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

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Summary

This report summarizes the Safe Drinking Water Act (SDWA) and its major programs and regulatory requirements. It reviews revisions to the act since its enactment in 1974, including 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 (including amendments made by P.L. 113-64 to explicitly exempt fire hydrants from coverage under the act's lead plumbing restrictions). It also reviews P.L. 114-45, enacted August 7, 2015, directing the Environmental Protection Agency (EPA) to develop a strategic plan to assess and manage the risks associated with algal toxins in public water supplies; P.L. 114-98, the Grassroots Rural and Small Community Water Systems Assistance Act, enacted December 11, 2015; and P.L. 114-322, the Water Infrastructure Improvements for the Nation (WIIN) Act, enacted December 16, 2016.

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 and reauthorized in 1986 and 1996, the act is administered through programs that establish standards and treatment requirements for public water supplies, promote compliance capacity of public water systems, provide technical assistance to small water systems, control the underground injection of fluids, 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 (primacy) for the drinking water program and the underground injection control (UIC) 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.

In the Safe Drinking Water Act Amendments of 1996 (P.L. 104-182), Congress reauthorized appropriations for most 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 and lists all major amendments with the year of enactment and public law number. Located at the end of the report, **Table 2** cross-references sections of the act with the major *U.S. Code* sections of the codified statute, and **Table 3** identifies authorizations of appropriations under the act.

This report expands on a brief discussion of the SWDA in CRS Report RL30798, Environmental Laws: Summaries of Major Statutes Administered by the Environmental Protection Agency. That report provides summaries of the principal environmental statutes administered by EPA.

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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, 1996, and 2016, the act is administered through programs that establish standards and treatment requirements for public water supplies, finance drinking water infrastructure projects, promote water system compliance, and control the underground injection of fluids to protect underground 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. In the SDWA amendments of 1996, Congress reauthorized appropriations for most SDWA programs through FY2003. Although the authorization of appropriations has expired for most provisions, Congress has continued to appropriate funds for the ongoing SDWA programs. Enacted in December 2016, the Water Infrastructure Improvements for the Nation (WINN) Act, P.L. 114-322, made numerous amendments to the SDWA, with significant focus on addressing lead in public water systems and increasing compliance assistance for small or disadvantaged communities. **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
2015	Drinking Water Protection Act	P.L. 114-45
2015	Grassroots Rural and Small Community Water Systems Assistance Act	P.L. 114-98
2016	Water Infrastructure Improvements for the Nation Act	P.L. 114-322

This report summarizes the act's major provisions, programs, and requirements and provides statistics on the universe of regulated public water systems. Located at the end of the report, **Table 2** cross-references sections of the act with the major *U.S. Code* sections of the codified statute, and **Table 3** identifies authorizations of appropriations under the act.

Background

As indicated by **Table 1**, the SDWA 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) limit 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 underground injection wells that inject hazardous wastes below a drinking water source. The amendments also increased the 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, increased regulatory flexibility, and authorized funding for federal drinking water mandates. 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 infrastructure projects needed to comply with SDWA regulations and protect public health, added programs to improve small system compliance, expanded consumer information requirements, increased the act's focus on pollution prevention with a state source water assessment program, and streamlined the act's enforcement provisions. P.L. 104-182 authorized appropriations under the act through FY2003. Authorizations of appropriations under the SDWA are identified in **Table 3**.

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 that act included requirements for community water systems serving more than 3,300 individuals to conduct vulnerability assessments and prepare emergency response plans. The law increased criminal and civil penalties for tampering with water supplies and required the EPA to conduct research on preventing and responding to terrorist or other attacks.

Signed into law on January 4, 2011, the Reduction of Lead in Drinking Water Act, P.L. 111-380, tightened the SDWA definition of "lead free" and added specific exemptions from the ban on the use or sale of lead pipes and plumbing fittings and fixtures that are not lead free. (A subsequent amendment [P.L. 113-64] explicitly exempted fire hydrants from coverage under the act's lead plumbing restrictions.[1]) Enacted August 7, 2015, the Drinking Water Protection Act (P.L. 114-45) directed EPA to develop a strategic plan to assess and manage the risks associated with algal toxins in public drinking water supplies. Enacted December 11, 2015, the Grassroots Rural and Small Community Water Systems Assistance Act (P.L. 114-98) revised and reauthorized the small system technical assistance program and extended the authorization of appropriations for the program through FY2020.

