

GAO

Report to the Honorable Lynn C.  
Woolsey, House of Representatives

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June 2003

# DEEP INJECTION WELLS

EPA Needs to Involve  
Communities Earlier  
and Ensure That  
Financial Assurance  
Requirements Are  
Adequate





Highlights of [GAO-03-761](#), a report to the Honorable Lynn C. Woolsey, House of Representatives

## Why GAO Did This Study

Billions of gallons of hazardous liquid waste are injected into underground wells each year. These Class I hazardous deep injection wells are designed to inject waste into an area below the lowermost underground source of drinking water. EPA and the states grant permits to commercial operators to construct and operate these wells and must obtain public comments on the permits. Communities often raise concerns about well safety and other matters. GAO examined the extent to which EPA and the states (1) address these community concerns, (2) consider environmental justice issues, and (3) ensure that financial assurances adequately protect the taxpayer if bankruptcy occurs. GAO, among other things, examined the permit process in the four states that have commercial Class I wells.

## What GAO Recommends

GAO recommends that EPA

- involve the public earlier in the permitting process to allow more time for community concerns to be addressed; and
- determine if the program's financial assurance requirements need to be strengthened.

EPA did not agree with GAO's recommendations and stated that (1) public involvement is limited by program regulations and (2) financial assurance requirements are not deficient. GAO maintains the recommendations are sound.

[www.gao.gov/cgi-bin/getrpt?GAO-03-761](http://www.gao.gov/cgi-bin/getrpt?GAO-03-761).

To view the full product, including the scope and methodology, click on the link above. For more information, contact John B. Stephenson at (202) 512-3841 or [stephensonj@gao.gov](mailto:stephensonj@gao.gov).

# DEEP INJECTION WELLS

## EPA Needs to Involve Communities Earlier and Ensure That Financial Assurance Requirements Are Adequate

### What GAO Found

Although EPA provides opportunities for public comment on proposed commercial Class I deep injection wells as required by regulations, these opportunities come late in the process, after a draft permit has been prepared and this timing may limit the extent to which concerns are addressed. EPA responds to all public comments, but it cannot deny a permit on the basis of community concerns if all regulatory requirements for protecting drinking water are met. However, earlier involvement could give communities more time to contact appropriate state or local officials to address concerns that are not within the scope of EPA's authority. In Michigan, where EPA issues injection well permits, communities believe that their concerns are often not fully resolved; in some instances, communities have filed legal actions and complaints to prevent well construction. In contrast, the three states to which EPA has authorized responsibility for issuing permits have enacted requirements for earlier and more public involvement. Overall, they believe that early involvement better addresses community concerns, mitigates controversial issues, and avoids litigation.

EPA addresses environmental justice issues in two basic ways—first, as part of its process for deciding whether to issue a permit for well construction, and second, in response to specific civil rights complaints filed with the agency after permits are issued. EPA encourages its regional offices issuing construction permits to determine if minority and low-income populations are disproportionately affected by a proposed well's location. Individuals and communities may appeal EPA permit decisions with EPA's Environmental Appeals Board or, for other permit decisions, file complaints under Title VI of the Civil Rights Act with EPA's Office of Civil Rights. Only one community has filed complaints related to deep injection wells; these complaints did not result in changes to the permit decisions. Court decisions have recently limited the basis for filing Title VI complaints, making the process an unlikely avenue for changing permit decisions.

Current financial assurance requirements may not ensure that adequate resources are available to close a commercial deep injection well in the event of bankruptcy or ceased operations. While only four sites have gone into bankruptcy or ceased operating since the program began in 1980; two did not have adequate financial resources to plug and abandon wells and for the other two, financial assurance was not tested because other companies purchased and continued operating the wells. EPA has questioned the adequacy of some financial assurance requirements in other programs that are similar to those for Class I deep injection wells. EPA's Office of Inspector General has reported that financial assurance requirements for another waste management program, which the requirements for deep injection wells mirror, may not be adequate to close facilities; an EPA working group is also reviewing similar aspects of financial assurance requirements for a different type of injection well for possible changes.

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# Contents

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<b>Letter</b>		<b>1</b>
	Results in Brief	3
	Background	5
	Community Concerns Could Be More Comprehensively Addressed Before Draft Permits Are Completed	9
	Environmental Justice Concerns Are Addressed during the Permitting Process and in Response to Civil Rights Complaints	14
	Financial Assurance Requirements May Not Be Adequate for Closing Wells	17
	Conclusions	22
	Recommendations for Executive Action	23
	Agency Comments	23

---

<b>Appendix I</b>	<b>Chronology of Events for the Construction of Deep Injection Wells by the Environmental Disposal Systems Company</b>	<b>26</b>
-------------------	--	-----------

---

<b>Appendix II</b>	<b>Scope and Methodology</b>	<b>29</b>
--------------------	------------------------------	-----------

---

<b>Appendix III</b>	<b>Comments from the Environmental Protection Agency</b>	<b>31</b>
---------------------	--	-----------

---

<b>Appendix IV</b>	<b>GAO Contacts and Staff Acknowledgments</b>	<b>36</b>
--------------------	---	-----------

---

<b>Table</b>		
	Table 1: Status of Title VI Complaints Filed with EPA’s OCR (October 1,1993, through May 5, 2003)	17

---

<b>Figures</b>		
	Figure 1: Construction Design for a Class I Deep Injection Well	7
	Figure 2: UIC Deep Injection Well Permitting and Public Comment Processes	11

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## List of Abbreviations

EAB	Environmental Appeals Board
EDS	Environmental Disposal Systems, Inc.
EPA	Environmental Protection Agency
MDEQ	Michigan Department of Environmental Quality
NAPA	National Academy of Public Administration
OCR	Office of Civil Rights
OIG	Office of Inspector General
RCRA	Resource Conservation and Recovery Act
RECAP	Romulus Environmentalists Care About People
SDWA	Safe Drinking Water Act
TCEQ	Texas Commission on Environmental Quality
UIC	Underground Injection Control

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United States General Accounting Office  
Washington, DC 20548

June 13, 2003

The Honorable Lynn C. Woolsey  
House of Representatives

Dear Ms. Woolsey:

Billions of gallons of hazardous liquid waste are injected into underground wells each year. These wells, known as Class I deep injection wells, are built to contain hazardous waste—from the pharmaceutical, chemical manufacturing, and metalworking industries, among others—below the lowest underground source of drinking water. Class I deep injection wells may either be owned and used by a facility to handle the waste it generates itself (noncommercial wells) or may be wells operated by companies that accept waste from multiple facilities and may be far from any particular waste-generating site (commercial wells).<sup>1</sup> Thirteen commercial wells operate in the United States; they are located in Louisiana, Ohio, and Texas. In addition, two commercial wells have been constructed in Michigan but are not yet operating. Under the Safe Drinking Water Act (SDWA), the Environmental Protection Agency (EPA) is responsible for establishing standards for and issuing permits for the construction and operation of these wells. EPA can authorize states to administer the program—giving them primacy—as long as the state requirements are at least as stringent as the federal requirements. EPA has granted primacy to Louisiana, Ohio, and Texas. Michigan has not applied for primacy and has no plans to do so because it does not believe it has enough wells to warrant devoting staff and resources to permitting and regulating them.

In order to operate a commercial well that accepts hazardous waste, well owners need to obtain several different permits that establish conditions, including requirements under EPA regulations. First, under the Underground Injection Control (UIC) program, owners must obtain a construction permit, which, among other things, specifies how the well is to be constructed to prevent the injected waste from migrating to sources of drinking water. The wells must also be located in geologically suitable areas—areas that are not susceptible to earthquakes—to ensure that the

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<sup>1</sup> This report focuses only on commercial Class I wells that accept hazardous waste, which are of greater concern to communities.

