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SUPERFUND

State Voluntary Programs Provide Incentives to Encourage Cleanups



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The Honorable John Chafee
Chairman, Committee on Environment
and Public Works
United States Senate

The Honorable Robert Smith
Chairman, Subcommittee on Superfund,
Waste Control, and Risk Assessment
Committee on Environment and
Public Works
United States Senate

As requested, we are reporting on voluntary cleanup programs that states have created to facilitate privately initiated cleanups. Our report contains recommendations to the Administrator, Environmental Protection Agency (EPA), designed to promote effective voluntary cleanups while lowering barriers caused by liability provisions within the Comprehensive Environmental Response, Compensation, and Liability Act of 1980.

As arranged with your offices, unless you publicly announce its contents earlier, we will make no further distribution of this report until 30 days after the date of this letter. At that time, we will send copies to the appropriate congressional committees; the Administrator, EPA; and the Director, Office of Management and Budget. We will also make copies available to others upon request.

Please call me at (202) 512-4907 if you or your staff have any questions. Other major contributors to this report are listed in appendix V.

A handwritten signature in black ink, appearing to read "Peter F. Guerrero". The signature is stylized and cursive, with a large initial "P" and "G".

Peter F. Guerrero
Director, Environmental
Protection Issues

Executive Summary

Purpose

After nearly two decades and billions of dollars in federal, state, and private expenditures for cleanups, the nation still has thousands of hazardous waste sites to address. The federal Superfund program and state enforcement programs have compelled cleanups at many of the most hazardous sites, but thousands of other sites await discovery, evaluation, and cleanup. To reduce this backlog, many states have created voluntary cleanup programs, which rely on incentives rather than enforcement orders to accomplish cleanups.

Because of these programs' potential for advancing the nation's cleanup goals, the Chairmen of the Senate Committee on Environment and Public Works and its Subcommittee on Superfund, Waste Control, and Risk Assessment asked GAO to (1) identify voluntary cleanup programs' accomplishments; (2) describe these programs' organization, funding and major characteristics; and (3) determine the effects of federal hazardous waste policies on voluntary cleanups and the types of federal assistance that could further support voluntary programs. To respond to these objectives, GAO obtained information, through telephone surveys and visits, on 17 voluntary programs in 15 states. These programs were chosen because their locations are geographically diverse.

Background

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund) authorizes cleanups of hazardous waste sites and, to fund these cleanups, holds the parties responsible for the contamination liable for the cleanup costs. The act also gives EPA broad authority to enforce this liability. Many states passed laws with similar liability and enforcement provisions. The state enforcement programs implementing these laws generally address the thousands of sites that are not currently risky enough to qualify for federal cleanup, although the state programs may also handle highly contaminated sites. The federal Superfund program and the state enforcement programs establish stringent procedures for cleanups, which can add to their time and costs.

Significant numbers of sites remain to be cleaned up. Because of limited resources, EPA and the states have targeted their enforcement and cleanup efforts to the worst sites they have identified. Concerns about liability under both federal and state law have hindered cleanups at some sites. Also, lenders and prospective purchasers have hesitated to become involved at sites where they may be held liable for contamination and required to pay for costly cleanups. To alleviate these problems, in the late

1980s, some states began to establish voluntary cleanup programs that allow private parties to identify and clean up sites, use less extensive administrative procedures, and obtain some relief from future state liability for past contamination.

Results in Brief

Voluntary programs' accomplishments include identifying, evaluating, and cleaning up many contaminated sites that would not have been addressed under other federal or state cleanup programs for some time, if at all, according to the state managers GAO surveyed. Because of these programs' cooperative nature and reduced cleanup procedures, voluntary cleanups are also less costly for the states and participants and take less time. As a result, many of these sites—including former industrial sites, known as brownfields, where contamination has hindered redevelopment—are being restored for productive use.

The voluntary cleanup programs GAO surveyed varied significantly in their organization, funding, and characteristics. Most of the 17 programs are organized to supplement their state's enforcement program, but a few are responsible for nearly all of the cleanups in their state. All of the programs allowed volunteers, such as site owners and developers, to come forward on their own, saving their state from having to take time-consuming and costly enforcement actions. All of the programs received funding through the fees paid by volunteers to participate, but most also relied on some federal and state funds. Nearly all of the programs admitted any type of site, including highly contaminated sites that could qualify for the federal program. As an incentive to encourage cleanups, all of the programs gave volunteers some assurance of relief from future state liability at a completed site, but the legal strength of this assurance varied considerably. Some of the programs further encouraged participation by allowing for less comprehensive cleanups or for cleanups that did not permanently treat the waste but prevented exposure to it through barriers or restrictions on a site's use. In addition, to cut cleanup time and costs, all of the programs reduced the requirements they imposed on voluntary cleanups. Three of the programs made no provision either for monitoring nonpermanent cleanups, apart from approving them, or for overseeing their accomplishment. About half of the programs required no public participation in the cleanup process, other than filing a notice in a local newspaper. Several programs balanced the requirements they implemented with incentives to attract volunteers by tailoring the stringency of the requirements to the risks and conditions at individual sites.

EPA's authority under Superfund to ensure that any cleanup is protective of public health and the environment and the federal law's stringent liability provisions deter participation in voluntary programs because potential volunteers fear they could face expensive and indefinite cleanup liability. As a result, EPA, the states, and volunteers want clarification of the federal role in voluntary cleanups. In particular, they would like to enter into an agreement with EPA that would limit the federal government's future interests at sites where voluntary cleanups have been completed. To date, the Congress and EPA have supported voluntary programs by allowing the states to use a portion of the funds they receive through the federal Superfund program to develop and implement the voluntary programs. To address liability issues, EPA has been working with the states over the past year to develop final guidance for negotiating agreements between EPA and the states. Under these agreements, EPA assures volunteers that, except in limited circumstances, it generally will not plan to take further action at sites in a voluntary program that meets the agency's criteria for ensuring effective and protective cleanups. In the meantime, EPA has issued an interim memorandum outlining six criteria for voluntary programs that EPA's regions can use to enter into agreements with the states. These criteria, while flexible, are very general and do not clearly establish EPA's basis for determining whether a voluntary program will qualify for an agreement in the future.

Principal Findings

Voluntary Programs Facilitate Cleanups and Redevelopment

The voluntary programs GAO surveyed have encouraged cleanups at thousands of hazardous waste sites, resulting in economic redevelopment at many of these properties. For example, according to managers of the programs with the highest numbers of cleanups, the Minnesota program has addressed over 500 sites, and the Massachusetts programs over 5,000 sites. Some voluntary programs have also allowed the owners of sites where contamination was perceived but not real to certify the sites as clean, thereby removing a stigma hindering their redevelopment. Illinois program managers reported taking such action for half of the sites in their program.

These accomplishments reflect states efforts' to design voluntary programs that make cleanups easier and less expensive to perform. Managers in all of the states verified that their voluntary programs allow

the states and participants to save cleanup time and money, although they could not provide data to quantify the savings. Because volunteers can better control cleanup time and costs, more sites become economically attractive investments for redevelopment. The economic advantage of voluntary cleanups is especially important for brownfields because restoring these former industrial sites for productive use creates new employment and tax revenue for communities and states. For example, at the first site to complete Wisconsin's voluntary program, the Cellular One corporation is planning to build a new warehouse and office building. The property, located in New Berlin, Wisconsin, was contaminated before its cleanup by chemical spills and leaks from underground storage tanks.

State Voluntary Cleanup Programs Have Varying Characteristics

Our review of state voluntary cleanup programs showed that 35 states had created these programs and that most of them were less than 5 years old. Of the 17 programs that GAO surveyed, 15 were created either as part of their state's Superfund program or as an alternative to it, and 10 were administered by the staff responsible for the enforcement cleanup program in their state. The remaining two states now rely primarily on their voluntary programs to achieve cleanups. The voluntary programs GAO surveyed relied on fees and charges, which varied substantially in amount. The fees that volunteers paid initially to participate, for example, ranged from \$200 to \$5,000 per volunteer. Three of the programs were financially self-sufficient through fees collected from volunteers, and 15 partially depended on state and federal funds to operate. Fifteen programs admitted sites that were contaminated enough to qualify for the federal Superfund program, while the remaining programs excluded such sites, assigning them to the Superfund program or their state's enforcement program for cleanup. Similarly, 15 programs allowed parties that had caused contamination to participate fully in the program, while 2 restricted their participation.

To attract participants and promote property transfers, all of the programs GAO reviewed incorporated incentives but implemented them differently. In particular, all of the 17 programs gave volunteers some assurance that if a cleanup were completed according to the program's requirements, the volunteer's liability would be limited under state law for past instances of contamination. This release from liability ranged from a legal assurance, provided by four programs, that the state would not take enforcement action against a volunteer, to a written certification, provided by the remaining programs, that a cleanup was complete. In addition, most voluntary programs established clear standards for the levels of cleanup

that must be achieved for a cleanup to be considered protective. At the same time, the programs gave volunteers the flexibility to choose a type of cleanup that was consistent with the future use of the land. For example, for the majority of their sites, 10 programs allowed volunteers to assume that the site would be used in the future for industrial rather than residential purposes and could, therefore, be cleaned up to less stringent and less expensive standards. Eight programs also more frequently implemented nonpermanent cleanups, which use a barrier such as a clay cap or a parking lot to, among other things, prevent contact with untreated waste. By establishing limits on liability and clear cleanup standards, voluntary programs assist volunteers in identifying and controlling their costs.

To reduce the time and costs of cleanups and thereby attract more volunteers, the 17 voluntary programs GAO reviewed also imposed fewer requirements on cleanups than enforcement programs. The federal and state enforcement programs require the monitoring of conditions at sites with nonpermanent cleanups, as well as federal or state oversight of cleanups, to ensure that they continue to isolate contaminants and prevent human exposure to them.¹ These programs also require public participation in cleanup decisions to ensure that sites are cleaned up to standards that are consistent with the sites' anticipated uses and that communities are aware of any restrictions on these uses. The programs in GAO's survey varied considerably in the extent to which they established these types of requirements. Two programs required regular monitoring after cleanup while five did not require active monitoring. To ensure that cleanups remained effective, these programs relied, instead, on provisions that a site would lose its cleanup certification or a volunteer would lose the assurance of relief from liability if the land's use were changed or if the cleanup were not maintained. Five of the programs provided for extensive state oversight while three required limited oversight, such as a review of the final report submitted by a volunteer after completing a cleanup, with no requirements for independent sampling or site visits to verify the information contained in the report. Finally, three of the voluntary programs always required public participation in certain cleanup steps while eight had no requirements for active public participation.

Several programs varied their requirements for monitoring, oversight, and public participation with the risks and characteristics of individual sites. For example, nine programs keyed their oversight requirements to the

¹Superfund: Operations and Maintenance Activities Will Require Billions of Dollars (GAO/RCED-95-259, Sept. 29, 1995).

severity of the contamination at a site. Five programs provided for public participation when a site's contamination or cleanup could affect a nearby community or when a community requested a meeting.

EPA and the Congress Have Supported Voluntary Programs, but EPA Could Clarify Its Guidance on Program Requirements

Under the Superfund law, EPA retains the authority to take enforcement action at any hazardous waste site where conditions are not protective of public health and the environment. Thus, although the states do not need EPA's approval for their programs, many plan to seek it in order to allay private parties' concerns about future federal liability at sites cleaned up through their programs. EPA and the Congress have provided funding for these programs, and EPA has developed an interim memorandum outlining six elements that the states' voluntary programs should include to receive the agency's agreement not to plan to take enforcement action except in limited circumstances. The voluntary programs GAO surveyed would like such support to continue.

Financially, EPA has allowed the states to use some of the funds they receive through the federal Superfund program to develop and implement their voluntary programs and to perform assessments at brownfield sites. The House Conference Committee report for EPA's fiscal year 1997 Superfund budget directed funds to be allocated for brownfield programs, and EPA plans to use \$10 million of these funds to support state voluntary cleanup programs as a means to encourage brownfield redevelopment. The programs that GAO surveyed found this assistance helpful. Even those that covered their own costs reported that they could use the funds for development or innovative features, such as efforts to help municipalities restore brownfields.

