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Safe Drinking Water Act (SDWA): A Summary of the Act and Its Major Requirements

Mary Tiemann

Specialist in Environmental Policy

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Summary

This report summarizes the Safe Drinking Water Act (SDWA) and its major programs and regulatory requirements. It excerpts, with several additions, the SDWA chapter of CRS Report RL30798, *Environmental Laws: Summaries of Major Statutes Administered by the Environmental Protection Agency*, which provides summaries of the principal environmental statutes administered by the Environmental Protection Agency (EPA). This report includes the drinking water security provisions added to the SDWA by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (P.L. 107-188), and lead reduction provisions as amended by P.L. 111-380. It also outlines amendments made in December 2013 by P.L. 113-64 (H.R. 3588) to explicitly exempt fire hydrants from coverage under the act's lead plumbing restrictions.

The SDWA, Title XIV of the Public Health Service Act, is the key federal law for protecting public water supplies from harmful contaminants. First enacted in 1974 and substantially amended in 1986 and 1996, the act is administered through programs that establish standards and treatment requirements for public water supplies, control underground injection of wastes, finance infrastructure projects, and protect sources of drinking water. The 1974 law established the current federal-state arrangement in which states may be delegated primary implementation and enforcement authority for the drinking water program. The state-administered Public Water Supply Supervision (PWSS) Program remains the basic program for regulating the nation's public water systems, and 49 states have assumed this authority.

The last major reauthorization of the act was done through the Safe Drinking Water Act Amendments of 1996 (P.L. 104-182), which generally authorized appropriations for SDWA programs through FY2003. As with other EPA-administered statutes having expired funding authority, Congress has continued to appropriate funds for the ongoing SDWA programs.

In addition to reviewing key programs and requirements of the SDWA, this report includes statistics on the number and types of regulated public water systems. It also provides a table that lists all major amendments, with the year of enactment and public law number, and that cross-reference sections of the act with the major *U.S. Code* sections of the codified statute.

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Introduction

The Safe Drinking Water Act (SDWA), Title XIV of the Public Health Service Act, is the key federal law for protecting public water supplies from harmful contaminants. First enacted in 1974 and substantially amended in 1986 and 1996, the act is administered through programs that establish standards and treatment requirements for public water supplies, control underground injection of wastes, finance infrastructure projects, and protect sources of drinking water. The 1974 law established the current federal-state arrangement in which states may be delegated primary implementation and enforcement authority for the drinking water program. The state-administered Public Water Supply Supervision (PWSS) Program remains the basic program for regulating the nation's public water systems, and 49 states have assumed this authority. The 1996 SDWA amendments generally authorized appropriations for SDWA programs through FY2003. **Table 1** identifies the original enactment and subsequent amendments.

Table 1. Safe Drinking Water Act and Amendments
(codified generally as 42 U.S.C. 300f-300j)

Year	Act	Public Law Number
1974	Safe Drinking Water Act of 1974	P.L. 93-523
1977	Safe Drinking Water Act Amendments of 1977	P.L. 95-190
1979	Safe Drinking Water Act Amendments	P.L. 96-63
1980	Safe Drinking Water Act Amendments	P.L. 96-502
1986	Safe Drinking Water Act Amendments of 1986	P.L. 99-339
1988	Lead Contamination Control Act of 1988	P.L. 100-572
1996	Safe Drinking Water Act Amendments of 1996	P.L. 104-182
2002	Public Health Security and Bioterrorism Preparedness and Response Act of 2002	P.L. 107-188
2011	Reduction of Lead in Drinking Water Act	P.L. 111-380
2013	Community Fire Safety Act of 2013	P.L. 113-64

This report summarizes the act's major provisions, programs, and requirements, and is adapted from a broader document, CRS Report RL30798, *Environmental Laws: Summaries of Major Statutes Administered by the Environmental Protection Agency*. It also provides selected statistics on the universe of regulated public water systems, and lists references for further information on the act and its implementation. **Table 2**, located at the end of this report, cites the major *U.S. Code* sections of the act and the equivalent sections of the statute.

Background

As indicated by **Table 1**, the Safe Drinking Water Act has been amended several times since enactment of the Safe Drinking Water Act of 1974 (P.L. 93-523). Congress passed this law after nationwide studies of community water systems revealed widespread water quality problems and health risks resulting from poor operating procedures, inadequate facilities, and uneven

management of public water supplies in communities of all sizes. The 1974 law gave the EPA substantial discretionary authority to regulate drinking water contaminants and gave states the lead role in implementation and enforcement.

The first major amendments (P.L. 99-339), enacted in 1986, were largely intended to increase the pace at which the EPA regulated contaminants and to increase the protection of ground water. From 1974 until 1986, the EPA had regulated just one additional contaminant beyond the 22 standards previously developed by the Public Health Service. The 1986 amendments required the EPA to (1) issue regulations for 83 specified contaminants by June 1989 and for 25 more contaminants every three years thereafter, (2) promulgate requirements for disinfection and filtration of public water supplies, (3) ban the use of lead pipes and lead solder in new drinking water systems, (4) establish an elective wellhead protection program around public wells, (5) establish a demonstration grant program for state and local authorities having designated sole-source aquifers to develop ground water protection programs, and (6) issue rules for monitoring injection wells that inject wastes below a drinking water source. The amendments also increased EPA's enforcement authority.