In December 2016, Congress made numerous revisions to the SDWA through the WIIN Act (P.L. 114-322; Title II, the Water and Waste Act of 2016). Among other amendments, the WIIN Act authorized new grant programs to (1) help public water systems serving small or disadvantaged communities meet SDWA requirements; (2) support lead reduction projects, including lead service line replacement; and (3) establish a voluntary program for testing for lead in drinking water at schools and child care programs.[2]

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.

Some 51,350 of the regulated public water systems are *community water systems* (CWSs) that serve the same residences year-round. These water systems provide water to more than 299 million people. All federal regulations apply to these systems. Most community water systems (82%) are relatively small, serving 3,300 or fewer individuals. Despite this large percentage, these systems provide water to just 9% of the total population served by community water systems. Fully 92% of CWSs serve populations of 10,000 or fewer, and 55% serve populations of 500 or fewer. In contrast, 8% of CWSs 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, 71% rely on ground water, and 29% rely on surface water.

Another 18,178 public water systems are *non-transient non-community water systems*, such as schools or factories, which have their own water supplies 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% serve populations of 3,300 or fewer 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*, 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.[3]

[1] For information on these provisions, see CRS In Focus IF00006, *Lead-Free Requirements for Fire Hydrants (In Focus)*, by Mary Tiemann.

[2] For background on recent concerns regarding lead in drinking water, see CRS In Focus IF10446, *Regulating Lead in Drinking Water: Issues and Developments*, by Mary Tiemann.

[3] The EPA's longstanding policy is to exclude transient systems from drinking water regulations except for those (continued...)

Approximately 95,800 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 financial, managerial, and technological challenges small public water systems may face in meeting federal drinking water regulations and maintaining water infrastructure to ensure the delivery of safe and sufficient water supplies. (**Figure 1** provides statistics on community water systems, non-transient non-community water systems, and transient non-community water systems.)

Figure 1. Public Water System Statistics

(Water systems regulated under the SDWA)

		Water System Population Size Category					
		Very Small 500 or less	Small 501-3,300	Medium 3,301-10,000	Large 10,001-100,000	Very Large >100,000	Totals
CWS	# Systems	28,346	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: EPA, *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: The 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 wells). 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 EPA promulgate national primary drinking water regulations for contaminants that may pose health risks and are likely to be present in public water supplies. Section 1412 instructs EPA on how to select contaminants for regulation and specifies how and when the EPA must establish regulations once a contaminant has been

(...continued)

contaminants, such as nitrate, that the EPA believes have the potential to cause immediate adverse human health effects resulting from short-term exposure. (Source: EPA, *National Primary Drinking Water Regulation on Lead and Copper*, minor revisions. January 12, 2000 (65 *Federal Register* 1950).)

selected. The regulations apply to privately and publicly owned "public 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 standards or treatment techniques for drinking water disinfectants and their byproducts, microorganisms (e.g., *Cryptosporidium* and *Legionella*), radionuclides, organic chemicals (e.g., benzene and many pesticides), and inorganic chemicals (e.g., arsenic and lead).[4]

Contaminant Selection and Regulatory Schedules

The SDWA, as amended in 1996, directs EPA to promulgate a drinking water regulation for a contaminant if the Administrator determines that the following three criteria are met:

- The contaminant may have adverse health effects;
- It is known, or there is a substantial likelihood, that the contaminant will occur in public water systems with a frequency and at levels of public health concern; and
- Its regulation presents a meaningful opportunity for health risk reduction for persons served by public water systems.[5]

Every five years, EPA must publish a list of unregulated contaminants that are known or anticipated to occur in public water systems and that may require regulation (known as a contaminant candidate list [CCL]).[6] The SDWA further directs EPA to administer a monitoring program for unregulated contaminants to facilitate the collection of occurrence data for contaminants that are not regulated but are suspected to be present in public water supplies. Every five years, EPA must publish a rule (Unregulated Contaminant Monitoring Rule [UCMR]) listing no more than 30 unregulated contaminants to be monitored by public water systems.[7] This list is based on the contaminant candidate lists as well as other data.[8] Every five years, EPA is required to make a regulatory determination (whether or not to regulate) for at least five of the contaminants included on the CCL.

Standard Setting

For each contaminant that EPA determines requires regulation, EPA must set a nonenforceable maximum contaminant level goal (MCLG) at a level at which no known or anticipated adverse health effects occur and allows an adequate margin of safety.[9] 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). Once the Administrator makes a determination to regulate a contaminant, EPA must propose a rule

[4] For information on drinking water contaminant regulations and standards, see EPA, "Current Drinking Water Standards," http://water.epa.gov/lawsregs/rulesregs/sdwa/currentregulations.cfm.

