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

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SUMMARY

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

This report provides a summary of 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 SDWA by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (P.L. 107-188), and provisions to further reduce lead in plumbing materials and drinking water (P.L. 111-380, P.L. 113-64, and P.L. 114-322). It also identifies changes made to the act in P.L. 114-45, regarding algal toxins in public water supplies; the Grassroots Rural and Small Community Water Systems Assistance Act (P.L. 114-98); the Water Infrastructure Improvements for the Nation (WIIN) Act (P.L. 114-322); and America's Water Infrastructure Act (AWIA; P.L. 115-270), which constituted the most comprehensive revisions to SDWA since 1996. It also discusses SDWA-related provisions in the National Defense Authorization Act (NDAA) for Fiscal Year 2020 (P.L. 116-92) regarding per- and polyfluoroalkyl substances (PFAS) in drinking water. **Table 1** identifies a complete list of acts that amended 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 and reauthorized in 1986, 1996, and 2018, 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 Public Water Supply Supervision (PWSS) Program remains the basic program for overseeing the nation's public water systems, and EPA has delegated primary enforcement authority for this program to 49 states, all territories, and the Navajo Nation.

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 authorities, Congress continued to appropriate funds for the ongoing SDWA programs. In the America's Water Infrastructure Act of 2018, Congress reauthorized appropriations for several SDWA provisions, including for the PWSS program.

In addition to reviewing key programs and requirements of 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 3** cross-references sections of the act with the major *U.S. Code* sections of the codified statute, and **Table 4** identifies authorizations of appropriations under the act.

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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 2018, the act is administered by the U.S. Environmental Protection Agency (EPA) 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. Forty-nine states have assumed this authority.[1]

Enacted in 2018, America's Water Infrastructure Act (AWIA; P.L. 115-270) included the most comprehensive revisions to SDWA since 1996.[2] Title II of AWIA, "Drinking Water System Improvement," reauthorized several appropriations for SDWA programs, authorized new grant programs intended to help communities afford drinking water infrastructure, and revised existing SDWA programs to develop water system compliance capacity and sustainability. The National Defense Authorization Act (NDAA) for Fiscal Year 2020 (P.L. 116-92) included multiple provisions to address environmental contamination by per- and polyfluoroalkyl substances (PFAS), some of which are SDWA related.[3] Of the EPA provisions related to drinking water, NDAA 2020 directs EPA to require public water systems to conduct monitoring for PFAS and authorizes grants for water systems to address PFAS and other emerging contaminants.[4] **Table 1** identifies the original enactment and various 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

[1] EPA retains SDWA implementation and enforcement authority for Wyoming, the District of Columbia, and Indian tribes other than the Navajo Nation.

[2] For more information about drinking water provisions in America's Water Infrastructure Act, see CRS Report R45656, *America's Water Infrastructure Act of 2018 (P.L. 115-270): Drinking Water Provisions*.

[3] PFAS are fluorinated chemicals which have been used in an array of commercial, industrial, and U.S. military applications for decades. Some of the more common applications include nonstick coatings, food wrappers, waterproof materials, and fire suppressants.

[4] For further information, see CRS Report R45793, *PFAS and Drinking Water: Selected EPA and Congressional Actions*.

Year	Act	Public Law Number
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
2018	America's Water Infrastructure Act	P.L. 115-270
2019	National Defense Authorization Act for Fiscal Year 2020	P.L. 116-92

Source: Compiled by CRS from congress.gov.

This report summarizes the Safe Drinking Water 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 3** cross-references sections of the act with the major *U.S. Code* sections of the codified statute. **Table 4** identifies authorizations of appropriations under the act.

Background

Congress passed the Safe Drinking Water Act of 1974 (P.L. 93-523) 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 EPA substantial discretionary authority to regulate drinking water contaminants and provided states the opportunity to assume the lead role in implementation and enforcement of drinking water regulations. As indicated by **Table 1**, SDWA has been substantially amended several times since its enactment.

The first major amendments (P.L. 99-339), enacted in 1986, were largely intended to increase the pace at which EPA regulated contaminants and to increase the protection of groundwater sources of drinking water. From 1974 until 1986, EPA had regulated just one additional contaminant beyond the 22 standards previously developed by the Public Health Service.[5] The 1986 amendments directed 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 injected hazardous 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). The provisions in this law were intended to reduce exposure to lead in drinking water, particularly in schools, by requiring EPA to identify lead-lined water coolers, requiring the Consumer Product Safety Commission to issue an order to recall such coolers, and requiring EPA

[5] The 1974 act directed EPA to establish "national interim primary drinking water regulations," with enforceable standards (i.e., maximum contaminant levels), for a list of contaminants based on the 1962 U.S. Public Health Service interstate carrier drinking water quality standards.