Congress again amended SDWA with the Lead Contamination Control Act of 1988 (P.L. 100-572). These provisions were intended to reduce exposure to lead in drinking water by requiring the recall of lead-lined water coolers, and requiring the EPA to issue a guidance document and testing protocol for states to help schools and day care centers identify and correct lead contamination in school drinking water.

After the regulatory schedule mandated in the 1986 amendments proved to be unworkable for the EPA, states, and public water systems, the 104th Congress made sweeping changes to the act with the SDWA Amendments of 1996 (P.L. 104-182). As over-arching themes, the amendments targeted resources to address the greatest health risks, added some regulatory flexibility, provided funding for federal drinking water mandates, and aimed to improve water system compliance capacity. Congress revoked the requirement that the EPA regulate 25 new contaminants every three years and created a risk-based approach for selecting contaminants for regulation.

Among other changes, Congress added some flexibility to the standard setting process, required the EPA to conduct health risk reduction and cost analyses for new rules, authorized a drinking water state revolving loan fund (DWSRF) program to help water systems finance projects needed to meet SDWA requirements, added programs to improve small system compliance, expanded consumer information requirements, increased the act's focus on pollution prevention through a voluntary source water protection program, and streamlined the act's enforcement provisions. P.L. 104-182 extended authorizations for appropriations under the act through FY2003.

In 2002, several drinking water security provisions were added to the SDWA through the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (P.L. 107-188). Title IV of the act included requirements for community water systems serving more than 3,300 individuals to conduct vulnerability assessments and prepare emergency response plans. The law also required the EPA to conduct research on preventing and responding to terrorist or other attacks.

Regulated Public Water Systems

Federal drinking water regulations apply to the approximately 152,700 privately and publicly owned water systems that provide piped water for human consumption to at least 15 service connections or that regularly serve at least 25 people. These water systems vary greatly in size and type, ranging from large municipal systems to homeowner associations, schools, and campgrounds.

More than 51,350 of the regulated public water systems are *community water systems* (CWS) that serve the same residences year-round. These water systems provide water to approximately 299 million people. All federal regulations apply to these systems. Most community water systems (82%) are relatively small, serving 3,300 people or fewer. Despite this large percentage, these systems provide water to just 9% of the total population served by community water systems. In contrast, 8% of CWS serve populations of 10,000 or more, but provide water to 82% of the population served (more than 246 million individuals). Among the community water systems, 77% rely on ground water and 23% rely on surface water.

Another 18,178 public water systems are *non-transient non-community water systems* (NTNCWS), such as schools or factories, which have their own water supply and generally serve the same individuals for more than six months but not year-round. Most drinking water regulations apply to these systems. Of these water systems, 99% are small or very small, and provide water to 83% of the population served by these systems.

Nearly 83,200 other public water systems are *transient non-community water systems* (TNCWS), such as campgrounds and gas stations, which provide their own water to transitory customers. Only regulations for contaminants that pose immediate health risks apply to these systems.¹

Approximately 95,700 of the nearly 101,400 non-community water systems (transient and non-transient systems combined) serve 500 or fewer people. These statistics give some insight into the scope of technological, economic, and managerial challenges small public water systems may face in meeting federal drinking water regulations. (**Figure 1** provides statistics on community water systems, non-transient non-community water systems, and transient non-community water systems.)

¹ EPA's long-standing policy is to exclude transient systems from drinking water regulations except for those contaminants, such as nitrate, that the EPA believes have the potential to cause immediate adverse human health effects resulting from short-term exposure. (Source: Environmental Protection Agency. National Primary Drinking Water Regulation on Lead and Copper, minor revisions. January 12, 2000 (65 *Federal Register* 1950).)

Figure I. Public Water System Statistics
(water systems regulated under the SDWA)

		Water System Population Size Category					Totals
		Very Small 500 or less	Small 501-3,300	Medium 3,301-10,000	Large 10,001-100,000	Very Large >100,000	
CWS	# Systems	28,3462	13,737	4,936	3,802	419	51,356
	Pop. Served	4,763,672	19,661,787	28,737,564	108,770,014	137,283,104	299,216,141
	% of Systems	55%	27%	10%	7%	1%	100%
	% Of Pop.	2%	7%	10%	36%	46%	100%
NTNCWS	# Systems	15,461	2,566	132	18	1	18,178
	Pop. Served	2,164,594	2,674,694	705,320	441,827	203,000	6,189,435
	% of Systems	85%	14%	1%	0%	0%	100%
	% Of Pop.	35%	43%	11%	7%	3%	100%
TNCWS	# Systems	80,347	2,726	92	13	1	83,179
	Pop. Served	7,171,054	2,630,931	514,925	334,715	2,000,000	12,651,625
	% of Systems	97%	3%	0%	0%	0%	100%
	% Of Pop.	57%	21%	4%	3%	16%	100%
Total # of Systems		124,270	19,029	5,160	3,833	421	152,713

Source: U.S. Environmental Protection Agency, Fiscal Year 2011 Drinking Water and Ground Water Statistics, EPA 816-R-13-003, March 2013, p. 8, <http://water.epa.gov/scitech/datait/databases/drink/sdwisfed/upload/epa816r13003.pdf>.

Notes: EPA has established three broad categories of public water systems. A community water system (CWS) serves the same population year-round. A non-transient non-community water system (NTNCWS) regularly supplies water to at least 25 of the same people at least six months per year, but not year-round (e.g., schools, factories, office buildings, and hospitals that have their own water systems). Transient non-community water systems (TNCWS) provide water in places where people do not remain for long periods of time, such as gas stations and campgrounds.