To help allay private parties' concerns about being liable for the costs of future federal action, six of EPA's regions (I, III, V, VI, VII and VIII) negotiated agreements with 10 states. These agreements provide a statement that EPA will generally not plan to take further action at sites in a state's voluntary program except in limited circumstances. Because other states also wanted an agreement, EPA issued a memorandum in November 1996 outlining interim procedures for negotiating an agreement and will work with the states to develop final guidance. To ensure that the agreement could apply to the wide variety of state programs, EPA established six broad criteria in the interim procedures. While flexible, these criteria do not clearly define the elements EPA expects a state's program to provide in exchange for an agreement to reduce the prospect of federal enforcement actions at sites cleaned up under the state's

program. For example, although the guidance requires “meaningful” public involvement, it does not define this term. EPA has the opportunity to better clarify its criteria when it issues final guidance to the regions. Several state programs that vary the requirements for voluntary cleanups with the risks and conditions at sites offer EPA models of ways to balance the needs for flexibility and protectiveness.

Recommendation

To encourage participation in voluntary cleanup programs while fulfilling the agency’s responsibility to ensure that cleanups are protective of public health and the environment, GAO recommends that the Administrator, EPA, work with the states to more clearly define in the agency’s final guidance the criteria that state voluntary cleanup programs should meet to obtain an agreement limiting EPA’s involvement at sites, particularly in the areas of monitoring after cleanup, acceptable oversight practices, and public participation. EPA could consider as possible models the approaches that several state programs have taken to tailor the requirements for cleanups to the risks and conditions at individual sites.

Agency Comments

We provided a draft of this report for review to EPA and a representative of the Association of State and Territorial Solid Waste Management Officials. We also provided selected portions of the report to the managers of the 17 voluntary programs we reviewed. Representatives from each of these organizations provided updated information and technical comments, which we incorporated throughout the report. EPA officials, including the Director of the Outreach and Special Projects Staff, the office responsible for voluntary cleanup initiatives in EPA’s Office of Solid Waste and Emergency Response, said that our recommendation addressed important issues the agency faces in developing the final guidance for these programs. The state association representative, who heads a task force on state voluntary programs, emphasized that EPA must work with the states to develop the final guidance and ensure that it reflects the different perspectives and approaches the states have taken in implementing their voluntary cleanup programs.

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Abbreviations

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
EPA	United States Environmental Protection Agency
IRAP	Independent Remedial Action Program
RCRA	Resource Conservation and Recovery Act
NPL	National Priorities List

Introduction

In 1980, the Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) to clean up hazardous waste sites. Since that time, the federal government has made some progress in cleaning up sites that have been labeled as the worst in the nation, and the states have identified and cleaned up additional hazardous waste sites. However, thousands more sites have not yet been addressed at either the federal or the state level. To manage these sites, states began to develop new voluntary cleanup programs that would leverage private funds to pay for cleanups and return the sites to productive use.

Federal and State Hazardous Waste Cleanup Policies

Under Superfund, the Environmental Protection Agency (EPA) has established a process for assessing hazardous waste sites, selecting appropriate techniques for cleaning them up, constructing cleanup methods or remedies, and maintaining the remedies. The law requires EPA to develop and maintain a list of hazardous sites it considers to be the most seriously contaminated, known as the National Priorities List (NPL). If EPA, a state, or any other party identifies a contaminated site, the site can be referred to EPA, which in turn includes it in the agency's inventory of potential sites. Once in the inventory, the site is assessed to determine whether it is contaminated seriously enough to be placed on the NPL.

The law makes parties responsible for the contamination—including current and former site owners and site operators, waste generators, and waste transporters—liable for cleanup costs. The federal government may take action to compel a responsible party to perform or pay for a cleanup. Under Superfund, any party that contributed to the contamination, even if this action was legal at the time, is liable and under certain circumstances may be held responsible for the entire cost of the cleanup. EPA may also use the Superfund trust fund, supported primarily by a tax on crude oil and certain chemicals, to pay for the cleanup and then seek reimbursement from responsible parties. Under EPA's regulations, the fund may be used to finance long-term cleanups only at sites on the NPL. EPA may also use the fund to take short-term actions that address contamination at any site posing an imminent and substantial threat to human health and the environment, regardless of whether the site is included on the NPL.

Over the past 16 years, the Congress has authorized a total of \$15.2 billion to be appropriated from the Superfund. The NPL currently consists of about 1,300 sites. At the time of our review, remedies had been completed at 412

of these sites. EPA has also taken about 4,000 short-term cleanup actions. Approximately 70 percent of the cleanups at NPL sites are now funded by responsible parties, and EPA funds the remaining cleanups from the trust fund. EPA also has a list of about 12,000 sites in various stages of assessment to determine whether they meet NPL criteria, and it expects more sites to be identified and referred for its consideration.

Forty-one states have followed the federal government's lead and established their own version of the Superfund law in order to identify and address sites not covered by the federal program. As a result, most states now have departments and staff dedicated to managing hazardous waste cleanups. The states generally address the thousands of sites that do not meet the risk criteria for placement on the NPL. In addition, a state may choose to forgo having EPA assess a site for placement on the NPL and, instead, handle it under the state's cleanup program. Some states have adopted liability provisions similar to Superfund's and have developed lists of sites in their state requiring cleanup. These states have relied primarily on enforcement actions against responsible parties to clean up sites, using state funds only to clean sites where responsible parties are recalcitrant or cannot be found.

After over a decade of federal and state efforts, significant numbers of sites remain to be cleaned up. Because of limited resources, EPA and the states have targeted their enforcement and cleanup efforts to the worst sites on their lists. Furthermore, cities, lenders, developers, and others with an interest in returning contaminated sites to productive use have been reluctant to begin cleanups on their own because, under Superfund's or the state's liability provisions, they could then be held liable for entire cleanups. In addition, they might later be held liable for further cleanup actions at the sites if new or more contamination were discovered or stricter environmental standards were established.

State and Federal Actions to Encourage Voluntary Cleanups

To encourage redevelopment and help clean up sites that have not yet been addressed, most states, in the last few years, have created voluntary cleanup programs. In contrast to the state cleanup programs that rely on enforcement to compel cleanups by responsible parties, these programs allow volunteers, such as site owners or developers, to approach the state and initiate cleanups on their own. As a result, volunteers can avoid the delays and costs associated with the enforcement process and conduct cleanups within the time frames needed for redevelopment or sale. Once a volunteer has completed a cleanup, a state typically certifies that the

cleanup meets the state's requirements and standards, giving the volunteer some assurance that the state is unlikely to require further cleanup in the future.

Voluntary programs were a natural outgrowth of property transfer laws that many states already had in place. These laws require property owners to disclose whether their property is contaminated with hazardous wastes, either by including this information in the deed or by notifying the potential purchaser directly. However, disclosing the existence of contamination sometimes prevented property sales because of the uncertainty surrounding the cost of cleanup. Voluntary cleanup programs provided owners or buyers with a method for assessing the existing contamination and cleaning it up on their own while affording some assurance that the state would be unlikely to impose additional cleanup requirements at a later date. This arrangement allowed property transactions to move forward.

Because voluntary programs are likely to produce more cleanups than the states can compel under their enforcement programs alone, the states can also benefit from these programs. However, sites with low development potential—such as those in areas with inadequate infrastructure, high taxes, crime, congestion, or other problems— are unlikely candidates for voluntary cleanups. The states will have to continue handling these types of sites, as well as any others they exclude from their voluntary programs, through traditional enforcement cleanup programs.

EPA saw state voluntary cleanup programs as a way to leverage the limited state and federal resources available for hazardous waste cleanups. The agency is currently drafting guidance for establishing agreements with states that would specify, for programs meeting EPA's criteria, that generally EPA will plan to take further action at sites in a state's voluntary program only in limited circumstances. By reducing the threat of federal Superfund liability, these agreements could increase potential volunteers' interest in the programs. In addition, EPA has allowed states to use funds from their fiscal year 1995 and 1996 Superfund cooperative agreements with the agency to develop voluntary programs.

The Congress has also taken actions to encourage voluntary cleanups of hazardous waste sites. Lenders had feared being named as a responsible party if they foreclosed on a contaminated property. In 1996, the Congress

passed legislation limiting lenders' liability at contaminated sites.¹ As a result, lenders may be more willing to finance projects to redevelop or clean up contaminated sites.

At the same time states began developing voluntary programs, the federal government's interest in redeveloping brownfields began to grow. Brownfields are abandoned or underused facilities, usually in industrial or commercial areas, where redevelopment has been hampered by real or perceived environmental contamination. Voluntary cleanup programs are viewed as an important tool for facilitating the redevelopment of brownfields because they allow owners and developers to identify potentially valuable sites and clean them up independently. EPA took several initiatives to encourage the redevelopment of these sites. For example, the agency funded 78 pilot brownfields projects around the country to promote creativity in addressing these types of sites. In addition, to reduce the stigma of association with the Superfund program, EPA classified approximately 29,000 sites from its inventory of potential NPL sites as needing no further action. To focus national attention on brownfields, EPA convened a series of conferences about them and created an interagency working group to draft a coordinated federal brownfield policy.

Objectives, Scope, and Methodology

The Chairmen of the Senate Committee on Environment and Public Works and its Subcommittee on Superfund, Waste Control, and Risk Assessment asked us to review state voluntary cleanup programs. We agreed to (1) identify voluntary cleanup programs' accomplishments; (2) describe these programs' organization, funding, and major characteristics; and (3) determine the effects of federal hazardous waste policies on voluntary cleanups and the types of federal assistance that could further support voluntary programs.

To identify examples of voluntary cleanup programs' accomplishments, we surveyed the administrators of 17 of these programs in 15 states, concentrating first on 5 well-established programs in the Midwest and then choosing additional programs in each of EPA's regional offices to obtain geographic diversity and a mix of program models. These 15 states constitute over 40 percent of the 35 states that we found had created voluntary programs nationwide. The 15 states were California, Colorado, Delaware, Indiana, Illinois, Massachusetts, Minnesota, Missouri, New

¹The Asset Conservation, Lender Liability, and Deposit Insurance Protection Act of 1996, contained in the Omnibus Appropriations Act, 1997 (P.L. 104-208).

Jersey, Ohio, Pennsylvania, Tennessee, Texas, Washington, and Wisconsin. Massachusetts and Washington each administer two different voluntary cleanup programs, which we included in our research, for a total of 17 programs in 15 states. We conducted a telephone survey with the managers of the 17 programs and asked them for information on their program's success in achieving cleanups. We also reviewed materials on the programs that they provided.

To evaluate these programs' organization, funding, and major characteristics, we surveyed officials in the 17 programs and asked them to compare the procedural and cleanup requirements of their state's voluntary cleanup program with those of their state's enforcement program. We also interviewed national representatives of lenders; developers; and environmental, state, and community development organizations about their experiences with voluntary programs. We reviewed studies on voluntary cleanups conducted by other organizations.

To determine the effects of federal hazardous waste policies on voluntary cleanups and the types of federal assistance that could help the states develop effective voluntary cleanup programs, we reviewed EPA's and the Congress's efforts to support voluntary programs. We surveyed officials of the 17 voluntary programs to obtain their opinions on the current federal efforts and asked them whether the federal government could provide any additional assistance. We interviewed officials in 13 states that currently do not have a voluntary program about their plans for creating one. We also interviewed EPA headquarters officials and officials in four EPA regions for their views on EPA's efforts to support voluntary cleanup programs.

We conducted our work from June 1996 through March 1997 in accordance with generally accepted government auditing standards.

Agency Comments

We obtained comments on a draft of this report from officials in EPA's Office of Solid Waste Emergency Response, including the Director of Outreach and Special Projects Staff, the office responsible for EPA's voluntary cleanup and brownfield initiatives. We also obtained comments from the Deputy Director of the State, Tribal, and Site Identification Center in the Office of Solid Waste and Emergency Response and from an official in EPA's Office of Enforcement and Compliance Assurance. We responded to their comments throughout the report and summarized their views in the executive summary and in chapter 4. For each of the 17 voluntary programs that we reviewed, we provided state officials with the

information we planned to report, asked them to verify its accuracy, and revised the information in response to their comments. Finally, we obtained comments on the draft report from a representative of the Association of State and Territorial Solid Waste Management Officials who has been involved in the organization's task force on cleanup programs. In response to his comments, we made several changes to clarify portions of the report.