[5] SDWA, §1412(b)(1)(a); 42 U.S.C. 300g-1(a)(1).

[6] Ibid., §1412(b)(1); 42 U.S.C. 300g-1(b)(1).

[7] EPA promulgated the fourth Unregulated Contaminant Monitoring Rule on December 20, 2016. See EPA, "Revisions to the Unregulated Contaminant Monitoring Rule (UCMR 4) for Public Water Systems and Announcement of Public Meeting," 81 *Federal Register* 92666, December 20, 2016. For more information, see EPA, "Unregulated Contaminant Monitoring Program," http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/.

[8] All systems serving more than 10,000 people and a sample of smaller systems must monitor for the contaminants. EPA is required to cover the costs associated with "small" system monitoring (i.e., systems serving from 25 to 10,000 persons). The resulting data are added to the National Contaminant Occurrence Database.

[9] SDWA, §1412(b)(4); 42 U.S.C. 300g-1(b)(4). For carcinogens, the MCLG is generally set at zero.

within 24 months and promulgate a "national primary drinking water regulation" within 18 months after the proposal.[10]

EPA may 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, EPA must publish a determination as to whether or not the benefits of the standard justify the costs. If 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.[11]

Referencing legislative history, 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 are affordable for small public water systems serving populations of 10,000 or fewer. If EPA does not identify "compliance" technologies that are affordable for small systems, then the agency must identify small system "variance" technologies or other means that may not achieve the MCL but are protective of public health.

New regulations generally become effective three years after promulgation. Up to two additional years may be allowed if EPA (or a state in the case of an individual system) determines the time is needed for capital improvements. EPA is required to review and strengthen, as appropriate, each drinking water regulation every six years.[12] (Section 1448 outlines procedures for judicial review of EPA actions involving the establishment of SDWA regulations and other final EPA actions.)

Risk Assessment and Cost-Benefit Analysis

In the 1996 amendments, Congress added risk assessment and risk communication provisions to SDWA.[13] When developing regulations, 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, EPA must publish a "health risk reduction and cost analysis." For each drinking water standard and each alternative standard being considered, EPA must publish and take comment on quantifiable and nonquantifiable health risk reduction benefits and costs and also conduct other specified analyses. EPA may promulgate an interim standard without first preparing a health risk reduction and 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.

Variances and Exemptions

In anticipation that some systems, particularly smaller ones, could have difficulty complying with every regulation, Congress included in the SDWA provisions for variances and exemptions.

[10] SDWA, §1412(b)(2); 42 U.S.C. 300g-1(b)(2).

[11] 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.

[12] SDWA, §1412(b)(9); 42 U.S.C. 300g-1(b)(9).

[13] SDWA, §1412(b)(3); 42 U.S.C. 300g-1(b)(3).

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 variances specifically for small systems, based on application of best affordable technology. When developing a regulation, if EPA cannot identify a technology that meets the standard and is affordable for small systems, EPA must identify variance technologies that are affordable but do not necessarily meet the standard. In cases where EPA has identified variance technologies, then states may grant small system variances 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 may also grant variances to systems serving between 3,301 and 10,000 persons. Variances are not available for microbial contaminants. *The EPA has determined that affordable compliance technologies are available for all existing standards. Thus, small system variances are not available.*

Section 1416 authorizes states to grant public water systems temporary *exemption*s 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 total exemption duration of nine years.

Oversight of Public Water Systems: State Primacy

Section 1413 authorizes states and Indian tribes to assume primary oversight and enforcement responsibility (primacy) for public water systems when EPA determines that statutory criteria are met.[14] Currently, 55 of 57 states and territories have primacy authority for the public water system supervision (PWSS) program.[15] Too assume primacy, a state[16] 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, conduct inventories of water systems, maintain records and compliance data, and make reports as EPA may require. Further, a state must develop a plan for providing safe drinking water under emergency circumstances.

To help states cover the costs of administering the PWSS program, Congress authorized to be appropriated $100 million annually (FY1997-FY2003) for EPA to make grants to the states (Section 1443). EPA is required to allot the sums among the states "on the basis of population, geographical area, number of public water systems, and other relevant factors." Additionally, states may use a portion their annual DWSRF grant under Section 1452 to cover the costs of administering the PWSS program.[17]

[14] SDWA Section 1413; 42 U.S.C. §300g-2.

[15] All states (except Wyoming and the District of Columbia), territories, and Navajo Nation have primacy. EPA oversees water systems in non-primacy areas and retains oversight of primacy states.