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. The 1988 law also had required states to establish remedial action programs for removing lead from school drinking water (see discussion under "Lead in School Drinking Water").

After the regulatory schedule mandated in the 1986 amendments proved to be unworkable for 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 overarching themes, the amendments were intended to target resources to address the greatest health risks, increase the compliance capacity of public water systems, provide some regulatory flexibility (particularly for small systems, which lack economies of scale), and provide funding to help public water systems comply with federal drinking water mandates. Congress revoked the requirement that 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 EPA to publish 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 a suite of provisions intended to improve small system compliance,
- expanded consumer reporting requirements,
- expanded monitoring for unregulated contaminants,
- 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 SDWA are identified in **Table 4**.

In 2002, several drinking water security provisions were added to SDWA through the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (P.L. 107-188). Title IV of that act added 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 directed EPA to conduct research on preventing and responding to terrorist or other intentional acts.

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 specified exemptions from the ban on the use or sale of lead pipes and plumbing fittings and fixtures that are not lead free.[6] 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.

[6] A subsequent amendment (P.L. 113-64) added fire hydrants to the list of products exempted from the act's lead plumbing restrictions.

Enacted in December 2016, the Water Infrastructure Improvements for the Nation (WIIN) Act (P.L. 114-322) made numerous amendments to SDWA, with particular focus on addressing lead in public water systems, expanding public notification requirements, and increasing compliance assistance for small or disadvantaged communities. Among other amendments, Title II of 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.[7]

Enacted in October 2018, America's Water Infrastructure Act (AWIA) amended SDWA DWSRF provisions to reauthorize appropriations for the DWSRF program and revise the program to facilitate disadvantaged communities' access to financial assistance by increasing the portion that states may use for additional subsidization of loans and by lengthening repayment periods. AWIA also authorized new competitive grant programs for activities that are broadly intended to help communities afford drinking water infrastructure improvements needed to achieve compliance with federal drinking water standards and protect public health. Other new SDWA programs in AWIA authorize grants for projects and activities that (1) improve drinking water system sustainability and resiliency, (2) develop water system capacity to respond to contamination or other events, and (3) address lead in school drinking water.

Enacted December 20, 2019, the National Defense Authorization Act (NDAA) for Fiscal Year 2020 (P.L. 116-92) included multiple provisions addressing PFAS, including several SDWA-related provisions.[8] P.L. 116-92, Section 7311, directed EPA to require public water systems to conduct monitoring for all PFAS that have validated test methods in the next round of monitoring for unregulated contaminants. Section 7312 amended SDWA to establish a DWSRF grant program to assist water systems in addressing PFAS and other emerging contaminants. Section 7312 authorized appropriations of $100 million annually for FY2020-FY2024 for this purpose.

Regulated Public Water Systems

Federal drinking water regulations apply to the approximately 144,650 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 systems operated by homeowner associations, schools, and campgrounds.

Nearly 49,600 of the regulated public water systems are *community water systems* (CWSs), which serve the same residences year-round. These water systems provide water to more than 312 million people. All federal regulations apply to these systems. Most community water systems (81%) are relatively small, serving 3,300 or fewer individuals. Despite this large percentage, these systems provide water to just 7.6% of the total population served by community water systems. Roughly 91% of CWSs serve populations of 10,000 or fewer, and 54% serve populations of 500 or fewer. In contrast, fewer than 9% of CWSs serve populations of 10,000 or more but provide water to 83% of the population served (nearly 260 million individuals).

[7] For background on recent concerns regarding lead in drinking water, see CRS Report R46794, *Addressing Lead in Drinking Water: The Lead and Copper Rule Revisions (LCRR)*, by Elena H. Humphreys; CRS In Focus IF11302, *Controlling Lead in Public Drinking Water Supplies*, by Elena H. Humphreys; and CRS In Focus IF10446, *Regulating Lead in Drinking Water: Issues and Developments*, by Mary Tiemann.

[8] For more information, see CRS Report R45793, *PFAS and Drinking Water: Selected EPA and Congressional Actions*.

Another 17,457 public water systems are *non-transient non-community water systems*, such as schools or factories, which have their own water system 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, roughly 99% serve populations of 3,300 or fewer and provide water to 71% of the population served by these systems. Another 77,600 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.[9] Approximately 89,400 of the 95,000 non-community water systems (transient and non-transient systems combined) serve 500 or fewer people.