Voluntary Programs Allow More Sites to Be Cleaned Up Faster and at Less Cost

Through voluntary programs, thousands of sites are being cleaned up, including those that a state or EPA has identified as a problem and those that a volunteer has discovered. Without the voluntary programs, these cleanups would generally not have occurred because the federal and state enforcement programs have not had the resources to support them. Voluntary cleanups can be completed more quickly than cleanups under state enforcement programs, according to state officials, because the voluntary approach eliminates some of the cleanup and enforcement steps. For the same reasons, voluntary cleanups are also less costly for both the states and volunteers. As a result, voluntary cleanups are encouraging economic redevelopment, including that of former industrial sites known as brownfields, by expediting the sites' return to productive use.

Volunteers Identify and Clean Up More Sites

All of the 17 voluntary programs¹ we reviewed reported identifying and cleaning up significant numbers of sites. Officials for each program we reviewed said that their state's voluntary program is addressing more potentially contaminated sites than their state's enforcement program alone could have accomplished. (See fig 2.1.)

Table 2.1: Accomplishments of States' Voluntary Cleanup Programs

Program	Year program established	Number of sites currently participating in program	Number of completed sites ^a
California	1995	250	160
Colorado	1994	58	51
Delaware	1995	37	9
Illinois	1989	603	198
Indiana	1993	135	14
Massachusetts 1-year program ^b	1993	1,800	4,700
Massachusetts longer-term program ^b	1993	5,700	1,400
Minnesota	1988	800	530
Missouri	1994	81	13
New Jersey	1992	^c	^c
Ohio	1995	^d	7
Pennsylvania	1996	201	68

(continued)

¹Two states we reviewed, Massachusetts and Washington, administer two separate voluntary programs with different characteristics. We included all of these programs in our survey. As a result, we will be referring to 17 voluntary programs in 15 states throughout this report.

Chapter 2
Voluntary Programs Allow More Sites to Be
Cleaned Up Faster and at Less Cost

Program	Year program established	Number of sites currently participating in program	Number of completed sites^a
Tennessee	1994	72	4
Texas	1995	370	75
Washington Independent Remedial Action Program (IRAP) sites	1993	^e	225
Washington ordered sites	1994	150	^f
Wisconsin ^g	1994	55	2

^aAs of February, 1997. Not every site completing a state's voluntary program requires a cleanup. Therefore, these numbers may include sites investigated and found not to need a cleanup.

^bMassachusetts has a two-part voluntary program to encourage risk reduction in the first year. The state expects parties who discover contamination to report it to the state and take cleanup action. If a volunteer chooses to complete a cleanup within 1 year, the volunteer must meet restrictive cleanup standards but pay lower fees. Cleanups that take longer must meet different reporting and oversight requirements. Both programs require a volunteer to notify the state of contamination and then use a licensed site professional hired by the volunteer, rather than a state employee, to oversee the cleanup.

^cNew Jersey officials could not provide this information. The official we spoke with said that, at most, 2,200 sites have been completely cleaned up.

^dOhio does not require volunteers to notify the state that they plan to perform a cleanup, so state officials cannot determine the number of program participants.

^eWashington offers volunteers a choice of two voluntary programs. Under the IRAP, volunteers may clean up a site on their own and report the cleanup to the state later. Under the ordered site program, volunteers negotiate an agreement with the state and conduct a cleanup under a state order and with state oversight. Volunteers who select the IRAP are not required to notify the state that they intend to perform a cleanup, so state officials cannot determine the number of program participants.

^fWashington officials could not provide this information.

^gWisconsin allows volunteers to participate in (1) the state's traditional cleanup program, which provides a volunteer or responsible party that has followed the state's cleanup regulations with a letter confirming the cleanup's completion, or (2) the state's newer Land Recycling Program, which provides a complete release from liability. The figures in this table reflect participation in the Land Recycling Program. Approximately 12,000 properties are currently included in the traditional program, 6,000 of which have received letters confirming the cleanup's completion.

Source: GAO's survey of managers of 17 voluntary cleanup programs.

The number of completed cleanups varied from program to program, in part because of differences in the ages of the programs, the attractiveness of the incentives they offered, and the ability of the states to track cleanups (some programs do not learn about voluntary cleanups until after the cleanups have been completed). For example, at the time of our survey, four cleanups had been completed through Tennessee's voluntary

program, which is relatively new (1994) and offers fairly limited incentives, whereas 198 cleanups had been completed through Illinois' 8-year-old program, which offers more incentives. New Jersey and Massachusetts, with the highest numbers of voluntary cleanups, have large staffs devoted to hazardous waste cleanups and long histories of administering these cleanups.

Voluntary programs address sites that the federal or state enforcement programs could not manage, given their existing cleanup workloads and resources. For example, according to an EPA study, the states in our review had identified about 54,000 sites that could be contaminated enough to merit cleanup under the states' enforcement cleanup programs.² EPA has approximately 12,000 sites that have been identified and await evaluation and approximately 1,300 evaluated sites that have been placed on the NPL and remain to be addressed. Since both the states and the federal government have limited program resources, they will not be able to address all of these sites at once. When volunteers clean up these sites, they free the government programs' resources for other sites.

State officials attributed the success of their voluntary programs to the incentives these programs typically provide to attract participants, including (1) relief under state law from future liability—and therefore relief from the risk of incurring additional costs—for past contamination; (2) clearly defined cleanup standards that identify the extent of the necessary cleanup—and therefore the time and costs involved—at the start of a cleanup; and (3) reduced paperwork and cleanup requirements. These incentives allow volunteers to predict their costs and estimate their long-term responsibility for a site more accurately, improving their ability to weigh the costs and benefits of a cleanup and determine whether to make the investment.

Besides promoting cleanups, voluntary programs have encouraged owners to identify contaminated properties. Every state program official said that volunteers have identified and cleaned up hazardous waste sites that the state had not known of or had not listed as priorities for cleanup before the volunteers initiated the cleanups. Since owners can better assess the cleanup actions and costs they will face under voluntary cleanup programs, they are more willing to notify state officials of their contaminated sites and take action. Two voluntary cleanup programs have explicitly allowed volunteers to assess sites where contamination has been

²An Analysis of State Superfund Programs: 50-State Study, 1995 Update, Environmental Law Institute, under contract with EPA (1996).

perceived, determine that no contamination is present, and certify the sites as clean if they meet the state's cleanup standards and need no additional action. This certification helps to remove the stigma of association with hazardous waste at these sites and encourages owners and developers to enter them into the real estate market. Two states reported that such sites represent a substantial portion of the sites in their programs. According to the managers of the Illinois and Minnesota voluntary programs, about half of their completed sites fall into this category.

Voluntary Cleanups Cost Less and Take Less Time

Because voluntary programs have fewer paperwork and oversight requirements than enforcement programs, they cost less both for the state and for volunteers, according to officials in every program we reviewed. The states receive funding for their programs by charging volunteers to participate, so their programs are, to some extent, privately financed. Volunteers either pay a fee when they apply for the program or reimburse the state for its costs of overseeing the cleanup. The states also avoid the costs, incurred under enforcement programs, of investigating sites, identifying responsible parties, legally compelling these parties to perform cleanups, and trying to recover their costs. All of the state program officials said that cleanup costs were lower for volunteers than for parties compelled to clean up a site through an enforcement program, although the managers could not quantify the savings. Volunteers avoid the legal costs of responding to an enforcement action and can scale back or eliminate some cleanup steps, according to these officials.

The less adversarial, more streamlined voluntary process also leads to faster cleanups,³ according to cleanup managers of the voluntary programs we reviewed. For example, according to Texas cleanup managers, a voluntary cleanup is typically completed within 1 year of a site's entering the program. Massachusetts' programs provide specific incentives for volunteers to complete a cleanup within 1 year of discovering contamination. Cleanups are also completed faster because 11 of the 17 voluntary programs set deadlines for reviewing and approving volunteers' plans and cleanup activities.⁴ For example, program officials must often approve a site's cleanup plan within 30 to 60 days of the plan's submission. As a result, some states have given very high priority to their voluntary program. Officials in Delaware, Washington, and Wisconsin said that they

³Although these officials said that voluntary cleanups were completed faster, they were seldom able to say how much faster.

⁴These programs are located in Colorado, Illinois, Indiana, Minnesota, Missouri, New Jersey, Ohio, Pennsylvania, Tennessee, and Washington (both Washington programs set deadlines for review).

sometimes give higher priority to overseeing voluntary cleanups than to overseeing state-initiated cleanups because their voluntary programs have shorter time requirements and the volunteers are paying for the oversight.

Voluntary Cleanups Lead to Property Redevelopment

Officials in all 17 voluntary programs we reviewed said that their program has restored some unused or underused sites to productive use. Since the cleanups are self-initiated, volunteers can identify potentially valuable pieces of contaminated property for cleanup and target them for redevelopment. The reduced costs and time for cleanup are making the voluntary cleanup and redevelopment of some contaminated sites a viable investment option. Most of these voluntary programs also limit a volunteer's future liability under state law for a site's contamination once the site has been cleaned according to the program's requirements, reducing the risk that the volunteer will face future cleanup costs.

These incentives to clean up and redevelop sites are especially important for brownfields, the former industrial properties whose redevelopment is hampered by contamination.⁵ Several of the voluntary programs we reviewed provided incentives targeted specifically to these sites. Without voluntary programs that set out a method for evaluating and cleaning up these sites, developers may find it easier and cheaper to locate on "greenfields"—undeveloped property in suburban or outlying areas. By redeveloping brownfields, cities and states hope to boost employment and tax revenue in central urban districts and reduce suburban sprawl.

Voluntary program managers reported that new businesses have located on some of the brownfield sites addressed through voluntary programs. Examples of successful redevelopment projects include the following:

- Chicago's brownfield program cleaned up a closed wire-manufacturing facility in cooperation with the Illinois voluntary cleanup program. The site contained underground tanks and vaults filled with solvents and fuel oil that had to be removed. The city then sold the property to an adjacent fuel pump manufacturer, Blackstone Manufacturing. Blackstone built a secured parking lot on the site, allowing the business to add an extra shift of workers and increase production.
- The Cellular One Corporation cleaned up several adjacent lots in New Berlin, Wisconsin, through the Wisconsin Land Recycling Program. The lots had been used for a variety of businesses, including those that

⁵For a more complete discussion of the difficulties of redeveloping these sites, see Superfund: Barriers to Brownfield Redevelopment (GAO/RCED 96-125, June 17, 1996) and Community Development: Reuse of Urban Industrial Sites (GAO/RCED 95-172, June 30, 1995.)

repaired, maintained, and stored heavy vehicles. The site had a history of chemical spills, and the ground was contaminated with waste oil sludge, underground and aboveground storage tanks, and miscellaneous debris. Now that the soil has been excavated and treated and the tanks and debris removed, Cellular One plans to build a warehouse and office building on the site.

- Occidental Chemical Corporation operated a facility in Clarksville, Indiana, from 1950 to 1992. The facility, which manufactured laundry detergents, produced sodium and potassium phosphate products and phosphoric acid. The facility's cleanup was conducted under the Indiana voluntary cleanup program and consisted of demolishing all existing structures and removing over 25,000 cubic yards of soil contaminated with arsenic and phosphorus. Occidental then sold the 26-acre property to a real estate developer after receiving a covenant-not-to-sue from Indiana. A retail developer bought the site and constructed a large retail shopping center.
- Thonet Manufacturing produced furniture in York, Pennsylvania, until the facility burned in 1993. A volunteer cleaned the property under Pennsylvania's cleanup program, removing debris from the fire, paint containers and other drums, soil contaminated with lead and benzene, and asbestos. The groundwater was also contaminated and had to be cleaned to standards for industrial use. The volunteer is now building a 37,000-square-foot facility to manufacture countertops.

