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Safe Drinking Water Act: Implementation and Issues

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CONTENTS

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SUMMARY

In the 108th Congress, key drinking water issues are likely to involve water infrastructure funding and drinking water problems caused by specific contaminants, such as the gasoline additive methyl tertiary butyl ether (MTBE) and perchlorate. Congress last reauthorized the Safe Drinking Water Act (SDWA) in 1996, and although funding authority for most SDWA programs expires in FY2003, broad reauthorization efforts are not expected as EPA, states, and water utilities continue implementing the 1996 amendments.

The 108th Congress has renewed efforts to address drinking water contamination by MTBE. On April 11, the House passed H.R. 6, a broad energy bill that authorizes appropriations from the Leaking Underground Storage Tank (LUST) Trust Fund to remediate MTBE contamination. In addition, Senate-passed S. 195, a LUST bill, and S. 791, a fuels bill reported by the Environment and Public Works Committee, both authorize funding for remediation and prevention of MTBE leaks. On June 6, the text of S. 791 was added as an amendment to the Senate energy bill, S. 14.

Major drinking water issues in the 107th Congress included drinking water infrastructure funding and the security of water supplies. In addition, numerous bills were introduced targeting specific contaminants of concern, especially arsenic and MTBE.

The 107th Congress addressed drinking water security in the Bioterrorism Preparedness Act (P.L. 107-188), which amended SDWA to require community water systems to conduct vulnerability assessments and prepare emergency response plans. Drinking water security remains a priority, and the 108th Congress may be interested in overseeing implementation of these provisions and other efforts to improve water security.

A continuing issue concerns the availability of funding for infrastructure projects needed by public water systems to comply with SDWA rules and to meet other needs. Congress authorized a drinking water state revolving fund (DWSRF) program in 1996 to help communities finance projects needed to comply with SDWA standards. However, studies suggest that a significant funding gap exists and will continue to grow as SDWA requirements increase and infrastructure ages.

During the past Congress, concern over the cost of drinking water standards (especially the arsenic standard) blended into the larger debate over the federal role in assisting communities with financing drinking water infrastructure – an issue that has become more challenging for Congress in a time of tightened budgets. Legislation to increase funding authority for water infrastructure programs has been under discussion. However, in light of funding constraints and large estimated needs, authorizing committees also have been exploring innovative and alternative options for financing water infrastructure projects as a means of helping communities address a wide array of infrastructure needs.

A related issue concerns the financial, technical, and managerial capacity of small water systems to comply with the growing number of increasingly complex SDWA regulations. S. 1961, a water infrastructure bill reported last year by the Senate Environment and Public Works Committee, addressed funding and capacity development issues. This legislative approach could be of interest again in this Congress.

MOST RECENT DEVELOPMENTS

The 108th Congress has acted on several bills that address drinking water contamination caused by the gasoline additive methyl tertiary butyl ether (MTBE). (Although these bills do not amend the Safe Drinking Water Act, they address a drinking water contamination issue that has become a major concern for public water suppliers.) On April 11, the House passed H.R. 6, a broad energy bill, that authorizes the use of $850 million from the LUST Trust Fund for addressing releases of MTBE and other fuel oxygenates, such as ethanol. On May 1, 2003, the Senate passed S. 195 (S.Rept. 108-13), which focuses on preventing leaks from underground storage tanks and authorizes the appropriation of $125 million from the Leaking Underground Storage Tank (LUST) Trust Fund specifically for remediating MTBE contamination. On June 3, the Senate Environment and Public Works Committee reported S. 791 (S.Rept. 108-57), a broader fuels bill that bans MTBE and authorizes $200 million for remediating contamination caused by MTBE and other ether additives. An amendment that was basically the same as S. 791 was added to the Senate energy bill, S. 14, on June 6.

BACKGROUND AND ANALYSIS

Introduction

The Safe Drinking Water Act (SDWA), title XIV of the Public Health Service Act (42 U.S.C. 300f-300j-26), is the key federal law for protecting public water supplies from harmful contaminants. First enacted in 1974 and substantially amended in 1986 and 1996, the Act is administered through programs that regulate contaminants in public water supplies, provide funding for infrastructure projects, protect sources of drinking water, and promote the capacity of public water systems to comply with SDWA regulations. The 1974 law established the current federal-state arrangement in which states and tribes may be delegated primary enforcement and implementation authority (primacy) for the drinking water program by the Environmental Protection Agency (EPA), which is the federal agency responsible for administering the law. The state-administered Public Water Supply Supervision Program remains the basic program for regulating the nation's public water systems. (For more information, see CRS Report RL31243, *Safe Drinking Water Act: A Summary of the Act and Its Major Requirements*.)

More than 90% of people in the United States get their drinking water from one of the nearly 54,000 community water systems nationwide. Congress passed the SDWA in 1974, after a nationwide study of community water systems revealed widespread water quality problems and health risks resulting from poor operating procedures, inadequate facilities, and poor management of water supplies in communities of all sizes. Since then, government and private efforts to implement the Act have led to better public water system management and more information about, and greater confidence in, the quality of water provided at the tap.

Significant progress has been made during the 28 years of the federal drinking water program. Some 91 drinking water contaminants are now regulated, and EPA reports that the population served by community water systems that met all health-based standards increased

from 83% in 1994 to 91% in 2002. Nonetheless, drinking water safety concerns and challenges remain. EPA and state enforcement data indicate that public water systems still incur tens of thousands of violations of SDWA requirements each year. These violations primarily involve monitoring and reporting requirements, but also include thousands of violations of standards and treatment techniques. Moreover, monitoring violations create uncertainty as to whether systems with reporting violations actually met the applicable health-based standards. Concern also exists over the potential health effects of contaminants for which drinking water standards have not been set, such as perchlorate (the main ingredient in solid rocket fuel) and the gasoline additive methyl tertiary butyl ether (MTBE).

