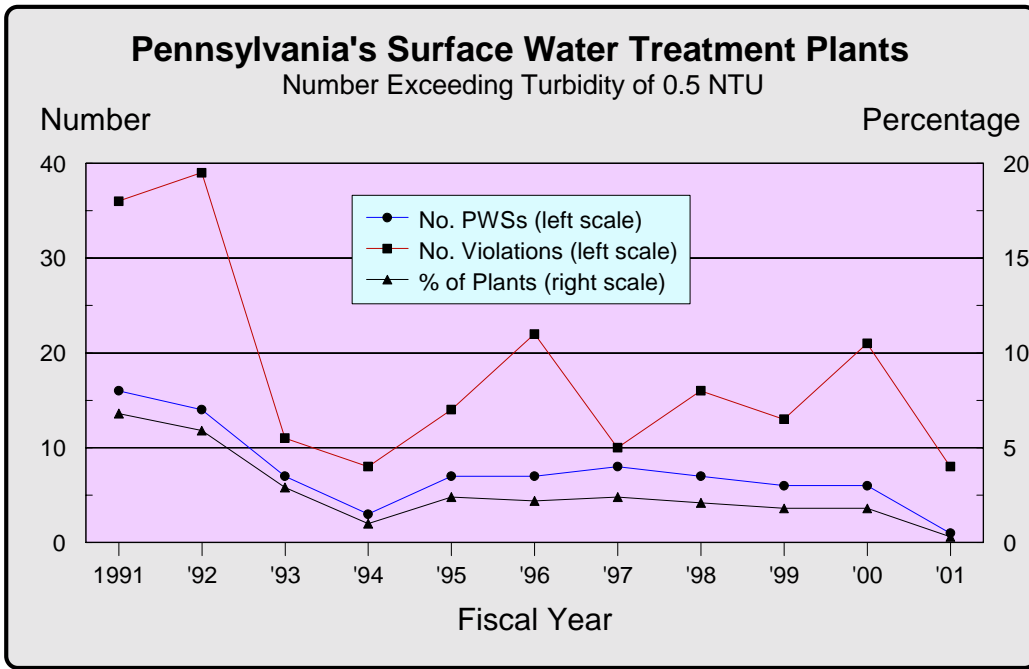


Figure 20. *The percentage of filtered water systems violating turbidity monitoring requirements has decreased dramatically since 1991. However, this type of violation has experienced an increase in the last three years. In 2001, the monitoring violations increased slightly from 7 to 11% over the previous year.*



Figures 21A, 21B. *The percentages of filtered water systems violating the 0.5-NTU and 2.0-NTU turbidity level requirements have decreased to less than 1 percent.*



Figures 22A, 22B. *The percentage of filtered water systems violating entry point disinfectant levels has decreased. Despite the dramatic growth in the number of filter plants over the years, the percentage of plants in violation now stands at about 1 percent.*

