



United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-265757

November 21, 1995

The Honorable William F. Clinger, Jr.
Chairman, Committee on Government
Reform and Oversight
House of Representatives

Dear Mr. Chairman:

The Safe Drinking Water Act was enacted in 1974 to safeguard the nation's drinking water supplies and protect public health. Under the act, public water systems are required to test their water periodically to determine whether it meets the standards established by the Environmental Protection Agency (EPA). When these water quality standards are exceeded, water systems must take measures to correct the problem, which could include installing treatment facilities or processes or taking other actions, such as drilling a new well. In recent years, the number and complexity of drinking water regulations have increased considerably as a result of the 1986 amendments to the act. According to EPA's estimates, the annual cost to the nation's water systems of complying with these regulations will reach \$1.4 billion in 1995. Given these significant costs, there is increasing interest in finding ways to make the drinking water program more cost-effective and reduce the water systems' compliance costs.

This report responds to your request for information on whether EPA, the states, and the public water systems have been able to use the flexibility available within the Safe Drinking Water Act to reduce compliance costs. Specifically, we are providing information on (1) the opportunities provided in the act and in EPA's implementing regulations to reduce compliance costs; (2) the extent to which the states and water systems are using the available flexibility and some of the barriers that prevent greater use; and (3) what the states, the water supply industry, and EPA suggest could be done to increase the flexibility of the existing program and hold down costs while still providing safe drinking water.

In summary, we found the following:

- The Safe Drinking Water Act and EPA's implementing regulations provide the flexibility for water systems to reduce their costs to comply with the requirements of the drinking water program. EPA's regulations offer a number of options under which the water systems can reduce the frequency of required testing or the costs of laboratory analyses. For example, monitoring requirements for certain contaminants may be waived for a water system if (1) the contaminants were not used, stored, manufactured, or disposed of within a defined area around the water source or (2) the source is not otherwise vulnerable to contamination. Water systems can also avoid or defer the costs of treating water under certain conditions. For example, under the act, water systems can be exempted from meeting a quality standard when the systems cannot afford to install needed equipment or when there are other compelling reasons, as long as the exemption will not result in an unreasonable risk to health.
- Most states have offered multiple types of flexibility to their water systems, but the options they have made available and the extent to which the water systems have taken advantage of them vary. The states have most commonly offered options for (1) waiving the monitoring requirements for chemical contaminants and (2) substituting earlier test results for new data. In a 50-state survey, we found that 45 states had EPA-approved programs for waiving the monitoring requirements, and the remaining 5 states all have such programs under development. As a result of monitoring waivers offered through the end of 1994, 32 states reported an estimated total "savings" or cost avoidance of \$259.2 million--an average of \$8.1 million per state. In contrast, although 43 states allow water systems to substitute earlier test results on synthetic organic compounds, in 21 of these states, none of the water systems have actually used this flexibility. Furthermore, the states have infrequently offered--and water systems have infrequently exercised--options to reduce or defer treatment costs. For example, 38 states had not approved any treatment exemptions over the past 3 calendar years. When the states and water systems have not exercised flexibility, the most commonly cited barriers were inadequate resources and the lack of needed data, particularly for those options, such as issuing waivers, that could reduce monitoring costs.
- Many states favor additional changes to the drinking water program that would increase its flexibility and provide more opportunities to reduce compliance costs. Among the possible changes that garnered the strongest support in our survey were reducing the frequency of required monitoring for certain contaminants from four quarterly samples to one and giving the states more authority to establish their own monitoring requirements. Water industry representatives believe that the states are

not always aggressive enough in exercising the flexibility allowed under existing law. Industry representatives also favored reducing the frequency of monitoring for some contaminants or giving the states more authority to set their own monitoring requirements on the basis of local conditions. EPA has undertaken several initiatives that address the concerns of the states and water systems. For example, the agency has formed a work group to streamline the requirements for monitoring chemicals and is revising its guidance on the states' priorities under the program to allow the states some flexibility in adjusting national priorities to focus on their most significant public health risks.

Enclosure I provides background information on the Safe Drinking Water Act and its implementation. Enclosure II discusses the statutory and regulatory provisions that allow flexibility in complying with drinking water requirements. Enclosure III presents details on which states and water systems have been able to take advantage of the available flexibility and the barriers to more widespread use of this flexibility. Enclosure IV gives more information on the approaches suggested by the states, the water industry, and EPA to increase the flexibility of the existing program.

To determine what types of flexibility are available, we interviewed officials within EPA's Office of Ground Water and Drinking Water and reviewed the applicable provisions of the Safe Drinking Water Act and EPA's implementing regulations. To determine the extent to which the states and water systems have used the available flexibility and the barriers to more widespread use, we surveyed the managers of state drinking water programs from February through April 1995 and obtained responses from all 50 states.¹ Our survey instrument was a mailed questionnaire, but we collected most responses by telephone to expedite our review. We did not independently confirm the information provided to us by the survey's respondents and because collecting information directly from the water systems was not practical, we relied on the states' estimates of the water systems' use of flexibility. To obtain suggestions for increasing the flexibility of the existing program, we used the responses to the survey and interviewed officials from EPA's Office of Ground Water and Drinking Water, the American Water Works Association, the National Rural Water Association, and the Association of State Drinking Water Administrators.

Enclosure V summarizes the use of different types of flexibility by the 50 states, enclosure VI describes our survey's methodology and analysis and contains the questionnaire and a summary of the responses. We performed our work from June 1994 through September 1995 in accordance with generally accepted government auditing standards.

¹In the case of Wyoming, the only state that does not have primary enforcement authority for EPA's drinking water program, the cognizant EPA regional office responded to the questionnaire.

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We provided copies of a draft of this report to EPA for its review and comment. On November 6, 1995, we met with drinking water program officials, including the Director of the Program Implementation Division within EPA's Office of Ground Water and Drinking Water. They generally agreed with the contents of the report and provided some technical and editorial suggestions, which we have incorporated as appropriate.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 10 days after the date of this letter. At that time, we will send copies to the Administrator, EPA. We will also make copies available to others on request.

Please call me on (202) 512-6501 if you or your staff have any questions. Major contributors to this report were Charles M. Adams, Ellen M. Crocker, Teresa D. Dee, Fran A. Featherston, Gerald L. Laudermilk, and Martin F. Lobo.

Sincerely yours,



Lawrence J. Dyckman
Associate Director, Environmental
Protection Issues

Enclosures - 6

BACKGROUND

The Congress enacted the Safe Drinking Water Act in 1974 to protect the public from the risks of contaminated drinking water. Under the act, the Environmental Protection Agency (EPA) is required to (1) set standards or treatment techniques for contaminants that may adversely affect human health and (2) establish requirements for monitoring the quality of drinking water supplies and for ensuring that water systems are properly operated and maintained. EPA grants primary enforcement authority for the drinking water program, commonly referred to as "primacy," to states that meet certain requirements. Among the key requirements are that the states (1) adopt drinking water regulations that are no less stringent than EPA's regulations and (2) adopt and implement adequate procedures to carry out the program's requirements and enforce the regulations.

EPA's drinking water regulations apply to public water systems--defined as systems that pipe water to at least 15 service connections or regularly serve 25 people at least 60 days a year. Public water supply systems that serve the same population year-round are known as community water systems. All others, by definition, are noncommunity water systems. For the purposes of this report, we are concerned with community water systems and a subset of noncommunity water systems called nontransient noncommunity water systems because, for the most part, these two groups are subject to the same regulatory requirements.¹ In total, the nation has approximately 200,000 public water systems, including about 57,000 community systems and 24,000 nontransient noncommunity water systems.

Amendments to the act in 1986 significantly accelerated EPA's standard-setting activities. Since that time, the number of regulated contaminants has grown from 23 to 84, and additional regulations are being developed. As a result, according to EPA's 1993 report to the Congress,² the annual costs to water systems of complying with the current drinking water requirements are projected to reach \$1.4 billion (in 1991 dollars) this year. This estimate includes the costs associated with monitoring the quality of sources of groundwater and surface water,³ adding treatment facilities or processes when drinking water does not meet EPA's standards, operation and maintenance, and reporting. Small water systems--defined by EPA as systems serving 3,300

¹EPA defines nontransient noncommunity water systems as systems--such as those operated by some hospitals, factories, and schools--that serve at least 25 of the same people for at least 6 months of the year. The remaining noncommunity water systems are categorized as transient noncommunity systems. These systems cater to transitory customers in nonresidential areas such as campgrounds, motels, and gas stations.

²Technical and Economic Capacity of States and Public Water Systems to Implement Drinking Water Regulations: Report to the Congress, EPA, Office of Water, 810-R-93-001 (Sept. 1993).

³Over 90 percent of all public water systems are groundwater systems that use wells to draw water from underground sources; the remaining systems obtain their water from surface water sources such as lakes and rivers.

people or fewer--represent 87 percent of all community water systems and 98 percent of all nontransient noncommunity water systems. Overall, EPA estimates that nearly 70 percent of the total costs of complying with drinking water regulations will be borne by small water systems, although these systems supply water to only 10 percent of the U.S. population.

In addition to certain microbiological and radiological contaminants,⁴ EPA regulates over 70 chemical contaminants. For the most part, EPA's standards for these chemicals were promulgated in two sets of regulations known as the Phase II and Phase V regulations.⁵ As part of these regulations, EPA attempted to organize and consolidate the monitoring requirements for chemical contaminants in a standardized monitoring framework. Overall, EPA established a series of 9-year compliance cycles, each including three 3-year compliance periods. For the first compliance period, water systems are required to complete the initial monitoring for all chemical contaminants by the end of 1995 at the latest.⁶ In addition, water systems are required to take samples at each entry point to their distribution systems, and according to EPA, most systems have multiple entry points.

The chemical contaminants are grouped as follows:

- Inorganic chemicals (IOC) are minerals or metals that are found in nature or created through activities such as mining or industry. Systems using groundwater sources are required to sample for most IOCs once every 3 years, and systems using surface water sources must take annual samples. EPA has established other requirements for three IOCs--asbestos, nitrate, and nitrite.
- Volatile organic chemicals (VOC) are chemical compounds, made from carbon molecules, that can be readily vaporized at relatively low temperatures. This group of contaminants includes petroleum by-products such as industrial solvents. Both groundwater and surface water systems are required to take four consecutive quarterly samples during the first 3-year compliance period. Depending on the results of the initial sampling, subsequent monitoring is required more or less frequently.

⁴The microbiological contaminants regulated by EPA include bacteria, viruses, and other protozoa, some of which cause disease. EPA also regulates certain radioactive chemicals, such as radium 226 and radium 228; for the most part, these are naturally occurring contaminants.

⁵In 1987, EPA issued standards for eight volatile organic chemicals (VOC) in its Phase I regulations. The agency later incorporated the monitoring requirements for these contaminants into the standardized monitoring framework.