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waste will not migrate. Second, under the Resource Conservation and Recovery Act (RCRA), owners must obtain a permit to ensure that any above-ground treatment and storage facilities can be operated safely; owners frequently treat and store the waste on the surface before injecting it below ground. Under RCRA, they must also demonstrate that injected waste will be contained within a defined underground area. Finally, owners must have a UIC operating permit from EPA or the state before injecting any waste. Both UIC and RCRA regulations require EPA or the state to obtain public comments before they issue permits.

According to a 2001 EPA study of the risks associated with Class I wells, deep injection wells are relatively safe.<sup>2</sup> Nonetheless, communities where commercial wells are located have raised concerns about the hazards that these wells may pose. In particular, they point out that the aboveground activities at the well site, such as trucks that transport waste and treatment and storage facilities that handle waste, increase the possibility of accidental hazardous waste spills, noise, and odor pollution, and may reduce property values.

Several grassroots and environmental organizations have also voiced environmental justice concerns, charging that low-income, minority communities are unfairly targeted as locations for hazardous facilities of all types, including commercial deep injection wells. Executive Order 12898, issued in 1994, directs federal agencies, as appropriate, to identify and address the disproportionately high and adverse health and environmental effects of its programs, policies, and activities on minority and low-income populations. Although this order does not create a right to judicial review, individuals who have environmental justice concerns may file a petition for review with EPA's Environmental Appeals Board, if EPA is the involved party, or a Title VI complaint with EPA's Office of Civil Rights, if the involved party is a recipient of EPA financial assistance, such as a state office.

Finally, EPA requires a Class I well owner or operator to establish financial assurance to cover the estimated cost of the plugging and abandonment of the well. Financial assurance can be provided in several approved forms, such as trust funds or as surety bonds. Each year, the

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<sup>2</sup> U.S. Environmental Protection Agency, *Class I Underground Injection Control Program: Study of the Risks Associated with Class I Underground Injection Wells* (Washington, D.C.: 2001).

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owner or operator must review the cost estimate on which the financial assurance is based to determine whether it is still adequate to cover anticipated costs due to inflation and make any needed changes.

You asked us to examine the extent to which EPA and the states (1) address community concerns in permitting well construction, (2) address environmental justice issues in the construction permit process, and (3) ensure that financial assurances adequately protect the taxpayers if an owner goes bankrupt. To address these issues, we, among other things, examined the permitting process in the four states that have commercial Class I deep injection wells: Louisiana, Michigan, Ohio, and Texas. Because Michigan does not have primacy, EPA manages the permitting process.

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## Results in Brief

EPA requires opportunities for public comment on proposed commercial Class I deep injection wells during the permitting process, but these opportunities come late in the process and, therefore, may limit the extent to which community concerns are addressed. Specifically, for commercial wells, EPA must issue a public notice that a draft construction permit has been prepared; provide at least a 30-day comment period; hold public hearings, if needed; and issue final permit decisions and responses to public comments. However, EPA and the applicant may have worked together for more than a year to draft the permit before EPA releases it for public comment. Therefore, EPA and the well owner have already invested extensively in the draft permit and may be reluctant to change it as a result of community concerns. Furthermore, while EPA must respond to all public comments and could alter the draft permit in response to some community concerns under the Safe Drinking Water Act, EPA cannot deny a permit on the basis of community concerns if proposed wells meet all of the regulatory requirements. However, earlier public involvement would allow more time for individuals to approach appropriate state or local officials with their other concerns and potentially increase the likelihood that these concerns would be addressed and avoid project delays. For example, in Michigan, where EPA is the permitting authority, agency officials closely adhered to public participation requirements for the two wells under construction. However, community residents believed that their concerns were not fully addressed and filed legal actions and complaints to prevent the project's construction. These actions have delayed the project for many months. In contrast, the states with primacy have recognized the need for greater public involvement early in the permitting process. For example, Texas requires public involvement even before the state and the owner draft the construction permit. As a result,

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according to the National Academy of Public Administration, states have mitigated or avoided controversial issues and costly litigation surrounding the permitting of commercial Class I deep injection wells. We are recommending that the Administrator, EPA, involve the public earlier in the permitting process to allow more time for community concerns to be addressed.

EPA addresses environmental justice issues in two basic ways—first, as part of its process for deciding whether to issue a permit for well construction, and, second, in response to specific civil rights complaints filed with the agency after permits are issued. While EPA has yet to issue a national policy on environmental justice, it encourages regional offices that issue construction permits to determine if minority and low-income populations are disproportionately affected by a proposed well's location. Individuals and communities may appeal permit decisions with EPA's Environmental Appeals Board or file complaints under Title VI of the Civil Rights Act with EPA's Office of Civil Rights. Members of one community—Romulus, Michigan—have challenged EPA's approval of Class I deep injection well permits on environmental justice grounds. EPA's Environmental Appeals Board denied the community's petition for review because it found no basis for review. EPA's Office of Civil Rights also denied the Title VI complaint because it did not find any discrimination in violation of Title VI or EPA implementing regulations. Court decisions have recently limited the basis for filing Title VI complaints, making the process an unlikely avenue for changing permit decisions.

Current financial assurance requirements may not ensure adequate resources to close a commercial deep injection well in the event of bankruptcy or if the well ceases operations. According to EPA and state officials, the owners of the 13 operating wells have provided financial assurance, such as trust funds or surety bonds, that are sufficient to cover the costs of the plugging and abandonment of a well. While only four sites have gone into bankruptcy or have ceased operating since the program began in 1980, two did not have adequate financial resources to plug and abandon the wells; for the other two, financial assurance was not tested because other companies purchased and continued operating the wells. Both sites that did not have adequate financial resources involved unique circumstances but demonstrate there is a potential burden to taxpayers if financial assurance requirements are not adequate. In one case, the insurance company that issued the surety bonds for the owner's two wells cancelled the bonds, leaving the company without financial assurance. In 1997, citing several environmental problems and the owner's lack of cooperation with federal requirements, the state revoked the owner's



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UIC and RCRA permits. EPA assumed responsibility for this site under the Comprehensive Environmental Response, Compensation and Liability Act (Superfund), and is currently overseeing the cleanup of the site and identifying primary responsible parties to participate in conducting and funding the site's remediation. In a second case, a company seeking a UIC construction permit allowed its financial assurance to expire as it tried to resolve issues resulting from the death of the company's owner. The state is currently negotiating with the owners to determine who will pay for the closure. In March 2001, EPA's Office of Inspector General reported that certain financial assurance requirements for RCRA facilities, which the deep injection well requirements mirror, may not adequately ensure sufficient resources to properly close facilities. An EPA working group is also reviewing similar aspects of financial assurance requirements for a different type of injection well for possible changes, but not Class I deep injection wells. We are recommending that the Administrator, EPA, review and, if warranted, strengthen financial assurance requirements.

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## Background

Disposing of wastewater through underground wells began in the 1930s, when oil companies started pumping brine produced from oil and gas production into porous rock formations underground. This disposal method is more cost effective than treating and reusing wastewater. This disposal method was increasingly used by the chemical and petrochemical industries in the 1960s and 1970s, and EPA raised concerns that injected waste could contaminate underground drinking water. Underground water supplies are used to provide about 50 percent of the public water in the United States and are vulnerable to contamination. The Safe Drinking Water Act (SDWA) of 1974 authorized EPA to regulate underground injection wells in order to protect drinking water sources. EPA published regulations establishing the Underground Injection Control (UIC) program in 1980, specifying safeguards to prevent injection wells from endangering underground sources of drinking water.