Voluntary Cleanup Programs Differed Significantly From One Another and From Enforcement Programs

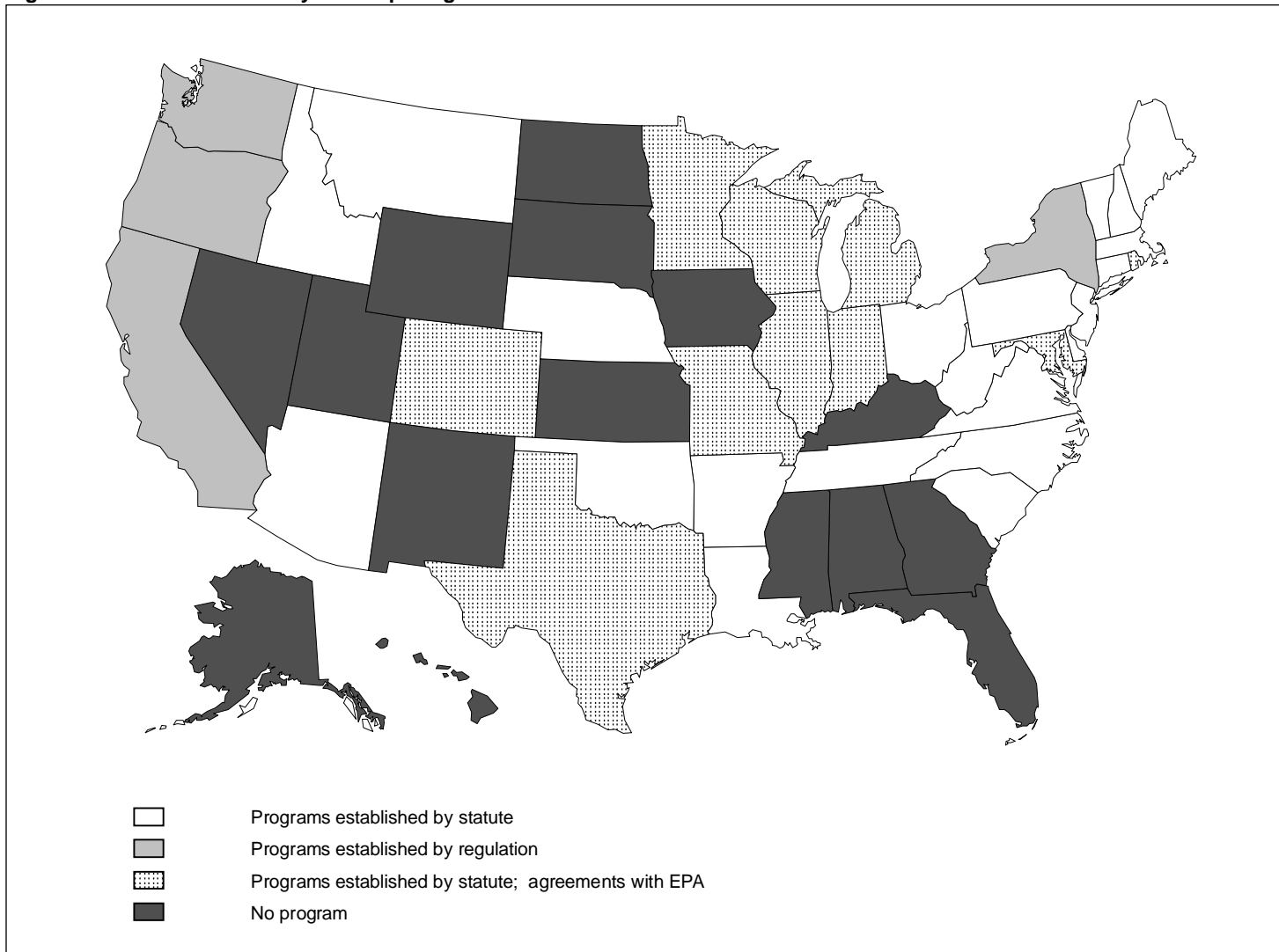
Our review of 17 voluntary programs in 15 states showed considerable variation in their organization and incentives to attract participants. For example, some states established independent voluntary programs, while others combined their voluntary and enforcement programs or relied solely on a voluntary approach to cleanup. While all voluntary programs collected fees from participants to fund their voluntary activities, most programs also used some state support. Although nearly all of the voluntary programs relied on incentives—rather than enforcement—to encourage the transfer and economic redevelopment of potentially contaminated properties, these incentives differed from program to program. Whereas nearly all of the voluntary programs admitted sites contaminated enough to qualify for federal cleanup, two programs managed such sites only through the federal or their state’s enforcement program. A few voluntary programs were more willing than others to release participants from further liability for contamination after completing cleanups. All of the 17 programs reduced the requirements they imposed on cleanups to attract participants, but the changes varied extensively. Some programs significantly reduced the requirements for monitoring nonpermanent cleanups, overseeing cleanups, and involving the public in cleanup decisions, while other programs varied the requirements they placed on cleanups with the risks and conditions at individual sites.

Voluntary Cleanup Programs Differed in Their Organization and Funding

Most of the voluntary cleanup programs we reviewed were relatively new and differed significantly from one another in their organization, staffing, and sources of funding. When we conducted our review, 35 states had developed voluntary cleanup programs. All of these programs have been established in the last 9 years. State legislatures established 31 of these programs by statute, and state environmental agencies created the other 4 through regulation. Ten of these programs have negotiated agreements with EPA which state that the agency will generally not plan to take further action at sites involved in the program except in limited circumstances. Figure 1 shows the status of voluntary cleanup programs throughout the nation at the time of our review.

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Figure 3.1: Status of Voluntary Cleanup Programs in 50 States



Source: GAO's interviews with state cleanup managers and studies by the Northeast/Midwest Institute and Stateside Associates, two professional organizations involved with environmental issues.

Most of the voluntary cleanup programs we reviewed were administered either as part of a state's Superfund program or as an alternative to it. Ten of the 17 programs were managed by the same staff who managed the enforcement program, 5 were managed by separate staff, and 2 had almost

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or fully taken the place of the enforcement program. Pennsylvania relied on its voluntary cleanup program for most of its cleanups, and Colorado had no enforcement program—all nonfederal cleanups in the state were voluntary.

All of the voluntary programs we reviewed charged volunteers a fee to help cover the costs of administering the program and overseeing the cleanups; however, the amount and type of the fee varied. For example, some of the programs charged volunteers a fee to apply for participation. This fee, which ranged from \$200 to \$5,000, covered the states' oversight costs to varying degrees. Other state programs billed volunteers directly to cover their oversight costs for such activities as reviewing the reports that volunteers submit and visiting the sites. (See table 3.1.)

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Table 3.1: Funding Sources for Voluntary Cleanup Programs

Program	Payments by volunteers	Other funds
California	An initial deposit equal to half the estimated oversight costs. Volunteers are billed for oversight costs above this amount.	None
Colorado	\$2,000 application fee.	Superfund cooperative agreement
Delaware	\$5,000 initial deposit, with subsequent deposits if oversight costs exceed this amount.	State appropriations, Superfund cooperative agreement
Illinois	\$500 initial deposit or half the estimated oversight costs, not to exceed \$5,000. State bills volunteer for oversight costs exceeding the amount of the deposit.	Other state cleanup funds
Indiana	\$1,000 application fee, with subsequent deposits if oversight costs exceed this amount, plus a 10- percent surcharge to cover the program's start-up costs.	State appropriations, Superfund cooperative agreement
Massachusetts 1-year program	Compliance fee each year site is in the program, except first year.	State bond fund, state appropriations, Superfund cooperative agreement
Massachusetts longer-term program	Compliance fee each year site is in the program, except first year.	State bond fund, state appropriations, Superfund cooperative agreement
Minnesota	State bills volunteer for all oversight costs.	State appropriations, Superfund cooperative agreement
Missouri	\$200 application fee and a deposit to cover anticipated oversight costs.	State appropriations, Superfund cooperative agreement
New Jersey	State bills volunteer for all oversight costs.	Other state cleanup funds
Ohio	\$950 fee for sites where initial investigation reveals no contamination. \$4,950 fee for sites needing additional investigation or cleanup. \$2,950 additional fee for sites requiring operations and maintenance.	Superfund cooperative agreement
Pennsylvania	\$250 or \$500 fee due with final report, depending on cleanup standard used.	State appropriations
Tennessee	\$5,000 participation fee in addition to oversight costs.	None
Texas	\$1,000 application fee. State bills volunteer if oversight costs exceed this amount.	State appropriations, Superfund cooperative agreement
Washington IRAP sites	\$1,000 fee or 2 percent of cleanup costs.	None
Washington ordered sites	State bills volunteer for all oversight costs.	Other state cleanup funds
Wisconsin	\$250 application fee, with additional deposit of \$1,000 or \$3,000, depending on size of site. Further deposits if oversight costs exceed this amount.	Superfund cooperative agreement

Source: GAO's survey of managers of 17 voluntary cleanup programs.

Not all of the programs we reviewed charged volunteers enough to fully finance their program and had to cover some costs from their general revenues, hazardous waste cleanup funds, and/or federal Superfund cooperative agreement funds. Colorado's program, for example, can charge a fee of up to \$2,000, but this amount may not suffice to cover the costs of overseeing some cleanups. When the fee is insufficient for a Colorado site, the state and the volunteer agree to divide the site into parts, and the volunteer pays an application fee for each part. In Ohio, the program borrowed from the state's general fund to pay its start-up costs. Low initial participation has since precluded the program from paying for itself or paying back the loan. In contrast, Minnesota's program charges \$75 to \$90 per hour for oversight, depending on the salary levels of the staff assigned to the project and an overhead factor. This approach allows the agency to recoup all of its operating costs, including those for oversight and overhead, directly from the volunteer.

Voluntary Cleanup Programs Offered Different Incentives to Participants

For most of the voluntary cleanup programs we reviewed, the main objectives are to encourage and facilitate the transfer and economic redevelopment of contaminated property through environmental cleanup. In contrast to enforcement programs, which legally compel parties to clean up contaminated sites, these programs use incentives to attract volunteers to perform cleanups. Compared to enforcement programs, most voluntary programs have fewer administrative requirements to meet during the cleanup process and give volunteers more control over cleanup decisions. However, the voluntary programs differed, for example, in the types of sites and in the types of volunteers they allowed to participate in their programs. They also differed in the extent to which they released volunteers from future liability for past contamination and in the stringency of their requirements for monitoring, oversight, and public participation. (See app. I for a listing of each program's components.)

Participation Varied for Highly Contaminated Sites and for Parties That Caused the Contamination

All but two of the voluntary programs we reviewed prohibited the enrollment of sites that were already involved in the federal Superfund program.¹ Most of the programs also prohibited the enrollment of sites involved in their state's enforcement program. However, the managers for 15 of the 17 programs reported that their program would admit sites that could be contaminated enough to qualify for federal cleanup but had not been referred to the Superfund program. Several of these managers

¹A Washington State official told us the state would allow some NPL sites to participate in both the ordered site and the IRAP programs.

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expressed their willingness to rely on volunteers who are ready and able to clean up such sites as a means of returning the sites to productive use. The other two programs would not admit such sites because, according to their managers, sites with this level of contamination are more appropriately addressed under a state or federal enforcement program. Three of the 15 programs that admitted sites contaminated enough to qualify for federal cleanup restricted participation in their voluntary program to sites that do not pose an immediate risk to human health or the environment. (See table 3.2.)

Table 3.2: State Policy on Participation in Voluntary Program of Sites That Could Qualify for Federal Cleanup

Program	Sites that could qualify for federal cleanup are allowed in the voluntary program ^a	
	Yes	No
California	X ^b	
Colorado	X ^b	
Delaware	X	
Illinois	X	
Indiana	X	
Massachusetts 1-year program		X ^c
Massachusetts longer-term program	X	
Minnesota	X ^b	
Missouri		X
New Jersey	X	
Ohio	X	
Pennsylvania	X	
Tennessee	X	
Texas	X	
Washington IRAP sites	X	
Washington ordered sites	X	
Wisconsin	X	

^aOf the 15 programs that allowed participation by such sites at the time of our review, 8 had addressed 0 to 10 such sites, 1 had addressed about 150 such sites, and 6 did not provide this information.

^bAny site considered an imminent threat to human health or the environment is excluded from the voluntary program.

^cThe state program manager explained that volunteers hoping to clean up seriously contaminated sites typically do not choose to participate in this program because 1 year is not long enough to complete the work at a complex site.

Source: GAO's survey of managers of 17 voluntary cleanup programs.

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Several states allowed sites needing cleanups normally regulated under a federal law other than Superfund to participate in their voluntary program. The programs in Texas, Washington, and Wisconsin also allowed the participation of some sites that require the type of cleanup required by the corrective action provisions of the Resource Conservation and Recovery Act (RCRA).^{2,3} The managers of most of the other programs said they would admit such sites only on a case-by-case basis. For example, the managers of Indiana's voluntary program explained that they would enroll RCRA sites if the managers of the state's RCRA program agreed that the sites' enrollment would be appropriate.