The 1996 SDWA Amendments

The 104th Congress made numerous changes to the Act with the SDWA Amendments of 1996 (P.L. 104-182), culminating a multi-year effort to amend a law that was widely criticized as having too little flexibility, too many unfunded mandates, and an arduous but unfocused regulatory schedule. Among the key provisions, the 1996 amendments authorized a drinking water state revolving loan fund (DWSRF) program to help public water systems finance projects needed to comply with SDWA rules. The amendments also established a process for selecting contaminants for regulation based on health risk and occurrence, gave EPA some added flexibility to consider costs and benefits in setting most new standards, and established schedules for regulating certain contaminants (such as *Cryptosporidium*, arsenic, and radon). The law added several provisions aimed at building the capacity of water systems (especially small systems) to comply with SDWA regulations, and it imposed many new requirements on the states including programs for source water assessment, operator certification and training, and compliance capacity development. The amendments also required that community water suppliers provide customers with annual "consumer confidence reports" that provide information on contaminants found in the local drinking water. Congress authorized appropriations for SDWA programs through FY2003.

Regulated Public Water Systems

Federal drinking water regulations apply to some161,000 privately and publicly owned water systems that provide piped water for human consumption to at least 15 service connections or that regularly serve at least 25 people. (The law does not apply to private, residential wells.) Of these systems, roughly 53,400 are *community water systems* (CWSs) that serve a residential population of nearly 270 million year-round. All federal regulations apply to these systems. (Roughly 15% of community systems are investor-owned.) Nearly 18,700 public water systems are *non-transient, non-community water systems* (NTNCWSs), such as schools or factories, that have their own water supply and serve the same people for more than 6 months but not year-round. Most drinking water requirements apply to these systems. Another 89,000 systems are *transient non-community water systems* (TNCWSs) (e.g., campgrounds and gas stations) that provide their own water to transitory customers. TNCWSs generally are required to comply only with regulations for contaminants that pose immediate health risks (such as microbial contaminants), with the proviso that systems that use surface water sources must also comply with filtration and disinfection regulations.

Of the community water systems, roughly 84% serve 3,300 or fewer people. While large in number, these systems provide water to just 10% of the population served by all community systems. In contrast, 7% of community water systems serve more than 10,000

people, and they provide water to 81% of the population served. Fully 85% (15,900) of non-transient, non-community water systems and 97% (86,400) of transient noncommunity water systems serve 500 or fewer people. These statistics give some insight into the scope of financial, technological, and managerial challenges many public water systems face in meeting a growing number of complex federal drinking water regulations. Table 1 provides statistics for community water systems.

Table 1. Size Categories of Community Water Systems

System size (population served)	Number of Community Water Systems	Population Served (millions)	Percent of Community Water Systems	Percent of Population Served
Very small (25-500)	30,703	5.0	57%	2%
Small (501-3,300)	14,331	20.2	27%	8%
Medium (3,301-10,000)	4,606	26.7	9%	10%
Large (10,001-100,000)	3,436	96.3	6%	36%
Very large (>100,000)	361	119.5	1%	45%
Total	53,437	267.7	100%	100%

Adapted from: US Environmental Protection Agency. Factoids: Drinking Water and Ground Water Statistics for 2002. Available at Internet website: [http://www.epa.gov/safewater/data/pdfs/02factoids.pdf].

Regulating Drinking Water Contaminants

The Safe Drinking Water Act directs EPA to promulgate National Primary Drinking Water Regulations for contaminants that may pose public health risks and that are likely to be present in public water supplies. These regulations generally include numerical standards to limit the amount of a contaminant that may be present in drinking water. Where it is not economically and technically feasible to measure a contaminant at very low concentrations, EPA establishes a treatment technique in lieu of a standard.

To develop a drinking water regulation, EPA engages in a technical assessment of a variety of factors. The Agency must: 1) determine the occurrence of a contaminant in the environment, and especially in public water systems; 2) evaluate human exposure and risks of adverse health effects to the general population and to sensitive subpopulations; 3) ensure that analytical methods are available for water systems to use in monitoring for a contaminant; 4) evaluate the availability and costs of treatment techniques that can be used to remove a contaminant; and 5) assess the impacts of a regulation on public water systems, the economy, and public health. Consequently, regulation development typically is a multi-year process. However, EPA may expedite procedures and issue interim standards to respond to urgent threats to public health.

After reviewing health effects studies, EPA sets a nonenforceable maximum contaminant level goal (MCLG) at a level at which no known or anticipated adverse health effects occur and that allows an adequate margin of safety. EPA also considers the risk to sensitive subpopulations (e.g., children). For carcinogens and microbes, EPA sets the MCLG at zero. Because MCLGs consider only health effects and not analytical detection limits or treatment technologies, they may be set at levels that water systems cannot meet. Once the

MCLG is established, EPA sets an enforceable standard, the maximum contaminant level (MCL). The MCL generally must be set as close to the MCLG as is "feasible" using the best technology or other means available, taking costs into consideration.