The UIC program encompasses five classes of underground wells. Class I wells, which are the focus of this report, inject hazardous and nonhazardous waste from manufacturing and other sources below the lowermost underground source of drinking water located within a quarter mile of the well. Approximately 500 Class I wells operate nationwide, many concentrated in midwestern and southern states. The other four classes range from Class II wells involved in oil and natural gas production to Class V wells that include waste from agricultural runoff and septic systems.

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Of the 473 Class I deep injection wells that exist nationwide, only 13 wells are at commercial sites that accept and inject hazardous waste from various manufacturing facilities, according to the most recent EPA data (2001). Two more commercial wells have been constructed in Michigan and are awaiting final approval for operation. The other noncommercial Class I wells are owned by companies that use them exclusively to dispose of their own manufacturing waste. Because hazardous waste is injected into Class I wells, EPA imposes stringent technical requirements on the wells to protect drinking water supplies through both UIC and RCRA regulations.

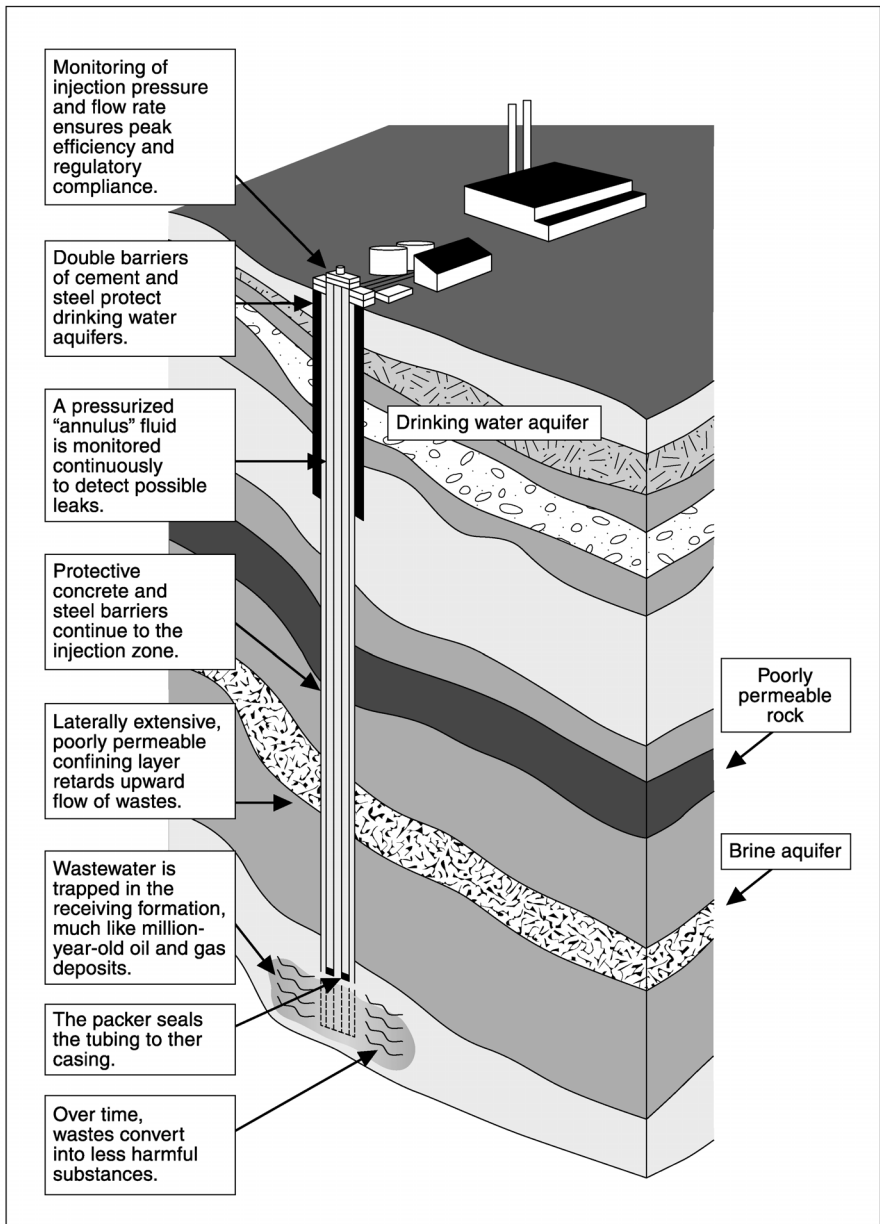
Class I hazardous well owners and operators must meet certain requirements to construct a well. For example, they must review the area to ensure that the site is geologically suitable. One purpose of this review is to ensure that other existing or abandoned wells nearby do not provide avenues for the injected waste to enter underground sources of drinking water.

To obtain final approval to operate a deep injection well, owners and operators are required to, among other things

- properly design the well to ensure that the waste will not migrate into an underground source of drinking water;
- assure that injection pressure does not cause fractures in the injection zone or migration of fluids;
- provide plans for closing the well and post-closure care;
- demonstrate and maintain financial assurance (trust fund, bond, or other approved forms) to ensure that the well can be properly plugged and abandoned;
- establish monitoring and reporting requirements; and
- demonstrate that the injected waste will not migrate beyond the injection zone for 10,000 years, if otherwise prohibited hazardous waste will be injected into the well.

Well owners must design and construct a well shaft that is made of three or more protective layers of pipe or tubing that go into the injection zone. Wastewater is injected through the innermost part of the constructed well shaft, referred to as the injection tubing. (See fig. 1.)

**Figure 1: Construction Design for a Class I Deep Injection Well**



Source: EPA.

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Owners of Class I injection wells must obtain RCRA permits if they plan to treat and store waste before injecting it. These permits are for building and operating treatment and storage facilities. RCRA prohibits the land disposal of restricted hazardous waste unless EPA determines the prohibition is not required in order to protect human health and the environment for as long as the waste remains hazardous. Under UIC program regulations, EPA requires owners to demonstrate, among other things, that, to a reasonable degree of certainty, the restricted hazardous waste will not migrate out of the injection zone for 10,000 years. EPA determines compliance with this requirement through its computer simulation models, which the owners use to enter their specific data to demonstrate the movement of injected waste under certain geologic conditions. If the owner successfully demonstrates that waste will not migrate out of the injection zone, EPA will grant an exemption to the RCRA regulation, sometimes referred to as a land ban petition or a no-migration petition.

The permitting of deep injection wells can raise environmental justice concerns within a community, and permit decisions may be challenged based on environmental justice concerns. Executive Order 12898, issued in 1994, directed federal agencies to incorporate environmental justice as part of their missions. Agencies are to identify and address disproportionately adverse human health or environmental effects on minority or low-income populations of their programs, policies, or activities. Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in any program or activity that receives federal funding; individuals may appeal permit decisions if they believe the prohibited discrimination occurred. Section 601 of the act prohibits intentional discrimination on the basis of race, color, or national origin in programs or activities receiving federal financial assistance. Section 602 provides federal departments or agencies with the authority to issue rules or regulations implementing the objectives contained in section 601.

To ensure that financial resources are available to close wells if they cease operation, EPA requires financial assurance from owners under the UIC and RCRA programs. Owners must provide financial assurance for plugging and abandonment of wells and closing associated RCRA treatment and storage facilities. For both the UIC and RCRA programs, owners can provide financial assurance through approved methods such as trust funds, surety bonds, letters of credit, or insurance. The amount of financial assurance needed is based on the estimated cost of the plugging and abandonment of the well or closing the treatment and storage facility.