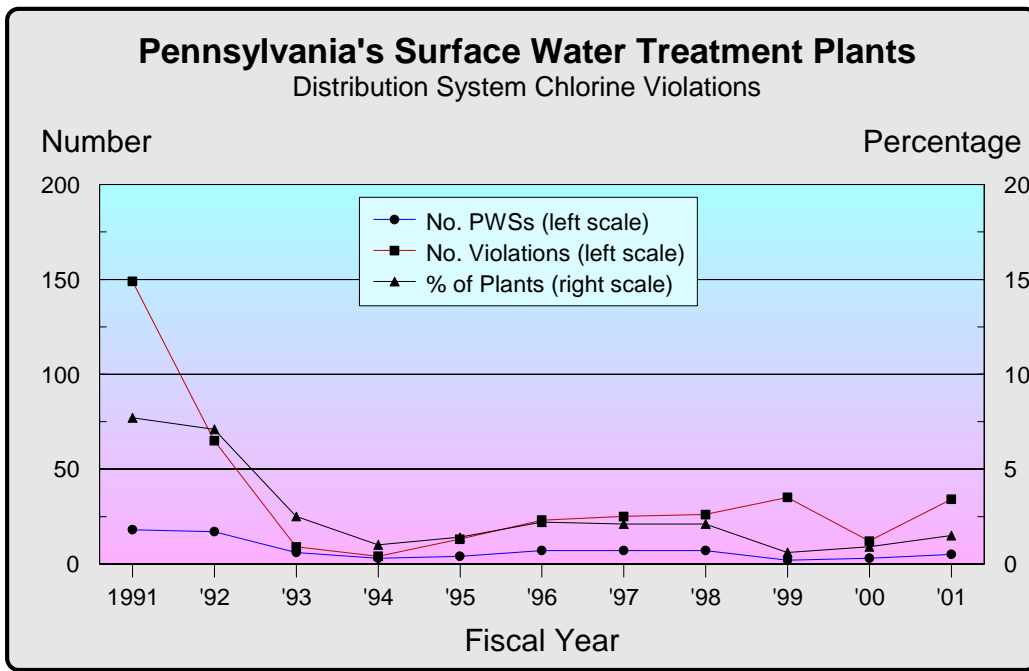
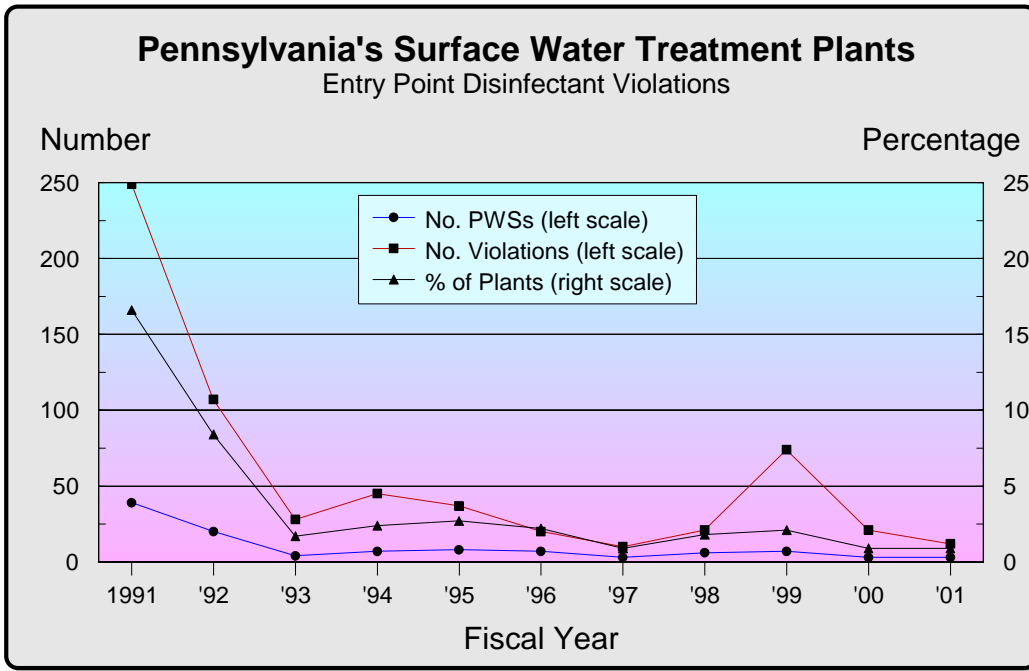


Figure 23. The percentage of filtered water systems violating chlorine monitoring requirements has decreased dramatically since 1991. In 2001, distribution disinfectant violations increased slightly from 10 to 11 percent compared to the previous year.