National Drinking Water Regulations

A key component of SDWA is the requirement that the EPA promulgate national primary drinking water regulations for contaminants that may pose health risks and that are likely to be present in public water supplies. Section 1412 instructs the EPA on how to select contaminants for regulation and specifies how the EPA must establish regulations once a contaminant has been selected. The regulations apply to the roughly 168,000 privately and publicly owned water systems that provide piped water for human consumption to at least 15 service connections or that regularly serve at least 25 people. The EPA has issued regulations for more than 90 contaminants, including regulations setting new standards for drinking water disinfectants and their byproducts and for microbial contaminants, a regulation establishing a standard for uranium in drinking water, and a regulation revising the standard for arsenic.

Contaminant Selection and Regulatory Schedules

Section 1412, as amended in 1996, directs the EPA to select contaminants for regulatory consideration based on occurrence, health effects, and meaningful opportunity for health risk reduction. Starting in 1998 and then every five years, the EPA must publish a list of contaminants

that may warrant regulation. As of 2001, and every five years thereafter, the EPA must determine whether or not to regulate at least five of the listed contaminants. The act requires the EPA to evaluate contaminants that present the greatest health concern and to regulate those contaminants that occur at concentration levels and frequencies of public health concern. The amendments also included schedules for the EPA to complete regulations for specific contaminants (i.e., radon, arsenic, disinfectants and disinfection byproducts and *Cryptosporidium*).

Standard Setting

For each contaminant that the EPA determines requires regulation, the EPA must set a nonenforceable maximum contaminant level goal (MCLG) at a level at which no known or anticipated adverse health effects occur and which allows an adequate margin of safety. The EPA must then set an enforceable standard, a maximum contaminant level (MCL), as close to the MCLG as is “feasible” using best technology, treatment techniques, or other means available (taking costs into consideration). The agency generally sets standards based on technologies that are affordable for large communities; however, as amended by P.L. 104-182, the act requires EPA, when issuing a regulation for a contaminant, to list any technologies or other means that comply with the MCL and that are affordable for small public water systems serving populations of 10,000 or fewer. If the EPA does not identify “compliance” technologies that are affordable for small systems, then it must identify small system “variance” technologies or other means that may not achieve the MCL but are protective of public health.

The 1996 amendments authorized the EPA to set a standard at other than the feasible level if the feasible level would lead to an increase in health risks by increasing the concentration of other contaminants or by interfering with the treatment processes used to comply with other SDWA regulations. In such cases, the standard or treatment techniques must minimize the overall health risk. Also, when proposing a regulation, the EPA now must publish a determination as to whether or not the benefits of the standard justify the costs. If the EPA determines that the benefits do not justify the costs, the agency may, with certain exceptions, promulgate a standard that maximizes health risk reduction benefits at a cost that is justified by the benefits.²

New regulations generally become effective three years after promulgation. Up to two additional years may be allowed if the EPA (or a state in the case of an individual system) determines the time is needed for capital improvements. (Section 1448 outlines procedures for judicial review of EPA actions involving the establishment of SDWA regulations and other final EPA actions.)

Risk Assessment

The 1996 amendments also added risk assessment and risk communication provisions to SDWA. When developing regulations, the EPA is required to (1) use the best available, peer-reviewed science and supporting studies and data; and (2) make publicly available a risk assessment document that discusses estimated risks, uncertainties, and studies used in the assessment. When proposing drinking water regulations, the EPA must publish a health risk reduction and cost analysis (HRRCA). The EPA may promulgate an interim standard without first preparing this

² For a discussion of EPA regulation of contaminants under the revised process, see, for example, U.S. Government Accountability Office, *EPA Should Improve Implementation of Requirements on Whether to Regulate Additional Contaminants*, GAO-11-254, May 27, 2011, 146 p. <http://www.gao.gov/products/GAO-11-254>.

benefit-cost analysis or making a determination as to whether the benefits of a regulation would justify the costs if the Administrator determines that a contaminant presents an urgent threat to public health.

Variations and Exemptions

In anticipation that some systems, particularly smaller ones, could have difficulty complying with every regulation, Congress included in SDWA provisions for variations and exemptions. Section 1415 authorizes a state to grant a public water system a *variance* from a standard if raw water quality prevents meeting the standard despite application of best technology, and the variance does not result in an unreasonable risk to health.

Subsection 1415(e) authorizes variations specifically for small systems, based on application of best affordable technology. When developing a regulation, if the EPA cannot identify a technology that meets the standard and is affordable for small systems, the EPA must identify variance technologies that are affordable but do not necessarily meet the standard. In cases where the EPA has identified variance technologies, then states may grant small system variations to systems serving 3,300 or fewer persons if the system cannot afford to comply with a standard (through treatment, an alternative water source, or restructuring) and the variance ensures adequate protection of public health. A state may then grant a variance to a small system, allowing the system to use a variance technology to comply with a regulation. With EPA approval, states also may grant variations to systems serving between 3,301 and 10,000 persons. Variations are not available for microbial contaminants. *The EPA has determined that affordable compliance technologies are available for all existing standards. Thus, small system variations are not available.*

Section 1416 authorizes states to grant public water systems temporary *exemptions* from standards or treatment techniques if a system cannot comply for other compelling reasons (including costs). An exemption is intended to give a water system more time to comply with a regulation and can be issued only if it will not result in an unreasonable health risk. A qualified system may receive an exemption for up to three years beyond the compliance deadline. Systems serving 3,300 or fewer persons may receive a maximum of three additional two-year extensions, for a total exemption duration of nine years.