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For example, the estimated cost for plugging and abandonment of one well in Michigan was \$25,000, while the estimate for another well in Ohio was \$250,000; the variation in cost was due to difference in the sizes and depths of the two wells. Each year owners must also certify that the financial assurance is adequate and make any necessary changes to the type or amount of financial assurance.

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## Community Concerns Could Be More Comprehensively Addressed Before Draft Permits Are Completed

Under EPA regulations, communities can raise concerns during the required public comment process for deep injection well permits after a draft permit is issued. EPA bases final approvals on whether a proposed well meets technical and safety requirements under its regulations and does not have authority under the Safe Drinking Water Act to deny a permit on the basis of other concerns. Earlier public involvement would allow more time for individuals to approach appropriate state or local officials with any other concerns. When states are the permitting authority, they provide more and earlier opportunities for obtaining community concerns. The National Academy of Public Administration believes that states can pay more attention to these concerns than EPA can and that these actions mitigate or avoid controversial issues and possible litigation.

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## EPA Completes Draft Permits Before Addressing Public Concerns

EPA regional offices, or state offices for states with primacy, obtain information about community concerns regarding UIC permits through public comment processes. These offices first request public comments after working with a prospective well owner to complete a draft permit, which may take as long as 2 years for a construction permit. When the draft is complete, EPA or state officials establish a list of interested parties—citizens and local government representatives—and mail a fact sheet describing the proposed well.<sup>3</sup> The public must be given at least 30 days from the date of the draft permit notice to submit written comments or request a public hearing, in which case the hearing time and place are also published in the local newspapers. Last, EPA or a state office makes a final permit decision and prepares written responses to the public comments. Figure 2 shows the permitting process, including opportunities for public comment.<sup>4</sup>

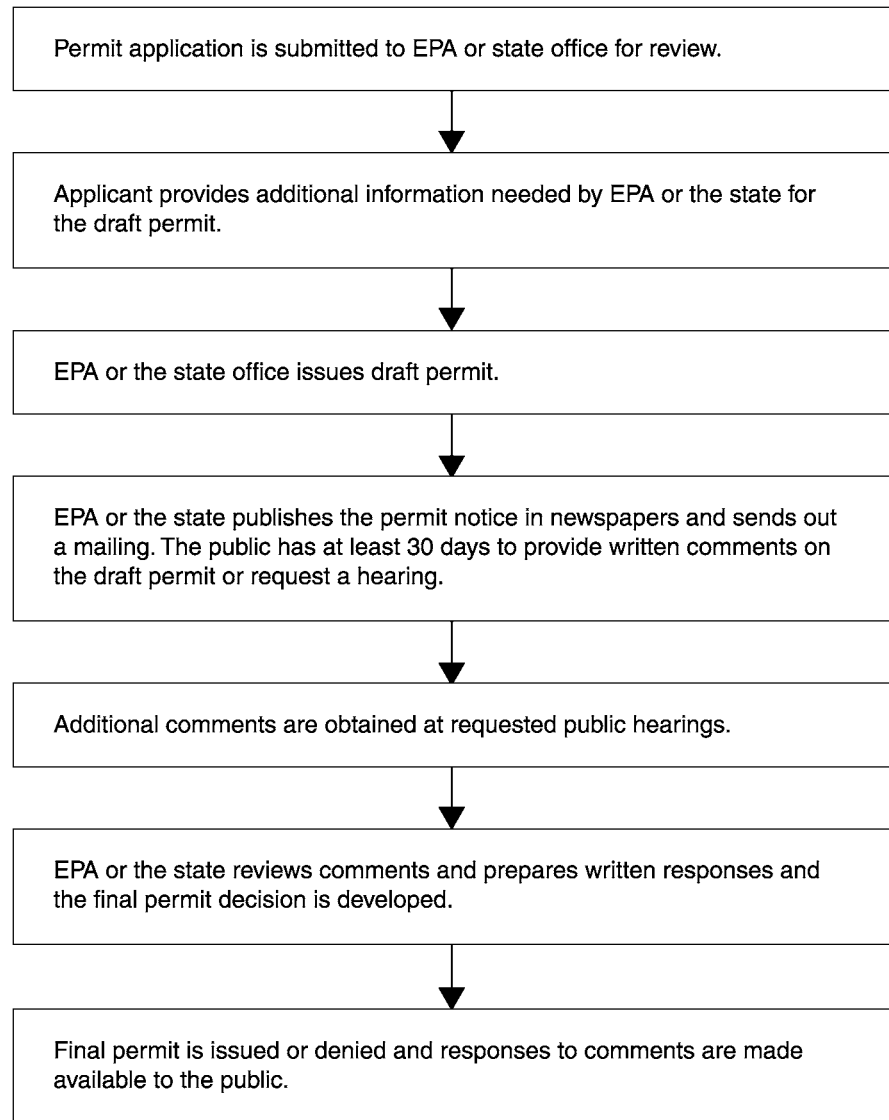
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<sup>3</sup> For EPA-administered programs, the permit applicant must submit a list of all owners or record of land within a quarter mile of the facility boundary, unless the area is populous and the EPA Regional Administrator determines this is impractical.

<sup>4</sup> 40 CFR Part 124 and 40 CFR Parts 144, 146, and 148 set forth the public participation process requirements and the permitting and operational requirements, respectively, for the Underground Injection Control program.

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**Figure 2: UIC Deep Injection Well Permitting and Public Comment Processes**



Sources: EPA and GAO.

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Because the agency and the prospective well owner have already expended time and resources to develop the draft permit, communities have raised concerns that the opportunity for commenting on the proposed construction permit is often too late in the process to have any effect. EPA does not have authority under the Safe Drinking Water Act to deny a permit if it meets technical and safety requirements, even if the application raises other community concerns. We also believe that, after this much investment, well owners may not be as willing to make changes in their planned operations and communities may not have enough time to contact appropriate state and local officials to have their nontechnical concerns addressed.

Both EPA and the National Academy of Public Administration (NAPA) have noted the importance of getting the public involved early in the permitting process.<sup>5</sup> For example, in January 2001, EPA reported that it is important to involve the public early in its decision-making process because stakeholders (such as owners or city officials) and the public have perspectives that can greatly improve the quality of decision making.<sup>6</sup> Similarly, in December 2001, NAPA raised concerns about how the public has missed opportunities to provide timely input in the permitting process. Without timely participation, the public is less able to affect important decisions at the state and local level, such as site location.

Not providing an opportunity for early public involvement may result in extensive community opposition to proposed wells. For example, the two proposed wells in Romulus, Michigan generated extensive opposition. Community concerns included issues such as possible damage to the interstate highway as a result of increased traffic traveling to the wells. EPA only has authority to base permitting decisions on SDWA requirements and does not consider the impact of traffic on the interstate highway or the safety of transporting hazardous waste to Class I facilities. These particular wells have generated substantial public comment and legal action by community members. In 1996, the applicant, Environmental

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<sup>5</sup> National Academy of Public Administration, *Environmental Justice in EPA Permitting: Reducing Pollution in High-Risk Communities is Integral to the Agency's Mission* (Washington, D.C.: December, 2001). The study was conducted at EPA's request to examine how environmental justice could be incorporated into EPA's air, water, and waste permitting programs.

<sup>6</sup> U.S. Environmental Protection Agency, Office of Policy Economics, and Innovation, *Stakeholder Involvement and Public Participation at the U.S. EPA* (Washington, D.C., 2001).



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Disposal Systems (EDS), applied for a construction permit. The public was first notified of the draft permit 15 months later. After another 2 years, and significant public comments, EPA issued the construction permit without significant modifications. As of April 2003, EPA was still engaged in resolving community concerns through public hearings relating to the no-migration petition.