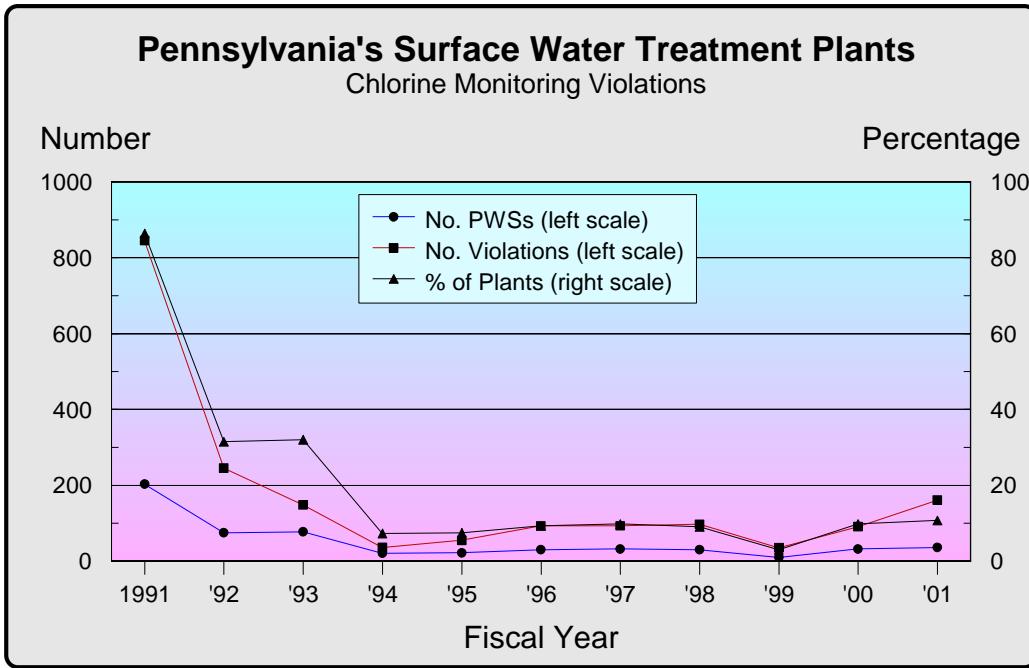


Figure 24. The annual percentage of acceptable ratings during filter plant performance evaluations in Pennsylvania has more than doubled to the current level of 80 percent. In 2002, the number of plants in the state with "acceptable" ratings decreased slightly from 84 to 80 percent. In anticipation of more stringent regulations, the evaluations continue to become more rigorous to encourage systems to produce finished water quality that is better than current regulatory standards.

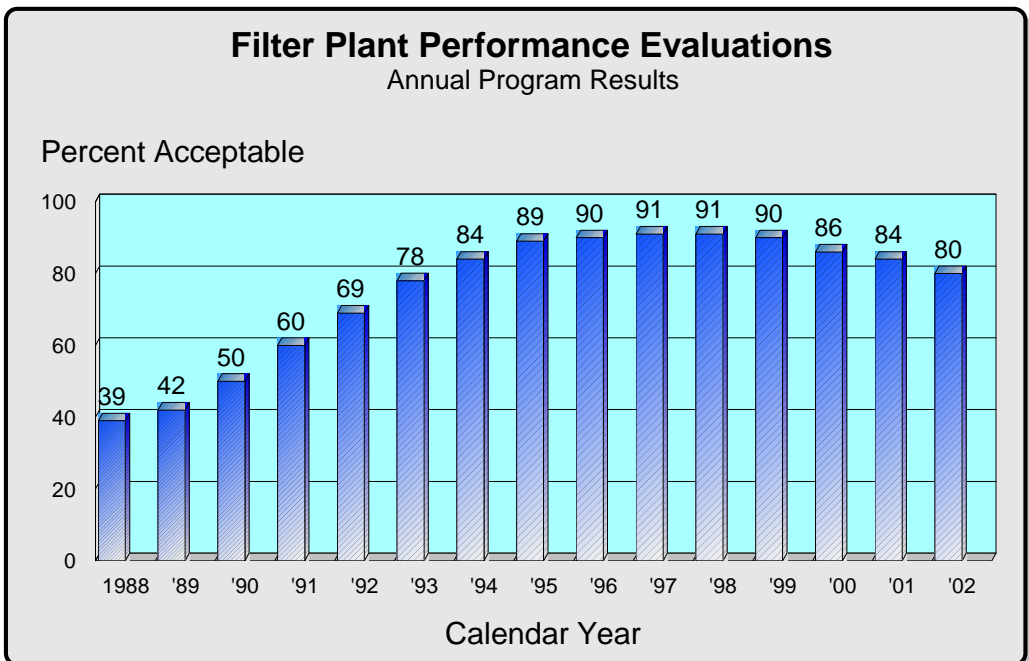


Figure 25. *The current status of ratings in the filter plant performance evaluation program.*