The statistics above 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. **Table 2** provides key statistics for community water systems, non-transient non-community water systems, and transient non-community water systems.

Table 2. Key Statistics for Public Water Systems Regulated Under SDWA

		Water System Size					
		Very Small	**Small**	**Medium**	**Large**	**Very Large**	**Total**
	Population served	500 or fewer	501 to 3,300	3,301 to 10,000	10,001 to 100,000	100,001 or more	
Community water system	# of Systems	26,885	13,291	5,018	3,954	443	49,591
	Pop. Served	4,538,205	19,139,653	29,480,771	113,932,781	145,630,947	312,722,357
	% of Systems	54.21%	26.80%	10.12%	7.97%	0.89%	100%
	% of Pop. Served	1.45%	6.12%	9.43%	36.43%	46.57%	100%
Non-transient non-community system	# of Systems	14,806	2,454	158	38	1	17,457
	Pop. Served	2,061,850	2,633,440	858,567	801,416	203,375	6,558,648
	% of Systems	84.81%	14.06%	0.9%	0.22%	0.01%	100%
	% of Pop. Served	31.44%	40.15%	13.09%	12.22%	3.10%	100%
Transient non-community system	# of Systems	74,597	2,921	74	12	1	77,605
	Pop. Served	6,942,296	2,739,119	383,603	247,616	2,000,000	12,312,634
	% of Systems	96.12%	3.76%	0.10%	0.02%	0.00%	100%
	% of Pop. Served	56.38%	22.25%	3.12%	2.01%	16.24%	100%
Total	**# of Systems**	**116,288**	**18,666**	**5,250**	**4,004**	**445**	**144,653**

Source: Prepared by CRS from EPA's Safe Drinking Water Information Systems, Water System Summary report generated on October 23, 2020. The search parameters were "public water systems."

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 wells). Transient non-community water systems

[9] EPA's long-standing policy is to exclude transient systems from drinking water regulations except for those contaminants, such as nitrate, that 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].)

(TNCWS) provide water in places where people do not remain for long periods, 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 EPA must establish regulations once a contaminant has been selected.[10] 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. 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., *E. coli*, *Cryptosporidium*, and *Legionella*), radionuclides, organic chemicals (e.g., benzene and many pesticides), and inorganic chemicals (e.g., arsenic and lead).[11]

Contaminant Selection and Regulatory Schedules

SDWA directs EPA to promulgate a drinking water regulation for a contaminant if the Administrator determines that the following three criteria are met:

1. the contaminant may have adverse health effects;
2. 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
3. its regulation presents a meaningful opportunity for health risk reduction for persons served by public water systems.[12]

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]).[13] 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.[14] This list is based on the contaminant candidate lists as well as other data.[15] The 2020 NDAA (P.L. 116-92,

[10] For a discussion of SDWA Section 1412, see CRS Report R46652, *Regulating Contaminants Under the Safe Drinking Water Act (SDWA)*.

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

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

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

[14] SDWA §1445(a)(2); 42 U.S.C. §300j-4(a)(2). For more information, see EPA, "Unregulated Contaminant Monitoring Program," http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/. Section 2021(a) of AWIA added SDWA Section 1445(j) to expand unregulated contaminant monitoring requirements to include public water systems serving 3,300-10,000 individuals—subject to the availability of appropriations for this purpose and lab capacity. This requirement enters into effect three years after the enactment date of AWIA (i.e., October 23, 2021). This section authorizes $15.0 million to be appropriated for each year from FY2019 through FY2021 to support the expanded monitoring.

[15] All systems serving more than 10,000 people and a representative sample of smaller systems must monitor for the

§7311) directed EPA to include in the fifth unregulated contaminant monitoring rule (UCMR 5) every PFAS for which EPA has a validated method for measuring the substance in drinking water.[16] 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 is required to set a nonenforceable maximum contaminant level goal (MCLG) at a level at which no known or anticipated adverse health effects occur and provides an adequate margin of safety.[17] 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).[18] Once the Administrator makes a determination to regulate a contaminant, EPA is required to propose a rule within 24 months and promulgate a final rule ("national primary drinking water regulation") within 18 months after the proposal.[19]

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 technique must minimize the overall health risk. Also, when proposing a regulation, EPA is required to 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, in certain cases, promulgate a standard that maximizes health risk reduction benefits at a cost that is justified by the benefits.[20]

Referencing legislative history, the agency generally sets standards based on technologies that are affordable for large communities. 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. EPA has determined that affordable

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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.