State Primacy

Section 1413 authorizes states to assume primary oversight and enforcement responsibility (primacy) for public water systems. To assume primacy, states must adopt regulations at least as stringent as national requirements, develop adequate procedures for enforcement (including conducting monitoring and inspections), adopt authority for administrative penalties, and maintain records and make reports as EPA may require. States also must develop a plan for providing safe drinking water under emergency circumstances. Currently, 55 of 57 states and territories have primacy authority for the public water system supervision (PWSS) program.

Under Section 1443, Congress authorized appropriations of \$100 million annually for the EPA to make grants to states to administer the PWSS program. This section directs the EPA, in accordance with regulations, to allot the sums among the states “on the basis of population, geographical area, number of public water systems, and other relevant factors.” States are

authorized to use a portion of their drinking water state revolving fund grant (under Section 1452) to cover the costs of administering the PWSS program.

Enforcement, Consumer Information, and Citizen Suits

The Safe Drinking Water Act requires public water systems to monitor their water supplies to ensure compliance with drinking water standards and to report monitoring results to the states. States review monitoring data submitted by public water systems, and also conduct their own monitoring, to determine system compliance with drinking water regulations. The EPA monitors public water system compliance primarily by reviewing the violation data submitted by the states.

Section 1414 requires that, whenever the EPA finds that a public water system in a state with primary enforcement authority does not comply with regulations, the agency must notify the state and the system and provide assistance to bring the system into compliance. If the state fails to commence enforcement action within 30 days after the notification, the EPA is authorized to issue an administrative order or commence a civil action. In a nonprimacy state, the EPA must notify an elected local official (if any has jurisdiction over the water system) before commencing an enforcement action against the system.

The 1996 amendments strengthened enforcement authorities, streamlined the process for issuing federal administrative orders, increased administrative penalty amounts, made more sections of the act clearly subject to EPA enforcement, and required states (as a condition of primacy) to have administrative penalty authority. The amendments also provided that no enforcement action may be taken against a public water system that has a plan to consolidate with another system.³

Consumer Information and Reports

Enforcement provisions also require public water systems to notify customers of violations of drinking water standards or other requirements, such as monitoring and reporting requirements. Systems must notify customers within 24 hours of any violations that have the potential to cause serious health effects. Additionally, community water systems must mail to all customers an annual “consumer confidence report” on contaminants detected in their drinking water. States are required to prepare annual reports on the compliance of public water systems and to make summaries available to the EPA and the public; the EPA must prepare annual national compliance reports (§1414(c)).

³ For enforcement information and statistics, see U.S. Environmental Protection Agency, *Providing Safe Drinking Water in America: 2011 National Public Water Systems Compliance Report*, Office of Enforcement and Compliance Assurance, EPA document No. 305R13002. May 16, 2011, 94 p., <http://www.epa.gov/compliance/resources/reports/accomplishments/sdwa/sdwacom2011.pdf>.

Citizen Suits

Section 1449 provides for citizens' civil actions. Citizen suits may be brought against any person or agency allegedly in violation of provisions of the act, or against the EPA Administrator for alleged failure to perform any action or duty which is not discretionary.

Compliance Improvement Programs

The 1996 amendments added two state-administered programs aimed at improving public water system compliance with drinking water regulations: the operator certification program and the capacity development program. Section 1419 required states to adopt programs for training and certifying operators of community and non-transient non-community systems (e.g., schools and workplaces that have their own wells). The EPA is required to withhold 20% of a state's annual DWSRF grant, unless the state has adopted and implements an operator certification program. Relatedly, Section 1420 required states to establish capacity development programs, also based on EPA guidance. Congress specified that the programs must include (1) legal authority to ensure that new systems have the technical, financial, and managerial capacity to meet SDWA requirements; and (2) a strategy to assist existing systems that are experiencing difficulties to come into compliance. The EPA is required to withhold a portion of SRF grants from states that do not have capacity development strategies. The agency has not had to withhold funds under either of these programs.

Ground Water Protection Programs

Most public water systems rely on ground water as a source of drinking water, and Part C of the act focuses on ground water protection.⁴ Section 1421 authorized the establishment of state underground injection control (UIC) programs to protect underground sources of drinking water (USDWs). In 1977, the EPA issued mandated regulations that contained minimum requirements for state UIC programs to prevent underground injection that endangers drinking water sources, and that required states to prohibit any underground injection not authorized by state permit. The law specified that the regulations could not interfere with the underground injection of brine from oil and gas production or recovery of oil unless underground sources of drinking water would be affected.⁵

Section 1422 authorized affected states to submit plans to the EPA for implementing UIC programs and, if approved, to assume primary enforcement responsibility. If a state's plan has not been approved, or the state has chosen not to assume program responsibility, then the EPA must implement the program (§1423). For oil and gas injection operations only, states with UIC programs are delegated primary enforcement authority without meeting EPA regulations under Section 1421, provided states demonstrate that they have an effective program that prevents

⁴ According to the EPA, of roughly 156,600 public water systems, 142,400 rely on ground water and 14,200 rely on surface water. Among roughly 51,700 community water systems, 40,000 rely on ground water and 11,700 rely on surface water.