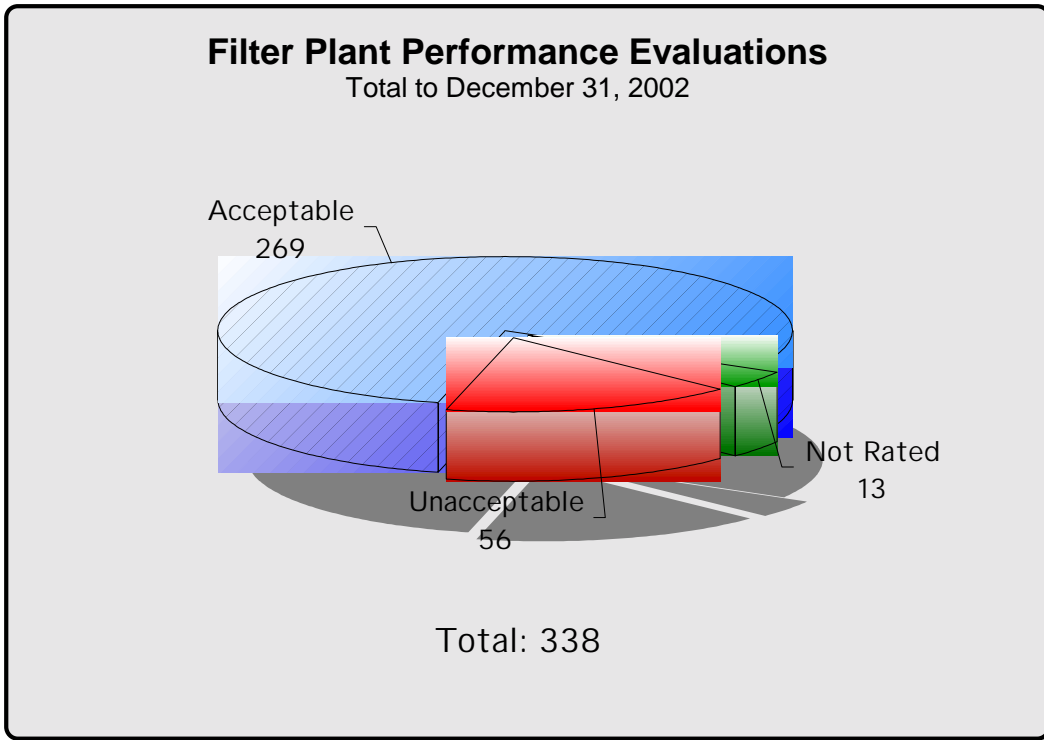
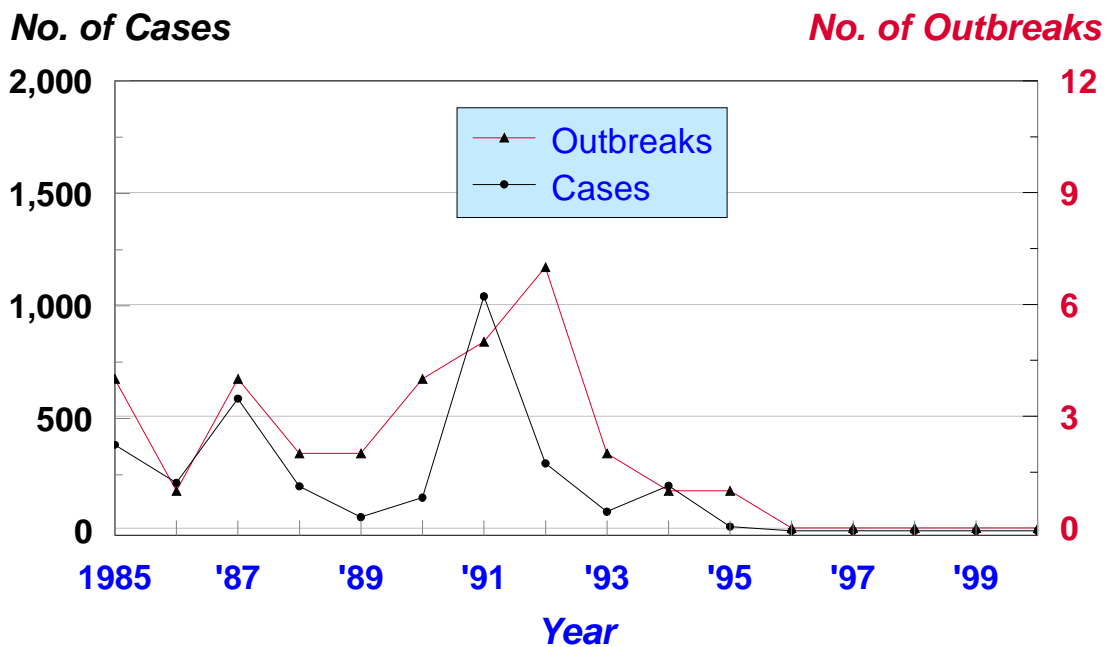