[16] Section 1451 (42 U.S.C. §300j-11) generally authorizes the EPA Administrator to treat Indian tribes as states under the SDWA.

[17] Section 1452(g) authorized states to use up to an additional 10% of their annual grants for various purposes, (continued...)

Enforcement, Consumer Information, and Citizen Suits

The SDWA 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. EPA monitors public water system compliance primarily by reviewing the violation data submitted by the states.

Section 1414 requires that, whenever 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, EPA is authorized to issue an administrative order or commence a civil action. In a nonprimacy state, 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.[18]

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. Under Section 1414, systems must notify customers within 24 hours of any violations that have the potential to cause serious health effects. The WIIN Act, Section 2106, added public notification requirements for water system exceedances of the lead action level under EPA's Lead and Copper Rule (or subsequent promulgated lead level). Notification requirements previously applied to violations of standards and other applicable requirements but not to exceedances. Water systems must now notify the public, the state, and EPA of system lead action level exceedances. Further, for an exceedance that has potential to cause serious adverse health effects from short-term exposure, a water system must notify the public, the state, and EPA within 24 hours. If the state or water system does not provide the required notice, EPA must notify the public within 24 hours after the Administrator is notified.

The WIIN Act further amended the SDWA to address lead action level exceedances at households. EPA is required to develop a strategic plan for providing targeted outreach,

(...continued)

including administering the PWSS program, implementing a capacity development strategy (§1420(c)), administering an operator certification program (§1419), and administering or providing technical assistance through source water protection programs. However, states were required to match such expenditures dollar for dollar. The WIIN Act removed this state match requirement. The SDWA authorizes states to use an additional 2% of the annual grant to provide technical assistance to public water systems serving 10,000 or fewer persons.

[18] For enforcement information and statistics, see EPA, *Providing Safe Drinking Water in America: 2013 National Public Water Systems Compliance Report*, Office of Enforcement and Compliance Assurance, May 16, 2011, p. 97, http://www2.epa.gov/sites/production/files/2015-06/documents/sdwacom2013.pdf.

education, and technical assistance to populations affected by lead in the water system. Also, if EPA develops or receives data indicating that a household's water exceeds the lead action level, EPA is required to forward the data and testing information to the water system and the state. The water system is required to provide the data and other specified information to the affected households. Within 24 hours of learning that a water system has failed to do so, EPA is required to consult with the governor and, using the strategic plan, provide the information to the households no later than 24 hours after the end of the consultation period.

Section 1414 also requires community water systems to 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 EPA and the public; EPA must prepare annual national compliance reports.[19]

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 that is not discretionary.

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 the 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.

Lead in Drinking Water

Several SDWA provisions specifically address lead in drinking water. In addition to the public notification provisions discussed above, the SDWA strictly limits the amount of lead in pipes and plumbing materials used to provide drinking water, imposes public notice and education requirements on states and EPA, and includes two grant programs (authorized in the WIIN Act). These provisions are outlined below.

Lead-Free Plumbing

Section 1417 broadly prohibits the use of any pipe, pipe or plumbing fitting or fixture, solder, or flux in the installation or repair of public water systems or plumbing in residential or other 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.[20] Added in 1986, Section

[19] SDWA, §1414(c); 42 U.S.C. 300g-3(c).

[20] 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 (continued...)

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. The law gives states, not EPA, the responsibility to enforce the prohibitions.

In 1996, Congress added Section 1417(e), directing the 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)[21] 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" (emphasis added); and (B) various specified products including tub fillers, shower valves, service saddles, or water distribution main gate valves at least 2 inches in diameter.

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 it is exempt from the general prohibitions.[22] EPA proposed a rule to revise existing regulations to conform to the provisions of P.L. 111-380 on January 17, 2017.[23]

Added in 1986, Section 1417(a)(2) requires owners or operators of public water systems to provide notice to persons that may be affected by lead contamination of their drinking water if the source of contamination results from the construction materials of the water system or from corrosivity of the water. Subsection 1417(f), added in the WIIN Act, requires EPA to make educational information regarding lead in drinking water broadly available to the public.

(...continued)

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).

[21] 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.

[22] 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. (EPA, *Summary of the Reduction of Lead in Drinking Water Act and Frequently Asked Questions*, EPA 815-S-13-001, October 2013, p. 5.) Enacted in December 2013, H.R. 3588, the Community Fire Safety Act of 2013 (P.L. 113-64), amended the SDWA to clearly exempt fire hydrants from coverage under Section 1417. P.L. 113-64 also directed 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.