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### Some States Require Community Concerns to Be Addressed Early in the Permitting Process

Recognizing the importance of public involvement in making decisions that affect the environment, Texas, Ohio, and Louisiana have gone beyond the federal minimum public notice and comment requirements to address community concerns. For example, the Texas Commission on Environmental Quality (TCEQ) must notify the public when it first receives a completed permit application—unlike EPA, which requires public notification after the permit is drafted. Texas’s process increases the opportunity for the public to provide comments at a point when the state can better address the comments. In addition, in making permitting decisions, TCEQ must determine that the well is in the public interest, considering the following issues:

- compliance history of the applicant;
- whether the applicant will maintain adequate insurance for bodily injury and property damage caused by accidents, or will otherwise demonstrate financial responsibility; and
- whether there is a reasonably available practical, economic, and feasible alternative to an injection well.

In addition, the well must not impair existing rights, including mineral rights. If the well is not in an industrial area, the applicant must make a reasonable effort to ensure that the burden on local law enforcement, emergency medical or fire-fighting personnel, or public roadways will be reasonably minimized or mitigated.

All three states have also enacted additional requirements to address community concerns. For example, under its RCRA program, Texas requires that new commercial hazardous waste management facilities, including those associated with Class I deep injection wells, be more than 2,640 feet from an established residence, church, school, day care center, surface water body used for a public drinking water supply, or public park.

States have also taken other steps to address community concerns. For instance, for one commercial Class I deep injection well in Ohio, state officials assisted a community in speaking directly with the prospective

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well owner. During these discussions, community residents raised concerns about transporting waste under dangerous weather conditions and the increased likelihood of spills. In response, the company agreed not to transport waste to the well site during adverse weather conditions.

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## Environmental Justice Concerns Are Addressed during the Permitting Process and in Response to Civil Rights Complaints

EPA addresses environmental justice issues during the process for deciding on a construction permit and when civil rights complaints are filed with the agency after permits are issued. While EPA has yet to issue a national policy on environmental justice, some regional offices have independently developed and implemented their own guidelines for considering environmental justice during their decision-making processes. After permit decisions are made, individuals and communities may raise environmental justice issues by appealing permit decisions with EPA's Environmental Appeals Board or filing complaints under Title VI of the Civil Rights Act with OCR. Recent court decisions, however, have limited the basis for filing these complaints, making the process an unlikely avenue for changing permit decisions. EPA's Title VI regulations and administrative processes for Title VI complaints remain in effect.

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## EPA Regions Are Encouraged to Consider Environmental Justice Issues for Proposed Well Sites

In 1995, in response to Executive Order 12898, EPA incorporated environmental justice considerations into its approval process for construction permits. Under EPA's strategy, staff must integrate environmental justice into every EPA program, policy, and activity. EPA's Office of Environmental Justice oversees the implementation of environmental justice, and it has drafted national guidance that will assist EPA staff in evaluating potential environmental justice concerns and taking actions to address them. To date, the national guidance has been reviewed internally within EPA, but EPA has not yet published it for comment in the *Federal Register*. In reviewing the draft guidance, EPA's Office of General Counsel raised a number of policy concerns that will be resolved before the guidance is released for public comment. As of May 2003, Office of Environmental Justice officials could not say when the guidance would be released for public comment.

In the absence of national EPA guidance on environmental justice, EPA's offices in regions V and VI have developed guidelines for evaluating potential environmental justice considerations; these regions cover the four states that have commercial Class I deep injection wells. Regional officials said that environmental justice assessments are routinely being performed for Class I deep injection wells, although the regional guidelines only encourage EPA staff to conduct an assessment that

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considers demographic make up and the potential health risks that the site might pose to area residents. For example, in assessing demographics for issuing a permit for a facility, such as a waste treatment facility, staff in EPA region V would determine whether the number of low-income and minority residents living within a specific radius of the facility is greater than or equal to two times the average low-income and minority population in the state. If that were the case, EPA staff would conduct community outreach efforts, such as holding public meetings or workshops, to better understand and respond to community concerns. Regional officials said they might decide that issuing a permit would present additional risks to a community already affected by other environmental sites and they would, therefore, impose special permit requirements, such as limiting the amount of waste injected into wells or requiring increased monitoring, to ensure safe operation. EPA region VI has performed demographic analyses on all current Class I deep injection wells and will perform them on any new Class I deep injection wells that submit no-migration petition applications in the future.

Officials from the three states that have primacy for deep injection wells—Louisiana, Ohio, and Texas—told us that they are not required under state law to specifically consider environmental justice issues during permitting processes. However, Title VI prohibits discrimination in any program that receives federal funds. The state officials were not aware of any communities that had raised environmental justice concerns.

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### Individuals Can Raise Environmental Justice Concerns through Civil Rights Complaints Filed with EPA

Individuals or communities with environmental justice concerns may file petitions with EPA's Environmental Appeals Board (EAB) to review permit decisions or file complaints under Title VI of the Civil Rights Act with EPA's Office of Civil Rights (OCR). These complaints involve a broad range of facility permit decisions, not just deep injection wells. Members of only one community—Romulus, Michigan—have challenged permit decisions for a commercial Class I deep injection well on environmental justice grounds. In 1998, two individuals filed petitions with EAB to review EPA's issuance of construction permits to Environmental Disposal Systems (EDS). Among other things, the petitions claimed that (1) the permits and EPA's response to written comments were not provided in a timely manner for public review to two libraries, (2) EDS should be required to conduct a survey of the surrounding area to determine the location of other deep injection wells because the Michigan Department of Environmental Quality information was unreliable, and (3) the EPA environmental justice demographic analysis was flawed because it used data from a 2-mile radius instead of a 4-mile radius, which would have included a larger minority population. In October 1998, the EAB concluded

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that the petitions did not provide a basis for review of the permit decision. Specifically, the board found that the alleged delay in permit notification and responses to comments did not affect the petitioner adversely because EPA provided 6 extra days for public comments. Regarding the survey for other wells, the EAB stated that the petitioner did not provide any support for his claim that data from the Michigan Department of Environmental Quality was unreliable. The EAB stated that the region did not rely only on this data and that there was no indication that EPA's conclusion was erroneous. Lastly, regarding the use of the 2-mile radius for the demographic analysis, the EAB deferred to the EPA region's decision that 2 miles was an appropriate radius for the analysis, stating that determining the radius is a highly technical judgment based on the probable dispersion of pollutants.

Another Romulus citizen filed a Title VI complaint with EPA's OCR, which was accepted for review in December 2001, raising three issues regarding Michigan's RCRA permit decisions on the sites' treatment and storage facilities. (Michigan has primacy for RCRA.) Two of these issues concerned procedural matters which OCR rejected. OCR dismissed the third issue: that citizens of Romulus were disproportionately exposed to pollution and other environmental dangers. OCR found that the facility would not adversely impact the community because EPA had concluded that the wells would not damage water, air, or soil quality, nor would they increase noise pollution. Moreover, OCR found that the potential facility impacts would not have a disparate effect on African-Americans for Title VI purposes. A chronology of the events for the EDS site is presented in appendix I.

Since 1992, in addition to the Romulus petition, EAB has received one other petition involving environmental justice concerns related to a Class I deep injection well. In that case, which involved a noncommercial well in Michigan, individuals claimed that the well permits should be denied because the area surrounding the site was already host to numerous burdensome land uses and that the 2-mile area analyzed by EPA was too small to allow for proper evaluation of the sociological, health, and financial impacts. The board rejected these claims and denied review on these issues, stating that the petitioner had failed to show that the permit would not protect drinking water sources of populations within 2 miles of the well site or that citizens at a greater distance would not be protected. Since 1993, OCR has received 135 Title VI complaints—including complaints not related to deep injection wells. Most of these complaints—91—were rejected for investigation or dismissed. Table 1 shows the disposition of all Title VI complaints as of February 2003.