EPA has relied on legislative history to determine the meaning of "feasible." Most recently, the Senate report accompanying the 1996 amendments stated that feasible means the level that can be reached by large, regional drinking water systems applying best available treatment technology. The report explained that this approach is used because 80% of the population receives its drinking water from large community water systems, and thus, safe water can be provided to most of the population at very affordable costs. (About 80% of the population is served by systems that serve a population of 10,000 or more.)

However, because standards are based on cost considerations for large systems, Congress expected that standards could be less affordable for smaller systems. An issue in the 1996 reauthorization debate concerned whether the costs of some standards were justified, given their estimated risk-reduction benefits. As amended, the Act now requires EPA, when proposing a standard, to publish a determination as to whether or not the benefits of a proposed standard justify the costs. If EPA determines that the benefits do not justify the costs, EPA, in certain cases, may promulgate a standard less stringent than the feasible level that "maximizes health risk reduction benefits at a cost that is justified by the benefits." EPA used this flexibility when revising the arsenic standard in 2001.

Recent rulemaking activities include a 1998 rule package that expanded requirements to control microbial pathogens (e.g., *Cryptosporidium*) and disinfectants and disinfection byproducts (e.g., chlorine and bromate). These requirements are now in effect for relevant water systems. EPA also issued new regulations for several radionuclides, including radium (effective December 2003), and a revised standard for arsenic (effective January 2006).

During FY2004, EPA expects to complete several related rulemakings, including: a groundwater rule to establish disinfection requirements for systems relying on ground water (this rule is intended to protect against fecal bacteria contamination in these systems); and a rule package that includes the Stage 2 Disinfectants and Disinfection Byproduct Rule (required by the 1996 amendments) and the Long Term Enhanced Surface Water Treatment Rule. These rules build on the rules issued in 1998 to strengthen public health protection from disinfectants, their byproducts, and pathogens. EPA also is working to issue a final radon rule that was due in 2001. Ongoing work on this rulemaking includes re-evaluating the rule's cost and benefits to address a General Accounting Office report, *Revisions to EPA's Cost Analysis for the Radon Rule Would Improve Its Credibility and Usefulness* (GAO-02-333), which concluded that EPA had underestimated compliance costs by 20%.

Many other contaminants are being studied for possible regulation, including MTBE and perchlorate. EPA identified these contaminants as candidates for regulation in 1998, but concluded that information was insufficient at that time to make a regulatory determination. EPA listed MTBE and perchlorate as priorities for further research on health effects and treatment technologies, and as priorities for collecting occurrence data. In 2002, EPA issued a draft risk assessment for perchlorate. In March 2003, EPA and other agencies requested the National Academies of Science to advise EPA on questions related to that assessment.

Issues in the 108th Congress

An array of drinking water issues could receive attention in the 108th Congress. Current issues involve drinking water infrastructure needs and funding; the status of efforts to enhance the security of public water supplies; small system compliance capacity; and efforts to address contamination of public water supplies by unregulated contaminants, such as MTBE and perchlorate. Other issues that may receive attention include how the states are faring in their efforts to implement SDWA provisions, particularly the many requirements added by the 1996 SDWA amendments. Although authorizations of appropriations for most SDWA programs expire in FY2003, a comprehensive reauthorization bill is not expected. As with other EPA-administered statutes having expired funding authority, the programs do not expire as long as Congress continues to appropriate funds for these programs.

Drinking Water Infrastructure Funding

Drinking Water State Revolving Fund. A persistent SDWA issue concerns the ability of public water systems to upgrade or replace infrastructure to comply with federal drinking water regulations and, more broadly, to ensure the provision of a safe and reliable water supply. In 1996, Congress responded to growing complaints about the Act's unfunded mandates and authorized a drinking water state revolving loan fund (DWSRF) program to help public water systems finance infrastructure projects needed to meet drinking water standards and to address the most serious health risks. The Act authorizes EPA to award annual capitalization grants to the states. States then use their grants (plus a 20% state match) to provide loans and other assistance to public water systems. Communities repay loans into the revolving fund, thereby making resources available for projects in other communities. The DWSRF program is modeled after a similar program in the Clean Water Act.

Eligible projects include installation and replacement of treatment facilities, distribution systems, and certain storage facilities. Projects to replace aging infrastructure are eligible if they are needed to maintain compliance or to further public health protection goals. Funds may not be used for operation and maintenance of water systems. Eligible systems include publicly and privately owned community water systems and not-for-profit noncommunity water systems; however some states have laws or policies that preclude privately owned utilities from receiving DWSRF assistance. (For more information, see CRS Report 97-677, *Safe Drinking Water Act: State Revolving Fund Program*.)

Congress authorized appropriations totaling $9.6 billion, including $1 billion for each of FY1995 through FY2003 for the DWSRF program. Since the program was first funded in FY1997, Congress has appropriated roughly $6.1 billion, including $850 million for FY2003 in P.L. 108-7 (roughly $844 million after applying the across the board reduction required by that law). The President has requested $850 million for FY2004.

All states are participating in the program and, through June 2002, they had received a total of $4.4 billion in capitalization grants. This amount, combined with the state match, bond proceeds, and other funds, provided a total of $6.7 billion in DWSRF funds available for providing loans and other assistance. Through June 30, 2002, states had made more than 2,400 loans totaling $5.1 billion, and $1.6 billion remained available for loans.