[23] EPA, "Use of Lead Free Pipes, Fittings, Fixtures, Solder and Flux for Drinking Water," 82 *Federal Register* 4805, January 17, 2017.

Lead Reduction Project Grants

Also added by the WIIN Act, SDWA Section 1459B directs EPA to establish a grant program for projects and activities that reduce lead in drinking water, including replacement of lead service lines and corrosion control. Grants may be used to provide assistance to low-income homeowners to replace their portions of lead service lines. Eligible recipients include community water systems, tribal systems, schools, states, and municipalities. EPA must give funding priority to disadvantaged communities for projects that address lead action level exceedances, lead in water at schools and day care facilities, or other EPA priorities. EPA may waive the 20% non-federal cost share requirement. This section authorizes to be appropriated $60 million per year for FY2017 through FY2021.

Lead in School Drinking Water

The WIIN Act, Section 2107, replaced SDWA Subsection 1464(d) to require EPA to establish a voluntary program for testing for lead in drinking water at schools and child care programs under the jurisdiction of local education agencies (LEAs).[24] States or LEAs may apply to EPA for grants. To support this grant program, Congress authorized to be appropriated $20 million per year for FY2017 through FY2021.

Compliance Capacity and Assistance 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). EPA is required to withhold 20% of a state's annual DWSRF grant unless the state adopts 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. 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.

Small System Technical Assistance

In addition to the above compliance assistance programs, the act authorizes EPA and states to provide compliance assistance to public water systems and particularly to small systems (serving from 25 to 10,000 customers). Accounting for 92% of community water systems, these small systems frequently lack both economies of scale and the financial, managerial, and technical capacity to meet SDWA requirements.

[24] WIIN Section 2107 repealed and replaced SDWA Section 1464(d) [42 U.S.C. §300j-24(d)], Remedial Action Program. This provision, added by the Lead Contamination Control Act of 1988 (P.L. 100-572), had required states to establish remedial action programs for removing lead from school drinking water. This included repairing, replacing, removing, or rendering inoperable all drinking water coolers that were not lead free. In 1996, the U.S. Court of Appeals for the Fifth Circuit found the requirements to be "an unconstitutional intrusion upon the States' sovereign prerogative to legislate as it sees fit" (in violation of the Tenth Amendment). *ACORN v. Edwards*, 81 F.3rd 1837 (5th Cir. 1996).

Added in 1996, Subsection 1442(e) authorizes EPA to provide technical assistance to small public water systems. In this subsection, Congress authorized to be appropriated $15 million annually for FY1997 through FY2003 for EPA to provide technical assistance to small water systems through nonprofit organizations or other means. The Grassroots Rural and Small Community Water Systems Assistance Act (P.L. 114-98), enacted December 11, 2015, revised this program and extended the authorization of appropriations through FY2020. The technical assistance is intended to enable small systems to achieve and maintain compliance with drinking water regulations and may include circuit-rider and multi-state regional technical assistance programs, training, and assistance in implementing regulations, source water protection plans, monitoring plans, water security enhancements, etc. The WIIN Act amended Section 1442 to specify that technical assistance grants to tribes may be used for operator training and certification.

Relatedly, SDWA Section 1452, establishing the DWSRF program, authorized another source of funding for this technical assistance. SDWA Section 1452(q) authorized EPA to set aside up to 2% of the total funds appropriated for the DWSRF program for each of FY1997 through FY2003 to carry out the provisions of Section 1442(e) (relating to technical assistance for small systems, not to exceed the amount authorized in Section 1442(e)).[25] In the WINN Act (P.L. 114-322, Section 2110), Congress extended this set-aside authority through FY2021.

Grant Assistance for Small and Disadvantaged Communities

Another provision added by the WIIN Act to the SDWA (Section 1459A) directs EPA to establish a grant program to assist disadvantaged communities and also small communities that are unable to finance projects needed to comply with SDWA. Eligible projects include investments needed for SDWA compliance, household water quality testing, and assistance that primarily benefits a community on a per-household basis. EPA must give funding priority to projects and activities that benefit underserved communities (i.e., communities that lack household water or wastewater services or that violate or exceed a SDWA requirement). EPA may make grants to public water systems, tribal water systems, or states on behalf of an underserved community. EPA may waive all or some of the 45% non-federal share of project costs. Section 1459A(j) authorizes to be appropriated $60 million per year for FY2017 through FY2021.