⁵ The Energy Policy Act of 2005 (P.L. 109-58, §322) amended SDWA Section 1421(d) to specify that the definition of "underground injection" excludes the injection of fluids or propping agents (other than diesel fuels) used in hydraulic fracturing operations related to oil, gas, or geothermal production activities.

underground injection that endangers drinking water sources (§1425, added in 1980). EPA has delegated primacy for all classes of wells to 34 states; it shares implementation responsibility in six states, and implements the UIC program for all well classes in 10 states.

To implement this program, EPA placed UIC wells in five classes based on similarity in the fluids injected, and construction, injection depth, design, and operating techniques, and issued regulations that establish performance criteria for each class.⁶ In 2008, the agency proposed a rule to establish a new Class VI well for use in the underground injection of carbon dioxide. Class VI wells would be used for the long-term geologic sequestration of carbon dioxide as a tool for mitigating greenhouse gas emissions from coal-fired power plants and other large stationary sources of carbon dioxide.

A separate ground water protection provision, Subsection 1424(e), authorizes the EPA to make determinations, on EPA's initiative or upon petition, that an aquifer is the sole or principal drinking water source for an area. In areas that overlie a designated sole-source aquifer, no federal funding may be committed for projects that the EPA determines may contaminate such an aquifer. Any person may petition for sole source aquifer designation. Nationwide, the EPA had designated 73 sole source aquifers.

The act contains three other state programs aimed specifically at protecting ground water. Added in 1986, Section 1427 established procedures for demonstration programs to develop, implement, and assess critical aquifer protection areas already designated by the Administrator as sole source aquifers. Section 1428, also added in 1986, established an elective state program for protecting wellhead areas around public water system wells. If a state established a wellhead protection program by 1989, and the EPA approved the state's program, then the EPA may award grants covering between 50% and 90% of the costs of implementing the program. In 1996, Congress added Section 1429, authorizing the EPA to make 50% grants to states to develop programs to ensure coordinated and comprehensive protection of ground water within the states. For these programs, appropriations were authorized through FY2003 as follows: \$15 million per year for Section 1427, \$30 million per year for Section 1428, and \$15 million per year for Section 1429.

Source Water Assessment and Protection Programs

The 1996 amendments expanded the act's pollution prevention focus to embrace protection of surface water, as well as ground water. Section 1453 required the EPA to publish guidance for states to implement source water assessment programs that delineate boundaries of the areas from which systems receive water, and identify the origins of contaminants in those areas to determine systems' susceptibility to contamination. States with approved assessment programs may adopt alternative monitoring requirements for water systems, as provided for in Section 1418.

⁶ The wells are classified as follows: Class I (inject hazardous wastes, industrial non-hazardous liquids, or municipal wastewater beneath the lowermost USDW); Class II (inject brines and other fluids associated with oil and gas production, and hydrocarbons for storage); Class III (inject fluids associated with solution mining of minerals beneath the lowermost USDW); Class IV (inject hazardous or radioactive wastes into or above USDWs and generally are banned); Class V (all injection wells not covered under other classes—many of these wells inject non-hazardous fluids into or above USDWs, and are typically shallow, on-site disposal systems), and Class VI (inject carbon dioxide (CO₂) for long-term geologic sequestration to reduce atmospheric emissions of CO₂ from industrial sources).

Section 1454 authorized a source water petition program based on voluntary partnerships between state and local governments. States may establish a program under which a community water system or local government may submit a petition to the state requesting assistance in developing a voluntary source water quality protection partnership to (1) reduce the presence of contaminants in drinking water, (2) receive financial or technical assistance, and (3) develop a long-term source water protection strategy. This section authorized \$5 million each year for grants to states to support petition programs. Also, states may use up to 10% of their DWSRF grant to support various source water protection activities including the petition program.

State Revolving Funds

In 1996, Congress authorized a drinking water state revolving loan fund (DWSRF) program to help systems finance improvements needed to comply with SDWA regulations (§1452). The EPA is authorized to make grants to states to capitalize DWSRFs, which states then may use to make loans to public water systems. States must match 20% of the federal grant. Grants are allotted based on the results of needs surveys.⁷ Each state and the District of Columbia must receive at least 1% of the appropriated funds.

Drinking water SRFs may be used to provide loans for expenditures that the EPA has determined will facilitate compliance or significantly further the act's health protection objectives. States must make available 15% of their annual allotment for loan assistance to systems that serve 10,000 or fewer persons, to the extent that funds can be obligated for eligible projects. States may use up to 30% of their DWSRF grant to provide loan subsidies (including forgiveness of principal) to help economically disadvantaged communities. Also, states may use a portion of funds for technical assistance, source water protection and capacity development programs, and for operator certification.

The law authorized appropriations of \$599 million for FY1994 and \$1 billion per year for FY1995 through FY2003 for DWSRF capitalization grants. The EPA was directed to reserve, from annual DWSRF appropriations, 0.33% for financial assistance to several Trusts and Territories, \$10 million for health effects research on drinking water contaminants, \$2 million for the costs of monitoring for unregulated contaminants, and up to 2% for technical assistance. The EPA may use 1.5% of funds each year for making grants to Indian Tribes and Alaska Native villages.⁸

Drinking Water Security

The 107th Congress passed the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (P.L. 107-188) to address a wide range of security issues. Title IV of the Bioterrorism Act amended SDWA to address threats to drinking water security. Key provisions are summarized below.

⁷ See U.S. Environmental Protection Agency, *Drinking Water Infrastructure Needs Survey and Assessment: Fifth Report to Congress*, Office of Water, EPA 816-R-13-006, April 2013, 70 p., http://water.epa.gov/grants_funding/dwsrf/upload/epa816r13006.pdf.