Funding needs and issues. While the DWSRF program generally is well regarded, many organizations and state and local officials argue that greater investment in drinking water infrastructure is required. EPA's 1999 survey of capital improvement needs for public water systems indicated that communities need to invest roughly $150.9 billion on drinking water infrastructure improvements over 20 years (1999-2018) to comply with existing drinking water regulations and to ensure the provision of safe water. The survey excluded funds needed for compliance with several recent regulations (including the revised arsenic and radium rules) and pending rules for radon and other contaminants; nor did it consider funds needed for security upgrades. These requirements are expected to substantially increase needs estimates.

A related issue is the need for communities to address drinking water infrastructure needs that are outside the scope of the DWSRF program and, thus, generally are ineligible for assistance from this source. Ineligible categories include future growth, ongoing rehabilitation, and operation and maintenance of systems. According to EPA, outdated and deteriorated drinking water infrastructure poses a fundamental long-term threat to drinking water safety, and in many communities, basic infrastructure costs could far exceed SDWA compliance costs. (Several other federal programs provide funding for water infrastructure projects. For a discussion of these programs, see CRS Report RL30478, *Federally Supported Water Supply and Wastewater Treatment Programs*.)

In September 2002, EPA issued *The Clean Water And Drinking Water Infrastructure Gap Analysis*, which identified potential funding gaps between projected needs and spending from 2000 through 2019. This analysis estimated the potential 20-year funding gap for drinking water and wastewater infrastructure capital and operations and maintenance (O&M), based on two scenarios: a "no revenue growth" scenario and a "revenue growth" scenario that assumed spending on infrastructure would increase 3% per year. Under the "no revenue growth" scenario, EPA projected a funding gap for drinking water capital investment of $102 billion (roughly $5 billion per year) and an O&M funding gap of $161 billion ($8 billion per year). Using revenue growth assumptions, EPA estimated a 20-year capital funding gap of $45 billion ($2 billion per year), and no gap for O&M.

Other needs assessments also reveal a funding gap. A recent study by the Congressional Budget Office, *Future Investment in Drinking Water and Wastewater Infrastructure*, concluded that current funding from all levels of government, combined with current revenues from ratepayers, will not be sufficient to meet the nation's future demand for water infrastructure. In 2000, the Water Infrastructure Network (WIN) (a coalition of state and local officials, water and wastewater service providers, environmental groups and others) issued a report concluding that, over the next 20 years, water and wastewater systems need to invest $23 billion annually more than current investments to meet SDWA and Clean Water Act health and environmental priorities and to replace aging infrastructure. In the 107th Congress, WIN and other groups presented proposals to Congress for a multi-billion dollar investment program in water infrastructure. Others, however, called for more financial self-reliance within the water sector. (For information on wastewater infrastructure funding, see CRS Issue Brief IB10108, *Clean Water Act Issues in the 108th Congress*.)

The President's budget request for FY2004 addresses EPA's Gap Analysis. In addition to requesting $850 million for the DWSRF program for FY2004, the President proposes that funding be continued at a level of $850 million annually through FY2018. According to

EPA's budget justification, the extension of federal support would allow DWSRFs to revolve at a cumulative level of $1.2 billion (more than double the previous goal of $500 million) and would help close the funding gap for drinking water infrastructure capital needs.

Given the large estimated needs and federal budget constraints, EPA, states, localities, and water utilities have been examining alternative management and financing strategies to address water system costs. Approaches being considered include establishing public-private partnerships (privatization options range from contracting for services to selling system assets), improving asset management, and adopting full-cost pricing for water services.

The CBO's water infrastructure report shows that U.S. household water bills are lower than those in most other industrialized nations, and some stakeholders maintain that water systems should rely primarily on rate increases to meet infrastructure needs. However, most stakeholders agree that not all households can afford rate increases. One assistance option receiving attention is to provide subsidies to low-income households that face high water bills. Such an approach is used to reduce home heating costs under the federal Low Income Home Energy Assistance Program. Proponents argue that, with this approach, subsidies could be targeted where needed rather than broadly subsidizing water infrastructure that traditionally has been a local responsibility. Others argue that SDWA's mandates justify a broader federal funding role that could be supplemented by a low-income subsidy program.

During the 107th Congress, several hearings were held on water infrastructure funding issues, including a hearing on innovative financing techniques for water infrastructure improvements, offered by the Senate Environment and Public Works Committee. This Committee also reported a water infrastructure financing bill, S. 1961 (S.Rept. 107-228), that proposed to increase funding authority for the drinking water and Clean Water Act SRF programs and to establish a $5 billion grant program for small water systems. The legislation also included provisions aimed at improving the management of water systems. However, the bill became bogged down after a number of contentious amendments were adopted in markup, including an amendment to apply Davis-Bacon prevailing wage requirements to all construction projects financed in any part with assistance under SDWA, including funds derived from DWSRF loan repayments. (See CRS Report RL31344, *Water Infrastructure Financing Legislation: Comparison of S. 1961 and H.R. 3930*.)

Drinking water infrastructure financing and related compliance capacity issues may continue to be of interest in the 108th Congress. (Small system compliance issues are discussed below.) An economic stimulus bill (S. 396) has been introduced that, among other purposes, would increase funding authority for the DWSRF program. Other drinking water infrastructure funding bills are likely as well. However, in the current environment of tight budgets and multiple priorities, questions concerning the appropriate federal role in funding water infrastructure could receive renewed attention. Authorizing committees have expressed interest in exploring innovative approaches for financing water infrastructure projects and improving water system management as a means of helping communities address the wide array of infrastructure needs.