Ground Water Protection Programs

Underground Injection Control 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.[26] Section 1421 authorized the establishment of state

[25] Over the years, the Administration has not requested money specifically to support these small system technical assistance activities, nor has EPA used the SRF reserve authority to fund them. Rather, Congress has provided funding for these purposes as national priorities in recent appropriations acts. See CRS Report R44208, *Environmental Protection Agency (EPA): FY2016 Appropriations*, by Robert Esworthy and David M. Bearden, under the heading National (Congressional) Priorities and "Earmarks." A similar rural water (and wastewater) circuit rider program receives funding under the Consolidated Farm and Rural Development Act of 1972, §306(a) (7. U.S.C. § 1926(a)(22)). See CRS Report R43718, *Rural Development Provisions in the 2014 Farm Bill (P.L. 113-79)*, by Tadlock Cowan.)

[26] EPA reports that, of roughly 152,700 public water systems, 138,053 rely on ground water and 14,576 rely on surface water. Among 51,356 community water systems, 39,624 rely on ground water and 11,721 rely on surface water. EPA, *Fiscal Year 2011, Drinking Water and Ground Water Statistics*, March 2013, p. 8, http://water.epa.gov/scitech/datait/databases/drink/sdwisfed/upload/epa816r13003.pdf.

underground injection control (UIC) programs to protect underground sources of drinking water (USDWs). In 1977, EPA issued mandated regulations that contained minimum requirements for state UIC programs to prevent underground injection that endangers drinking water sources and 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 USDWs would be affected.[27]

Section 1422 authorized affected states to submit plans to 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 EPA must implement the program.[28] For oil and gas injection operations only, states with UIC programs are delegated primary enforcement authority without meeting EPA regulations under Section 1421, provided that states demonstrate that they have an effective program that prevents underground injection that endangers drinking water sources.[29] EPA has delegated primacy for all classes of wells to 35 states; it shares implementation responsibility with seven states and two Indian tribes and implements the UIC program for all well classes in nine states.

To implement this program, EPA has established six classes of UIC wells based on similarity in the fluids injected, construction, injection depth, design, and operating techniques and issued regulations that establish performance criteria for each class.[30] Most recently, EPA issued regulations for Class VI wells establishing requirements for the underground injection of carbon dioxide (CO_2). Class VI wells are intended to be used for the long-term geologic sequestration of CO_2 as a tool for mitigating greenhouse gas emissions from coal-fired power plants and other large stationary sources of carbon dioxide.

Other SDWA Groundwater Protection Programs

The act contains four other state programs aimed specifically at protecting groundwater.

1. **Sole Source Aquifer Protection Program.** Included in the Safe Drinking Water Act of 1974 (P.L. 93-523), Section 1424(e) authorizes EPA to make determinations—either 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 EPA determines may contaminate such an aquifer.[31] Any person may petition

[27] 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.

[28] SDWA, §1423.

[29] Ibid., §1425, added in 1980.

[30] 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 are generally 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 [CO_2] for long-term geologic sequestration to reduce atmospheric emissions of CO_2 from industrial sources).

[31] Funding authorized under other federal law can be committed for a project if the project is designed to assure that it will not contaminate the aquifer.

for sole source aquifer designation. Nationwide, EPA has designated 77 sole source aquifers.[32]

2. **Sole Source Aquifer Demonstration Program.** Section 1427, added in 1986, established procedures for demonstration programs to develop, implement, and assess critical aquifer protection areas already designated by the Administrator as sole source aquifers.
3. **State Wellhead Protection Programs.** 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 EPA approved the state's program, then EPA may award grants covering between 50% and 90% of the costs of implementing the program.
4. **State Groundwater Protection Grants.** Section 1429, added in 1996, authorizes 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 fiscal year for Section 1427, $30 million per fiscal year for Section 1428, and $15 million per fiscal year for Section 1429. Additionally, states may use a portion of their DWSRF capitalization grant under Section 1452(k) for certain groundwater protection activities.

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 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 regulated contaminants (and also any contaminants selected by the state) 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. Section 1452 (k)(1)(C) authorized states to use up to 10% of their DWSRF capitalization grant for FY1996 and FY1997 to delineate and assess source water protection areas.

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 the DWSRF program to help systems finance improvements needed to comply with SDWA regulations.[33] EPA is authorized to make grants to states to capitalize

[32] EPA, "Sole Source Aquifer Protection Program," http://water.epa.gov/infrastructure/drinkingwater/sourcewater/protection/solesourceaquifer.cfm.

[33] SDWA, §1452; 42 U.S.C. §300j-12.