Although most program managers reported that, to date, few sites contaminated enough to qualify for federal cleanup had applied to their voluntary program, several factors could increase participation by these sites as the voluntary programs mature. First, EPA has been adding fewer sites to the federal Superfund program. Second, EPA recently issued a policy stating its intent to consult with a state's governor and environmental agency officials before including a site on the NPL, even though a 1996 legislative requirement to obtain the governor's concurrence has expired. In addition, as we reported in March 1996, some states still have undiscovered sites and significant numbers of sites awaiting assessment to determine the extent of their contamination.⁴ For example, a cleanup manager in Illinois reported that environmental officials were still identifying sites that were contaminated enough to qualify for the federal cleanup program.

Besides restricting the types of sites allowed to participate, some voluntary programs restricted the types of participants. These programs cited the principle that the polluter should pay for the cleanup and not reap certain benefits of voluntary programs, such as significant releases from liability. For example, Delaware and Wisconsin provide less comprehensive releases from liability for responsible parties than for parties that did not contribute to contamination. Officials in programs that did not restrict participation explained that they view cleaning up and redeveloping sites rather than letting them remain idle as more important

²Under RCRA, parties that treat, store or dispose of certain hazardous materials are required to obtain a permit and operate under its requirements. If a facility's waste disposal practices contaminate a site, RCRA requires that "corrective action" be taken to clean up the site.

³Texas and Wisconsin do not allow sites that are currently operating under a RCRA permit, sites that have been issued a RCRA order, or certain other sites regulated under RCRA to participate in their voluntary program.

⁴Impact on States of Capping Superfund Sites (GAO/RCED-96-106R, Mar. 18, 1996).

than delaying cleanups by pursuing time-consuming legal actions to assign responsibility for the contamination.

Most Voluntary Programs Offered Volunteers a Release From State Liability, but the Strength of the Release Varied

A release from further liability for previous contamination at a site is a major incentive provided by most of the voluntary programs we reviewed, but the extent of the release varies significantly. When a volunteer follows a voluntary program's requirements, the program certifies that the cleanup is complete. This state certification provides the volunteer with some assurance that the site will not require any further action—or costs—to alleviate past contamination at the site. The assurance is designed to encourage cleanups and stimulate redevelopment by relieving participants of fears about the extent of the liability and cleanup costs they could face.

Of the 17 voluntary programs we reviewed, 11 used only one of three main approaches for certifying cleanups, 5 used more than one approach, and 1 used a different approach. The first type of assurance, a covenant-not-to-sue, was used by four of the programs. This covenant, offered to some or all volunteers, provides that the state will generally not take any enforcement action against the volunteer once a cleanup has been completed.

The second type of assurance, a certificate of completion, was offered by seven of the programs. According to this certificate, the cleanup has been completed in accordance with the program's standards and rules. Most—but not all—of these programs included language in the certificate releasing the volunteer from further liability for past contamination.

The third approach, a no-further-action letter, was used by 11 programs. The letter certifies, on the basis of the state's review of information from the volunteer, that the state does not expect to require further action of the volunteer. The letter does not, in most cases, excuse the volunteer from further liability. Table 3 sets forth the types of cleanup certifications offered by the voluntary cleanup programs we reviewed.

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Table 3.3: Methods Used by Voluntary Programs to Certify Cleanups

Program	Type of certification		
	Covenant-not-to-sue	Certificate of completion	No-further-action letter
California		X For sites where the state oversaw the cleanup	X For sites where the state did not oversee the cleanup ^a
Colorado			X
Delaware	X For volunteers not responsible for the contamination	X For responsible parties: ^a conditional certificate for cleanups that are not permanent	
Illinois			X Comprehensive letter for volunteers that perform a complete cleanup and focused letter for volunteers that clean up selected chemicals
Indiana	X	X	
Massachusetts 1-year program			X ^b
Massachusetts longer-term program			X ^b
Minnesota ^c	X Covenant available as part of no-further-action letter for responsible parties that perform cleanup	X Certificate with liability protection for volunteers who are not responsible for the contamination but no such protection for other volunteers	X Limited no-further-action letter for volunteers that clean up part of a site; no-further-action letter for sites that meet cleanup standards with or without a cleanup
Missouri		X ^a	
New Jersey			X ^a
Ohio	X		
Pennsylvania	^d		
Tennessee			X ^a
Texas		X For permanent cleanups; conditional certificate for cleanups that are not permanent	
Washington IRAP sites			X ^a
Washington ordered sites			X ^a
Wisconsin		X For parties not responsible for contamination	X For parties responsible for contamination

(Table notes on next page)

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^aDoes not provide any assurance of a release from liability.

^bMassachusetts uses licensed site professionals hired by the volunteers rather than state employees to oversee and approve cleanups. These licensed professionals issue the no-further-action letters.

^cMinnesota's program also issues off-site source determination letters for property owners exempting them from liability when their property is not the source of the contamination.

^dState statute releases a volunteer from state liability upon approval of final cleanup report.

Source: GAO's interviews with state cleanup managers.

Some Voluntary Programs
Provide Financial
Incentives

Nine of the 17 voluntary programs we reviewed offered participants financial incentives to clean up sites, mainly as a means to encourage the industrial or commercial redevelopment of brownfields. These programs tended to focus the incentives on the sites that were the least attractive to prospective purchasers and developers. (See table 3.4.)

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Table 3.4: Financial Incentives Provided by Voluntary Programs to Attract Participants

Program	Types of financial incentives
California	None
Colorado	None
Delaware	Low-interest loans; grants to volunteers that plan to redevelop sites; property tax credits for volunteers in certain targeted redevelopment zones
Illinois	None
Indiana	Property tax credits; tax increment financing in some localities; ^a state payment for some site assessments
Massachusetts 1-year program	No compliance fees in the first year
Massachusetts longer-term program	Lower fees for faster cleanups because volunteers must pay annual compliance fees
Minnesota	Grants provided by state economic development agency to local governments for voluntary cleanup actions
Missouri	None
New Jersey	Low-interest loans to volunteers not responsible for contamination and local governments; grants to local governments
Ohio	Low-interest loans to volunteers; grants to local governments; property and corporate income tax abatements when land is redeveloped
Pennsylvania	Low-interest loans; matching grants for site assessments and cleanups
Tennessee	None
Texas	None
Washington IRAP sites	None
Washington ordered sites	None
Wisconsin	Tax increment financing and corporate income tax credits for volunteers in some localities; state payment for some site assessments

^aTax increment financing uses the anticipated growth in property taxes generated by a development project to help fund the project. For example, if the base tax revenue is \$10 now and the revenue after redevelopment is expected to be \$20, the state puts the difference of \$10 into a fund to finance cleanup and redevelopment activities.

Source: GAO's survey of 17 managers of voluntary cleanup programs.

Of the nine programs offering financial incentives, most offered several types. For example, five programs allowed volunteers to use grant funds to subsidize the costs of site assessments or cleanups. Four programs also offered low-cost loans for these purposes in some cases. Four programs provided tax incentives for voluntary cleanups, including tax abatements or tax credits, and targeted these incentives to specific localities and activities.⁵ Two programs made tax increment financing available

⁵Abatements, which freeze the assessed value of a piece of land at some point in time, reduce the tax rate for a certain period and exempt certain types of property from taxes altogether.

specifically for voluntary cleanups that resulted in redevelopment in certain localities.

Eight programs did not offer financial incentives at this time. Some of the state representatives we contacted were wary of providing such incentives because they did not want polluters to take advantage of them. The representatives pointed out that rewarding some polluters financially did not seem appropriate when other polluters had paid for cleanups through either enforcement or voluntary programs.

Voluntary Programs Offer Flexibility in Cleanup Levels and Methods

To attract participants, the voluntary cleanup programs we reviewed gave volunteers the flexibility to choose appropriate levels and methods of cleanup, some of which were less costly than those required by the enforcement program. However, the extent of the flexibility given to participants varied from program to program.

Volunteers Can Choose Cleanup Levels

The 17 voluntary programs we reviewed set requirements for the amount of risk reduction that cleanups must achieve in order to be protective of human health and the environment. Participants in these programs generally must meet the requirements by selecting one of three approaches for achieving an appropriate level of cleanup:

- the amount of a chemical that naturally existed in the local soil and groundwater before the contamination occurred;
- the cleanup standard established by the state for a contaminant, based on a determination of the maximum amount of the contaminant that can remain in soil or water without posing a risk to public health or the environment: The state analyzes the toxicity of the contaminant and the likelihood that people will be exposed to it to establish this cleanup standard; or
- the amount of cleanup necessary to control the unique risks posed by a particular contaminant at a particular site, as determined by a formal assessment of that site's risks. This cleanup level may differ from site to site.

Officials from several voluntary programs told us that volunteers often select the second approach, cleaning up a site to the state's established standards. While the first approach sometimes requires the volunteer to restore the site to "pristine" levels and the third approach is uncertain and sometimes costly, the second approach enables the volunteer, at the outset, to estimate the extent and the cost of the cleanup.

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Both the second and third approaches also allow volunteers to link the cleanup standard to the use planned for the site. The standards are less stringent and less expensive to meet if the land will be used for industrial rather than residential purposes because people’s exposure to the site’s contamination will be more limited. The standards for industrial use are often appropriate because many sites are redeveloped for commercial or industrial purposes. Traditionally, the sites cleaned up under the federal Superfund program more often had to meet the most stringent standard for residential land use.⁶ In our review, we found that volunteers in 10 of the 17 programs used industrial standards most frequently for their cleanups. (See table 3.5.)

Table 3.5: Cleanup Standards Used in Voluntary Cleanups

Program	Industrial land-use standards selected for at least half of the cleanups		
	Yes	No	Unknown
California	X		
Colorado	X		
Delaware	X		
Illinois	X		
Indiana	X		
Massachusetts 1-year program		X	
Massachusetts longer-term program		X	
Minnesota		X	
Missouri		X	
New Jersey	X		
Ohio	X		
Pennsylvania	X		
Tennessee			X ^a
Texas	X		
Washington IRAP sites			X ^a
Washington ordered sites	X		
Wisconsin			X ^a

^a These states do not track volunteers’ decisions about cleanup standards.

Source: GAO’s survey of 17 managers of voluntary cleanup programs.

⁶In 1995, EPA issued new guidance that encourages parties cleaning up sites to collect as much information as possible and to obtain the local community’s consensus on the future use of a site in the federal cleanup program. While this initiative is too new for an evaluation of its impact, it may lead to more frequent assumptions that land will be used for industrial purposes.

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**Nonpermanent Cleanup
Methods and Partial Cleanups
Are Allowed**

After selecting a level of cleanup, a volunteer must select a method of cleanup. The federal Superfund program establishes a preference for methods that result in a site's permanent cleanup. Voluntary programs have not always adopted this preference for permanence, giving volunteers less expensive options to encourage their participation. A permanent remedy either removes or treats contamination in order to meet the applicable cleanup standards. A nonpermanent remedy typically prevents human contact with contamination by containing the waste—by, for example, placing a clay cap or a parking lot over contaminated soil, restricting the land's use, or placing barriers around the contamination. Permanent remedies tend to be more expensive to implement than nonpermanent ones. The cleanup managers for 8 of the 17 programs we reviewed estimated that nonpermanent methods were used for at least half of their voluntary cleanups of contaminated soil. (See table 3.6.)

**Table 3.6: Voluntary Programs' Use of
Nonpermanent Soil Cleanup Methods**

Program	Nonpermanent remedy selected for at least half of the soil cleanups		
	Yes	No	Unknown
California	X		
Colorado	X		
Delaware		X	
Illinois	X		
Indiana	X		
Massachusetts 1-year program		X	
Massachusetts longer-term program		X	
Minnesota	X		
Missouri		X	
New Jersey	X		
Ohio	X		
Pennsylvania		X	
Tennessee		X	
Texas		X	
Washington IRAP sites			X
Washington ordered sites	X		
Wisconsin			X

Source: GAO's survey of 17 managers of voluntary cleanup programs.

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Some voluntary programs do not require the cleanup of contaminated groundwater. For example, to attract volunteers, some programs grant an exemption from their groundwater cleanup requirements if a volunteer can demonstrate that the waste at a site is not causing the contamination.⁷ Because groundwater cleanups are usually expensive and time-consuming, this exemption is an important incentive. It allows volunteers to control cleanup costs and increases the likelihood that investing in a site's redevelopment will prove to be cost-effective.