**Table 1: Status of Title VI Complaints Filed with EPA’s OCR (October 1,1993, through May 5, 2003)**

Status of reviews	Number of cases
<b>Pending</b>	
Under review for possible investigation/rejection/referral	6
Accepted for investigation	26
Suspended because complaint is part of other litigation	7
<b>Closed</b>	
Rejected for investigation or dismissed after acceptance	94
Referred to another federal agency	2
Informally resolved	2

Sources: EPA and GAO.

Recent court decisions have limited the basis for filing Title VI complaints, making the process an unlikely avenue for challenging permit decisions. In 2001, the Supreme Court ruled that individuals do not have a cause of action for violations of disparate impact regulations—those regulations which prohibit activities that are not intentionally discriminatory but which, in fact, that have the effect of discriminating.<sup>7</sup> Later in 2001, the U.S. Court of Appeals for the Third Circuit, relying on the Supreme Court decision, held that individuals could not challenge disparate impact regulations and that Title VI only prohibits intentional discrimination.<sup>8</sup> The federal government, however, can still bring enforcement actions.

## Financial Assurance Requirements May Not Be Adequate for Closing Wells

It is uncertain whether the financial assurance requirements for closing deep injection wells can adequately provide the needed financing in cases of owner bankruptcy or other events that force well closure. EPA and state officials believe that financial assurance requirements are adequate and would cover the closing costs for the 13 commercial wells currently in operation. While only four sites have ceased operation since the UIC program began in 1980, two did not have adequate financial resources to plug and abandon the wells, resulting in additional costs to taxpayers. For two other sites, the financial assurance was not tested because other companies purchased and continued operating the wells. EPA has questioned the adequacy of similar aspects of financial assurance requirements in other programs. In 2001, EPA’s Office of Inspector

<sup>7</sup> Alexander v. Sandoval, 532 U.S. 275 (2001).

<sup>8</sup> *South Camden Citizens in Action v. New Jersey*, DEP, 274 F.3d 771 (3rd Cir. 2001).

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General stated that financial assurance requirements for RCRA facilities, on which financial assurance requirements for deep injection wells were based, needed improvement, and EPA is currently requesting public comments on the Inspector General's conclusions and recommendations. EPA has also initiated an internal review of financial assurance requirements for Class II oil and gas deep injection wells because of concerns that aspects of current requirements, similar to aspects of the Class I deep injection well requirements, may not be adequate.

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**Adequate Financial Resources Have Not Always Been Available for Plugging and Abandonment of Deep Injection Wells**

When owners of commercial Class I wells have filed for bankruptcy or ceased operating, they have not always had adequate financial resources to cover the costs of plugging and abandonment of wells. Since 1980, when the deep injection well program began, four owners have filed for bankruptcy or ceased operating. In two cases, the adequacy of the financial assurance was not tested because other companies purchased and continued operating the wells. The new owners, according to state officials, provided adequate financial assurance for these two sites. Two other sites did not have adequate financial resources to shut down the wells. In one case, the owner did not have adequate financial assurances in place as required. The second case, although no permit was granted and thus the financial assurance requirements were not tested, demonstrates the potential cost to the public if adequate financial resources are not available. Both of these cases occurred in Texas.

**Malone Services Company Deep Injection Wells**

Malone Services Company operated two wells under state-issued UIC and RCRA permits. In 1983, to meet the UIC financial assurance requirements, the company provided a surety bond as financial assurance for the wells. In 1988, the insurance company that had issued the bond cancelled it, leaving the company without financial assurance for the wells. In 1992, the company submitted a new surety bond issued by a different insurance company to meet its financial assurance requirements; however, the state did not accept this assurance because the insurance company issuing the bond was not an acceptable insurance provider.<sup>9</sup> In 1997, citing several environmental problems relating to UIC and RCRA requirements for monitoring, testing, reporting, and financial assurance and the owner's lack of cooperation, the state revoked the company's UIC and RCRA

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<sup>9</sup> 40 CFR §144.63 states that at a minimum the insurer must be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.

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Wastewater, Inc.,  
Deep Injection Well

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permits. In July 1998, the state attorney general filed a petition to put Malone Services Company into involuntary bankruptcy. Although state officials were not concerned that the injected waste would migrate outside of the approved injection zone, they were concerned about aboveground contamination from surface spills. The surface had become so highly contaminated that the site was classified as a Superfund site in June 2001, with EPA leading cleanup activities. As of May 2003, EPA is overseeing the Superfund cleanup and is using the well to dispose of liquid waste as part of the site cleanup. In addition, EPA is contacting the primary responsible parties, including the owner and the companies that sent waste to the site, to encourage their participation in conducting and funding the site remediation, in lieu of reliance on federal funds.

In 1979, Wastewater, Inc., began converting a well originally used for oil and gas exploration to an injection well. This conversion, which was conducted under the authority of Texas Department of Water Resources, took place 1 year before the federal UIC program began and 3 years before Texas obtained primacy for the program. When it received primacy, Texas required the company to reapply for a new UIC well permit for construction and operation so that the state could issue the permit based on the recently enacted federal UIC regulations, including the requirement to provide adequate financial assurance.<sup>10</sup> The company submitted a UIC permit application to the state in July 1982 and provided a letter of credit for financial assurance in July 1983. However, Texas never approved the 1982 application because the company requested that the state suspend the application process while it resolved issues resulting from the death of the company's owner. In 1992, the company asked the state to withdraw its application. In April 1998, the letter of credit for financial assurance expired, but the company had ceased operating.

In May 2000, the state issued an enforcement order requiring the company to plug the well. As of May 2003, the company had not done so, because officials from the company that was formed after the bankruptcy—Future Environmental Systems—were still discussing with state officials the possibility of applying for an operating permit and providing adequate financial assurance. While the well needs to be closed for safety reasons, it does not pose immediate environmental concerns because construction was not completed and waste had not been injected into the well,

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<sup>10</sup> Rather than issuing both a construction permit and an operating permit, as EPA and some states do, Texas issues a permit to "construct and operate."

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according to EPA and state officials. If the company does not provide adequate financial assurance and obtain authorization to operate the well, the state will try to compel the company to close the well and, if unsuccessful, will use its own funds to close it.

EPA and state officials responsible for overseeing the 13 commercial Class I wells currently in operation believe that the owners' or operators' financial assurances provide enough funds to close their wells in the event of bankruptcy. Seven of these well owners or operators have provided financial assurance through insurance policies, while the other wells rely on other forms of financial assurance.

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### Uncertainties Exist about the Adequacy of Financial Assurance Requirements in Other Programs

Uncertainties about the adequacy of RCRA financial assurance requirements have been raised by EPA officials, and EPA's Office of Inspector General (OIG) recommended changes to the requirements in March 2001. UIC financial requirements are based on RCRA requirements and, therefore, the OIG recommendations are relevant to the UIC program. According to the OIG, the risk associated with financial assurance provided by insurance, surety bonds, and trust funds may be higher than EPA initially estimated for its financial assurance regulations, and funds may not be available when needed.<sup>11</sup> Specifically, for state financial assurance programs for RCRA facilities, insurance provided by captive insurance companies may be inadequate for covering closure and post-closure costs. Captive insurance companies are wholly owned subsidiaries of the corporation they are insuring; if the parent company experiences financial difficulty, state financial assurance programs can have little confidence that the captive insurance company will provide the funds needed to pay for closure. These insurance policies are also high risk if they cannot be assigned to different owners when a RCRA facility is sold. The OIG recommended that EPA issue guidance for state financial assurance programs to reduce risks associated with insurance policies and that EPA investigate complex insurance issues with states to determine whether additional guidance is needed.