Drinking Water Security

The events of September 11, 2001, raised concerns about the security of the nation's water supplies and their vulnerability to attack. The 107th Congress addressed drinking water

security issues in the *Public Health Security and Bioterrorism Preparedness and Response Act of 2002* (P.L. 107-188, H.Rept. 107-481), which amended SDWA to require community water systems to conduct vulnerability assessments and prepare emergency response plans. The 108th Congress may be interested in overseeing the implementation of these provisions and other efforts to improve water security. Congressional attention could focus on several issues, such as: 1) what are the roles of EPA and states in overseeing and facilitating implementation of the security requirements by water utilities; 2) what is the relationship between EPA and Department of Homeland Security regarding drinking water vulnerability assessments and other critical infrastructure information; and 3) what additional funding is needed to meet the new mandates, and from what source(s) might that funding come?

Title IV of the Bioterrorism Preparedness Act made several amendments to the SDWA. A key provision requires each community water system serving more than 3,300 individuals to conduct an assessment of the system's vulnerability to terrorist attacks or other intentional acts to disrupt the provision of a safe and reliable drinking water supply. These systems must certify to EPA that they have conducted a vulnerability assessment and submit a copy of the assessment to EPA. The Act also requires these systems to prepare or revise emergency response plans incorporating the results of the vulnerability assessments no later than 6 months after completing them. Table 2 outlines the schedule for water utilities to submit vulnerability assessments to EPA and to complete emergency response plans.

Table 2. Community Water System Deadlines under the Bioterrorism Act

System size by population served (approx. no. of systems)	Vulnerability assessments must be completed	Emergency response plans must be completed
100,000 or more (425)	March 31, 2003	September 30, 2003
50,000 - 99,999 (460)	December 31, 2003	June 30, 2004
3,301 - 49,999 (7,500)	June 30, 2004	December 31, 2004

The Bioterrorism Act authorized $160 million for FY2002 (and sums as may be needed for FY2003 through FY2005) to provide financial assistance to community water systems to assess vulnerabilities, prepare response plans, and address security enhancements and significant threats. The emergency supplemental appropriations for FY2002 (P.L. 107-117) provided $90 million for assessing the vulnerabilities of drinking water utilities and other security planning, and $5 million for state grants for assessing drinking water safety.

In FY2002, EPA awarded approximately $51 million in water security grants to help the largest public water systems complete vulnerability assessments by the March 31, 2003 date. Congressional committees may be interested in overseeing the outcome of this first drinking water deadline under the Bioterrorism Act, both in terms of the quantity and quality of assessments completed.

Vulnerability assessments for the second category of systems (serving between 50,000 and 100,000) are due December 31, 2003.Whether similar funding will be provided for these and the smaller systems that are required to prepare vulnerability assessments remains an issue. Also at issue is what assistance might be available for the remaining 84% of community water systems that serve 3,300 or fewer and are not required to do assessments and emergency planning under the Bioterrorism Act. EPA, states, and drinking water organizations have developed guidance documents and are providing technical assistance to these smaller systems.

For FY2003, EPA requested $16.9 million to conduct vulnerability assessments for small and medium-sized systems and another $5 million for state water security coordinators to work with EPA and drinking water utilities in assessing drinking water safety. The Consolidated Appropriations Resolution for FY2003 (P.L. 108-7) provided this amount. It also contained several earmarks, including $2 million for the National Rural Water Association to help small systems conduct vulnerability assessments, and $1 million to the American Water Works Association to provide drinking water security training.

For FY2004, EPA has requested $32.4 million for critical water infrastructure protection, including $5 million for state grants for water security efforts. EPA's budget request explains that this funding supports states' efforts to work with drinking water and wastewater systems to develop and enhance emergency operations plans; conduct training in the implementation of remedial plans in small systems; and develop detection, monitoring and treatment technology to enhance drinking water and wastewater security. EPA proposes to use the requested funds to assist the roughly 8,000 community water systems that serve water to populations between 3,300 and 100,000. As noted in Table 2, the Bioterrorism Act requires these systems to prepare vulnerability assessments and emergency response plans during the next two years. (For more information, see CRS Report RL31294, *Safeguarding the Nation's Drinking Water: EPA and Congressional Actions*.)

Small Systems Issues

A key SDWA implementation issue involves the financial, technical, and managerial capacity of small communities to comply with a growing number of complex drinking water regulations. As noted above, nearly 84% (45,000 of 53,400) of the nation's community water systems are small, serving 3,300 persons or fewer; 57% (30,700) of the systems are very small, serving 500 persons or fewer. EPA and states have documented the difficulties many small systems face in meeting SDWA rules, and more fundamentally, in ensuring the quality of their water supplies. Major problems include: deteriorated infrastructure; lack of access to capital; limited customer and rate base; inadequate rates; diseconomies of scale; and limited technical and managerial capabilities. Although these systems serve just 10% of the population served by community water systems, the sheer number of small systems creates challenges for policymakers.

In the earliest SDWA debates, Congress recognized that setting standards based on technologies that are affordable for large cities could pose problems for small systems. As EPA attempted to implement the 1986 requirement that the Agency issue 25 new standards every 3 years, it became increasingly clear that small systems especially were having difficulty keeping up with the growing number of regulations. During the reauthorization debate leading up to the 1996 amendments, policymakers gave considerable attention to the

question of how to help small systems develop or improve their capacity to ensure consistent compliance with the SDWA. The 1996 amendments added provisions aimed at achieving this goal, including a requirement that states establish strategies to assist systems in developing and maintaining the technical, financial and managerial capacity to meet SDWA regulations. Congress also revised provisions on standard-setting, variances, and exemptions to increase consideration of small system concerns, and to provide some compliance flexibility in certain cases.