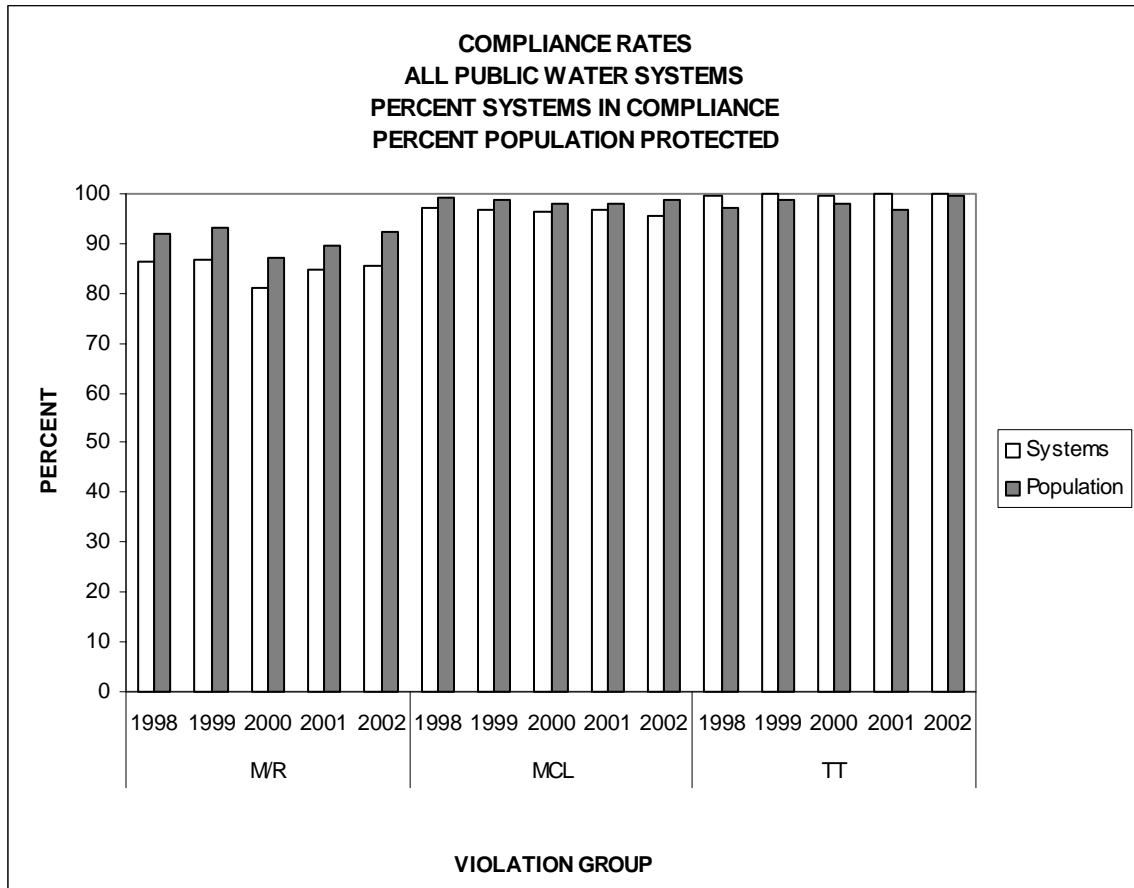
Figure 26. *The US Centers for Disease Control and Prevention and the US Environmental Protection Agency periodically release disease information. The reports typically lag a few years while the agencies compile and analyze national outbreak data from all fifty states. The following graph shows the occurrence of waterborne diseases in Pennsylvania that were caused by viruses, bacteria and protozoa—the three main culprits in disease outbreaks. The graph reveals a declining trend in the number of people (cases) affected by waterborne disease outbreaks. It is especially noteworthy that Pennsylvania's graph flattened out to zero over the last five years of available data.*