The OIG report also noted that state officials had difficulty determining whether the dollar amounts provided for financial assurance were adequate to cover all costs for closing facilities. Program officials

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<sup>11</sup> U.S. Environmental Protection Agency, Office of Inspector General, *RCRA Financial Assurance For Closure And Post-Closure*, (Washington, D.C.: 2001).



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reviewing financial assurance statements often rely on subjective judgment and are unaware of automated information available to assist in their reviews. This situation prompted the OIG to recommend that EPA help states obtain the automated information for reviewing cost estimates.

In October 2001, responding to the OIG report, EPA requested public comments on the report's conclusions.<sup>12</sup> Specifically, EPA requested comments from the states, the insurance industry, and the regulated community on the need for additional guidance on insurance used as financial assurance for RCRA facilities. In addition, EPA requested comments on any additional requirements for insurers in general, such as a possible requirement that insurers have a minimum rating from commercial rating services. By requiring insurers to have ratings that reflect relatively strong financial conditions, EPA expects to reduce the risk to the agency or to a state if the insurer fails to provide the funding required for closing a facility. According to an EPA official, as of May 2003, the agency is continuing to review the public comments received and will then decide whether proposed changes to financial assurance requirements are needed. The agency has not set a specific time frame for proposing changes.

In July 2002, EPA also formed a UIC work group to review the adequacy of financial assurance requirements for Class II oil- and gas-related injection wells, but not Class I deep injection wells because of their relatively small number. However, the concerns about adequacy are similar. The work group was formed because EPA officials recognized that the requirements, issued in 1984, might need updating and because regional offices were not implementing the requirements consistently. Specifically, the regional offices were not using a standard approach for calculating the plugging and abandonment costs, which posed problems for operators with permitted facilities in more than one EPA region. Officials also observed that under present economic conditions it is increasingly difficult for owners to meet the financial assurance requirements, but failure to do so risks contaminating underground drinking water sources. The work group is to

- identify financial assurance alternatives to those currently in use,
- develop guidance for providing consistency in calculating plugging and abandonment costs,

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<sup>12</sup> 66 Fed. Reg. 52192 (Oct. 12, 2001).

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- determine whether states are requiring adequate financial assurance for plugging and abandonment of injection wells, and
  - prepare possible modifications of the financial assurance language contained in the SDWA.

The work group expects to complete all of its objectives by April 2004.

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## Conclusions

The public participation process EPA currently uses is not as effective as it could be in addressing the broad range of community concerns about Class I deep injection wells. Because EPA's current requirements call for the agency to notify the public after it drafts the permit, rather than when it receives a permit application, we believe the process is essentially too late to have a meaningful effect, and that it reduces public confidence in the process. In contrast, when states involve the community early, they have experienced better community relations—which EPA believes is important and wants to achieve—and have avoided costly, time-consuming delays.

The ultimate test of whether financial assurances are adequate is an owner's bankruptcy. If an owner declares bankruptcy and the financial assurances are found to be inadequate, drinking water sources may be at risk and the public may be required to bear the cost of closing a well. Consequently, any uncertainties about the adequacy of financial assurances need to be minimized. Both the potential burden to the taxpayer if adequate financial resources are not available and the potential problems pointed out by the OIG and by EPA's own working group call for action to review and improve these requirements to determine if improvements are necessary.

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## Recommendations for Executive Action

To allow more time for community concerns to be addressed, we recommend that the Administrator, EPA, involve communities earlier in the permitting process for constructing a well.

Furthermore, to ensure that requirements are adequate to cover the costs of plugging and abandonment of Class I hazardous deep injection wells and thereby reducing the public's financial risk, we recommend that the Administrator, EPA, review and, if warranted, strengthen financial assurance requirements for Class I hazardous deep injection wells. In so doing, the Administrator should

- consider the applicability of the Office of the Inspector General's findings and recommendations for RCRA financial assurance, and
- consider the applicability of the results and recommendations of the ongoing work group for Class II wells.

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## Agency Comments

We provided a draft of this report to EPA for its review and comment. EPA did not agree with the report's conclusions and recommendations for improving the UIC program and stated that the report contained various factual and technical errors. We continue to believe that our report is accurate and that our recommendations are sound. We have made some changes to clarify our findings.

EPA raised several principal objections to the report. First, EPA stated that our report mischaracterizes its authority under the UIC program and the relevant scope of public involvement and comment; to this end it suggested that our report and recommendations attribute responsibilities to the UIC program beyond the scope of the SDWA. It was not our intent to attribute responsibilities to the UIC program beyond the scope of the SDWA and we have made clarifications to reflect that some community concerns are not within the scope of EPA's authority. The report clearly sets forth the public comment process that EPA follows and explains that the agency cannot deny a permit on the basis of community concerns if the permit applicant meet all regulatory requirements. While EPA does not have authority to address certain nontechnical community concerns under the SDWA, we believe that public involvement before the draft construction permit is issued would allow more time for the community to have its nontechnical concerns addressed at the state or local level. In addition, nothing in the SDWA precludes EPA from involving communities earlier in the permitting process, before draft construction permits are issued. Indeed, involving the community earlier in the process is consistent with, and in the spirit of, EPA's policy stressing the importance of early public involvement.

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Second, EPA stated that our report mistakenly implies a significant deficiency in the financial assurance requirements for deep injection wells and that this finding is inconsistent with a long history of success of financial assurance provisions for Class I wells. We disagree that the financial assurance requirements for deep injection wells have a long history of success, and we believe there is sufficient evidence to suggest a re-examination of these requirements. Our report describes instances in which owners have failed to provide adequate financial resources and demonstrates there is a potential burden to the taxpayer if financial assurance requirements are not adequate. EPA further states that our recommendation to review the financial assurance requirements inappropriately relies on experiences from another program (RCRA). We have clarified this section of our report to more clearly state that we are in fact discussing financial assurance requirements for the RCRA program. Nevertheless, we disagree that the lessons learned from the RCRA financial assurance requirements are inapplicable to Class I Hazardous deep injection wells. In the preamble to the final rule promulgating the financial assurance requirements for Class I hazardous deep injection wells, EPA stated that it had determined that most of the RCRA financial assurance requirements should apply to Class I wells. EPA noted that many wells have RCRA surface facilities that already must comply with RCRA requirements and that wells are major facilities that may require substantial resources to plug properly. We believe that this reasoning still applies today, and that it is appropriate for EPA to consider corresponding changes to the financial assurance requirements for Class I hazardous deep injection wells. EPA further states that our discussion of its financial assurance work group is misleading because the group is examining an entirely different class of well. Our report acknowledges that the EPA working group is examining the requirements for Class II oil and gas wells, but we believe that certain aspects of those wells, such as a standard method for calculating plugging and abandonment costs, may also be applicable to Class I wells. We have clarified our recommendation to state more directly that EPA should “consider” the results and recommendations from the working group for Class I wells.

Finally, EPA stated that the report contains factual and technical errors that it pointed out during the development of the report. We do not believe this assertion is fair or accurate. In accordance with GAO’s normal practice, based on oral comments received during our exit conference with EPA officials we incorporated changes into the draft report. While EPA may disagree with our interpretation of the facts, we are unaware of any other instances in which EPA provided factual or technical comments that we did not address. EPA’s comments and our detailed responses are in appendix III.