⁶For systems with fewer than 150 service connections (i.e., a population served of approximately 450), the initial sampling for contaminants included in the Phase V regulations begins in the second 3-year compliance period, Jan. 1996 to Dec. 1998. However, some states are requiring all of their water systems to complete monitoring by the end of 1995.

- Synthetic organic chemicals (SOC) are man-made organic chemicals, such as pesticides. As with VOCs, both groundwater and surface water systems are required to take four consecutive quarterly samples during the first 3-year compliance period. Subsequent monitoring depends on the initial results and the size of the water system.

TYPES OF FLEXIBILITY AVAILABLE
IN THE DRINKING WATER PROGRAM

OPTIONS FOR REDUCING MONITORING COSTS

The Safe Drinking Water Act gives EPA broad discretion in establishing monitoring requirements for the regulated contaminants, including the frequency and location of the required sampling and the size and type of the water systems that must comply with the requirements. In its implementing regulations, EPA exercised this discretion in establishing the monitoring requirements for chemical contaminants and provided several opportunities for water systems to reduce their compliance costs, including the following:

- Monitoring waivers--Once EPA has approved their waiver program, the states may waive the monitoring requirements for most chemical contaminants under certain conditions. Although the eligibility criteria for a waiver vary by contaminant, in general, the states and/or water systems must document that (1) the contaminants were not used, manufactured, stored, or disposed of near the water source or (2) the source water is not otherwise susceptible to contamination. Waivers may be issued statewide, areawide, or by individual water source.
- Grandfathered data--States may allow water systems to substitute previous sampling data, called "grandfathered" data, to reduce or eliminate the current requirements for monitoring for some chemicals.
- Composited samples--States can allow water systems to composite (combine) samples from up to five water sources to save on analytical costs. Systems serving 3,300 people or fewer may composite samples from multiple water systems, but larger systems may only composite samples from different sources within their own system.
- Waivers of monitoring for unregulated contaminants--The act established additional requirements to collect data on the occurrence of contaminants that are not yet regulated. States may allow water systems serving fewer than 150 service connections (about 450 people) to satisfy these requirements by submitting a letter to the state indicating that the system is "available" for sampling.

In addition to the options provided by EPA, the Chafee-Lautenberg amendment to EPA's fiscal year 1993 appropriations bill, introduced by Senators Chafee and Lautenberg, gave the states the authority to allow water systems serving 3,300 people or fewer to fulfill their monitoring obligations under the Phase II regulations by taking a single sample instead of the four quarterly samples required for VOCs and SOCs, provided that the sample (1) was taken between October 6, 1992, and October 1, 1993, and (2) failed to detect any contaminants.

OPTIONS FOR REDUCING OR DEFERRING TREATMENT COSTS

The Safe Drinking Water Act contains provisions that allow water systems to avoid or defer treatment costs under the following conditions:

- "Waivers" of requirement for filtration¹--The act required EPA to establish criteria under which water systems supplied by surface water sources must install filtration treatment. According to EPA's regulations, water systems may avoid this costly treatment if their water quality meets certain standards and the systems meet other site-specific conditions, such as protection of the water source from contamination and the absence of outbreaks of waterborne diseases.
- Exemptions from treatment--States may exempt water systems from any water quality standard or requirement for a treatment technique if the systems cannot afford to comply or if there are other compelling factors, as long as granting the exemption will not result in an unreasonable risk to health. Exemptions are issued for a period of up to 3 years, except that water systems serving 500 or fewer service connections are eligible for additional 2-year extensions.

¹For the purposes of this report, we are using the term "waiver" to denote the use of this option although technically water systems do not receive waivers but are determined to have met EPA's criteria for avoiding filtration.

USE OF FLEXIBILITY AND BARRIERS TO GREATER USE

The states have the discretion to decide whether to make various types of flexibility available to their water systems. According to our survey's results, many states decided to offer multiple types of flexibility, but both the number of options made available and the extent to which the water systems have taken advantage of them varied from state to state. Enclosure V summarizes the use of the various kinds of flexibility in the 50 states.

Almost all the states had programs for waiving monitoring requirements¹ and allowed the use of grandfathered data for one or more groups of contaminants. Somewhat fewer states allowed their water systems to combine or composite samples or take advantage of reduced monitoring under the Chafee-Lautenberg amendment. Fewer than half the states allowed waivers of monitoring for unregulated contaminants or waivers of filtration treatment.

The water systems' use of the available flexibility varied widely. The most frequently used option was grandfathering data on VOCs. Water systems in 48 states took advantage of this option; in 26 states of these states, over 60 percent of the water systems participated. In a number of instances, at least two-thirds of the states authorized the use of a particular type of flexibility, but either the extent of the water systems' participation was low,² or none of the systems in the state exercised the option. For example, in 38 states, no water systems had received treatment exemptions during the past 3 calendar years.

REDUCING MONITORING COSTS

As noted in enclosure II, the options for reducing monitoring costs include state waiver programs, the use of grandfathered data, composited water samples, and the Chafee-Lautenberg amendment. The costs savings resulting from these options varied. Most states did not allow small water systems to waive the requirement to monitor for unregulated contaminants.

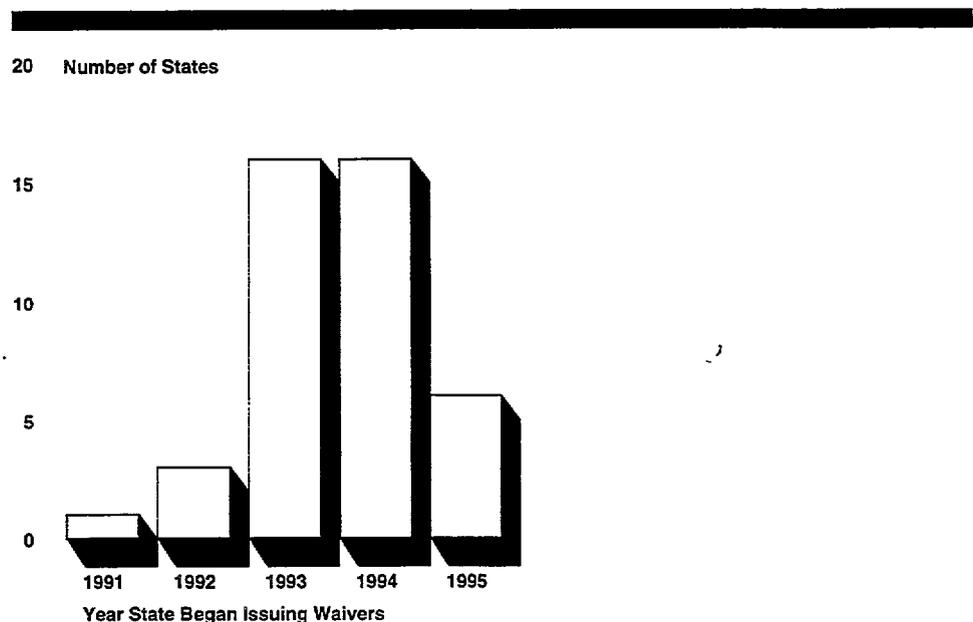
¹For most types of flexibility that could be used to reduce the frequency or cost of monitoring for chemicals, we asked the states to report the extent to which their water systems had taken advantage of these options as of the time of our survey. In the case of monitoring waivers, we asked the states to report waivers issued as of December 31, 1994. This period generally captured 2 to 3 years of experience, depending on when the states began implementing various options. For the sake of consistency, we asked the states to report the number of exemptions issued during the last 3 calendar years, 1992-94. We did not obtain information on the extent to which water systems took advantage of waivers for unregulated contaminants.

²On the basis of the states' responses, we categorized the extent to which the water systems used each type of flexibility as low (1 to 40 percent of the systems), medium (41 to 60 percent), or high (over 60 percent). Enclosure VI gives details on our methodology.

Monitoring Waiver Programs

Under EPA's standardized monitoring framework, the first 3-year compliance period for monitoring chemical contaminants extends from January 1, 1993, to December 31, 1995. Given the timing of EPA's monitoring requirements, it was important for the states to have monitoring waiver programs in place early enough for the water systems to take advantage of them. As shown in figure III.1, however, only 20 states had begun issuing monitoring waivers by the end of 1993; 22 states began issuing waivers in 1994 or 1995. Of the remaining eight states, three had EPA-approved programs but had not issued any waivers at the time of our survey, and five were still developing programs.

Figure III.1: Year State Began Implementing Monitoring Waiver Programs



Note: Excludes eight states. Five states (Delaware, Hawaii, Kentucky, West Virginia, and Wyoming) are developing a waiver program and three (Louisiana, Nevada, and North Dakota) have a waiver program but had not issued any waivers at the time of our survey.

Among the factors the states must consider in implementing their waiver programs is how the contaminants are analyzed in laboratories. In most instances, the laboratories use analytical methods that can test for multiple contaminants. Under these circumstances, it makes little sense for a state to issue waivers for one or two contaminants if the laboratory must be paid to use the method anyway to test for other contaminants. However, some contaminants--seven IOCs and six SOCs³--are analyzed separately using what are termed "single analyte" methods. Thus, the most cost-effective approach is for states to focus on issuing waivers for these contaminants, which are also generally the most costly to analyze.

Another factor in how the states implement their waiver programs is the cost of various analytical methods. On the basis of preliminary data, EPA has estimated that the cost of the initial sampling required for the Phase II and Phase V contaminants could be as high as \$4,000 per sampling point. Thus, the potential for savings as a result of monitoring waivers is considerable.

As part of our survey, we collected information on the number of states that had issued waivers for the 13 contaminants that are tested separately; that is, using single analyte methods. We also asked whether states were issuing waivers for VOCs, all of which can be analyzed using one method. Table III.1 shows the cost of the analytical methods used to test these contaminants and the number of states that had issued monitoring waivers for them. As expected, the states issued waivers for contaminants that are (1) tested using single analyte methods and (2) likely to produce the most cost savings. For example, the contaminant for which the most states (34) issued waivers--dioxin--is also the most expensive to analyze, at \$1,500 per sample.⁴ Thirty-one states issued waivers for asbestos, which has the second highest testing cost, at \$300 per sample. In general, more states issued waivers for SOCs than IOCs, focusing on the contaminants for which the potential cost savings are the greatest.

³We counted DBCP and EDB as one SOC because laboratories generally use a single analytical method to test for both contaminants.

⁴According to EPA, the fee charged by some laboratories has recently declined to as low as \$600-\$700 per sample.