DWSRFs, which states may then 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.[34] 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 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, Section 1452(g) authorizes states to use a portion of funds for technical assistance, source water protection and capacity development programs, and operator certification.

The law authorized appropriations of $599 million for FY1994 and $1 billion per year for FY1995 through FY2003 for DWSRF capitalization grants. 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.[35]

The WIIN Act (P.L. 114-322; Section 2113) made several amendments to the DWSRF provisions. Among other changes, the amendments increased the portion of the annual DWSRF capitalization grant that states may use to cover program administration costs. Further, the WIIN Act amended Section 1452(a) to require, with some exceptions, that funds made available from a state DWSRF during FY2017 may not be used for water system projects unless all iron and steel products to be used in the project are produced in the United States.

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 the SDWA to address threats to drinking water security. Key provisions are summarized below.

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

[34] See EPA, *Drinking Water Infrastructure Needs Survey and Assessment: Fifth Report to Congress*, Office of Water, April 2013, p. 70, https://www.epa.gov/drinkingwatersrf.

[35] Under SDWA Section 1452(i) (42 U.S.C. §300j-12(i)), EPA may use 1.5% of the amounts appropriated annually to make grants to Indian tribes and Alaska Native villages. Since FY2010 (P.L. 111-88), Congress has authorized EPA to reserve up to 2.0% of the appropriated funds for Indian tribes and Alaska Native villages. This authority was included in P.L. 112-74 and has continued through the terms and conditions of subsequent appropriations. For more information, see CRS Report RS22037, *Drinking Water State Revolving Fund (DWSRF): Program Overview and Issues*, by Mary Tiemann.

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. 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 and 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 EPA 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 is 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.

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. Relatedly, see “Emergency Powers” section.

Emergency Assistance

SDWA Subsection 1442(b) authorizes EPA to provide technical assistance and 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. Congress has not appropriated funds for this purpose.

Additional SDWA Provisions

Research, Technical Assistance, and Training

Section 1442 authorizes 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.)

Innovative Technology Grants

The WIIN Act amended Section 1442(a) to authorize EPA to conduct research on innovative water technologies and provide technical assistance to public water systems to facilitate use of such technologies. New Section 1442(f) authorizes to be appropriated $10 million for each of FY2017 through FY2021.

Demonstration Grants

The Administrator may make grants to develop and demonstrate new technologies for providing safe drinking water and investigate health implications involved in the reclamation/reuse of waste waters.[36]

Records, Inspections, and Monitoring

Section 1445 states that persons subject to requirements under the 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.

This section also directs EPA to promulgate regulations establishing the criteria for a monitoring program for unregulated contaminants. Beginning in 1999 and every five years thereafter, 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.[37]

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.[38]

[36] SDWA, §1444.

[37] Ibid., §1446.

[38] Ibid., §1447.

Drinking Water Assistance to Colonias[39]

Added in 1996, Section 1456 authorized 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. (See also "Wastewater Assistance to Colonias.")

Estrogenic Substances

Section 1457 authorized 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 EPA to conduct drinking water studies involving subpopulations at greater risk and biological mechanisms. EPA was also directed to conduct studies to support specific regulations, including those for disinfectants and disinfection byproducts and *Cryptosporidium*.

Algal Toxin Risk Assessment and Management

The Drinking Water Protection Act (P.L. 114-45), enacted August 7, 2015, added Section 1459. It directs EPA to develop—and submit to Congress in 90 days—a strategic plan to assess and manage the risks associated with algal toxins in public drinking water supplies. Section 1459 requires EPA to include in the plan steps and schedules for EPA to (1) assess health risks of algal toxins in drinking water, (2) publish a list of toxins likely to pose risks and summarize their health effects, (3) determine whether to issue health advisories for listed toxins, (4) publish guidance on feasible methods to identify and measure the algal toxins in water, (5) recommend feasible treatment and source water protection options, and (6) provide technical assistance to states and water systems. The new provisions also call for the Government Accountability Office to report to Congress on federal funds expended for each of FY2010 through FY2014 to examine toxin-producing cyanobacteria and algae or address public health concerns related to harmful algal blooms.[40]

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 SDWA. Several of these provisions are described below.

[39] Colonias are generally 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 systems.

[40] For further information, see CRS In Focus IF10269, *Algal Toxins in Drinking Water: EPA Health Advisories*, by Mary Tiemann.