Some voluntary programs also allow partial soil cleanups. For example, New Jersey's program allows a volunteer to evaluate a site and clean up only the portion of a property that is to be redeveloped and to leave the remainder of the property untreated. In Illinois, a volunteer may decide to clean up just one of several chemicals at a site and receive a certification for that chemical alone. At a Superfund or state enforcement site, the cleanup would typically address all of the chemicals that threaten human health or the environment.

Programs Vary in Providing
for Monitoring the
Effectiveness of Less
Permanent Cleanups

As we reported in 1995, the types of nonpermanent remedies used in many voluntary cleanup programs need ongoing monitoring and maintenance after the remedies have been implemented to ensure that they remain effective.⁸ Such activities can include mowing, inspecting, and repairing a clay cap; periodically sampling groundwater to ensure that chemicals are not leaching into it from the soil or migrating off-site; and inspecting and repairing signs and fences. Also, nonpermanent remedies premised on the restricted use of the land need a method to guarantee that the restrictions are maintained. The voluntary programs we reviewed varied considerably in their requirements for monitoring a site after its cleanup has been approved. (See app. II for a description of each state's monitoring requirements.) As table 3.7 shows, 2 programs required extensive monitoring, 5 programs required no monitoring, and 10 programs required some monitoring.

⁷These states include Delaware, Illinois, Indiana, Minnesota, Texas, Wisconsin, and Washington.

⁸Superfund: Operations and Maintenance Activities Will Require Billions of Dollars (GAO/RCED-95-259, Sept. 29, 1995).

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Table 3.7: Voluntary Cleanup Programs' Requirements for Monitoring After Cleanup

Extensive monitoring^a	Some monitoring	No monitoring^b
California	Colorado	Illinois
Washington ordered sites	Delaware	Minnesota
	Indiana	New Jersey
	Massachusetts 1-year program	Washington IRAP sites
	Massachusetts longer-term program	Wisconsin
	Missouri	
	Ohio	
	Pennsylvania	
	Tennessee	
	Texas	

^aOnly these programs monitor land-use restrictions imposed as part of a cleanup program's requirements.

^bThese programs did not monitor sites after cleanup but did reserve the power to remove the cleanup certification under certain circumstances, such as a change in a site's use or the discovery of additional contamination.

Source: GAO's survey of 17 managers of voluntary cleanup programs.

Two of the programs we reviewed monitored cleanups at voluntary sites on a regular basis. Every 5 years, the voluntary program in California and the ordered site program in Washington review sites where follow-on operations and maintenance are necessary or land use is restricted. This approach parallels the Superfund program's requirement that EPA conduct 5-year reviews of similar cleanups. Officials in these states said they would not feel comfortable releasing volunteers from liability unless the volunteers performed some monitoring.

Five programs did not provide for active monitoring by state officials after cleanup, even though most of these programs reported that volunteers used either industrial cleanup standards or nonpermanent cleanup methods for at least half of their sites. The program managers cited trade-offs between limiting volunteers' choices of remedies and monitoring the remedies closely, on the one hand, and achieving high levels of participation, on the other. The Illinois official we spoke with partly attributed the significant numbers of participants in the state's voluntary program to the availability of alternative remedies and limited monitoring requirements. According to the managers, the large number of

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cleanups accomplished through their voluntary programs preclude monitoring every site.

Instead of monitoring these sites themselves, the five voluntary programs generally relied on the private real estate market to enforce maintenance and land-use restrictions. When these programs certified a cleanup's completion or released a volunteer from future state liability, they generally stipulated in the certification that it would be revoked if the land's use changed or the cleanup method were not maintained. The program managers consider this stipulation sufficient to guarantee compliance because it would be discovered during the investigation preceding a site's sale. They argue that if a volunteer does not comply, purchasers and developers will not choose the site for fear that the cleanup certification will be revoked and they will face liability for further action at the site.

The remaining 10 programs have tried to strike a balance between fairly rigorous and no requirements for monitoring after cleanup. Although these programs do not perform on-site reviews, they do require volunteers to periodically file reports on the conditions at sites with nonpermanent remedies. Compliance with these requirements is generally a condition of retaining the state's limits on the volunteer's future liability. For example, the Ohio voluntary program implements an operations and maintenance agreement with the volunteer that requires reporting in exchange for a state covenant not to sue the volunteer for past contamination at a completed site.

**Programs Provided for a
Range of Cleanup
Oversight**

To speed cleanups and attract participants, most voluntary programs require less oversight than enforcement programs. Both the federal and state governments typically oversee their enforcement program's cleanups by requiring parties to submit their workplans and progress reports for review or by independently sampling and visiting sites. These procedures provide the enforcement agencies with important information on the quality and adequacy of the cleanups. In comparison, the amount of oversight for voluntary cleanups provided by the programs we reviewed ranged from extensive to minimal. (See app. III for a description of each state's oversight requirements.) A few program managers in our survey reported providing substantially less oversight for their voluntary cleanups than for their enforcement cleanups. In contrast, several programs based their level of oversight on the characteristics of a site or reduced their

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oversight at certain stages of a cleanup when it was not critical to ensuring the cleanup’s effectiveness.

As table 3.8 indicates, five of the voluntary programs we reviewed provided for extensive oversight of voluntary cleanups, three programs required little oversight, and nine programs varied the level of oversight with the sites’ hazards or stage in the cleanup process.

Table 3.8: Voluntary Cleanup Programs’ Requirements for Oversight

	Extensive oversight	Variable oversight	Little oversight
	Delaware	California	Colorado
	Indiana	Illinois	Pennsylvania ^a
	Missouri	Massachusetts 1-year program ^b	Washington IRAP sites
	Washington ordered sites	Massachusetts longer-term program ^b	
	Wisconsin	Minnesota	
		New Jersey	
		Ohio ^b	
		Tennessee	
		Texas	

^aFor the majority of Pennsylvania’s voluntary sites that use state-established or background cleanup standards, little oversight is required. For the sites that use a site-specific risk assessment to determine the cleanup levels, site visits and additional reporting are required.

^bThe Massachusetts and Ohio programs use licensed site professionals hired by volunteers, rather than state employees, to oversee and approve cleanups.

The five voluntary programs that provide for extensive oversight of cleanups generally apply essentially the same requirements as their state applies to enforcement cleanups. These voluntary programs typically require participants to submit status reports at each stage of the cleanup—when assessing the nature of the site’s contamination, preparing a cleanup plan, and documenting the final cleanup. Officials from these states’ programs usually visit a site during a cleanup to determine whether the volunteer is completing the work according to the workplan. When the cleanup is complete, they may verify the volunteer’s final report by inspecting the site or by analyzing soil or water samples that they have taken to ensure that the cleanup meets the agreed-upon standards. According to one program manager in a state that releases volunteers from future liability, this level of oversight is important because the state may inherit responsibility for the site if the cleanup later proves to be

inadequate. Oversight is also necessary because volunteers want to keep their costs as low as possible and the state needs to ensure that cost-cutting measures do not jeopardize the quality of the cleanup.

At the other end of the spectrum, three of the voluntary cleanup programs we reviewed—the Colorado, Pennsylvania, and Washington IRAP programs—provide little oversight for some or all of their cleanups, even though some of these programs admit sites that could meet the criteria for federal cleanup. For the majority of their sites, these three programs require few reports, seldom require site visits, and do not require verification of a volunteer’s final cleanup report through a site visit or other means. The Washington IRAP program, for example, which has approved 225 voluntary cleanups, allows a volunteer to clean up a site without obtaining the state’s approval or agreement. The program does not oversee the cleanup, but instead reviews the volunteer’s final report to determine whether the cleanup meets the state’s standards. Similarly, for the majority of Pennsylvania’s voluntary sites that use state-established or background cleanup standards, the volunteer is required to submit a final report upon completing a cleanup. A volunteer demonstrating compliance with applicable cleanup standards is relieved of further liability under state law for the contamination addressed by the cleanup and may not be sued either by citizens or by other parties connected with the site’s contamination. All of the voluntary programs requiring little oversight also limit the time available for oversight by providing for the automatic approval of reports that have not been reviewed on time.

According to the managers of these three programs, limiting oversight to attract participants is necessary and appropriate because voluntary cleanups usually address less contaminated sites than enforcement cleanups. Limiting oversight is further appropriate, managers in Colorado and Pennsylvania said, because voluntary programs are cooperative in nature. Volunteers want the certificate of completion and the release from liability that the state offers so they can use their properties; therefore, according to these managers, they are likely to do good work and provide the state with reliable information. Moreover, in the Pennsylvania program, for example, the liability release can be reopened if new contamination is discovered. As a result, the quality of the information provided by the volunteer is critical. The Colorado program manager also maintained that site visits would be too costly.

Nine of the voluntary programs have taken a variable approach to oversight that, they maintain, provides them with good information about

cleanups without deterring participation. These programs have either reduced their oversight at certain stages or concentrated on more hazardous sites. They require volunteers to submit reports throughout the cleanup process but generally perform fewer site visits than the programs that provide for more extensive oversight. Some volunteers want the additional assurance of a cleanup's adequacy that a site visit provides. New Jersey provides less oversight for small, less complex soil cleanups and more oversight for complex soil and groundwater cleanups and for longer cleanups. Minnesota bases the number of site visits on the severity of the contamination and the level of cooperation with the volunteer. Seven of these nine voluntary programs approve the final cleanup report submitted by the volunteer but do not independently verify the data because, as two managers explained, they believe the frequent reporting throughout the cleanup process has given them ample information about the quality of the cleanup. Tennessee, on the other hand, varies the number of reports it requires with the conditions at a site, but takes split samples at all sites, either during the cleanup or afterward, to verify the final report.

One-Half of the Programs Limit Opportunities for Public Participation

The voluntary programs we reviewed varied in their requirements for public participation, from those that always required formal public comments to those that made no provision for informing the public about the cleanup. (See app. IV for a description of each program's public participation requirements.) In contrast, the Superfund program requires anyone conducting a long-term cleanup to give the public an opportunity to comment on the proposed cleanup plan. Public participation is required to assure an affected community that the planned cleanup actions will adequately address the risks that a site poses to public health and the environment. According to one observer⁹ and representatives of environmental groups, public participation can be especially important for sites with nonpermanent remedies because the public can help to identify the safeguards that will help keep people away from the contamination. Representatives from community action organizations pointed out that public participation is particularly important for voluntary programs when other checks and balances on cleanups, such as monitoring and oversight, have been reduced.

As table 3.9 indicates, three of the voluntary programs we surveyed always required public participation, eight required little or no participation, and

⁹John Pendergrass, "Use of Institutional Controls as Part of a Superfund Remedy: Lessons From Other Programs," *Environmental Law Review, News and Analysis* (Mar. 1996), pp. 10109-10123.

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the remaining five varied their requirements with the conditions at individual sites.

Table 3.9: Voluntary Cleanup Programs' Requirements for Public Participation

Participation always required	Participation requirements dependent on site conditions	Little or no participation required^a
California	Massachusetts 1-year program	Colorado
Indiana	Massachusetts longer-term program	Delaware
Washington ordered sites	Missouri	Illinois
	Tennessee	Minnesota
	Texas	New Jersey
	Wisconsin	Ohio
		Pennsylvania ^b
		Washington IRAP sites

^aFor the Colorado, Illinois, New Jersey, Ohio, and Washington IRAP programs, no public participation is ever required. The Delaware and Minnesota programs require newspaper notification in some cases. Officials in Delaware and Minnesota told us that they may occasionally require additional public participation.

^bFor the majority of Pennsylvania's voluntary sites that use state-established or background cleanup standards, newspaper notification is the only requirement. For sites that use a site-specific risk assessment to determine cleanup levels, local officials may request public participation.

Three programs always require volunteers to consider how best to inform and involve the public in cleanup issues. The Indiana and Washington ordered site programs, much like the Superfund program, require volunteers to obtain and respond to public comments on cleanup plans. Volunteers may also be required to hold public meetings. In California, volunteers must prepare a community profile and work with state officials to determine appropriate avenues for public participation based on that profile and the site's projected activities.