Table III.1: Analytical Costs and the Number of States That Issued Waivers for Selected Contaminants

Contaminant	Cost of analytical method for each sample tested ^a	Number of states that issued waivers for contaminant ^b
IOCs		
Antimony	\$ 24	8
Asbestos	300	31
Cyanide	24	18
Fluoride	16	11
Mercury	24	12
Selenium	24	11
Thallium	24	7
SOCs		
DBCP/EDB	\$ 150	27
Dioxin	1,500	34
Diquat	125	29
Endothall	250	28
Glyphosate	250	30
PCBs	225	26
VOCs		
All VOCs	\$ 200	19

^aAverage cost provided by EPA.

^bFourteen states had not issued any waivers as of December 31, 1994. Nine of the 14 states had waiver programs but had not issued any waivers (Alabama, Arizona, Louisiana, Maryland, Montana, Nebraska, Nevada, North Dakota, and Washington.) The remaining five states were still developing their waiver programs (Delaware, Hawaii, Kentucky, West Virginia, and Wyoming.)

The factors that the states cited most frequently as having a positive influence on their ability to develop and/or implement a monitoring waiver program were the (1) expertise of a state's staff (e.g., to conduct the necessary assessments to determine the water systems' eligibility for waivers), (2) demands of water systems for relief from the monitoring requirements, and (3) potential savings to the state as a result of having a waiver program. Twenty-six states reported the latter factor as a positive influence, even though 34 states responded that the water systems benefit financially "much more" than the state when waivers are issued. A number of state drinking water officials commented that although the water systems save money because they do not have to pay for laboratory tests, the states also benefit because they need to take fewer enforcement actions against the systems that fail to comply with the monitoring requirements.

The factors most frequently cited by the states as having a negative influence on their ability to develop and/or implement waiver programs were (1) the adequacy of the states' resources and (2) the availability of the data needed to support waivers. In addition, the states reported that these same factors had the greatest impact on their water systems' ability to obtain monitoring waivers. Twenty-three states said that inadequate resources at the state and/or water-system level greatly or moderately decreased the water systems' use of monitoring waivers. This is consistent with earlier GAO reports on the impact of shortfalls in resources on the states' and water systems' ability to implement key aspects of the drinking water program.⁵ Twenty-two states indicated that the lack of appropriate data at the state and/or water-system level had a great or moderate impact on the water systems' ability to obtain waivers. For example, to support some types of monitoring waivers, the states and/or water systems collect a variety of data, including information on the construction of wells, the results of previous sampling, contamination sources, local land uses, and so on. However, in 18 states, 40 percent or fewer of the community water systems had been assessed for their susceptibility to contamination, and in 19 states, 40 percent or fewer of the nontransient noncommunity water systems had been assessed.

Authorization and Use of Grandfathered Data

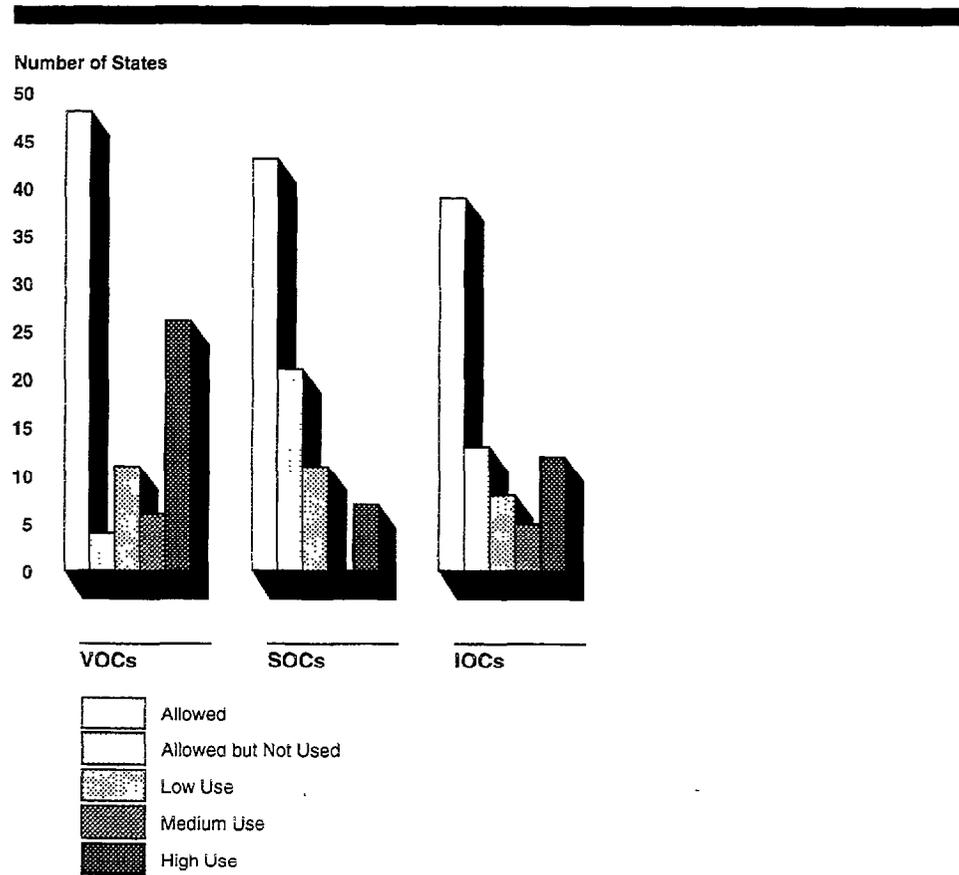
Virtually all of the states allowed their water systems to use grandfathered data to satisfy the current testing requirements for one or more contaminant groups. The states were most likely to allow grandfathered data on VOCs and least likely to do so for IOCs. The majority of the states (38 out of 50) allowed grandfathered data for all three contaminant groups. Six states limited such use primarily to VOCs and SOCs, while four states limited such use to VOCs. Only two states--Hawaii and Kentucky--prohibited the use of any grandfathered data.

⁵See Drinking Water: Stronger Efforts Essential for Small Communities to Comply With Standards (GAO/RCED-94-40, Mar. 9, 1994), Drinking Water Program: States Face Increased Difficulties in Meeting Basic Requirements (GAO/RCED-93-144, June 25, 1993), Drinking Water: Key Quality Assurance Program Is Flawed and Underfunded (GAO/RCED-93-97, Apr. 9, 1993), and Drinking Water: Widening Gap Between Needs and Available Resources Threatens Vital EPA Program (GAO/RCED-92-184, July 6, 1992).

When the states did not allow the use of grandfathered data, one common reason was that the state expected only a few water systems to have enough data available to take advantage of the option, particularly for SOCs. Another common reason was that the state wanted current test results from its water systems.

Overall, 36 states reported that 41-100 percent of their water systems used grandfathered data to satisfy monitoring requirements for one or more contaminant groups. Figure III.2 illustrates the number of states that allowed the use of grandfathered data and the extent to which the water systems in those states took advantage of this option.

Figure III.2: Authorization and Use of Grandfathered Data, by Contaminant



Notes:

Of the 48 states that allowed grandfathered data on VOCs, 1 state could not provide an estimate of the extent to which this option was used by its water systems.

Of the 43 states that allowed grandfathered data on SOCs, 4 states could not provide an estimate of the extent to which this option was used by their water systems.

Of the 39 states that allowed grandfathered data on IOCs, 1 state could not provide an estimate of the extent to which this option was used by its water systems.

As the figure shows, the extent of use generally varied by contaminant group, as follows:

- The water systems had the most success using grandfathered data on VOCs. Twenty-six states reported that over 60 percent of their water systems had used this option. Only 4 of the 48 states that allowed the use of grandfathered data on VOCs reported that none of their water systems used this option.
- Seven states reported that over 60 percent of their water systems used grandfathered data on SOCs, while 21 states reported that none of their water systems used this option. The primary reason why fewer water systems were able to take advantage of grandfathered data on SOCs was that they lacked the appropriate testing data. Twenty-six of the 43 states that allowed grandfathering of data on SOCs reported that the lack of data "greatly" or "moderately" decreased the use of this option.
- The use of grandfathered data on IOCs was mixed. Twelve states reported that over 60 percent of their water systems used grandfathered data on IOCs, and 13 states reported that none of their systems did. A lack of appropriate data was a problem when the usage was low; 15 states said that the lack of data "greatly" or "moderately" decreased their water systems' ability to use grandfathered data on IOCs.

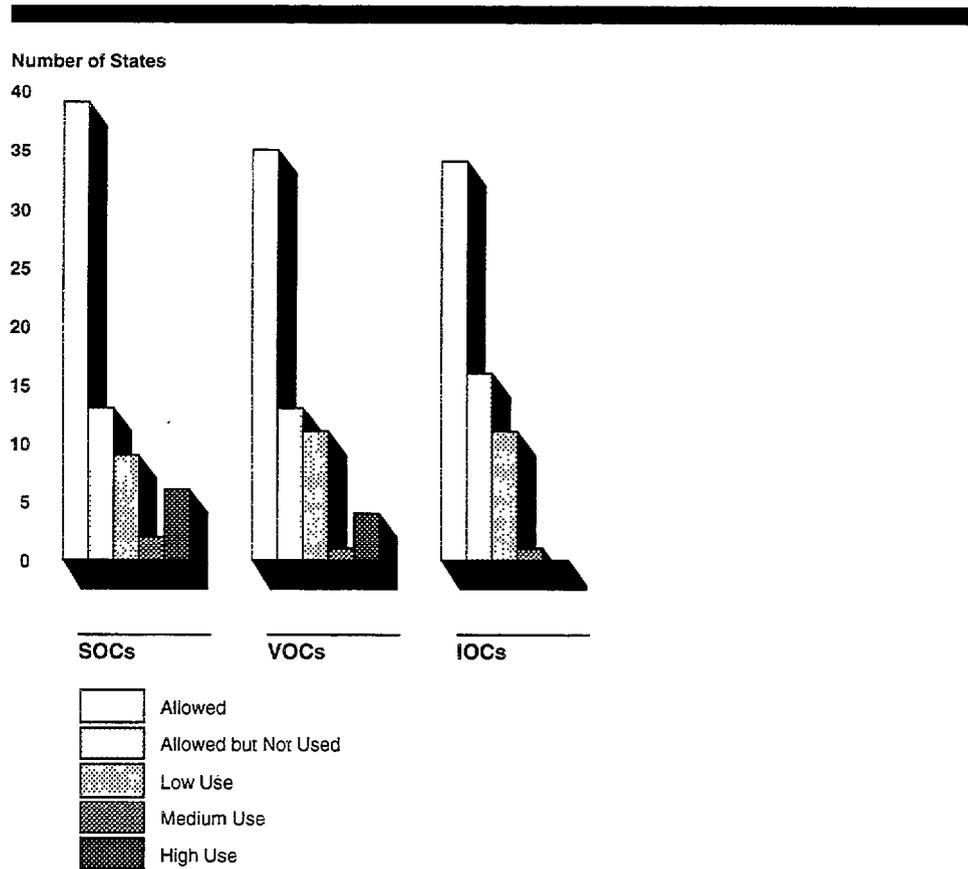
Authorization and Use of Compositing Water Samples

Of the 50 states, 40 allowed their water systems to combine or composite samples for one or more contaminant groups, although two states--Iowa and New York--limited compositing to systems serving 3,300 or fewer people. Thirty-three states allowed their water systems to composite samples for all three contaminant groups. Looking at the contaminants separately, 16 states did not allow compositing of samples for testing IOCs, 15 states did not allow compositing of samples for testing VOCs, and 11 states did not allow compositing of samples for testing SOCs.