Small system variances. The SDWA now requires EPA, when issuing a regulation, to identify technologies that meet the standard and that are affordable for systems that serve populations of 10,000 or fewer. If EPA does not identify "compliance" technologies that are affordable for these systems, then EPA must identify small system "variance" technologies. A variance technology need not meet the standard, but must protect public health. States may grant variances to systems serving 3,300 persons or fewer, if a system cannot afford to comply with a rule (through treatment, an alternative source of water, or other restructuring) and the system installs a variance technology. With EPA approval, states also may grant variances to systems serving between 3,300 and 10,000 people.

To date, EPA has determined that affordable compliance technologies are available for all drinking water regulations. Consequently, the Agency has not identified any small system variance technologies, and no small system variances are available. If EPA had identified variance technologies, states still might not make much use of these variances for a number of reasons – a key issue being the existence of a double standard for tap water quality in communities that meet a standard, compared with those that would rely on variances.

Exemptions. The Act's exemption provisions also are intended to provide compliance flexibility in limited circumstances. States or EPA may grant temporary exemptions from a standard if, due to certain compelling factors (including cost), a system cannot comply on time. For example, all systems are required to comply with the new arsenic standard 5 years after its promulgation date. An exemption would allow 3 more years for qualified systems. Small systems (serving 3,300 persons or fewer) may be eligible for up to 3 additional 2-year extensions, for a total exemption duration of 9 years (for a total of up to 14 years to achieve compliance). In the preamble to the arsenic rule published in January 2001, EPA noted that exemptions will be an important tool to help states address the number of systems needing financial assistance to comply with this rule and other SDWA rules (66 *FR* 6988).

Compliance and affordability issues. Concern over the affordability of SDWA standards, especially for small communities, reached new levels with the promulgation of the new arsenic rule. The rule tightened the arsenic standard from 50 to 10 parts per billion in response to new health effects information; however, EPA's and other analyses indicated that compliance costs could be high for households served by small systems.

Prompted by intense debate over the revised arsenic standard, its potential cost to small communities, and its delay by EPA for further scientific review, the conference report for EPA's FY2002 appropriations (H.Rept. 107-272) prohibited EPA from using funds to delay the arsenic rule, but also directed EPA to review its affordability criteria and how small system variance and exemption programs should be implemented for arsenic. The conferees urged EPA to recommend procedures to grant more time for small communities in cases where compliance by 2006 poses an undue economic hardship. EPA was required to report

to Congress on a review of its affordability criteria, administrative actions, potential funding mechanisms for small community compliance, and possible legislative actions.

EPA's report to Congress, *Small Systems Arsenic Implementation Issues*, discusses the major actions the Agency is taking regarding its affordability criteria for drinking water regulations and small systems issues associated with implementing the new arsenic standard. These activities include 1) reviewing the small system affordability criteria and variance process; 2) developing a small community drinking water assistance plan to improve access to financial and technical assistance, improve compliance capacity, and simplify the use of exemptions; and 3) implementing a $20 million research and technical assistance strategy. In August 2002, EPA issued guidance on exemptions and the arsenic rule. In May 2003, the drinking water advisory council is expected to make recommendations to EPA for revising its current process for evaluating the affordability of standards for small systems.

Congress may be interested in overseeing EPA's efforts to address this congressional directive, and small system compliance capacity issues, in general. In the 107th Congress, various bills were introduced to assist small systems to comply with SDWA regulations, especially the new arsenic rule. Several bills proposed new grant programs for small systems. S. 1961, the water infrastructure financing bill reported last year by the Senate Committee on Environment and Public Works, addressed both funding and capacity development. Such a legislative approach could continue to be of interest in this Congress.

State Administration of the Drinking Water Program

The states play a central role in administering the federal drinking water program, and the success of the program depends substantially on them. All states, except Wyoming, have been delegated primary enforcement authority (or primacy) for implementing SDWA program requirements for public water systems, which they do through the Public Water Supply Supervision (PWSS) program. State PWSS responsibilities grew markedly with the 1996 amendments and cover many areas, including public water system compliance monitoring and enforcement, source water assessment, technical assistance and training, and operator certification. States also are involved in security and emergency planning efforts.

State drinking water officials have expressed concern that while their responsibilities have grown, federal funding to support these efforts has not kept pace. According to the Association of State Drinking Water Administrators (ASDWA), comprised of state officials responsible for administering federal and state drinking water programs, funds available in 2002 covered only 53% of program needs. ASDWA estimates that available funding will cover only 42% of program needs by 2006. In dollar amounts, states project that the resource gap will increase from $282 million in 2003 to $385 million in 2006.

The findings of a General Accounting Office (GAO) report generally are in agreement with the state concerns. In 2000, GAO reported that the gap between the resources available and the resources needed for state programs threatens to undermine states' ability to effectively implement and oversee SDWA requirements. More than 90% of states surveyed by GAO predicted that staffing levels would be inadequate in the future as a number of new program requirements and complex contaminant regulations take effect. The GAO calculated that states have provided roughly 53% of the amount expended on implementing the drinking

water programs. (General Accounting Office, *Drinking Water: Spending Constraints Could Affect States' Ability to Implement Increasing Program Requirements*, GAO/RCED-00-199.)