[16] EPA proposed the fifth Unregulated Contaminant Monitoring Rule on March 11, 2021. See EPA, "Revisions to the Unregulated Contaminant Monitoring Rule (UCMR 5) for Public Water Systems and Announcement of Public Meeting," 86 *Federal Register* 13846-13872, March 11, 2021. The proposed rule would require public water systems to conduct monitoring for 29 PFAS and lithium. For more information, see EPA, "Unregulated Contaminant Monitoring Program," http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/.

[17] SDWA, §1412(b)(4); 42 U.S.C. §300g-1(b)(4). For carcinogens, the MCLG is generally set at zero. For noncarcinogens, EPA generally has set the MCL at the same level as the MCLG.

[18] The level at which EPA is able to set the MCL is determined by the ability of a treatment technology to reduce a contaminant to a certain level. EPA's ability to set the MCL at the MCLG also depends on the availability of a test method that is sensitive enough to detect the contaminant at the MCLG. Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or "Superfund"), MCLs may be considered in selecting remedial actions for releases of hazardous substances, pollutants, and other contaminants (42 U.S.C. §9621(d)). However, CERCLA establishes liability only for releases of hazardous substances, as defined in CERCLA (42 U.S.C. §9601(14)).

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

[20] For further discussion, see CRS Report R46652, *Regulating Contaminants Under the Safe Drinking Water Act (SDWA)*.

compliance technologies are available for all existing standards; thus, the agency has not identified any small system variance technologies.

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.[21] EPA is required to review and revise, as appropriate, each drinking water regulation every six years.[22] (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.[23] 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. If the Administrator determines that a contaminant presents an urgent threat to public health, 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.

Variances and Exemptions

In anticipation that some public water systems, particularly smaller ones, could have difficulty complying with every drinking water regulation, Congress included in SDWA provisions for variances 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 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

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

[22] SDWA, §1412(b)(9); 42 U.S.C. §300g-1(b)(9). This provision specifies that "any revision shall maintain, or provide for greater, protection of the health of persons."

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

microbial contaminants. *EPA has determined that affordable compliance technologies are available for all existing standards.*[24] *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 provides 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.

Oversight of Public Water Systems: State Primacy

Section 1413 authorizes states, territories, and Indian tribes to assume primary oversight and enforcement responsibility (primacy) for public water systems when EPA determines that statutory criteria are met.[25] Currently, 55 of 57 states and territories have primacy authority for the public water system supervision (PWSS) program.[26] To assume primacy, a state[27] must adopt regulations at least as stringent as federal 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.

SDWA authorizes grants to states to help cover the costs of administering the PWSS program.[28] Congress authorized to be appropriated $100 million annually for each of FY1997-FY2003 for EPA to make PWSS grants to the states. Although the authority expired, Congress has continued to appropriate funds for the ongoing PWSS program.[29] In AWIA, Congress reauthorized appropriations for the PWSS program for FY2020 and FY2021, increasing the authorized appropriation level to $125 million for each of these two fiscal years. 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."[30] Additionally, states may use up to 10% of their annual DWSRF capitalization grant under Section 1452 to cover the costs of administering the PWSS program.[31]

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[24] For more information, see EPA website "Small Drinking Water System Variances" at https://www.epa.gov/sdwa/small-drinking-water-system-variances.

[25] SDWA §1413; 42 U.S.C. §300g-2. SDWA Section 1401(13)(A) defines "state" to include the several states and, for most purposes, "the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Northern Mariana Islands, the Virgin Islands, American Samoa, and the Trust Territory of the Pacific Islands." Section 1401(B) provides that for purposes of Section 1452 (State Revolving Loan Funds), "state" means "each of the 50 States, the District of Columbia, and the Commonwealth of Puerto Rico." Tribes are defined separately at Section 1401(14).

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

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

[28] SDWA, §1443; 42 U.S.C. §300j-2.

[29] Although House and Senate rules generally require a current authorization in law prior to an appropriation, these rules are procedural requirements for floor consideration and may be waived or not enforced to allow the consideration of appropriations to proceed.

[30] SDWA §1443(a)(4); 42 U.S.C. §300j-2(a)(4).

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

Enforcement, Consumer Information, and Citizen Suits

SDWA requires public water systems to monitor their water supplies to ensure compliance with drinking water regulations and to report monitoring results to the states. States review monitoring data submitted by public water systems, and conduct their own monitoring, to determine system compliance with drinking water regulations. EPA monitors public water system compliance primarily by reviewing data submitted by the states. SDWA includes several provisions intended to address public water system compliance capacity; for a discussion of some of these provisions, see "Consolidation Incentives to Achieve Compliance."