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.[41]

Grants to Alaska

Section 303 of the 1996 amendments authorized 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 FY1997 through FY2000. (In P.L. 106-457, Congress reauthorized appropriations for these rural sanitation grants at a level of $40 million for each of FY2001 through FY2005.)

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 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 FY1997 through FY1999. (See also "Drinking Water Assistance to Colonias.")

Additional Infrastructure Funding

Section 401 authorized additional assistance, up to $50 million for each of FY1997 through FY2003, for a grant program for infrastructure and watershed protection projects.

[41] 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
300j-19	Algal toxin risk assessment and management	§1459
300j-19a[a]	Assistance for small and disadvantaged communities	§1459A
300j-19b[a]	Reducing lead in drinking water	§1459B
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[a]	Lead contamination in school drinking water	§1464
300j-26	Certification of testing laboratories	[a]

Note: This table shows only the major code sections. For more detail and to determine when a section was added, 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.

Table 3. Annual Authorizations of Appropriations in the Safe Drinking Water Act, as Amended

42 U.S.C.	Purpose	Last Authorized Amount	Last Fiscal Year of Authorization	SDWA, as amended
300g-8(d)	Small public water system operator training and certification	$30,000,000	FY2003	§1419(d)
300g-9(f)	Small public water systems technology assistance centers	$5,000,000	FY2003	§1420(f)
300g-9(g)	Environmental finance centers	$1,500,000	FY2003	§1420(g)
300h-6(m)	Sole source aquifer demonstration program	$15,000,000	FY2003	§1427(m)
300h-7(k)	State programs to establish wellhead protection areas	$30,000,000	FY2003	§1428(k)
300h-8(f)	State groundwater protection grants	$15,000,000	FY2003	§1429(f)
300i-2(e)	Community water system security enhancement grants	Such sums as may be necessary	FY2005	§1433(e)
300i-4(e)	Review of methods by which terrorists or others may disrupt or contaminate water supplies and methods to prevent, detect, and respond to such actions	Such sums as may be necessary	FY2005	§1435(e)
300j-1(d)	Emergency grants and technical assistance	Such sums as may be necessary	Indefinite	§1442(d)
300j-1(e)	Technical assistance for small system compliance	$15,000,000	FY2020	§1442(e)
300j-1(e)	Technical assistance for innovative water technologies	$10,000,000	FY2021	§1442(f)
300j-2(a)	State Public Water System Supervision program grants	$100,000,000	FY2003	§1443(a)
300j-2(b)	State Underground Injection Control program grants	$15,000,000	FY2003	§1443(b)
300j-2(d)	New York City Watershed Protection grants	$15,000,000	FY2010	§1443(d)
300j-3(c)	Special demonstration projects grants	$10,000,000	FY1977	§1444(c)
300j-4(a)	Monitoring program for unregulated contaminants	$10,000,000	FY2003	§1445(a)
300j-19a	Assistance for small and disadvantaged communities	$60,000,000	FY2021	§1449A(j)
300j-19b	Reducing lead in drinking water	$60,000,000	FY2021	§1449B(d)
300j-12(m)	State Revolving Loan Fund program grants	$1,000,000,000	FY2003	§1452(m)
300j-14(e)	State Source Water Petition program grants	$5,000,000	FY2003	§1454(e)
300j-16(e)	Grants to colonias for safe drinking water	$25,000,000	FY1999	§1456(e)
300j-18(c)	Studies on harmful contaminants in drinking water	$12,500,000	FY2003	§1458(c)
300j-18(d)	Waterborne disease occurrence study	$3,000,000	FY2001	§1458(d)
300j-24	Voluntary school and child care program lead testing grant program	$20,000,000	FY2021	§1464(d)

Source: Prepared by the Congressional Research Service based on a search of authorizations of appropriations in the Safe Drinking Water Act, as amended, and codified in the *U.S. Code*.

Notes: The 1996 amendments (P.L. 104-182) included several related authorizations of appropriations in provisions that did not amend the SDWA: (1) P.L. 104-182, Section 201, Drinking Water Research Authorization, authorized to be appropriated through FY2003 additional sums as may be necessary for drinking

water research, not to exceed an annual total of $26,593,000; (2) Section 303, Grants to Alaska to Improve Sanitation in Rural and Native Villages, authorized appropriations of $15,000,000 annually from FY1997 to FY2000; and (3) Title IV, Additional Assistance for Water Infrastructure and Watersheds (§401(d)), provided an unconditional authorization of appropriations of $25,000,000 annually from FY1997 to FY2003 and a conditional authorization of appropriations of $25,000,000 annually from FY1997 to FY2003.

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