⁸ For more information, CRS Report RS22037, *Drinking Water State Revolving Fund (DWSRF): Program Overview and Issues*, by Mary Tiemann.

Vulnerability Assessments

Under new SDWA Section 1433, each community water system serving more than 3,300 people was required to conduct an assessment of the system's vulnerability to terrorist attacks or other intentional acts intended to disrupt the provision of a safe and reliable drinking water supply. This provision established deadlines, based on system size, for community water systems to certify to the EPA that they had conducted a vulnerability assessment and to submit to the EPA a copy of the assessment. Section 1433 exempted the contents of the vulnerability assessments from disclosure under the Freedom of Information Act (except for information contained in the certification identifying the system and the date of the certification), and it provides for civil and criminal penalties for inappropriate disclosure of information by government officials.

Section 1433 further required each of these community water systems to prepare an emergency response plan incorporating the results of the vulnerability assessment. The EPA was directed to provide guidance to smaller systems on how to conduct vulnerability assessments, prepare emergency response plans, and address threats.

Section 1433(e) authorized the appropriation of \$160 million for FY2002, and such sums as may be necessary for FY2003 through FY2005, to provide financial assistance to community water systems to conduct vulnerability assessments, to prepare response plans, and for expenses and contracts to address basic security enhancements and significant threats.

The Bioterrorism Act also added Sections 1434 and 1435 to SDWA, directing the Administrator to review methods by which terrorists or others could contaminate or otherwise disrupt the provision of safe water supplies. These provisions require the EPA to review methods for preventing, detecting, and responding to such disruptions, and methods for providing alternative drinking water supplies if a water system was destroyed or impaired. Section 1435(e) authorized \$15 million for FY2002, and such sums as may be necessary for FY2003 through FY2005 to carry out Sections 1434 and 1435.

Emergency Powers

Under Section 1431, the Administrator has emergency powers to issue orders and commence civil action if (1) a contaminant likely to enter a public drinking water supply system poses a substantial threat to public health, and (2) state or local officials have not taken adequate action. The Bioterrorism Act amended this section to specify that EPA's emergency powers include the authority to act when there is a threatened or potential terrorist attack or other intentional act to disrupt the provision of safe drinking water or to impact the safety of a community's drinking water supply.

Tampering with Public Water Systems

Section 1432 provides for civil and criminal penalties against any person who tampers, attempts to tamper, or makes a threat to tamper with a public water system. Amendments made by the Bioterrorism Act increased criminal and civil penalties for tampering, attempting to tamper, or making threats to tamper with public water supplies. The maximum prison sentence for tampering increased from 5 to 20 years. The maximum prison sentence for attempting to tamper, or making threats to tamper, increased from 3 to 10 years. The maximum fine that may be imposed for

tampering increased from \$50,000 to \$1 million. The maximum fine for attempting to tamper, or threatening to tamper, increased from \$20,000 to \$100,000.

Emergency Assistance

SDWA Subsection 1442(b) authorizes the EPA to provide technical assistance and to make grants to states and public water systems to assist in responding to and alleviating emergency situations. The Bioterrorism Act amended Subsection 1442(d) to authorize appropriations for such emergency assistance of not more than \$35 million for FY2002, and such sums as may be necessary for each fiscal year thereafter.

Additional SDWA Provisions

Lead-Free Plumbing

Section 1417 broadly prohibits the use of any pipe, any pipe or plumbing fitting or fixture, solder, or flux in the installation or repair of public water systems or plumbing in residential or nonresidential facilities providing drinking water that is not “lead free” (as defined in the act). This section also makes it unlawful to sell solder or flux that is not lead-free (unless it is properly labeled), or pipes, plumbing fittings, or fixtures that are not lead-free, with the exception of pipes used in manufacturing or industrial processing or other specific exceptions.⁹ Added in 1986, Section 1417(d) defined “lead free” to mean not more than 0.2% lead for solders and fluxes, and not more than 8% lead for pipes and pipe fittings. In 1996, Congress added Section 1417(e), directing EPA to issue regulations setting health-based performance standards limiting the amount of lead that may leach from new plumbing fittings and fixtures unless a voluntary industry standard was established within one year of enactment. An industry standard was established.

Enacted January 4, 2011, the Reduction of Lead in Drinking Water Act (P.L. 111-380) amended Section 1417 to revise the SDWA definition of “lead free” and to add new exemptions from prohibitions on the use or sale of lead pipes, plumbing, and fittings and fixtures. The act reduced the allowable level of lead in products in contact with drinking water from 8.0% to 0.25% (weighted average),¹⁰ and exempted from the general prohibitions “(A) pipes, pipe fittings, plumbing fittings, or fixtures, including backflow preventers, that are *used exclusively for nonpotable services* such as ... industrial processing, irrigation, outdoor watering or any other uses where the water is not anticipated to be used for human consumption”; and (B) various specified products including tub fillers, shower valves, service saddles, or water distribution main gate valves at least 2 inches in diameter. (Italics added.)

⁹ 42 U.S.C. 300g-6. From 1986 through January 3, 2014, “lead free” under SDWA Section 1417(d) was defined to mean not more than 0.2% lead for solders and fluxes, and not more than 8% lead for pipes and pipe fittings. The 1996 SDWA amendments further provided that, for plumbing fittings and fixtures, “lead free” referred to plumbing fittings and fixtures in compliance with industry standards established under Section 1417(e).