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 is required to 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 available to EPA and primacy states, 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.[32]

Consumer Information and Reports

SDWA 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(c)(1), systems are required to notify customers within 24 hours of any violations that have the potential to cause serious adverse health effects. The WIIN Act 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).[33]

Prior to the WIIN and AWIA amendments, notification requirements 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

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. 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.

[32] For enforcement information, statistics, and compliance reports, see EPA website, *Providing Safe Drinking Water in America: National Public Water Systems Compliance Report*, https://www.epa.gov/compliance/providing-safe-drinking-water-america-national-public-water-systems-compliance-report.

[33] WIIN Act, §2106. An exceedance of the lead action level is not a violation of the Lead and Copper Rule; as such, public notification of such exceedances was not required prior to this WIIN amendment.

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 SDWA to address lead action level exceedances at individual households. EPA is required to develop a strategic plan for providing targeted outreach, 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 serving fewer than 10,000 people to mail to all customers an annual "consumer confidence report" on contaminants detected in their drinking water. Operators of public water systems serving more than 10,000 consumers are required to provide confidence reports biannually. [34] As amended by AWIA, public water system operators are required to report specified lead action level exceedances, as well as any violations of SDWA that occurred during the monitoring period.[35] 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.[36] As amended by AWIA, EPA is required to develop a strategic plan to improve the accuracy and availability of monitoring data shared between public water systems, the primacy states, and EPA.[37]

Citizen Suits

Section 1449 provides for citizens' civil actions. Citizen suits may be brought against any person or agency allegedly in violation of SDWA requirements 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 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.

[34] Added by AWIA §2008.

[35] AWIA, §2008.

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

[37] SDWA, §1414(j); 42 U.S.C. §300g-3(j). The strategic plan must identify barriers to (1) ensuring the accuracy of reported data, (2) submitting data electronically, and (3) retrieving reported data. The plan must also recommend economically feasible and practical ways to transmit monitoring data. AWIA established a one-year time frame for the plan.

Lead in Drinking Water

Several SDWA provisions specifically address lead in drinking water. In addition to the public notification provisions discussed above, 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.[38] 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. The law gives states, not EPA, the responsibility to enforce the prohibitions.

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)[39] and exempted from the general prohibitions "pipes, pipe fittings, plumbing fittings, or fixtures, including backflow preventers, that are used exclusively for nonpotable services ... where the water is not anticipated to be used for human consumption;" and certain specified products.

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. Any product that does not meet the 0.25% lead limit may no longer be sold or installed unless it is

[38] 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).

[39] 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.

exempt from the general prohibitions.[40] On September 1, 2020, EPA promulgated a final rule revising regulations in conformity with the provisions of P.L. 111-380.[41]

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 2016 by the WIIN Act, requires EPA to make educational information regarding lead in drinking water broadly available to the public.

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 is required to 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% nonfederal cost share requirement. This section authorizes to be appropriated $60 million per year for FY2017 through FY2021. Additionally, public water systems may receive assistance for various lead reduction projects through the DWSRF program (discussed below under "Drinking Water State Revolving Funds").

Lead in School Drinking Water

The WIIN Act, Section 2107, repealed and 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).[42] 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. In AWIA, Congress increased the authorization of appropriation for this program to $25 million for FY2020 and FY2021.

[40] In October 2013, EPA announced that fire hydrants would not qualify for the exclusion for pipes, fittings, and fixtures used exclusively for nonpotable 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 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.

[41] EPA, "Use of Lead Free Pipes, Fittings, Fixtures, Solder and Flux for Drinking Water," 85 *Federal Register* 54235-54259, September 1, 2020.

[42] 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), 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). The WIIN Act also repealed SDWA Section 1465 (42 U.S.C. §300j-25), which had authorized grants to states to carry out Section 1464(d).

Drinking Water Fountain Replacement for Schools

AWIA, Section 2006(b), authorized the Drinking Water Fountain Replacement for Schools program, in new SDWA Section 1465. This section requires EPA to implement a competitive grant program to provide funds to LEAs for replacing drinking water fountains manufactured prior to 1988. To support this grant program, Congress authorized annual appropriations of $5 million for FY2019-FY2021.

Compliance Capacity and Assistance Programs

SDWA includes a suite of provisions intended to support public water systems' ability to meet drinking water standards. 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 state programs include (1) legal authority to ensure that new systems have the technical, managerial, and financial 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.