The primary reasons for not allowing compositing were potential difficulties with record-keeping or tracking compliance (14 states), concern about the potential for masking contamination (12 states), and the desire for baseline monitoring data for each water source (10 states). In addition, five states were concerned that laboratories would be unable to detect the contaminants at the necessary levels.

Although 40 states allowed their water systems to composite samples for some contaminants, as shown in figure III.3, this option was infrequently used.

Figure III.3: Authorization and Use of Composited Water Samples, by Contaminant



Notes:

Of the 39 states that allowed compositing of SOC samples, 9 could not provide an estimate of the extent to which this option was used by their water systems.

Of the 35 states that allowed compositing of VOC samples, 6 could not provide an estimate of the extent to which this option was used by their water systems.

Of the 34 states that allowed compositing of IOC samples, 6 could not provide an estimate of the extent to which this option was used by their water systems.

For each of the contaminant groups, at least 13 of the states that allowed compositing reported that none of their water systems actually used this option. In addition, up to 11 states reported that 40 percent or fewer of their water systems composited samples for any of the contaminant groups. SOCs were the most frequently composited contaminants; six states reported that over 60 percent of their water systems took advantage of this option. States cited a variety of reasons why their water systems did not make greater use of the compositing option. The most frequently cited problem was that laboratories were unable or unwilling to composite samples.

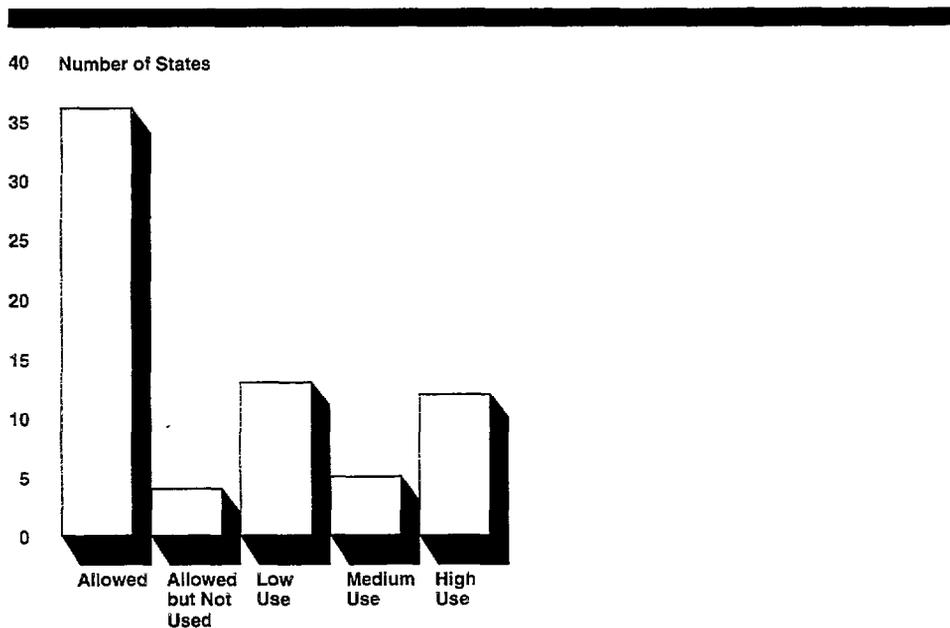
Authorization and Use of Chafee-Lautenberg Amendment

Under the Chafee-Lautenberg amendment, small water systems had an opportunity to reduce required monitoring from four quarterly samples to one by taking a sample between October 6, 1992, and October 1, 1993 that failed to detect any contamination. Despite the potential benefits of this option, 14 states did not allow their water systems to use it. The primary reasons cited by these states were that (1) their monitoring schedules had already been established and (2) the state had not adopted and/or implemented the Phase II regulations in time to inform its water systems about the potential for reduced monitoring.

Other comments from state officials indicated that they did not have a clear understanding of what contaminants would be eligible for reduced monitoring or what the criteria were for states to participate. Although the amendment itself stated that it applied specifically to the contaminants affected by Phase II, EPA determined that the Congress intended to include Phase V chemicals as well. However, some states were not informed of this decision or heard from their EPA regional office that the use of this option was limited to the contaminants in Phase II. Because some analytical methods test for contaminants affected by both Phase II and V, the states saw no benefit to using this option. In addition, at least one state did not participate in this option because the state was informed by EPA regional officials that it first had to assume primacy for the Phase II regulations. However, most of the states that used this option had not yet adopted these regulations.

Figure III.4 illustrates the number of states that allowed the use of the Chafee-Lautenberg amendment and the extent to which their water systems took advantage of the option.

Figure III.4: Authorization and Use of Chafee-Lautenberg Amendment



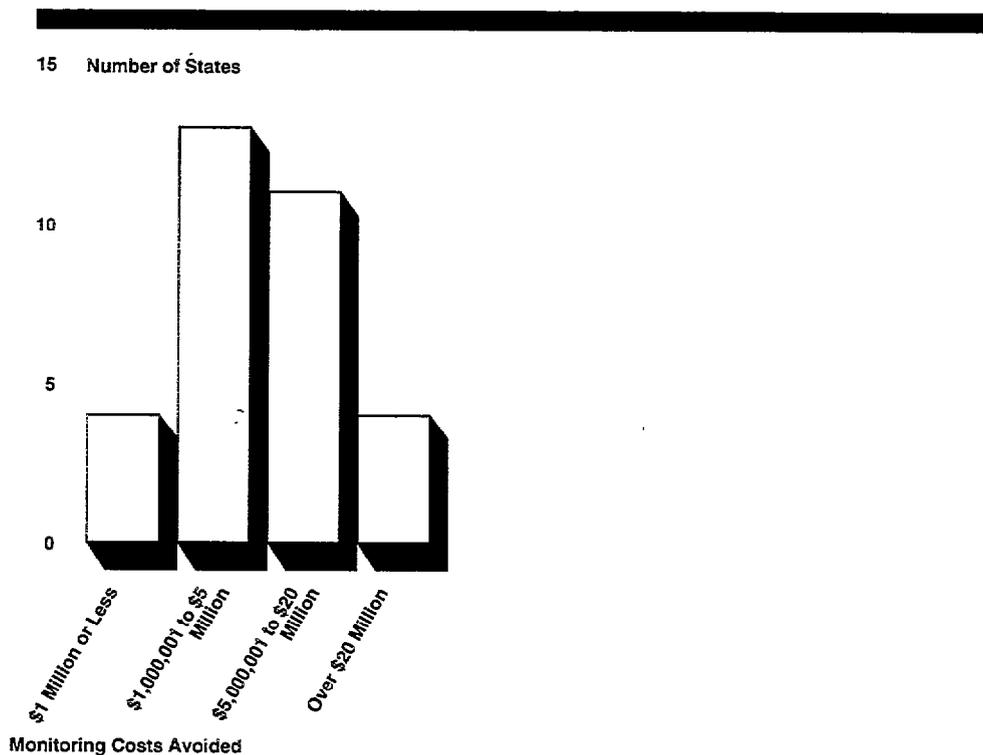
Note: Of the 36 states that allowed reduced monitoring under the Chafee-Lautenberg amendment, 2 states could not provide an estimate of the extent to which this option was used by their water systems.

As the figure shows, among the 36 states that allowed the use of the amendment, the extent to which their water systems took advantage of the opportunity for reduced monitoring varied widely. Twelve states reported that over 60 percent of their water systems used the option. On the other hand, in 13 states, 40 percent or fewer systems used this option, and in another 4 states, none of the systems used it. According to state officials, the primary factor that decreased the water systems' ability to use this option was that the testing laboratories lacked sufficient capacity to handle the increased workload. Some states also complained that the 1-year window for using the option was too short, limiting their water systems' ability to take advantage of it.

Monitoring Costs Avoided

We also asked the states about the savings, or "monitoring costs avoided," they had achieved as a result of the different options. The greatest savings resulted from the use of monitoring waivers. Of the 32 states that reported savings as a result of issuing monitoring waivers, most reported savings in excess of \$1 million since they had initiated their waiver programs. In addition, as figure III.5 shows, 15 states reported savings of over \$5 million, including 4 states--California, Massachusetts, Michigan, and Texas--that reported savings in excess of \$20 million.

Figure III.5: Monitoring Costs Avoided as a Result of States' Waiver Programs



Notes:

States were asked to estimate the total monitoring costs avoided as a result of monitoring waivers, whether the savings accrue to the state or the water systems.

Of the 36 states that had issued monitoring waivers as of December 31, 1994, 4 (Kansas, Mississippi, Oregon, and Virginia) could not provide an estimate of the costs avoided.

The estimated total savings reported by the 32 states was \$259.2 million--or \$8.1 million on average--in monitoring costs avoided as a result of their waiver programs.⁶ The amount of savings reported by each state is directly related to the number of regulated water systems and the number of contaminants for which waivers were issued; the more systems and the contaminants involved, the higher the savings. On average, the states with over 2,000 water systems reported savings of \$12.3 million, while the states with between 500 and 1,000 water systems reported an average savings of \$6.4 million. Similarly, the states that had issued waivers for six or more contaminants reported higher savings on average (\$9.9 million) than the states that had issued waivers for one to five contaminants (\$2.3 million).

We also asked the states to assess the relative benefits--in terms of the monitoring costs avoided--that resulted from the use of grandfathered data, composited samples, and the Chafee-Lautenberg amendment. As shown in table III.2, the states reported the following:

- Grandfathered data on VOCs resulted in the most savings: 23 states reported high to very high savings and another 11 states reported moderate savings.
- The Chafee-Lautenberg amendment also produced fairly significant savings: 14 states reported high to very high savings and another 6 states reported moderate savings.
- Grandfathered data on SOCs was the least successful option: 21 states reported that the option had not been used and 7 states reported low to very low savings.
- Compositing samples also did not generate much savings: In the case of IOCs, for example, 16 states reported that the option had not been used and another 9 states reported savings at a low to very low level.

⁶On the basis of the states' responses to our survey, we computed the average costs avoided as a result of issuing monitoring waivers. See encl. VI for a description of our methodology.