¹⁰ As amended in 2011, Section 1417(d) defines “lead free” to mean “(A) not containing more than 0.2% lead when used with respect to solder and flux (unchanged from existing law); and (2) not more than a weighted average of 0.25% lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.” P.L. 111-380 established a formula to calculate the weighted average lead content of a pipe, pipe fitting, plumbing fitting, or fixture.

P.L. 111-380 removed the reference to Section 1417(e), which required that plumbing fittings and fixtures “intended by the manufacturer to dispense water for human ingestion” must comply with the industry standard; rather, these products became subject to the definition of “lead free” in Section 1417(d). The provisions of P.L. 111-380 became effective on January 4, 2014, and any product that does not meet the 0.25% lead limit may no longer be sold or installed, unless exempt from the general prohibitions.

In October 2013, EPA announced that fire hydrants would not qualify for the exclusion for pipes, fittings, and fixtures used exclusively for non-potable services and, thus, would be required to meet the new lead-free standards.¹¹ In December 2013, the House and Senate passed H.R. 3588, the Community Fire Safety Act of 2013, to amend the SDWA to clearly exempt fire hydrants from coverage under Section 1417. The President signed the bill into law (P.L. 113-64) on December 20, 2013. P.L. 113-64 also directs EPA to (1) consult with the National Drinking Water Advisory Council on potential revisions to the SDWA regulations for lead, and (2) request the Council to consider lead sources throughout the drinking water distribution system, including components used to reroute water during repairs.¹²

Research, Technical Assistance, and Training

Section 1442 authorizes the EPA to conduct research, studies, and demonstrations related to the causes, treatment, control, and prevention of diseases resulting from contaminants in water. The agency is directed to provide technical assistance to the states and municipalities in administering their public water system regulatory responsibilities. This section authorized \$15 million annually for technical assistance to small systems and Indian Tribes, and \$25 million for health effects research. (Title II of P.L. 104-182, the 1996 amendments, authorized additional appropriations for drinking water research, not to exceed \$26.6 million annually for FY1997 through FY2003.)

Demonstration Grants

The Administrator may make grants to develop and demonstrate new technologies for providing safe drinking water and to investigate health implications involved in the reclamation/reuse of waste waters (§1444).

Records, Inspections, and Monitoring

Section 1445 states that persons subject to requirements under SDWA must establish and maintain records, conduct water monitoring, and provide any information that the Administrator may require by regulation to carry out the requirements of the act. Section 1445(b) authorizes the Administrator or a representative, after notifying the state in writing, to enter and inspect the property of water suppliers or other persons subject to the act’s requirements, to determine whether the person is in compliance with the act. Failure to comply with these provisions may result in civil penalties.

¹¹ U.S. Environmental Protection Agency, *Summary of the Reduction of Lead in Drinking Water Act and Frequently Asked Questions*, EPA 815-S-13-001, October 2013, p. 5.

¹² For more information, see CRS Report INB00006, *Lead-Free Requirements for Fire Hydrants*, by Mary Tiemann.

This section also directs the EPA to promulgate regulations establishing the criteria for a monitoring program for unregulated contaminants. Beginning in 1999 and every five years thereafter, the EPA must issue a list of not more than 30 unregulated contaminants to be monitored by public water systems. States are permitted to develop representative monitoring plan to assess the occurrence of unregulated contaminants in small systems, and the section authorized \$10 million to be appropriated for each of FY1999 through FY2003 to provide grants to cover the costs of monitoring for small systems. All monitoring results are to be included in a national drinking water occurrence data base created under the 1996 amendments.

National Drinking Water Advisory Council

The act established a National Drinking Water Advisory Council, composed of 15 members (with at least two representing rural systems), to advise, consult, and make recommendations to the Administrator on activities and policies derived from the act (§1446).

Federal Agencies

Any federal agency having jurisdiction over federally owned public water systems must comply with all federal, state and local drinking water requirements as well as any underground injection control programs. The act provides for waivers in the interest of national security (§1447).

Assistance to Colonias¹³

Added in 1996, Section 1456 authorized the EPA and other appropriate federal agencies to award grants to Arizona, California, New Mexico, and Texas to provide assistance (not more than 50% of project costs) to *colonias* where the residents are subject to a significant health risk attributable to the lack of access to an adequate and affordable drinking water system. Congress authorized appropriations of \$25 million for each of fiscal years 1997 through 1999.

Estrogenic Substances

Section 1547 authorized the EPA to use the estrogenic substances screening program created in the Food Quality Protection Act of 1996 (P.L. 104-170) to provide for testing of substances that may be found in drinking water if the Administrator determines that a substantial population may be exposed to such substances.

Drinking Water Studies

Section 1458 directed the EPA to conduct drinking water studies involving subpopulations at greater risk and biological mechanisms. EPA also was directed to conduct studies to support specific regulations, including those for disinfectants and disinfection byproducts and *Cryptosporidium*.

¹³ Colonias generally are described as unincorporated communities or housing developments on the U.S. side of the U.S.-Mexico border that lack some or all basic infrastructure including plumbing and public water and sewer.

Selected P.L. 104-182 Provisions Not Amending SDWA

The 104th Congress included a variety of drinking water-related provisions in the 1996 SDWA Amendments that did not amend the Safe Drinking Water Act. Several of these provisions are described below.