Consolidation Incentives to Achieve Compliance

In 1996, Congress amended SDWA enforcement provisions to allow limited and temporary enforcement relief as an incentive for significantly noncompliant public water systems to consolidate with, transfer ownership to, or be managed by, another system.[43] SDWA Section 1414(h) allows any public water system to submit to the primacy state or EPA a plan for the physical consolidation or the consolidation of management and administrative functions with another system, or the transfer of ownership of a public water system, to correct identified violations.[44]

AWIA amended SDWA Section 1414(h) to provide that in addition to the physical or management consolidation or transfer of ownership, a public water system can also submit a plan to execute a contractual agreement with another public water system to manage the noncompliant public water system.[45] If the primacy state or EPA approves the plan to consolidate or transfer ownership, enforcement action against that public water system for the specified violation would not be taken for two years.[46] AWIA 2018 further amended SDWA Section 1414(h) to authorize states, under certain circumstances, to require individual public water systems to assess options

[43] 42 U.S.C. §300g-3(h)(2).

[44] Under SDWA Section 1413, states that meet statutory criteria may assume primary enforcement responsibility (primacy) for public water system compliance with SDWA requirements.

[45] America's Water Infrastructure Act of 2018 (AWIA 2018; P.L. 115-270), §2009.

[46] 42 U.S.C. §300g-3(h)(2).

for consolidation or transfer of ownership.[47] Any public water system undertaking such actions pursuant to a mandatory assessment may receive a Drinking Water State Revolving Fund (DWSRF) loan to carry out the consolidation, transfer, or other action.[48] (Generally, DWSRF assistance may not be provided to public water systems that are in significant noncompliance with drinking water regulations or that lack the technical, managerial, and financial capacity to ensure compliance with the act.[49])

SDWA Section 1414(h)(5) provides limited liability protection for the water system owner or operator who has a state-approved consolidation plan. In the consolidation plan, the owner or operator of the public water system must identify any potential or existing liabilities from specific violations and their available assets. This provision also limits the liability of a consolidating system to the amount of its assets and to the liabilities identified in the plan.[50]

Small System Technical Assistance

In addition to the above compliance assistance programs, the act authorizes EPA and states to provide compliance assistance specifically to small public water 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.

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. Technical assistance may include circuit-rider and multistate 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.

[47] SDWA Section 1414(h) outlines the specific circumstances under which EPA or a state can require a consolidation assessment. Specifically, EPA or states may require an assessment if a public water system (1) has repeatedly violated one or more primary drinking water regulations, and is unable or unwilling to take feasible and affordable actions to address compliance with SDWA or has undertaken actions to address compliance, but has not achieved compliance; (2) when a consolidation, transfer, or other action is feasible; and (3) when a consolidation will result in greater compliance with SDWA. 42 U.S.C. §300g-3(h)(3).

[48] SDWA §1414(h)(4); 42 U.S.C. §300g-3(h)(4).

[49] SDWA §1452(a)(3)(A); 42 U.S.C. 42 U.S.C. §300j-12(a)(3)(A). SDWA Section 1452(a)(3)(B) allows states to provide DWSRF financial assistance to noncompliant public water systems if such assistance would ensure compliance with the act and "the owner or operator of the system agrees to undertake feasible and appropriate changes in operations (including ownership, management, accounting, rates, maintenance, consolidation, alternative water supply, or other procedures) if the State determines that the measures are necessary to ensure that the system has the technical, managerial, and financial capability to comply with the requirements of this title over the long term."

[50] AWIA 2018 Section 2010 requires EPA to promulgate regulations by October 23, 2020, to implement these provisions. Information regarding the development of a Water System Restructuring rule is available at https://www.epa.gov/sites/production/files/2019-07/documents/awia-_restructuring_rule_factsheet.pdf.

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)).[51] In the WIIN Act (P.L. 114-322, §2110), Congress extended this set-aside authority through FY2021.

Grant Assistance for Small and Disadvantaged Communities

Another provision added by the WIIN Act to SDWA (Section 1459A) directs EPA to establish a grant program to assist disadvantaged communities and 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% nonfederal share of project costs.

AWIA amended SDWA Section 1459A to add an EPA-administered grant program to help states assist underserved communities to respond to imminent and substantial contamination. EPA is authorized to make grants to requesting states to assist communities when contaminants are present in and pose an imminent and substantial threat to their public water system or underground drinking water sources and when EPA or a court of competent jurisdiction determines that the appropriate authorities have not responded in a sufficient manner. EPA may recover funds from grant recipients who are found to have caused or contributed to the contamination addressed by the grant program. Section 1459A(j) authorizes to be appropriated $60 million per year for FY2017 through FY2021 for the grant programs authorized therein.