Table III.2: States' Estimates of Relative Benefits Attained From Various Options to Reduce Monitoring Costs

Type of flexibility	Option not allowed	Option allowed but not used	Level of monitoring costs avoided			
			Low/very low/none	Moderate	High/very high	No estimate
Grandfathered data						
IOCs	11	13	7	10	6	3
SOCs	7	21	7	3	5	7
VOCs	2	4	7	11	23	3
Composited samples						
IOCs	16	16	9	2	1	6
SOCs	11	13	6	3	7	10
VOCs	15	13	9	1	6	6
Chafee-Lautenberg	14	4	9	6	14	3

Waivers of Monitoring for Unregulated Contaminants

The majority of states (28 out of 50) did not allow small water systems to obtain waivers of the requirement to monitor for unregulated contaminants. State officials commented that they saw little benefit to allowing such waivers when, in many instances, the analytical methods laboratories use to test for regulated contaminants also cover unregulated contaminants. If EPA decides to set standards for some unregulated contaminants in the future, the water systems that had received waivers would be required to pay for new tests.

AVOIDING OR DEFERRING TREATMENT COSTS

As noted, under certain conditions water systems may avoid or defer treatment costs. These options were not widely used.

Waivers of the requirement to install filtration treatment were used very sparingly. In 33 of the 50 states, waivers were not even an option for water systems because filtration was mandatory under state regulations. Of the 17 states that allowed their water systems to apply for filtration waivers, 6 did not grant any waivers. These 17 states reported that the primary factors influencing the water systems' inability to obtain waivers of the filtration requirement were (1) inadequate watershed management programs and (2) the failure to meet the criteria for the quality of the water source.⁷

In addition, the states had rarely granted exemptions from a quality standard so that the water systems could defer the installation of necessary equipment or treatment processes. During the past 3 calendar years, only 12 states had granted exemptions, and only 3 of the 12 reported granting more than 20 exemptions during that period. Thirty-eight states had not granted any exemptions over the past 3 years.

The states cited a variety of reasons for their limited use of exemptions, but the primary explanation, called "moderately" to "very" important by 39 states, was that the states believed their water systems could more effectively be brought into compliance with requirements through the use of enforcement orders combined with compliance schedules. Other reasons included (1) the overly burdensome administrative requirements of the exemption process, (2) the belief that enforcement orders are less resource-intensive than exemptions, and (3) the relatively low numbers of water systems whose water quality exceeds the water quality standards.⁸

⁷To avoid filtration, water systems must meet certain criteria for the quality of the source water before disinfection, including limits on fecal coliform bacteria, total coliforms, and turbidity.

⁸Nationwide, the vast majority of water systems that had violated these water quality standards, known as maximum contaminant levels, in fiscal year 1994 did so because of microbiological levels. EPA has determined that the water systems with such violations are not eligible for exemptions because such exemptions would result in an unreasonable risk to health, which is prohibited under the Safe Drinking Water Act.

OPTIONS FOR INCREASING THE FLEXIBILITY
OF THE EXISTING PROGRAM

In our survey and during interviews, the states, industry associations, and EPA made a number of suggestions for increasing the flexibility of the drinking water program and reducing the water systems' compliance costs. EPA has undertaken several initiatives to address the concerns of the states and water systems.

STATES' SUGGESTIONS

The states favored a number of changes in the current program. The strongest support (35 states) was for reducing the frequency of the required monitoring for certain contaminants from four quarterly samples to one (or to something less than four). The states also wanted more authority to establish their own monitoring requirements

- after their water systems have tested the water quality at least once or have qualified for a waiver of monitoring (29 states),
- after EPA sets the maximum contaminant level (28 states), and
- on the basis of the results of the first 3-year compliance period (25 states).

INDUSTRY'S SUGGESTIONS

Representatives from the American Water Works Association and the National Rural Water Association told us that despite the significant flexibility already available within the Safe Drinking Water Act, the states are not always aggressive enough in taking advantage of it. Both organizations also offered suggestions for increasing flexibility. For example, the National Rural Water Association believes that EPA should allow reduced monitoring similar to what was authorized under the Chafee-Lautenberg amendment; for certain contaminants, the number of required samples would be reduced from four to one. These officials maintained that reduced sampling would be appropriate considering both the minimal contamination detected to date and the potential savings to the water systems. The American Water Works Association also favored changes in the monitoring requirements, suggesting that the states be given more authority to establish their own monitoring requirements on the basis of local conditions as long as these requirements meet minimum monitoring standards to be established by EPA. This association also suggested reducing the scope of monitoring for unregulated contaminants. An association official told us that while EPA does need national data on the occurrence of currently unregulated contaminants to determine whether regulation is warranted, the agency does not need to collect the data from every water system, particularly small water systems.

EPA'S INITIATIVES

EPA has undertaken several initiatives that address the concerns of the states and water systems. For example, the agency has formed a work group to streamline chemical monitoring requirements on the basis of input from all stakeholders, including EPA, the states, the water industry, and the environmental community. The group has issued guidance on an "enhanced sampling and waiver strategy" that would facilitate the issuance of monitoring waivers, among other things. In addition, EPA intends to propose a new set of monitoring requirements to replace the standardized monitoring framework.

EPA is also revising its guidance on the states' priorities under the program to (1) make oversight of some regulations a lower priority; (2) increase the emphasis on sanitary surveys,⁹ which have traditionally formed the backbone of the states' drinking water programs; and (3) allow the states some flexibility in adjusting national priorities to focus on the most significant public health risks within each state.

⁹Sanitary surveys are comprehensive inspections of the design, operations, and maintenance of public water systems.

SUMMARY OF USE OF FLEXIBILITY, BY STATE AND TYPE OF FLEXIBILITY

State	Type of flexibility											Exemption provision	
	Waivers	Grandfathered data on IOCs	Grandfathered data on VOCs	Grandfathered data on SOCs	Composited IOCs	Composited VOCs	Composited SOCs	Chafee-Lautenberg amendment	Waivers for unregulated contaminants	Treatment waivers			
Alabama	Not used	Low	Medium	Not used	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed	Not used
Alaska	Medium	High	High	High	Not used	Not used	Not used	Low	Used	Used	Not allowed	Used	Not used
Arizona	Not used	Low	Low	Low	Low	Low	Low	High	Used	Used	Not allowed	Used	Used
Arkansas	Low	Not allowed	Medium	Not allowed	Not used	Not used	High	Not allowed	Not allowed	Not allowed	Not allowed	Used	Used
California	Medium	Medium	Medium	Low	Low	Low	Low	High	Used	Used	Used	Not used	Not used
Colorado	Medium	Not allowed	High	Not used	Low	Low	Medium	High	Not allowed	Not allowed	Not allowed	Used	Used
Connecticut	Low	Not used	High	Not used	Not allowed	No estimate	No estimate	Low	Used	Not allowed	Not allowed	Not used	Not used
Delaware	Not allowed	High	High	No estimate	No estimate	Not used	No estimate	High	Used	Not allowed	Not allowed	Not used	Not used
Florida	Low	Not allowed	High	High	Low	Low	Low	Not allowed	Used	Not allowed	Not allowed	Not used	Not used
Georgia	Low	Not used	High	Not used	No estimate	No estimate	No estimate	Low	Not allowed	Not allowed	Not allowed	Not used	Not used
Hawaii	Not allowed	Not allowed	Not allowed	Not allowed	Not used	Not used	Not used	Not allowed	Used	Not allowed	Not allowed	Not used	Not used
Idaho	Low	Low	Low	Low	Not used	Low	Not used	Low	Used	Not used	Not used	Not used	Not used
Illinois	Low	High	High	High	Not allowed	Not allowed	Not allowed	Not used	Not allowed	Not allowed	Not allowed	Not used	Not used
Indiana	High	Not allowed	Low	Not used	Low	Low	Low	High	Used	Not allowed	Not allowed	Not used	Not used
Iowa	High	High	Low	Low	Not used	Not used	Not used	Low	Not allowed	Not allowed	Not allowed	Not used	Not used
Kansas	Low	Not used	Low	Not used	Not allowed	Not allowed	No estimate	Medium	Not allowed	Not allowed	Not allowed	Not used	Not used
Kentucky	Not allowed	Not allowed	Not allowed	Not allowed	Not used	Low	Low	Not allowed	Not allowed	Not allowed	Not allowed	Not used	Not used
Louisiana	Not used	Not used	Not used	Not used	Not used	Not used	High	Low	Not allowed	Not allowed	Not allowed	Not used	Not used

Type of flexibility													
	Medium	High	High	High	High	Medium	Medium	Medium	Low	Used	Used	Used	Used
Maine State	Not used	Low	Medium	Low	Low	High	High	Low	Low	Used	Not allowed	Used	Not used
Massachusetts	High	Not used	Not used	Not used	Not used	Low	Low	Low	Low	Not allowed	Used	Used	Used
Michigan	Medium	High	High	Not allowed	Not used								
Minnesota	Medium	Medium	High	High	Low	Not allowed	Not used						
Mississippi	Medium	High	High	No estimate	Not allowed	Not used							
Missouri	Low	Not used	High	Not used	Used	Not allowed	Not allowed	Not used					
Montana	Not used	Medium	Low	Low	Low	High	High	High	High	Used	Used	Used	Not used
Nebraska	Not used	Not used	High	Not used	Not allowed	Not allowed	Not allowed	Not allowed	Low	Not allowed	Not allowed	Not allowed	Not used
Nevada	Not used	High	Low	Not used	Medium	Used	Used	Used	Used				
New Hampshire	Medium	Not allowed	High	Not allowed	Not used	Not used	Not used	Not used	High	Not allowed	Not allowed	Used	Used
New Jersey	Medium	Not used	Medium	Not used	Not allowed	Not allowed	Not allowed	Not allowed	Medium	Used	Not allowed	Not allowed	Not used
New Mexico	Medium	Low	High	Not used	Not used	Not allowed	Not allowed	High	High	Not allowed	Not used	Not used	Not used
New York	Low	No estimate	No estimate	No estimate	Not allowed	Not allowed	Not allowed	No estimate	No estimate	Not allowed	Not allowed	Used	Used
North Carolina	Medium	Not used	High	Not used	Low	Not allowed	Not used	Not used	Used				
North Dakota	Not used	Not used	Not used	Not used	Not allowed	Not allowed	Not allowed	Not allowed	High	Not allowed	Not allowed	Not allowed	Not used
Ohio	Low	Not allowed	Low	Not allowed	Not allowed	Not allowed	Not allowed	Not used	Not allowed	Not allowed	Not allowed	Not allowed	Not used
Oklahoma	Medium	High	Not used	Not used	High	High	High	High	Not allowed	Not allowed	Not allowed	Not allowed	Not used
Oregon	Low	Medium	Medium	Not used	Medium	Used	Used	Used	Not used				
Pennsylvania	Medium	Not allowed	Low	No estimate	Medium	Used	Used	Not allowed	Not used				
Rhode Island	Low	High	High	Not used	High	Used	Used	Not used	Used				
South Carolina	Low	Not allowed	High	High	High	High	High	High	Not allowed	Not allowed	Not allowed	Not allowed	Not used

DEVELOPMENT AND ANALYSIS OF SURVEY
AND RESPONSES TO QUESTIONNAIRE

We sent our questionnaire to drinking water program administrators in 49 of the 50 states. In the case of Wyoming, which does not have primary enforcement authority for the Environmental Protection Agency's (EPA) drinking water program, we obtained information from an EPA official in the cognizant EPA regional office. To minimize the time needed to obtain responses, we contacted the appropriate program officials before mailing the questionnaires. Because contacting the water systems directly was impractical, we relied on the states to provide information on the extent to which the water systems were able to use the available flexibility and the factors that affected their ability to take advantage of various options.