Pennsylvania Waterborne Disease Outbreaks



4. Discussion and Conclusion

As evidenced by the facts and figures presented in this report, a large majority of Pennsylvanians received water from public water systems which reported no violations of health-based standards, and for which DEP reported no significant violations of monitoring and reporting requirements in 2002. In fact, the trend in compliance rates over the last 5 years indicates a consistently high compliance rate for all public water systems.



Public water systems maintained a high rate of compliance while facing many challenges in 2002.

Tsunami of New Regulations. Public water systems were required to comply with 4 new regulations in 2002.

- Interim Enhanced Surface Water Treatment Rule
- Disinfectants and Disinfection Byproducts Rule
- Minor Revisions to the Lead and Copper Rule
- Major Revisions to the Public Notification Rule

These rules are just the leading edge of a tsunami of new regulatory initiatives that are being implemented as a result of the 1996 Safe Drinking Water Act (SDWA) Amendments. Systems should expect to see at least a dozen new regulations over the next five years.

Water System Protection. In the aftermath of September 11th, systems continued efforts to assess the potential threats to and protect their infrastructure from acts of terrorism. DEP implemented several initiatives to help water suppliers prevent attacks against their systems as well as provide rapid notice in the event of planned or actual attacks against water systems.

Adverse Effects from Statewide Drought. Systems were challenged to provide an adequate supply of safe drinking water while dealing with the adverse effects of a long-term, statewide drought. During 2002, as many as 19 counties in Pennsylvania were under a drought emergency. In addition, 5 counties reached “drought warning” status, and 31 counties reached “drought watch” status.

In 2002, PA DEP staff remained active in numerous areas such as source water protection; training and technical assistance; security; compliance monitoring; surveillance; and outreach. DEP staff used a number of creative compliance tools, such as monitoring calendars and supplier roundtables, to reach the largest possible number of systems. Other efforts, such as filter plant performance evaluations and the Partnership for Safe Water, were used to optimize the operation of filter plants to consistently and reliably remove disease-causing organisms.

In addition to traditional surveillance and compliance efforts, field staff continued to work toward addressing water system needs before they result in violations. Funding for treatment and infrastructure improvements, wellhead and source water protection, optimization of treatment and regionalization are all tools being used to improve the long-term ability of PWSs in Pennsylvania to comply with current and future requirements.

DEP continued to build on tools added during 2000 in an effort to address water system needs. Under the Source Water Assessment and Protection Program, DEP continued work to access all 14,000 permanent sources of drinking water to identify their

susceptibility to potential sources of contamination. The Capability Enhancement Program continued to be in demand with more than 40 systems participating in the program to date. These efforts have resulted in many visible improvements. They also serve to prevent many violations of both current and future regulations that would adversely impact the quality and quantity of the drinking water being produced in Pennsylvania.

As compliance is a long-term effort, DEP staff continue to work with each and every violator to address violations as they occur. In most instances, these efforts result in a voluntary return to compliance. However, when those efforts fail, progressive levels of compliance and enforcement are used.

PA DEP will continue to develop programs to assist water suppliers in protecting and managing their sources of supply; building technical, managerial, and financial capability; and training and certifying personnel responsible for the day-to-day operations of their drinking water systems. The US Congress enacted sweeping amendments to the federal SDWA that will lend considerable support to DEP's efforts. In addition to establishing a state revolving loan fund for water system improvements, Congress established technical and financial assistance programs to states and suppliers for source water protection, capacity development, and training and outreach activities. These tools will enable DEP to assist Pennsylvania's 10,064 public water systems in delivering a safe and adequate supply of drinking water to their consumers.

Where To Go For Additional Information

For copies of this report or the list of public water systems having MCL violations during 2001 or for additional information about the Pennsylvania Safe Drinking Water Program contact:

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