AWIA further amended SDWA to add the Drinking Water System Infrastructure Resilience and Sustainability Program, which is a grant program for small and disadvantaged public water systems. SDWA Section 1459A(l) authorizes EPA to award grant funds to eligible public water systems for projects that increase resilience to natural hazards, including hydrologic changes. Eligible projects include those that increase water use efficiency, enhance water supply through watershed management or desalination, and increase energy efficiency in the conveyance or treatment of drinking water. This section authorized appropriations of $4.0 million for each of FY2019 and FY2020 for this program.

Drinking Water State Revolving Funds

In 1996, Congress authorized the DWSRF program to help systems finance improvements needed to comply with SDWA regulations.[52] SDWA Section 1452 authorizes EPA to make grants to states to capitalize DWSRFs, which states may then use to make subsidized loans to public water

[51] Over the years, EPA 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. 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 R46235, *Rural Development Provisions in the 2018 Farm Bill (P.L. 115-334)*.

[52] SDWA, §1452; 42 U.S.C. §300j-12.

systems. States must match 20% of the federal grant. Grants are allotted based on the results of needs surveys.[53] Each state and the District of Columbia must receive at least 1% of the funds available for capitalization grants.

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 35% 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. Section 1452(k) authorizes states to use up to 15% of their capitalization grant (but not more than 10% for any one of the following) for (1) loans for a public water system to acquire land or conservation easement to protect the source water of the system from contamination; (2) loans for a community water system to implement voluntary source water protection measures; (3) technical and financial assistance to public water systems as a part of a capacity development strategy; or (4) expenditures to establish and implement wellhead protection programs and certain source water protection efforts.

The law authorized appropriations of $599 million for FY1994 and $1 billion per year for FY1995 through FY2003 for DWSRF capitalization grants. AWIA reauthorized appropriations for DWSRF capitalization grants at $1.17 billion in FY2019, $1.30 billion in FY2020, and $1.95 billion in FY2021. SDWA directed EPA to reserve, from annual DWSRF appropriations, 0.33% for grants 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 in small systems, and up to 2% for technical assistance. EPA may use 1.5% of funds each year for making grants to Indian tribes and Alaska Native villages.[54]

AWIA made several amendments to the DWSRF provisions to expand the eligible uses of DWSRF financial assistance, provide states with additional flexibility to administer the DWSRF program, and include provisions intended to make DWSRF assistance more accessible to public water systems. Among other changes, the amendments extend the amortization and repayment period for loans made from the DWSRF, authorize the funding of source water assessments from the DWSRF capitalization grant, and require that funds made available from a state DWSRF for water system projects must use all iron and steel products produced in the United States, through FY2023.

The NDAA for Fiscal Year 2020 (P.L. 116-92), Section 7312, amended SDWA to establish a grant program within the DWSRF to assist water systems in addressing PFAS and other emerging

[53] 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.

[54] 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 R45304, *Drinking Water State Revolving Fund (DWSRF): Overview, Issues, and Legislation*, by Mary Tiemann.

contaminants.[55] The NDAA also authorized appropriations of $100 million annually for FY2020-FY2024 for this purpose.[56]

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. AWIA revised certain security provisions to address both security and natural threats. Key provisions are summarized below.[57]

Risk and Resilience Assessments

SDWA Section 1433, added by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (P.L. 107-188), was repealed and replaced in AWIA. Prior to AWIA, SDWA Section 1433 required water systems to assess their vulnerabilities to terrorist or other intentional acts and, based on the assessment, prepare emergency response plans. The statute required public water system operators to certify their vulnerability assessments by a specified deadline but did not require public water systems to update their assessments or emergency response plans.

Under revised SDWA Section 1433, each community water system serving more than 3,300 people is required to conduct an assessment of the risks and resilience of the system to malevolent acts and natural hazards. In addition, community water systems are required to evaluate the resilience of their physical infrastructure and management practices (including financial capacity) to respond to these risks. This provision establishes deadlines, based on system size, for community water systems to certify to EPA that they had conducted a risk and resilience assessment. Public water systems serving 3,300 or more persons must review their assessments every five years and update them if needed. The assessments are voluntary for public water systems serving fewer than 3,300 people.

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.

As amended by AWIA, SDWA requires EPA to issue guidance and provide technical assistance on conducting risk and resilience assessments and preparing emergency response plans for public water systems serving fewer than 3,300 individuals.

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 risk and resilience assessments and prepare response plans and for expenses and contracts to address basic security enhancements and significant threats. AWIA added an authorization of appropriations of $25.0 million for each of FY2020 and FY2021 for EPA to make grants to public water systems to plan or implement projects to address their system's resiliency. For each fiscal year, EPA is authorized to use as much as $10.0 million of the available

[55] 42 U.S.C. §300j-12(a)(2)(G).