In analyzing the information we collected on the use of different types of flexibility, we categorized the states' responses into five groups: (1) the state did not allow this type of flexibility; (2) the state allowed it, but no water systems were using it yet; (3) the use of flexibility by the state's water systems was low; (4) the use of flexibility by the state's water systems was medium; and (5) the use of flexibility by the state's water systems was high. Enclosure V summarizes the use of each type of flexibility in all 50 states.

For all but three types of flexibility,¹ our survey asked the states to provide information that would allow us to determine the extent to which their water systems were taking advantage of various options. The low-, medium-, and high-use categories used in the charts in enclosures III and V are defined separately for each type of flexibility. In the case of grandfathered data, composited samples, and the Chafee-Lautenberg amendment, the level of use is based on the proportion of water systems that were reported to use the flexibility in each state. We defined low use as participation by 1 to 40 percent of the systems, medium use as 41 to 60 percent, and high use as over 60 percent. In addition, for grandfathered data and composited water samples, we collected and analyzed information separately for three contaminant groups--inorganic chemicals (IOC), synthetic organic chemicals (SOC), and volatile organic chemicals (VOC).

For monitoring waivers, we determined the extent of use (low, medium, and high) on the basis of the estimated percentage of water systems that received monitoring waivers for 14 selected contaminants and contaminant groups.² In our survey, we asked the states to report, for

¹We did not measure the extent of the water systems' use of three types of flexibility: (1) waivers of requirements for monitoring unregulated contaminants, (2) waivers of filtration treatment for unfiltered surface water systems, and (3) treatment exemptions under section 1416 of the Safe Drinking Water Act.

²We focused on 14 contaminants and contaminant groups that are generally acknowledged to be likely candidates for monitoring waivers because of the methods used to analyze the contaminants and/or the cost of the analysis. With the exception of dalapon, we included all of the contaminants listed in question 9 of the survey in our analysis. We excluded dalapon because it is not tested using a single analyte method.

each of the selected contaminants, whether they had issued (1) statewide waivers covering both groundwater and surface water systems, (2) statewide waivers for groundwater systems only, (3) statewide waivers for surface water systems only, (4) areawide or individual system waivers, or (5) no waivers. On the basis of this data, we estimated the percentage of water systems that had received waivers for each of the 14 contaminants. Thus, if a state issued a statewide waiver for dioxin covering both groundwater and surface water systems, we determined that 100 percent of the systems had received waivers. If, on the other hand, the statewide waiver applied only to groundwater systems, we determined that the percentage of systems receiving waivers was equal to the percentage of groundwater systems in the state. When a state issued only areawide or individual waivers for a particular contaminant, we assigned a factor of 60 percentage points to give the states credit for covering at least a portion of their water systems.³ We based the 60 percentage points on information we obtained from EPA covering several states' areawide waiver coverage for eight contaminants. Because the final measure of extent of use included only three categories (low, medium, and high), the estimate of 60 percent we used for areawide and individual waivers was an adjustment of the actual median of 64 percent in EPA's data. This adjustment should confine errors caused by the estimation to only one category; that is, if we estimated that usage was low, it could actually be medium but it could not be high.

To categorize the use of monitoring waivers in each state as low, medium, or high, we computed a score for each state using the estimated percentage of water systems covered by monitoring waivers for the contaminants included in our analysis. The total possible score for a state was 1,400 points, meaning that 100 percent of the state's water systems had received monitoring waivers for each of the 14 contaminants included in our analysis. We defined the low-, medium-, and high-use categories using the same criteria applied to other types of flexibility: low use was 1 to 40 percent, medium use was 41 to 60 percent, and high use was more than 60 percent. Applying these percentages to our scoring system results in a low-use range of 1 to 560 points, a medium-use range of 561 to 840 points and a high-use range of 841 to 1,400 points.

We asked each state to estimate the monitoring costs avoided as a result of its monitoring waiver program by selecting the dollar range (less than \$500,000, \$500,001 to \$1 million, \$1,000,001 to \$5 million) that best represented the amount of savings attained to date. To compute the average monitoring costs avoided, we used the midpoint of the dollar range reported by each state. Thus, if a state reported that its savings were from \$1,000,001 to \$5 million, we used the midpoint of \$2.5 million for our computations. We also compared the savings reported

³In a few instances, the states reported that they had issued a statewide waiver for groundwater systems only or for surface water systems only and had also issued areawide or individual waivers to some or all of the remaining systems. When this occurred, we gave the states credit for the percentage of water systems covered by the statewide waiver and added 60 percent of the remaining percentage points for the other type of water system to acknowledge that additional systems would have received areawide or individual waivers.

from monitoring waiver programs with the number of water systems in each state and the number of contaminants subject to waivers in each state.

In the case of grandfathered compliance data, composited samples, and the Chafee-Lautenberg amendment, we asked the states to estimate the relative benefits or costs avoided as a result of using these types of flexibility. In comparing this information with responses to the survey's questions on the extent to which these options were used (questions 17, 23, and 27), we felt that the answers on relative benefits were misleading in some cases. For example, if a state indicated that compositing was not allowed or not used in the state, it seemed inappropriate to portray the level of benefits as "very low" or "none" in rating the relative benefits of several types of flexibility. Thus, we combined the information for question 30 with the answers to questions 17, 23, and 27 and provided these data in table III.2 in enclosure III as follows:

- The "Option not allowed" and "Option allowed but not used" categories are based on the states' responses to questions 17, 23, and 27.
- The "No estimate" category includes the responses "Do not have estimate" and "Too early to tell" from questions 17, 23, and 27 as well as the responses "Too early to tell" and "No basis to judge" from question 30.
- For the remaining states--those that were able to estimate the extent to which an option was used by the water systems--we included their answers to question 30 in the table and collapsed them into "Low," "Medium," and "High" categories as appropriate.

Because of the adjustments described above, we did not display the responses to the survey for question 30 in the questionnaire, which follows.

U.S. General Accounting Office

GAO Survey of State Drinking Water Programs for Community and Nontransient Noncommunity Water Systems

Introduction

The U.S. General Accounting Office (GAO) is an independent agency that assists the U.S. Congress in evaluating federal programs. We are currently assessing the extent to which states and water systems are utilizing the flexibility available under the Safe Drinking Water Act to reduce compliance costs.

The questions in this survey focus on the major types of flexibility currently available to states and water systems, including monitoring waivers; other ways to reduce monitoring costs, such as the use of grandfathered data; filtration treatment waivers; and treatment exemptions. We would like to find out whether states and water systems have been able to take advantage of these options and, if not, the reasons why. We are also asking for states' views on possible changes to the safe drinking water program.

In responding to the survey, please provide information on both community and nontransient noncommunity water systems. We are requesting information on these two system categories because they are subject to the same regulatory requirements.

To expedite our data collection and help ensure that your responses are available in time for the congressional debate, we (1) have attempted to minimize the amount of time required to complete the questionnaire and (2) will collect your responses by telephone. In testing this survey with three states, we found that it takes about 45 minutes to complete. Please complete the questionnaire in advance. We will contact you to collect your responses at the agreed upon time; during our telephone appointment, you will have an opportunity to provide additional comments to clarify any responses, if necessary. If you have questions about specific items in the questionnaire, please call Ellen Crocker at (617) 565-7469 or Terri Dee at (617) 565-8868.

Number of water systems

- Following is a breakdown of the number of community and nontransient noncommunity water systems in your state as of September 1994, according to EPA's data base. (For the purposes of this questionnaire, systems reported to EPA as groundwater under the influence of surface water are counted as surface water systems.) If these numbers seem fairly accurate, please continue with the next question. Otherwise, please correct the numbers in the space provided.

State of _____	Corrections
Community systems:	
Surface water _____	_____
Groundwater _____	_____
Nontransient noncommun.	
Surface water _____	_____
Groundwater _____	_____
Total _____	_____

Note: "N" is the number of responses.

ENCLOSURE VI

Monitoring Waivers

2. Does your state have a program for granting waivers from monitoring requirements for any type of contaminants? N=50

- 1. 45 Yes → Go to next question.
- 2. NO → Skip to Question 15.
- 3. 5 Program under development → Skip to Question 15.

3. Has EPA given your state preliminary approval to issue monitoring waivers? (Check one.) N=45

- 1. 36 Yes
→ Calendar year of approval: 1991-1995
- 2. 9 Not yet; approval is pending
- 3. No; have not requested approval
- 4. No basis to judge

4. Has EPA approved your state for primacy (primary enforcement responsibility) for Phase II drinking water regulations? (Check one.) N=45

- 1. 24 Yes
→ Calendar year of approval: 1992-1995
- 2. 20 Not yet; application is pending
- 3. 1 No; have not applied
- 4. No basis to judge

ENCLOSURE VI

5. For what percent, if any, of your state's water systems has an assessment been completed for susceptibility to contamination? Please include all such assessments regardless of whether conducted by the water system, by your state, or by a third party. (Check one box for each column.)

	(A)	(B)
	Community water systems N=45	Nontransient noncommunity water systems N=44
1. None	<u> 3 </u>	<u> 6 </u>
2. 1 - 20 percent	<u> 12 </u>	<u> 10 </u>
3. 21 - 40 percent	<u> 3 </u>	<u> 3 </u>
4. 41 - 60 percent	<u> 4 </u>	<u> 6 </u>
5. 61 - 80 percent	<u> 4 </u>	<u> 2 </u>
6. 81 - 100 percent	<u> 16 </u>	<u> 13 </u>
7. Do not have estimate	<u> 3 </u>	<u> 4 </u>

ENCLOSURE VI

6. Do water systems supply some or all of the data required for monitoring waiver determinations, or is it solely a state responsibility? (Check one box for each column.)