In contrast, eight programs require little public participation. Five require none, and three require only the publication in a local newspaper of a notice about the cleanup. However, as we noted in a 1994 report, newspaper notices are ineffective because community members do not always see them.¹⁰ Nevertheless, according to the managers of these voluntary cleanup programs and volunteers, the programs' requirements

¹⁰Superfund: EPA's Community Relations Efforts Could Be More Effective (GAO/RCED-94-156, Apr. 8, 1994).

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for public participation are sufficient because most of the enrolled sites are only lightly contaminated and are located in industrial neighborhoods. These program managers do not view the Superfund model for public participation as appropriate for voluntary cleanup programs. They maintain that requiring extensive public participation would be counterproductive, adding unnecessary time and costs to cleanups and discouraging volunteers. Program managers in Illinois and New Jersey point out that arranging public meetings and obtaining public comments is very time-consuming. Moreover, according to one state official, the owners of contaminated sites are often anxious to rid themselves of the environmental liability associated with their site and do not wish to publicize its hazards. Finally, other officials explained that a volunteer planning to redevelop a site will have to obtain the approval of local officials, who are responsible for and answer to their constituents.

The six remaining voluntary programs agree that extensive public participation may not be necessary at every site and have tailored their public participation requirements to site-specific conditions. As discussed, several of these voluntary programs admit sites that are contaminated enough to qualify for the federal Superfund program and its more extensive public participation requirements. Texas requires a volunteer to notify neighboring property owners if the contamination at a site is found to exceed the state's cleanup standards or if contamination could migrate from the site. Missouri requires the volunteer to hold a public hearing if the state plans to provide a covenant-not-to-sue. The Massachusetts and Tennessee programs require public meetings only if local officials or the public request them. Wisconsin's requirements depend on a site's risks and the public's concerns; in some instances, holding public meetings or creating a local mailing list may be required to involve the public.

EPA Has Provided Financial Assistance to Voluntary Programs and Is Beginning to Clarify Its Role at Voluntary Sites

Because the current Superfund law gives EPA the authority to take cleanup or enforcement action at any hazardous waste site to protect human health or the environment, the states want to be able to assure their volunteers that EPA is unlikely to take future action at voluntary cleanup sites. At the same time, EPA has an interest in determining that the states' programs are effective and protective before providing such assurance.

Recognizing these interests and the voluntary programs' contributions to the cleanup of the nation's hazardous waste sites, EPA has, since 1995, supported these programs. Both the agency and the Congress have supported the states' efforts with funding for voluntary programs. Most of the states we surveyed found this federal assistance useful and wanted it to continue. To address volunteers' concerns about federal liability for contamination at sites, a Superfund reauthorization bill recently introduced in the Senate would exempt from federal liability parties who are associated with a release of hazardous substances that is subject to a state's cleanup plan. However, because the current Superfund law provides no such exemption from federal liability, EPA has outlined six elements in a memorandum to its regions that the states' voluntary programs should include to receive the agency's agreement not to plan to take federal enforcement action except in limited circumstances. These criteria, however, are very general, limiting EPA's ability to ensure that these programs are protective of human health and the environment. The memorandum does not define the elements a voluntary program would need or the approaches EPA would accept in order for the program to qualify for an agreement with EPA.

EPA Retains Some Authority for Sites Cleaned Up Under States' Voluntary Programs

Under the Superfund law, EPA has the authority, in certain circumstances, to take action at any hazardous waste site, including one being cleaned up outside the federal program. Specifically, the agency has the authority to (1) address any release or threatened release of hazardous substances that may endanger public health or welfare or the environment and (2) take enforcement action to ensure this protection.

Because EPA retains this responsibility, purchasers and real estate developers are sometimes reluctant to voluntarily clean up and redevelop sites because they fear EPA may require them to perform additional

cleanup work in the future.¹ Most states and volunteers are therefore interested in having EPA clarify the circumstances under which it would be likely to use its authority. For its part, EPA believes that it needs to determine that a state's program is resulting in adequate cleanups before it agrees that it will not plan to take action at sites addressed by volunteers. Otherwise, if a remedy fails at a site cleaned up under a state's voluntary program and the volunteer has been granted a release from state liability, EPA may have to address the problem itself or compel the responsible parties to do so. EPA is particularly concerned about quality and liability in connection with voluntary cleanups at sites that were contaminated enough to have qualified for the federal cleanup program.²

States Encourage Federal Support for Their Voluntary Cleanup Programs

Because EPA and the Congress view voluntary cleanup programs as a way to increase the number of hazardous waste cleanups nationwide, they have supported the development of such programs. EPA has provided funds for the states to develop their programs and assess the sites enrolled in them. The Congress has also set aside funding for these programs. In addition, EPA is developing guidance to clarify its role at sites cleaned up through state voluntary programs. Most of the states we surveyed would like EPA and the Congress to continue this support.

EPA and the Congress Have Provided Funds

Since 1995, EPA has allowed the states to use a portion of the funds from their Superfund cooperative agreements to develop their voluntary cleanup programs. These agreements, which EPA has negotiated with the states since the beginning of the Superfund program, provide funds for the states to develop their Superfund programs, manage Superfund activities, and assess hazardous waste sites to determine their eligibility for the federal cleanup program. Cleanup managers for 15 of the 17 programs we reviewed said that EPA's making some of this funding available for voluntary programs was helpful. For example, two managers explained that the funds were used for start-up costs, such as those incurred in hiring personnel, developing materials, or publicizing the program. Officials whom we surveyed in the states without voluntary programs also thought that such funds would help them initiate programs.

¹In other cases, states have found that Superfund's liability provisions have provided leverage to persuade responsible parties to clean up the more highly contaminated sites in the states' inventories. As we reported last year in *Impact on States of Capping Superfund Sites* (GAO/RCED-96-106R, Mar. 18, 1996), state program managers said that a major incentive for responsible parties to clean up their sites is the desire to avoid having their properties included on the NPL.

²In GAO/RCED-96-106R, we estimated that 1,400 to 2,300 sites nationwide were contaminated enough to qualify for placement on the NPL but have not yet been listed.

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EPA has also allowed the states to use federal funds to assess brownfield sites. In fiscal year 1995, EPA began allowing the states to use funds from their Superfund cooperative agreements to assess brownfield sites.

The Congress has also provided funding for these programs. The House Conference Committee report accompanying EPA's fiscal year 1997 appropriations act noted that the agency's Superfund appropriation included \$36.7 million for brownfield activities. EPA plans to use \$10 million of these funds to develop and enhance states' voluntary cleanup programs. Recently introduced legislation to reauthorize Superfund, the Superfund Cleanup Acceleration Act of 1997, would also provide annual grants to qualifying voluntary cleanup programs. The bill establishes criteria that require qualifying programs to provide (1) technical assistance to volunteers; (2) adequate opportunities for public participation; (3) streamlined cleanup procedures; (4) oversight and enforcement authorities adequate to ensure that voluntary cleanups will protect human health and the environment and that cleanups will be completed if volunteers do not finish them; (5) procedures for official approval of voluntary cleanup plans; and (6) official certification that cleanups are complete.

Most of the states we surveyed—even those with fees sufficient to cover the costs of their programs—identified ways in which they could use this support. Some states said the funds would help municipalities cover the costs of assessing sites where no parties had been identified as responsible for the contamination or where the cleanup costs would otherwise be too high to attract volunteers. One state was interested in using the federal grants to develop revolving loan funds to help municipalities clean up these types of sites. Others said they would use the funds to support their programs by, for example, publicizing the programs or developing better information systems to improve the programs' management and evaluation.

EPA Is Developing
Guidance for the States'
Programs

Although the recent Superfund reauthorization proposal would exempt releases of contamination subject to a state's cleanup plans from federal liability, under the current law EPA retains the authority to clean up or order the cleanup of any release that threatens human health or the environment. As a result, in fiscal year 1995, EPA began developing guidance to clarify the role it expects to have at sites in states that have met its requirements for a voluntary cleanup program. Regions I, III, V, VI, VII, and VIII negotiated agreements with 10 states—Colorado, Illinois,

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Indiana, Maryland, Michigan, Minnesota, Missouri, Rhode Island, Texas, and Wisconsin. These agreements specify that EPA generally will not plan to take further action at sites in a state's voluntary program except in limited circumstances, such as a new release of contamination from a site. Other states could also obtain an agreement if their EPA region determined that their voluntary program was adequate to protect human health and the environment. According to EPA officials, the 10 states find that the agreements are an efficient means of encouraging participation because they allay volunteers' concerns about facing additional federal liability at a site in the future. Officials in many of the voluntary programs we reviewed that did not have an agreement also said that one would be useful for their state.

Because more states wanted an agreement, EPA used the initial agreements as models and in November 1996 issued an interim memorandum that its regional offices could use to develop other agreements.³ EPA is working with the states to publish draft guidance for public comment in the spring of 1997 and to issue final guidance to its regions in the summer of 1997. The interim memorandum sets forth six general criteria for voluntary programs, directing that they (1) provide for meaningful levels of community involvement, (2) use protective cleanup requirements, (3) have adequate resources, (4) ensure the completion of cleanups, (5) oversee cleanups, and (6) take enforcement action if necessary. According to EPA officials, the memorandum establishes broad criteria in order to encompass a wide variety of voluntary programs. EPA expects that individual regional officials will use their own judgment to determine whether a particular program is meeting the criteria. Upon determining that a program does meet the criteria, EPA plans to assume that it generally will not take additional action at sites in the program. Although the states would like EPA to release volunteers in programs meeting the agency's criteria from any future federal liability, EPA reserves the right to invoke its federal enforcement authority if it determines that a voluntary cleanup in an approved program is not effective and protective.

Not all of the 10 initial agreements would satisfy all of the criteria set forth in EPA's interim memorandum. For example, Colorado does not have the ability to take enforcement action at voluntary sites should such action become necessary. Also, some of the initial agreements contain provisions

³EPA's interim memorandum on developing an agreement with a state provides that although nothing in the agreement constitutes a release from liability under applicable federal law, EPA generally does not anticipate taking cleanup action at a site involved in the state's voluntary cleanup program unless EPA determines that the site poses an imminent and substantial endangerment to public health and welfare or to the environment.

that are not included in other agreements or addressed in the interim memorandum. For instance, the agreement between Texas and Region VI allows some sites needing cleanups under RCRA to be cleaned up under the state's voluntary program, while other agreements do not admit such sites into their program.

EPA's Criteria Do Not Clearly Define Elements of Voluntary Programs

To accommodate the differences in states' voluntary cleanup programs, EPA developed very broad criteria for its interim memorandum. The states supported this approach because they were concerned that detailed criteria might require them to change the voluntary programs each has developed to respond to its unique conditions. Although EPA needs to make the criteria flexible to accommodate a wide range of voluntary programs, the interim memorandum provides very little information on the kinds of activities and approaches that EPA would find acceptable in exchange for a statement that it would generally not plan further action at sites involved in such programs. Using this memorandum, EPA regions may have difficulty determining which programs meet the criteria and are protective of human health and the environment. For example, the criterion specifying that voluntary programs should have protective cleanup requirements, while implying a need for adequate monitoring, does not explicitly mention the importance of monitoring a volunteer's efforts to operate and maintain nonpermanent remedies or land-use restrictions. Similarly, the criterion for overseeing cleanups, while addressing a general need, does not specify what oversight practices are acceptable in voluntary programs. Given the wide range of oversight approaches in the states we surveyed, further definition of acceptable practices is needed. Finally, the criterion calling for voluntary programs to provide for meaningful levels of community involvement does not define what program provisions would constitute such involvement.

Without further clarification, states with a voluntary program will have difficulty determining whether their program meets EPA's criteria and may be deterred from negotiating an agreement with EPA. States developing a program will be unsure what elements their program needs to qualify for such an agreement.

Conclusions

The states we surveyed have developed successful voluntary cleanup programs, in part by offering to limit future state liability for volunteers. These states believe that their programs would be even more successful if they could clarify the extent to which their volunteers are likely to face

future federal liability. While EPA is interested in supporting voluntary programs in this manner, it also has an interest in ensuring that these programs are achieving protective cleanups before it agrees to plan taking no further action at sites in the programs.