Transfer of Funds

Section 302 authorized states to transfer as much as 33% of their annual drinking water state revolving fund grant to the Clean Water Act (CWA) SRF, or an equivalent amount from the CWA SRF to the DWSRF through FY2001. In several subsequent conference reports for EPA appropriations, Congress authorized states to continue making transfers between the two funds, and in P.L. 109-54, Congress made this authority permanent.¹⁴

Grants to Alaska

Section 303 of the 1996 amendments authorized the EPA to make grants to the State of Alaska to pay 50% of the costs of improving sanitation for rural and Alaska Native villages. Grants are for construction of public water and wastewater systems, and for training and technical assistance programs. Appropriations were authorized at \$15 million for each of fiscal years 1997 through 2000. (In P.L. 106-457, Congress reauthorized appropriations for these rural sanitation grants at a level of \$40 million for each of fiscal years 2001 through 2005.)

Bottled Water

Section 305 revised Section 410 of the Federal Food, Drug, and Cosmetic Act to require the Secretary of Health and Human Services to issue bottled drinking water standards for contaminants regulated under SDWA within 180 days after the EPA promulgates the new standards, unless the Secretary determines that a standard is not necessary.

Wastewater Assistance to Colonias

Section 307 authorized EPA to make grants to colonias for wastewater treatment works. Appropriations were authorized at \$25 million for each of fiscal years 1997 through 1999.

Additional Infrastructure Funding

Section 401 authorized additional assistance, up to \$50 million for each of fiscal years 1997 through 2003, for a grant program for infrastructure and watershed protection projects.

¹⁴ The Department of the Interior, Environment, and Related Agencies Appropriations Act, 2006, P.L. 109-54, Title II, August 2, 2005, 119 Stat. 530, provided “That for fiscal year 2006 and thereafter, State authority under section 302(a) of P.L. 104-182 shall remain in effect.”

**Table 2. U.S. Code Sections of the Safe Drinking Water Act
(Title XIV of the Public Health Service Act)
(42 U.S.C. 300f-300j-26)**

42 U.S.C.	Section Title	SDWA (as amended)
Chapter 6A	Public Health Service	
Subchapter XII	Safety of Public Drinking Water Systems	
Part A	Definitions	
300f	Definitions	§1401
Part B	Public Water Systems	
300g	Coverage	§1411
300g-1	National drinking water regulations	§1412
300g-2	State primary enforcement responsibility	§1413
300g-3	Enforcement of drinking water regulations	§1414
300g-4	Variances	§1415
300g-5	Exemptions	§1416
300g-6	Prohibitions on the use of lead pipes, solder, and flux	§1417
300g-7	Monitoring of contaminants	§1418
300g-8 ^a	Operator certification	§1419
300g-9 ^a	Capacity development	§1420
Part C	Protection of Underground Sources of Drinking Water	
300h	Regulations for state programs	§1421
300h-1	State primary enforcement responsibility	§1422
300h-2	Enforcement of program	§1423
300h-3	Interim regulation of underground injections	§1424
300h-4	Optional demonstration by states relating to oil and natural gas	§1425
300h-5	Regulation of state programs	§1426
300h-6 ^a	Sole source aquifer demonstration program	§1427
300h-7 ^a	State programs to establish wellhead protection areas	§1428
300h-8 ^a	State ground water protection grants	§1429
Part D	Emergency Powers	
300i	Emergency powers	§1431
300i-1	Tampering with public water systems	§1432
300i-2 ^a	Terrorist and other intentional acts	§1433

42 U.S.C.	Section Title	SDWA (as amended)
300i-3	Contaminant prevention, detection, and response	§1434
300i-4 ^a	Supply disruption prevention, detection and response	§1435
Part E	General Provisions	
300j	Assurance of availability of adequate supplies of chemicals necessary for treatment of water	§1441
300j-1 ^a	Research, technical assistance, information, training of personnel	§1442
300j-2 ^a	Grants for state programs	§1443
300j-3 ^a	Special project grants and guaranteed loans	§1444
300j-4 ^a	Records and inspections	§1445
300j-5	National Drinking Water Advisory Council	§1446
300j-6	Federal agencies	§1447
300j-7	Judicial reviews	§1448
300j-8	Citizen civil actions	§1449
300j-9	General provisions	§1450
300j-11	Indian Tribes	§1451
300j-12 ^a	State revolving loan funds	§1452
300j-13	Source water quality assessment	§1453
300j-14 ^a	Source water petition program	§1454
300j-15	Water conservation plan	§1455
300j-16 ^a	Assistance to colonias	§1456
300j-17	Estrogenic substances screening program	§1457
300j-18 ^a	Drinking water studies	§1458
Part F	Additional Requirements to Regulate the Safety of Drinking Water	
300j-21	Definitions	§1461
300j-22	Recall of drinking water coolers with lead-lined tanks	§1462
300j-23	Drinking water coolers containing lead	§1463
300j-24	Lead contamination in school drinking water	§1464
300j-25 ^a	Federal assistance for state programs regarding lead contamination in school drinking water	§1465
300j-26	Certification of testing laboratories	b

Note: This table shows only the major code sections. For more detail and to determine when a section was added, the reader should consult the official printed version of the *U.S. Code*.

- a. These sections include authorizations of appropriations.
- b. This provision was added by the Lead Contamination Control Act (P.L. 100-572, §4), which did not amend SDWA.

Author Contact Information

Mary Tiemann
Specialist in Environmental Policy
mtiemann@crs.loc.gov, 7-5937