	(A) Community water systems N=45	(B) Nontransient noncommunity water systems N=44
1. State collects all data.	<u>6</u>	<u>7</u>
2. Water systems provide some data.	<u>21</u>	<u>18</u>
3. Water systems provide all or almost all data.	<u>15</u>	<u>15</u>
4. Other (Please specify.)	<u>3</u>	<u>4</u>
5. Cannot determine	<u> </u>	<u> </u>

ENCLOSURE VI

7. If any of the water systems in your state are responsible for supplying some or all data for monitoring waiver determinations, please indicate the type of data these water systems are required to submit. (Check one box for each item a through f.)

If your state collects all data, please check this box and skip to the next question. N=6

	Yes (1) N=39	No (2)
Are water systems responsible for:		
a. Full vulnerability assessment	<u>8</u>	<u>31</u>
b. Map delineating protection area and/or hydrological study of recharge area	<u>19</u>	<u>20</u>
c. Contamination source/land use survey	<u>30</u>	<u>9</u>
d. Local land use controls (such as zoning)	<u>16</u>	<u>23</u>
e. Well construction information	<u>26</u>	<u>13</u>
f. Prior sampling results	<u>24</u>	<u>15</u>
g. Other (Please specify.)	<u>9</u>	<u>30</u>

8. In what calendar year did your state begin issuing monitoring waivers? (*Check one.*) N=45

1. 3 Have not issued any waivers yet
→ *Skip to Question 12.*

 1 1991 (volunteered)

2. 3 1992

3. 16 1993

4. 16 1994

5. 6 1995

6. Other (*Please explain.*)

7. *Can't say/No basis to judge*

9. For each contaminant listed below, please indicate the type of monitoring waiver, if any, that your state has already issued as of December 31, 1994. The following page provides a place to list other contaminants or contaminant groups for which the state has issued waivers. (Work from left to right and check all that apply.)

N=42

Contaminants	Statewide waiver: groundwater systems only (1)	Statewide waiver: surface water systems only (2)	Statewide waiver: surface water and groundwater systems (3)	Areawide or individual water system waivers only (4)	No waivers issued as of 12/31/94 ^a (5)
<i>(Check all that apply.)</i>					
Inorganic chemicals					
a. Antimony	1			7	34
b. Asbestos ^b		1	12	19	11
c. Cyanide			8	10	24
d. Fluoride	1			10	31
e. Mercury	1		1	10	30
f. Selenium	1		1	9	31
g. Thallium	1			6	35
Synthetic organic chemicals					
a. DBCP/EDB ^c	1	4	2	22	15
b. Dalapon	1		5	20	16
c. Dioxin ^d	5		17	13	8
d. Diquat	1		10	18	13
e. Endothall	1		10	17	14
f. Glyphosate ^d	2		10	19	12
g. PCBs	2		5	19	16
Volatile organic chemicals					
a. All VOCs		1		18	23

Notes:

^aSix of the 42 states reported no waivers issued as of 12/31/94 because they began issuing waivers in 1995.

^bTotal does not add to 42 because one state issued statewide waivers for surface water systems and areawide/individual waivers for groundwater systems.

^cTotal does not add to 42 because two states issued statewide waivers for surface water systems and areawide/individual waivers for groundwater systems.

^dTotal does not add to 42 because one state issued statewide waivers for groundwater systems and areawide/individual waivers for surface water systems.

(continued)

Waivers issued as of December 31, 1994					
Contaminants	Statewide waiver: groundwater systems only (1)	Statewide waiver: surface water systems only (2)	Statewide waiver: surface water <i>and</i> groundwater systems (3)	Areawide or individual water system waivers only (4)	No waivers issued as of 12/31/94 (5)
Other VOC, IOC, or SOC contaminants or contaminant groups not listed above <i>(Please specify below)</i> (Use additional pages as needed.)	<i>(Check all that apply.)</i>				
a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.					
j.					
k.					
l.					

ENCLOSURE VI

ENCLOSURE VI

10. Regardless of who actually conducts the testing, who currently benefits the most financially when testing is reduced under your state's monitoring waiver program? (Check one.) N=42

1. 2 State benefits much more
2. State benefits somewhat more
3. 3 Both equally
4. 3 Water system somewhat more
5. 34 Water system much more
6. Can't say/No basis to judge

11. Considering the monitoring waivers reported in the questions above, what monitoring costs, if any, have been avoided to date? Please include all monitoring costs avoided whether by water systems or by the state. (Check one.) N=42

1. 1 None
2. 3 Less than \$500,000
3. 2 \$500,000 - \$1 million
4. 16 \$1,000,001 - \$5 million
5. 4 \$5,000,001 - \$10 million
6. 5 \$10,000,001 - \$15 million
7. 2 \$15,000,001 - \$20 million
8. 1 \$20,000,001 - \$25 million
9. 3 Over \$25 million
10. 5 Do not have estimate

12. Prior to implementation, how much did your state spend to develop its monitoring waiver program? Include personnel costs as well as other outlays prior to implementation. (Check one.) N=45

1. None
2. 1 Less than \$10,000
3. 13 \$10,001 - \$50,000
4. 9 \$50,001 - \$100,000
5. 8 \$100,001 - \$250,000
6. 6 \$250,001 - \$500,000
7. 1 \$500,001 - \$1 million
8. 1 \$1,000,001 - \$5 million
9. Over \$5 million
10. 6 Do not have estimate

13. How much is the annual cost of **implementing** the monitoring waiver program in your state? (*Check one.*)
N=45

1. ___ None
2. 4 Less than \$10,000
3. 8 \$10,001 - \$50,000
4. 9 \$50,001 - \$100,000
5. 6 \$100,001 - \$250,000
6. 3 \$250,001 - \$500,000
7. 1 \$500,001 - \$1 million
8. 1 \$1,000,001 - \$5 million
9. ___ Over \$5 million
10. 8 *Too early in program to tell*
11. 5 *Do not have estimate*

14. How many full-time equivalent staff are currently employed in your state's waiver program? [Count equivalents to one full-time person. That is, two half-time positions are equal to one full-time equivalent.]
(*Enter number; if none, enter "0".*) N=43

0 to 8 FTEs

15. In your opinion, how have the following factors affected your state, either positively or negatively, in developing and/or implementing a monitoring waiver program? (Check one box for each row.)

	Very positive (1)	Generally positive (2)	Neither positive nor negative (3)	Generally negative (4)	Very negative (5)	No basis to judge (6)
a. Adequacy of state resources N=48	5	9	5	14	15	2
b. EPA's approval process for waiver programs N=47	2	15	13	13	4	3
c. Assistance from EPA (such as workshops and guidance) N=50	3	11	26	8	2	
d. Demands of water systems for relief from requirements N=45	9	19	16		1	5
e. Adequacy of expertise of state staff N=50	13	25	11	1		
f. Adequacy of expertise of water system staff N=44		5	21	12	6	6
g. Availability of needed data N=50	1	16	6	20	7	
h. Cost of vulnerability assessments exceeds cost of monitoring N=41	2	6	24	7	2	9
i. Potential savings to state by having waiver program N=49	13	13	17	2	4	1
j. Limited financial benefits to state relative to benefits to water systems N=44	2	4	26	6	6	6
k. Potential liability for state if monitoring waivers are granted N=44		1	33	8	2	6
l. State's desire for baseline monitoring at all systems N=47	9	11	23	3	1	3

m. Please list any other factors below that positively or negatively affect your state's ability to develop and/or implement a monitoring waiver program. [Ten states made comments in the space provided.]

16. In your opinion, how have the factors listed below affected the ability of water systems in your state to obtain monitoring waivers? (Check one box for each row.)

If your state does **not** have a program for granting waivers from monitoring requirements for **any** contaminants, please check this box and skip to the next question. N=5

	Greatly decreased (1)	Moderately decreased (2)	Somewhat decreased (3)	No impact (4)	Too early to tell/ No basis to judge (5)
a. Water systems lacked knowledge of this option. N=45	5	4	13	21	2
b. Water systems do not meet criteria for waivers. N=45	3	12	19	7	4
c. Water systems lacked appropriate data. N=45	5	10	17	10	3
d. State lacked appropriate data. N=45	8	9	14	12	2
e. Water systems lacked resources to provide required data. N=45	8	8	14	13	2
f. State lacked resources to obtain required data. N=45	12	5	12	14	2
g. Other (Please specify.) N= 5	3	1	1		

Section II: Other Methods to Reduce Monitoring Costs

Grandfathered Data

17. What percent of the water systems in your state currently use grandfathered data to satisfy one or more initial monitoring requirements for the three categories of chemicals shown in the table below? (*Check one box for each column.*)

	N=50	N=50	N=50
Percent of water systems using grandfathered data	(A) IOCs (Inorganic chemicals) (<i>Check one.</i>)	(B) VOCs (Volatile organic chemicals) (<i>Check one.</i>)	(C) SOCs (Synthetic organic chemicals) (<i>Check one.</i>)
1. <i>State does not allow use of grandfathered data for these chemicals.</i>	11	2	7
2. State allows grandfathered data, but <i>none</i> of the systems are using it.	13	4	21
3. 1 - 20 percent	5	7	9
4. 21 - 40 percent	3	4	2
5. 41 - 60 percent	5	6	
6. 61 - 80 percent	1	7	2
7. 81 - 100 percent	11	19	5
8. <i>Do not have estimate</i>	1	1	4

18. If your state prohibits the use of grandfathered data for any of the chemical groups below, please check the boxes indicating the reasons that help explain this in the table below. *(Check all that apply.)*

If your state allows the use of grandfathered data for all three chemical groups, please check this box and skip to the next question.

N=37

Reasons your state does not allow use of grandfathered data N=13	(A) IOCs (Inorganic chemicals)	(B) VOCs (Volatile organic chemicals)	(C) SOCs (Synthetic organic chemicals)
	<i>(Check all that apply.)</i>		
a. State expected only a few water systems to have enough data available.	4	2	6
b. State believed most available test results were unreliable due to use of uncertified lab, outdated analytical method, etc.		1	2
c. State wanted a current test result from all water systems.	6	2	4
d. Other <i>(Please specify.)</i>	8		3
e. Other <i>(Please specify.)</i>			

19. In your opinion, how have the factors listed below affected the ability of water systems in your state to use grandfathered data? (Check one box for each row.)

If your state does **not** allow the use of grandfathered data **under any circumstances**, please check this box and skip to the next question.