Given that EPA's regions will use the agency's guidance to make this judgment, the guidance must clearly define the elements that EPA believes these programs should include, particularly in the three areas we identified. Without more clearly defined criteria, a region could enter into an agreement with a state whose program's provisions might not be adequate for EPA to fulfill its responsibility under the current law to ensure protective cleanups. We recognize that neither EPA nor the states want to be overly prescriptive in the requirements they design for voluntary cleanups because many sites may not warrant such requirements and imposing them could discourage participation. Consequently, to better define its criteria for voluntary programs in its final guidance, EPA could look to the models implemented by several states that vary their requirements with the risks and conditions at individual sites.

Recommendation

We recommend that the Administrator, EPA, work with the states to more clearly define in the agency's final guidance the criteria that state voluntary cleanup programs should meet to obtain an agreement limiting EPA's involvement at sites, particularly in the areas of monitoring after cleanup, acceptable oversight practices, and public participation. EPA could consider as possible models the approaches that several state programs have taken to tailor the requirements for cleanups to the risks and conditions at individual sites.

Agency Comments

EPA officials, including the Director of the Outreach and Special Projects Staff, the office responsible for voluntary cleanup initiatives in EPA's Office of Solid Waste and Emergency Response, agreed with the content and presentation of information in the report and suggested several technical revisions, which we incorporated. Observing that our recommendation addressed several of the most important issues in crafting a policy on state voluntary cleanup programs, these officials said they would consider it as they develop the agency's final guidance. The representative of the Association of State and Territorial Solid Waste Management Officials, who has been involved in the organization's task force on cleanup programs, also suggested several changes to clarify steps taken by the states to ensure effective voluntary cleanups, and we incorporated this

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information in the report. In commenting on our recommendation, he agreed that the states must work closely with EPA on the final guidance to ensure that it reflects the distinct perspectives and the variety of approaches that the states have taken in implementing voluntary cleanup programs.

Characteristics of Each Voluntary Program

Table I.1: Characteristics of Each Voluntary Program

Program	Allow sites that would qualify for federal cleanup ^a	More than 50 percent of cleanups use		Type of monitoring required for sites with nonpermanent remedies or restricted land use		
		Industrial land-use standards	Nonpermanent remedies ^c	State actively monitors sites	State reviews reports submitted by volunteers	None required ^d
California	X	X	X	X		
Colorado	X	X	X		X	
Delaware	X	X			X	
Illinois	X	X	X			X
Indiana	X	X	X		X	
Massachusetts 1-year program ^h					X ⁱ	
Massachusetts longer-term program	X				X ⁱ	
Minnesota	X		X			X
Missouri					X	
New Jersey	X	X	X			X
Ohio		X	X		X	
Pennsylvania	X	X			X	
Tennessee	X		X		X	
Texas	X	X			X	
Washington IRAP sites ^m	X	Unknown	Unknown			X
Washington ordered sites	X	X	X	X		
Wisconsin	X	Unknown	Unknown			X

**Appendix I
Characteristics of Each Voluntary Program**

Type of oversight required			Kind of public participation required			Kind of certification provided ^b		
Reports required throughout cleanup; state visits site	Reports and site visits, depending on site conditions	Few reports and no site visits required	Always required	Depends on site conditions	Little or none required ^e	Covenant-not-to-sue	Certificate of completion	No-further-action letter
	X		X				X ^f	X
		X			X			X
X					X	X ^g	X	
	X				X			X
X			X			X	X	
	X			X				X
	X			X				X
	X				X	X ⁱ	X	X
X				X			X	
	X				X			X
	X				X	X		
		X			X ^{k,l}			
		X			X			X
	X			X			X	
		X			X			X
X			X					X
X					X		X ⁿ	X

Appendix I Characteristics of Each Voluntary Program

^aRefers to sites that state officials consider contaminated enough to meet the criteria for placement on the federal National Priorities List.

^bStates use three different types of cleanup certification. The covenant-not-to-sue guarantees that the state will generally not take any enforcement actions against the volunteer once a cleanup has been completed. The certificate of completion documents that the cleanup has been completed in accordance with the program's standards and rules. Most—but not all—of these certificates include language that excuses the volunteer from further liability for past contamination. The no-further-action letter certifies, on the basis of information provided by the volunteer, that the state does not expect to require further action of the volunteer.

^cNonpermanent remedies leave waste in place but reduce potential exposure by covering it with a barrier, such as a clay cap or a parking lot, or by restricting access to the area.

^dThe programs identified in this column do not monitor sites after cleanup but do reserve the authority to remove the cleanup certification under certain circumstances, such as a change in a site's use or the discovery of additional contamination.

^eFor the Colorado, Illinois, New Jersey, Ohio, and Washington IRAP programs, no public participation is required. The Pennsylvania program requires that notice of a planned cleanup be placed in a local newspaper. Minnesota and Delaware officials told us they may require public participation in some cases.

^fCalifornia offers different types of releases, depending on the level of oversight the state performs.

^gDelaware offers different types of liability releases, depending on the type of party that performs the cleanup.

^hVolunteers in Massachusetts may attempt to clean their sites within 1 year of discovering them. If they cannot complete a cleanup in that time, they clean under the state's longer-term program, which has different requirements.

ⁱMassachusetts also audits 20 percent of the completed cleanups in both programs.

^jMinnesota offers different types of releases, depending on the type of volunteer and the type of cleanup.

^kThe majority of Pennsylvania's voluntary cleanups use state-established cleanup standards and therefore require only a notice in a local newspaper. For sites where a site-specific risk assessment is used to determine cleanup levels, local officials may request public participation.

^lPennsylvania provides a statutory release from state liability after the final cleanup report is approved.

^mWashington volunteers may choose between voluntary cleanup programs. Washington state officials have not kept statistics about cleanups at IRAP sites. As an alternative, volunteers may negotiate an agreement with the state and clean up under the state's oversight.

ⁿWisconsin offers different types of liability releases, depending on the type of party that performs the cleanup.

Voluntary Cleanup Programs' Requirements for Monitoring After Cleanup

Program	Monitoring practices
California	The volunteer must submit progress reports on the status of any operating treatment system for the lifetime of the system and evaluate the cleanup every 5 years.
Colorado	The volunteer must submit reports on site conditions to the state.
Delaware	The volunteer must submit reports on site conditions to the state.
Illinois	The state does not monitor a site after the final cleanup report is approved. ^a
Indiana	The volunteer submits reports and estimates when operations and maintenance will be completed.
Massachusetts 1-year program	The state uses licensed site professionals to manage and approve cleanups. These professionals must monitor any sites that require long-term monitoring and report periodically to the state. In addition, the state may audit sites for 5 years after their cleanup is complete and audits 20 percent of all completed sites. If a problem is found at this time, the state may continue to monitor for another 5 years.
Massachusetts longer-term program	The state uses licensed site professionals to manage and approve cleanups. These professionals must monitor any sites that require long-term monitoring and report periodically to the state. In addition, the state may audit sites for 5 years after their cleanup is complete and audits 20 percent of all completed sites. If a problem is found at this time, the state may continue to monitor for another 5 years.
Minnesota	Although the volunteer submits periodic reports if there are ongoing response actions, the state does not monitor the completed cleanup. ^a
Missouri	The volunteer must submit reports on site conditions to the state.
New Jersey	The volunteer must comply with an operations and maintenance plan if performing groundwater treatment, but the state does not monitor other types of operations and maintenance. ^a
Ohio	Although the policy has not yet been established, Ohio plans to require volunteers to prepare an operations and maintenance agreement that would describe the operations and maintenance activities and require the volunteer to notify the state if the site changes hands. The program may also conduct site inspections.
Pennsylvania	The volunteer must submit periodic reports on site conditions to the state.
Tennessee	The volunteer must submit periodic reports on site conditions to the state.
Texas	The volunteer must submit periodic reports on site conditions to the state.
Washington IRAP sites	The state does not monitor sites after the final cleanup report is approved. ^a
Washington ordered sites	Program officials review sites with ongoing operations and maintenance every 5 years.
Wisconsin	Although the volunteer submits periodic reports of ongoing response actions, the program does not monitor the completed cleanup.

^aThese programs do not monitor sites after cleanup but do reserve the authority to remove the cleanup certification under certain circumstances, such as a change in the site's use or the discovery of additional contamination.

Source: GAO's survey of managers of 17 voluntary cleanup programs.

Voluntary Cleanup Programs' Requirements for Oversight

Program	Number of reports required	Site visits required during cleanup	Method for verifying that cleanup is complete
California	More than 3	When necessary and volunteer agrees	Review of final report
Colorado	2	Very rarely	Review of final report
Delaware	More than 3	At all sites	Review of final report; final site visit; sampling
Illinois	More than 3	At most sites	Review of final report
Indiana	More than 3	At all sites	Review of final report; sampling always required
Massachusetts 1-year program	3	At all sites	Review of final report; site visit
Massachusetts longer-term program	More than 3	At all sites	Review of final report; site visit
Minnesota	More than 3	At most sites	Review of final report
Missouri	More than 3	At all sites	Review of final report; sampling if needed
New Jersey	More than 3	When volunteer requests one	Review of final report; sampling if needed
Ohio	Depends on site ^b	Depends on site	Depends on site
Pennsylvania ^c	1	Not required, but field staff may conduct visits at their discretion	Review of final report
Tennessee	Depends on site	Depends on site	Review of final report; sampling
Texas	3	Depends on site	Review of final report
Washington—IRAP sites ^d	2	At most sites	Review of final report
Washington—ordered sites	More than 3	At all sites	Review of final report
Wisconsin	Depends on site	Depends on site	Review of final report; sampling if needed

^aThe state specifies reporting, oversight, and approval requirements, but the licensed site professional carries them out. The state conducts its own oversight at sites that pose high risks or imminent hazards. The state audits up to 20 percent of all completed cleanups.

^bOhio does not specify the types of reports needed. The licensed site professional must obtain enough information to decide whether the cleanup is complete and can be certified as complete.

^cFor the few sites that are cleaned up to site-specific standards, Pennsylvania establishes more stringent oversight requirements, including requirements for three or more reports and site visits.

^dFor sites where cleanups are carried out without the state's approval or agreement, only the final report is reviewed.

Source: GAO's survey of managers of 17 voluntary cleanup programs.

Voluntary Cleanup Programs' Requirements for Public Participation

Program	Public participation requirements
California	The volunteer must describe the community near the site as part of the application. The state bases the public participation requirements and the proposed cleanup activities on this profile. The volunteer is required to hold a public meeting for sites costing more than \$1 million.
Colorado	No requirements
Delaware	The volunteer must publish a notice in a local newspaper about the cleanup before the cleanup begins. If there is public interest, the state may require a public meeting.
Illinois	No requirements
Indiana	The volunteer is required to make the cleanup plan available for public comment for 30 days. The volunteer may hold a public meeting if one is requested.
Massachusetts 1-year program	The volunteer must make the cleanup plan publicly available and publish information on major milestones in a local newspaper. If at least 10 people request a public participation plan, the volunteer must develop one.
Massachusetts longer-term program	The volunteer must make the cleanup plan publicly available and publish information on major milestones in a local newspaper. If at least 10 people request a public participation plan, the volunteer must develop one.
Minnesota	The state does not have specific requirements but may require public participation activities in some cases. At a minimum, the state notifies local officials that a voluntary cleanup is planned for their community.
Missouri	When a volunteer wants a covenant-not-to-sue, which provides the maximum release from state liability, the volunteer must conduct hearings. The volunteer must publish a notice in a local newspaper if the selected cleanup standards do not allow for future residential use.
New Jersey	No requirements
Ohio	After the cleanup is completed and the state has awarded a covenant-not-to-sue, the state publishes a notice in a local newspaper.
Pennsylvania	If the volunteer plans to use the state-established cleanup standards, it must publish a notice in a local newspaper before starting the cleanup. If the volunteer plans to develop its own standards instead of using the state-established standards, local government officials may require public participation. ^a
Tennessee	The volunteer must publish a notice in a local newspaper upon entering the program and after completing the cleanup plan. The public may request a meeting.
Texas	The volunteer must notify owners of neighboring property if contamination at the site could migrate to the other property.
Washington IRAP sites	No requirements
Washington ordered sites	The volunteer must publish a variety of notices in a local newspaper, obtain public comments, and hold public meetings.
Wisconsin	The state may require activities such as publishing a notice in a local newspaper, holding public meetings, or creating local mailing lists, depending on conditions at the site and the level of public concern.

^aMost volunteers select the state-established standards.

Source: GAO's survey of the managers of 17 state voluntary cleanup programs.

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