The SDWA authorizes $100 million annually for EPA to make grants to states to administer the PWSS program. From FY1997 through FY2003, funding for state PWSS grants has remained level at $87.3 million. (Congress provided a total of $93 million for grants each year, with the remainder going to support Tribal drinking water programs). For FY2004, the President has requested $105.1 million for PWSS grants to enhance state and Tribal capacity to assist systems in implementing high priority regulations.

To supplement the PWSS grants, states may set aside part of their drinking water state revolving fund allotment. States may use 4% of their allotment to cover the costs of administering DWSRF programs. Additionally, if a state provides a dollar-for-dollar match, another 10% of the DWSRF grant may be used for several purposes, including administering the PWSS program, providing technical assistance through source water protection programs, and implementing the capacity development and operator certification programs. An additional 2% can be used for providing technical assistance to small systems. The GAO noted that if states had made full use of the DWSRF set-asides, then EPA's requested appropriations, combined with the required state matching funds, would have exceeded ASDWA needs estimates for FY2002. However, states generally have not set aside the maximum amount, partly because doing so would divert funds from needed infrastructure projects. Also, because of state budget cuts, an increasing number of states cannot meet the matching fund requirements for these set-asides. In testimony before the House Appropriations Subcommittee on VA, HUD and Independent Agencies on April 9, 2003, ASDWA requested that Congress amend the Act to eliminate the dollar-for-dollar match requirements for states to use the 10% set-aside for program implementation activities.

Methyl Tertiary Butyl Ether (MTBE)

An issue that has received attention since the 104th Congress concerns the contamination of drinking water by MTBE. For technical and cost reasons, this gasoline additive has been widely used to meet the Clean Air Act requirement that reformulated gasoline (RFG) contain at least 2% oxygen to improve combustion. RFG is required for use in areas that fail to meet the federal ozone standard. However, numerous incidents of drinking water contamination by MTBE in recent years have led to calls for restrictions on its use. Seventeen states, including California and New York, have enacted limits or phase-outs of the additive.

The primary source of MTBE in drinking water has been petroleum releases from leaking underground storage tank (UST) systems. Once released, MTBE moves through soil and into water more rapidly than other gasoline components, thus making it is more difficult and costly to clean up than conventional gasoline leaks. Although MTBE is considered to be less toxic than some other gasoline components (such as benzene), even small amounts of MTBE can render water undrinkable because of its strong taste and odor. These characteristics have made MTBE use an important issue for public water suppliers.

In 1997, EPA issued a drinking water advisory for MTBE based on consumer acceptability (for taste and smell). EPA issues drinking water advisories to provide information on contaminants in drinking water that have not been regulated under SDWA. Advisories are not enforceable, but provide guidance to water suppliers and other interested

parties regarding potential health effects or consumer acceptability. While the MTBE advisory is not based on health effects, EPA stated in the advisory that keeping MTBE levels in the range of 20-40 micrograms per liter (μg/L) or lower for consumer acceptability reasons would also provide a large margin of safety from potential adverse health effects.

EPA also has taken steps that could lead to the development of an enforceable drinking water standard for MTBE. In 1998, EPA included MTBE on a list of contaminants that are potential candidates for regulation. Compounds on the contaminant candidate list (CCL) are categorized as regulatory determination priorities, research priorities, or occurrence priorities. Because of data gaps on health effects and occurrence, EPA placed MTBE in the category of contaminants for which further occurrence data collection and health effects research are priorities. Thus, although EPA has not selected MTBE for regulation, the Agency is pursuing research to fill the existing data gaps so that a regulatory determination may be made. The next round of determinations is scheduled for 2006, although EPA can make determinations outside of this cycle. At least 7 states have set a health-based drinking water standard for MTBE, and at least 5 states have adopted a secondary standard (based on taste or odor).

The 108th Congress has acted on several bills that address MTBE concerns. On May 1, 2003, the Senate passed S. 195, the *Underground Storage Tank Compliance Act of 2003* (S.Rept. 108-13), which is equivalent to S. 1850 from the 107th Congress. This bill authorizes appropriations from the Leaking Underground Storage Tank (LUST) Trust Fund for cleaning up MTBE contamination and adds new leak prevention requirements to the federal underground storage tank regulatory program. In testimony on S. 1850 before the Senate Environment and Public Works Committee in May 2002, the EPA witness did not offer an official Administration position on this legislation.

On April 11, the House passed H.R. 6, a broad energy bill, that authorizes the use of $850 million from the LUST Trust Fund for responding to releases of fuels containing oxygenates (e.g., MTBE, other ethers, and ethanol). H.R. 6 eliminates the oxygen content requirement for RFG, which prompted the increased use of MTBE, and promotes the use of renewable fuels. It provides a "safe harbor" prohibiting products liability lawsuits, alleging manufacturing or design defects, against producers of fuels containing MTBE and renewable fuels, such as ethanol. The bill states that the safe harbor may not be construed to affect liability for remediation costs, drinking water contamination, or negligence. However, with liability for manufacturing and design defects ruled out, plaintiffs would have to demonstrate negligence in the handling of such fuels, a more difficult legal standard to meet. Consequently, public water suppliers widely oppose the safe harbor provision and have expressed concern that it could leave communities paying much of the cost for cleaning up contamination by fuels containing MTBE or ethanol. Manufacturers argue that a safe harbor provision is reasonable, given that the fuels are used to meet federal fuel mandates. (For further discussion, see the House Energy and Commerce Committee report, H.Rept. 108-65.) On June 3, the Senate Environment and Public Works Committee reported S. 791 (S.Rept. 108-57), which bans MTBE, promotes the use of renewable fuels, and contains a product liability safe harbor for renewable fuels, but not MTBE. S. 791 authorizes the use of $200 million from the Trust Fund for remediating contamination from releases of ether fuel additives and authorizes other funding for enforcing UST leak prevention requirements. The bill states that the contamination need not be from USTs to be eligible for cleanup funding. On June 6, the text of S. 791 was added as an amendment to the Senate energy bill, S. 14. Other bills include H.R. 1122, which authorizes the use of $200 million from the Trust Fund

for cleaning up MTBE contamination. (For more information, see CRS Report RS21201, *Leaking Underground Storage Tanks: Program Status and Issues*.)