N=2

	Greatly decreased (1)	Moderately decreased (2)	Somewhat decreased (3)	No impact (4)	<i>Too early to tell/No basis to judge</i> (5)
a. Water systems lacked knowledge of this option. N=48	1	2	10	34	1
b. Water systems lacked appropriate testing data for IOCs. N=48	9	6	7	17	9
c. Water systems lacked appropriate testing data for VOCs. N=48		5	12	31	
d. Water systems lacked appropriate testing data for SOCs. N=48	22	4	5	12	5
e. Other (Please specify.) N= 8	6	2			

Compositing

20. Does your state currently allow water systems to composite (combine) five water samples for compliance analysis for a) systems serving 3,300 people or less, or b) systems serving more than 3,300 people (may only use samples from within the same water system)? (Check one.) N=50
1. 38 Allowed for both
 2. 2 Allowed only for systems serving 3,300 or less
 3. Allowed only for systems serving over 3,300
 4. 10 Not allowed for either → *Skip to question 22.*
 5. *Can't say/No basis to judge*
21. What is the maximum number of samples that can be composited in your state? (Check one.) N=40
1. 2 Two
 2. 1 Three
 3. Four
 4. 19 Five
 5. 18 Determined on contaminant by contaminant basis depending on ratio of detection limit and MCL

22. If your state does not allow compositing or limits it to either inter- or intra-system compositing, which of the following reasons help explain why your state does not allow compositing of test samples? (Check all that apply.) N=50
1. 31 Does not apply/State allows both inter and intra-system compositing
 2. 12 Concern about potential for masking contamination
 3. 10 Desire for baseline monitoring data for each water system or source
 4. 8 State, not water systems, conducts all sampling and analysis.
 5. 14 Potential record-keeping difficulties/compliance tracking
 6. 3 Concerns about laboratory capacity
 7. 3 Laboratories offer little or no price break for compositing.
 8. 8 Other (Please explain.)
 9. 0 Cannot say/No basis to judge

23. For each of the three categories of chemicals shown in the table below, please indicate the percentage of water systems in your state that currently composite (combine) water samples for at least one testing requirement? (Check one box for each column.)

	N=50	N=50	N=50
Percent of water systems compositing water samples for at least one testing requirement	(A) IOCs (Inorganic chemicals) (Check one.)	(B) VOCs (Volatile organic chemicals) (Check one.)	(C) SOCs (Synthetic organic chemicals) (Check one.)
1. State does not allow compositing for these chemicals	16	15	11
2. State allows compositing, but none of the systems are using it	16	13	13
3. 1 - 20 percent	10	10	9
4. 21 - 40 percent	1	1	
5. 41 - 60 percent	1	1	2
6. 61 - 80 percent			1
7. 81 - 100 percent		4	5
8. Too early to tell	3	2	5
9. Do not have estimate	3	4	4

24. In your opinion, how have the factors listed below affected the ability of water systems in your state to composite their water samples? (Check one for each row.)

If your state does not allow compositing **under any circumstances**, please check this box and skip to the next question.

N=10

	Greatly decreased (1)	Moderately decreased (2)	Somewhat decreased (3)	No impact (4)	Too early to tell/ No basis to judge (5)
a. Water systems lacked knowledge of this option. N=40	5	4	10	18	3
b. Water systems feared that use of this option would require them to do more testing if contamination were detected. N=40	5	4	7	18	6
c. Small water systems had difficulty managing the administrative details for this option. N=40	6	3	9	17	5
d. State was concerned about potential for masking contamination. N=40	5	2	8	22	3
e. State lacked resources to administer this option for small systems. N=40	3	5	6	24	2
f. Other (Please specify.) N=19	15	1	2	1	

Reduced monitoring for small water systems

25. Did your state modify its requirements to allow water systems serving less than 3,300 people to fulfill their monitoring obligation under the Phase II regulations according to the Chafee-Lautenberg provision? [The Chafee-Lautenberg provision allows systems to take one sample, provided that the sample (1) was taken between October 6, 1992 and October 1, 1993 and (2) failed to detect any contamination.] (Check one.)

N=50

1. 36 Yes → Skip to 27.
2. 14 No → Go to next question.

26. Which of the following reasons help explain why your state did not allow use of the Chafee-Lautenberg provision? (Check all that apply.) N=14

1. 5 State did not adopt and/or implement the Phase II regulations in time to inform water systems.
2. 8 State had already established monitoring schedule and was unable to make adjustments.
3. 3 Lack of staff/resources
4. 3 Inadequate laboratory capacity
5. 2 State believed that additional sampling was necessary to capture seasonal variations in water quality.
6. 1 State was concerned that detection of contamination would trigger immediate quarterly monitoring.
7. 2 Other (Please specify.)

27. How many of the eligible water systems (serving less than 3,300 people) in your state took advantage of the "Chafee-Lautenberg provision" to satisfy some or all of the Phase II testing requirements? (Check one.)

N=50

1. 14 State did not allow use → Skip to 29.
2. 4 State allowed, but *none* of the systems used it
3. 9 1 - 20 percent
4. 4 21 - 40 percent
5. 5 41 - 60 percent
6. 6 61 - 80 percent
7. 6 81 - 100 percent
8. 2 Do not have estimate

28. In your opinion, how have the factors listed below affected the ability of water systems in your state to take advantage of the Chafee-Lautenberg provision? *(Check one box for each row.)*

	Greatly decreased (1)	Moderately decreased (2)	Somewhat decreased (3)	No impact (4)	No basis to judge (5)
a. Water systems lacked knowledge of this option. N=36	8	4	14	9	1
b. Water systems lacked funds needed to comply with this option before deadline. N=36	4	8	11	10	3
c. Laboratories lacked needed capacity for this option. N=36	11	6	4	14	1
d. Other <i>(Please specify.)</i> N=12	8	3	1		

29. Does your state require its smallest water systems (less than 150 service connections) to monitor for **unregulated** contaminants ? *(Check one.)* N=50

1. 28 Yes
2. 22 No
3. *Can't say/No basis to judge*

Comparing Three Options

30. For each option listed below, please indicate the level of monitoring costs, if any, that have been avoided to date. (Check one box for each row.) N=50

	<i>Did not use option/ Too early to tell</i> (1)	Very high (2)	High (3)	Moderate (4)	Low (5)	Very low/ None (6)	No basis to judge (7)
a. Grandfathered data for VOCs							
b. Grandfathered data for SOCs							
c. Grandfathered data for IOCs							
d. Compositing samples for VOCs							
e. Compositing samples for SOCs							
f. Compositing samples for IOCs							
g. Reduced monitoring for small systems (Chafee-Lautenberg, etc.)							

Section III: Treatment Waivers and Exemptions

31. Does your state require filtration at all surface water systems? (Check one.) N=50

- 1. 33 Yes → Skip to Question 34.
- 2. 17 No → Go to next question.

32. Has your state granted any filtration treatment waivers to unfiltered surface water systems under the surface water treatment rule? (Check one.) N=17

- 1. 11 Yes
- 2. 6 No

33. In how many cases, if any, did each of the following factors prevent unfiltered surface water systems from qualifying for filtration waivers? (Check one box for each row.)

<i>Unfiltered surface water systems</i>	Few/None (1)	Less than half (2)	About half (3)	More than half (4)	All/Almost all (5)	No basis to judge (6)
a. Water system did not submit avoidance application. N=17	11			1	5	
b. Water system did not meet source water quality criteria. N=17	6		2	3	5	1
c. Water system did not have an adequate watershed management program. N=17	4	1	1	2	8	1
d. Water system did not meet disinfection criteria. N=17	9	1	1	2	3	1
e. Water system had waterborne disease outbreak. N=17	15					2
f. Other (Please specify.) N=3	1			1	1	

34. In the past three calendar years, how many of your state's community and nontransient noncommunity water systems have received exemptions under Section 1416 of the Safe Drinking Water Act ? (Check one.)

N=50

- 1. 38 None
- 2. 5 1 - 5
- 3. 3 6 - 10
- 4. 1 11 - 20
- 5. 3 Over 20
- 6. Do not have estimate

35. How important are the following reasons in explaining why your state has not granted more exemptions? (Check one box for each row.)

	Very important (1)	Moderately important (2)	Somewhat important (3)	Not important (4)	No basis to judge (5)
a. Few water systems have MCL violations. N=50	13	9	6	19	3
b. Administrative requirements, such as public hearing, are overly burdensome. N=50	11	13	6	15	5
c. Use of enforcement order with compliance schedule is considered more effective in returning water systems to compliance. N=50	35	4	4	4	3
d. Use of enforcement orders is less resource-intensive than use of exemptions. N=50	16	7	8	13	6
e. State wants to keep up pressure for water systems to consolidate. N=50	1	4	4	36	5
f. Use of exemptions creates double standard that is difficult to justify to the public. N=50	10	10	12	14	4
g. Belief that exemption creates liability for the state N=50	3	6	5	30	6
h. Other (<i>Please specify.</i>) N=12	12				

Section IV: Interactions with U.S. EPA

36. How would you rate U.S. EPA's written guidance for developing a state monitoring waiver program? (*Check one.*) N=50
1. Excellent
 2. 5 Good
 3. 24 Fair
 4. 7 Poor
 5. 11 Very Poor
 6. 3 No basis to judge

37. How would you rate the expertise of U.S. EPA regional staff during the review of your state's monitoring waiver program? (*Check one.*) N=50
1. 6 Excellent
 2. 19 Good
 3. 12 Fair
 4. 7 Poor
 5. 2 Very Poor
 6. 4 No basis to judge

38. How easy or difficult was the process of EPA's review of your state's waiver program it? (*Check one.*) N=50

1. 2 Very easy
2. 11 Generally easy
3. 14 Neither easy nor difficult
4. 9 Generally difficult
5. 7 Very difficult
6. 7 No basis to judge

39. Below is a list of possible changes to the safe drinking water program. For each one, please indicate whether you support or oppose the change. (*Check one box for each row.*)

	Strongly support (1)	Generally support (2)	Neither support nor oppose (3)	Generally oppose (4)	Strongly oppose (5)	Does not apply/No basis to judge (6)
a. Allow states to establish monitoring requirements after EPA sets MCLs. N=50	28	14	2	6		
b. Allow states to establish monitoring requirements after systems have tested at least once or qualified for a waiver. N=50	29	18	1	1	1	
c. Delay implementation of monitoring requirements to give states time to conduct necessary assessments. N=50	19	18	8	4		1
d. Allow fewer samples than the quarterly sampling requirement. N=50	35	12	2		1	

	Strongly support	Generally support	Neither support nor oppose	Generally oppose	Strongly oppose	Does not apply/No basis to judge
	(1)	(2)	(3)	(4)	(5)	(6)
e. Reduce monitoring requirements for Phase V contaminants for small water systems from four samples to one. N=50	35	10	2	1	1	1
f. Allow states to establish monitoring requirements based on results of first three-year cycle. N=50	25	14	4	7		
g. Change cycle time for standardized monitoring framework from three years to five years. N=50	6	12	17	8	4	3
h. Extend definition of small water system from 3,300 to 10,000 people served. N=50	6	8	19	12	5	
i. Allow source water protection as an alternative to monitoring in certain situations. N=50	13	23	7	5	2	
j. Other (<i>Please specify.</i>) N=18	17				1	

40. If you have additional comments, please write them below or on a separate sheet of paper. Your comments are greatly appreciated. [Twenty eight states made comments in the space provided.].

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