[56] 42 U.S.C. §300j-12(t).

[57] For additional discussion of SDWA drinking water security and resilience provisions, see CRS In Focus IF11777, *Safe Drinking Water Act (SDWA): Water System Security and Resilience Provisions*.

funds to make grants to public water systems serving fewer than 3,300 people or to nonprofit organizations for eligible projects and activities.

The 2002 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 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.

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.[58] Section 1421 authorized the establishment of state underground injection control (UIC) programs to protect underground sources of drinking water (USDWs).[59] 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

[58] EPA reports that, of 144,653 public water systems, 130,029 rely on ground water and 14,563 rely on surface water. Among 49,591 community water systems, 37,953 rely on ground water and 11,613 rely on surface water. The remaining systems did not identify whether their source was groundwater or surface water. EPA's Safe Drinking Water Information Systems, Water System Summary report generated on October 23, 2020. The search parameters were "public water systems."

[59] For additional discussion of UIC related to sequestration of carbon dioxide, see CRS Report R46192, *Injection and Geologic Sequestration of Carbon Dioxide: Federal Role and Issues for Congress*, by Angela C. Jones.

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.[60]

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.[61] 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.[62] 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.[63] 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.[64] Any person may petition for sole source aquifer designation. Nationwide, EPA has designated 77 sole source aquifers.[65]
2. **Sole Source Aquifer Demonstration Program.** Section 1427, added in 1986, established procedures for demonstration programs to develop, implement, and

[60] 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.

[61] SDWA, §1423.

[62] Ibid., §1425, added in 1980.

[63] The wells are classified as follows: Class I (inject hazardous wastes, industrial nonhazardous 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 nonhazardous 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).

[64] 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.

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

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.

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) authorized 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.[66]

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.

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 a representative monitoring plan to assess the occurrence of unregulated contaminants in small systems; 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 database 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.[67]

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.[68]

[66] SDWA, §1444.

[67] Ibid., §1446.

[68] Ibid., §1447.

Drinking Water Assistance to Colonias[69]

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 directed 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 required 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 called 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.[70]

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 SDWA. Several of these provisions are described below.

[69] 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.

[70] 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. In P.L. 109-54, Congress made this authority permanent.[71]

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 were 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.

[71] 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 3. *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
300j-19c	Study on Intractable Water Systems	§1459C
300j-19d[a]	Review of Technologies	§1459D
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-25[a]	Drinking Water Fountain Replacement for Schools Grant Program	§1465
300j-26	Certification of testing laboratories	[b]

Source: Prepared by CRS from the Safe Drinking Water Act, as amended, and codified in the *U.S. Code*.

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 4. 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-1(b)(3)(C)	EPA studies, assessments, and analyses in support of regulations or the development of methods	$35,000,000	FY2003	§1412(b)(3)(C)
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(g)	Community water system risk and resiliency grants	$25,000,000	FY2021	§1433(g)
300i-4(e)	Review of methods by which terrorists/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(f)	Technical assistance for innovative water technologies	$10,000,000	FY2021	§1442(f)
300j-2(a)	State Public Water System Supervision program grants	$125,000,000	FY2021	§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	FY2021	§1445(a)

42 U.S.C.	Purpose	Last Authorized Amount	Last Fiscal Year of Authorization	SDWA, as amended
300j-4(j)	Monitoring program for unregulated contaminants for certain systems	$15,000,000	For each fiscal year for which monitoring is required	§1445(j)
300j-12(m)	State Revolving Loan Fund program grants	$1,950,000,000	FY2021	§1452(m)
300j-12(t)	Grants to address emerging contaminants	$100,000,000	FY2024	§1452(t)
300j-14(e)	State Source Water Petition program grants	$5,000,000	FY2021	§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-19a(k)	Assistance for small and disadvantaged communities	$60,000,000	FY2021	§1449A(k)
300j-19a(l)	Drinking Water Infrastructure Resilience and Sustainability Program	$4,000,000	FY2020	§1459A(l)
300j-19b	Reducing lead in drinking water	$60,000,000	FY2021	§1449B(d)
300j-19d	Review of Technologies	$10,000,000	FY2019	§1459D
300j-24(d)	Voluntary school and child care program lead testing grant program	$25,000,000	FY2021	§1464(d)
300j-25	Drinking Water Fountain Replacement for Schools Grant Program	$5,000,000	FY2021	§1465

Source: Prepared by CRS 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 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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