LEGISLATION

H.R. 306 (Gary Miller)

Amends SDWA to provide procedures for claims relating to drinking water; protects drinking water suppliers against lawsuits where utilities are in compliance with drinking water regulations; establishes guidelines for suits involving contaminants that are not regulated under SDWA. Introduced Jan. 8, 2003; referred to Committee on Energy and Commerce and to the Committee on the Judiciary.

H.R. 396 (DeFazio)

The Emergency Anti-Recession Act of 2003 provides tax relief, unemployment assistance, and state and local government assistance, and creates jobs through infrastructure investment. Amends SDWA to authorize an additional $2.5 billion for the DWSRF program for FY2002. Introduced March 3, 2003; referred to seven committees.

H.R. 1471 (Engel)

Amends SDWA to allow systems to avoid filtration requirements in certain instances. Introduced March 27, 2003; referred to Committee on Energy and Commerce.

H.R. 1588 (Hunter)/S. 1050 (Warner)

The House and Senate- passed versions of the DOD authorization Act of FY2004 call for an epidemiological study of exposure to perchlorate in drinking water. The Senate-passed bill also directs DOD to survey perchlorate contamination at DOD sites. Passed by the House on May 22, 2003; passed by the Senate (substituting text of S. 1050) on June 4, 2003.

H.R. 2123 (Capps)

Amends SDWA to require EPA to promulgate a drinking water standard for perchlorate by July 1, 2004. Amends the Clean Water Act to prevent pollution by perchlorate by requiring notification of perchlorate discharges, establishing penalties for such discharges, and establishing the Perchlorate Pollution Prevention Fund to be supported by the penalties. Directs EPA to carry out a loan program to help water suppliers and private well owners to acquire or provide water that meets state and federal perchlorate drinking water standards. Introduced May 15, 2003; referred to Committee on Energy and Commerce.

S. 87 (Clinton)

The Homeland Security Block Grant Act of 2003 authorizes the Secretary of the Department of Homeland Security to make grants to state and local governments and Indian tribes for security enhancing activities, including improving cyber and infrastructure security by improving the security for water treatment plants, distribution systems, and other water infrastructure. Introduced Jan. 7, 2003; referred to Committee on Governmental Affairs.

S. 502 (Boxer)

Amends SDWA to require EPA to promulgate a drinking water standard for perchlorate by July 1, 2004. Introduced March 3, 2003; referred to Committee on Environment and Public Works.

CONGRESSIONAL HEARINGS, REPORTS, AND DOCUMENTS

U.S. Congress. House. Committee on Energy and Commerce. Subcommittee on Environment and Hazardous Materials. *Drinking Water Needs and Infrastructure*. Hearing, Apr. 11, 2002. 107th Congress, 2nd session. 108 p. (107-107)

---- *Drinking Water Needs and Infrastructure*. Hearing, Mar. 28, 2001. 107th Congress, 1st session. 180 p. (107-59)

U.S. Congress. House. Committee on Transportation and Infrastructure. Subcommittee on Water Resources and Environment. *Water Infrastructure Needs.* Hearing, Mar. 28, 2001. 107th Congress, 1st session. 178 p. (107-8)

U.S. Senate. Committee on Environment and Public Works. *Water Investment Act of 2002.* Report to accompany S. 1961. July 29, 2002. Report 107-228. 116 p.

---- *Water and Wastewater Infrastructure Needs.* Hearing, Mar. 27, 2001. 107th Congress, 1st session. 141 p. (107-316)

FOR ADDITIONAL READING

National Academy of Sciences. *Privatization of Water Services in the United States: An Assessment of Issues and Experience*. National Research Council. National Academy Press. Washington D.C. 2002. 164 p.

U.S. Congressional Budget Office. *Future Investment in Drinking Water and Wastewater Infrastructure*. November 2002. 58 p.

U.S. Environmental Protection Agency. *Providing Safe Drinking Water in America: 2000 National Public Water Systems Compliance Report.* Office of Enforcement and Compliance Assurance. Report No. EPA 305-R-02-001. July 2002. 98 p. [http://www.epa.gov/Compliance/resources/reports/assistance/sdwcom2002.pdf]

---- *The Clean Water and Drinking Water Infrastructure Gap Analysis Report.* Office of Water. Report No. EPA 816-R-02-020. September 2002. 50 p. [http://www.epa.gov/safewater/gapreport.pdf]

---- *Small System Arsenic Implementation Issues, Report to Congress*. EPA 815-R-02-003. March 2002. 20 p. [http://www.epa.gov/safewater/arsenic.html]

U.S. General Accounting Office. *Water Infrastructure: Information on Federal and State Financial Assistance*. GAO-01-134. November 2001. 46 p.

---- *Water Infrastructure: Information on Financing, Capital Planning, and Privatization*. GAO-02-764. August 2002. 83 p.