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We conducted our review from May 2002 through May 2003 in accordance with generally accepted government auditing standards. (See app. II for a detailed description of our scope and methodology.)

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. At that time, we will send copies to other appropriate congressional committees and the EPA Administrator. We will also make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov/>.

Should you or your staff need further information, please contact me on (202) 512-3841. Key contributors to this report are listed in appendix IV.

Sincerely yours,

A handwritten signature in black ink, reading "John B. Stephenson". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

John B. Stephenson  
Director, Natural Resources  
and Environment

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# Appendix I: Chronology of Events for the Construction of Deep Injection Wells by the Environmental Disposal Systems Company

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Environmental Disposal Systems (EDS) is interested in constructing and managing deep injection wells for treating and disposing of hazardous wastewater from various industries, including, steel production, food processing, automobile manufacturing, and oil and gas production. The company initiated the process in 1990 by applying for two Class I deep injection well construction permits. As of May 2003, EDS had not yet started operating the wells due to a myriad of events that caused delays, including relocating the well site, building a storage and treatment facility, participating in several public hearings, and facing challenges to EPA's permit decisions filed with EPA's Environmental Appeals Board and a Title VI complaint filed with EPA's Office of Civil Rights. EDS also needs a RCRA operating permit from the state to begin hazardous waste operations. EPA officials anticipate approving the no-migration petition in mid-2003, and at that time Michigan's Department of Environmental Quality will consider the issuance of the RCRA operating license. The following chronology details the significant events that occurred during this lengthy process:

- **1990**—EDS applied to EPA for construction permits for two Class I deep injection wells in Romulus, Michigan, which is located near the Detroit Metropolitan Airport. City council members supported the wells' construction, adopted a resolution welcoming EDS and, under an agreement with EDS, planned to receive around \$1 million in royalties from EDS once the wells began operating.
- **1991**—In August 1991, the Romulus City Council passed a resolution rescinding its earlier welcoming resolution to EDS. After obtaining relatively few public comments on the draft construction permits, EPA issued a final construction permit in October.
- **1993**—EDS had almost completed the construction of one well when significant public outcry developed because of the well's location within the city. Concerned members of the community were represented by an environmental group called Romulus Environmentalists Care About People (RECAP). As a result of this concern, the city of Romulus filed a lawsuit against EDS claiming that the wells were in an area that was not properly zoned for business activity. The city of Romulus won a preliminary injunction prohibiting any further activity by EDS and staying any further court proceedings until the city had exhausted its administrative remedies. Members of RECAP were elected to the Romulus City Council. The well that was under construction has since been plugged.
- **1995**—The local zoning board determined that the proposed well did not fall within acceptable uses for the district in which it was to be constructed. The board denied EDS's request for a variance.

- **1996**—The Wayne County Circuit Court affirmed both of the local zoning board's decisions. The state of Michigan passed a law requiring that any company accepting commercial hazardous waste for disposal in an injection well have treatment and storage facilities on site that have been permitted by the Michigan Department of Environmental Quality (MDEQ). Under the new law, EDS would need a storage and treatment facility construction permit from Michigan's Department of Environmental Quality (MDEQ) if it planned to construct and operate wells in Michigan. Also in 1996, because EDS was still interested in establishing its deep injection well business, EDS purchased additional land in Romulus near the Detroit Metropolitan Airport. In May, EDS applied to EPA for construction permits for two injection wells.
- **1997**—EPA issued draft construction permits in August and accepted public comments from September through October.
- **1998**—In March, after responding to a significant number of public comments on the draft construction permits, EPA issued permits for constructing the two wells. Members of the community raised environmental justice concerns, and two citizens filed appeals with EPA's Environmental Appeals Board raising a number of concerns about the wells, including environmental justice concerns. The board denied review.
- **1999**—EDS submitted its permit application to the state for the planned waste treatment and storage facilities for the wells. MDEQ officials found the application technically complete and arranged to obtain public comments on the draft permit. MDEQ referred the permit application to a site review board—a 10-member board charged with investigating and deliberating on the impact of the proposed facility on a local community. The Site Review Board held numerous open meetings and public hearings, receiving oral and written comments on many issues from local community officials, the public, EDS, and MDEQ. In March 2000, the board voted to recommend that the MDEQ deny the construction permit for several reasons, including an increase in traffic volumes, and the lack of need for the facility. The board did not find any fault with the technical aspects of the facility's design or operation.
- **2000**—During the Site Review Board's deliberations, it was disclosed that the proposed storage and treatment facilities and wells were located in a protected wetlands area. EDS applied for a wetlands construction permit during the site review board process. The permit was issued by the MDEQ in June. The wetlands permit was challenged by the cities of Romulus and Taylor in a contested case hearing with MDEQ that was subsequently dropped.
- **2001**—After determining that the Site Review Board did not provide a defensible basis for denial, the MDEQ issued a construction permit for the treatment and storage facility associated with the injection wells. The permit contained special conditions requiring EDS to mitigate the

legitimate concerns raised by the Site Review Board in its recommendation for denial, including limiting the traffic volume and adding an emergency access road. The cities of Romulus and Taylor and Wayne County appealed the permit decision to the Wayne County Circuit Court, arguing that the MDEQ should have followed the board's recommendation, that the facility is not needed, and that the facility should not be allowed in a wetland. The circuit court affirmed the MDEQ decision. The case is currently under review by the Michigan Court of Appeals, and as of May 2003 no decision has been issued.

- **2002**—A citizen filed a Title VI complaint with EPA's Office of Civil Rights raising a number of issues, including the fact that the community was disproportionately exposed to pollution and other environmental dangers. EPA's Office of Civil Rights investigated the complaint but did not find any violations of Title VI.
- **2003**—In January and April public hearings were held on the EDS no-migration petition. Obtaining approval of this petition is one of the final steps before operations begin.



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# Appendix II: Scope and Methodology

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To determine the extent that EPA and states address community concerns in issuing permits for deep injection wells, we obtained information on the criteria and processes from agency officials in the Office of Water, UIC program, located in Washington, D.C., and from regional program officials located in Chicago, Illinois, and in Dallas, Texas. We obtained information on the criteria and processes from state program officials in the states that have commercial Class I deep injection wells currently operating or under construction (Louisiana, Michigan, Ohio, and Texas). Three of the states—Louisiana, Ohio, and Texas—have regulatory authority (primacy) for implementing the UIC programs in their states. In addition, we identified and reviewed the applicable federal and state regulations and other guidance that describe the criteria and processes for public notice and comment. Because owners of commercial Class I wells may have to obtain RCRA permits to construct and operate treatment and storage facilities associated with the operation of the wells, we discussed these requirements with the EPA and state officials and obtained supporting documentation describing RCRA requirements. To further understand the process for addressing community concerns, we obtained and analyzed information on how the process worked for individual wells that were approved for operation and for two wells under construction in the state of Michigan. We also obtained and reviewed reports published by EPA and NAPA that address the importance of involving citizens in the permitting process.

In determining the extent that environmental justice issues are considered during the construction permit process, we reviewed the executive order on environmental justice issued in 1994 and Title VI of the Civil Rights Act of 1964. We obtained information from EPA officials in the Office of Environmental Justice and the Office of Civil Rights to determine how EPA has implemented the executive order and the status of implementing the environmental justice policy issued by the EPA's Administrator. We obtained and reviewed several reports prepared for the Office of Environmental Justice that addressed how environmental justice could be incorporated within existing programs, including permitting decisions. In addition, we obtained and analyzed information on the number and status of environmental justice appeals and Title VI complaints filed with the agency, including those involving commercial Class I wells. We also analyzed recent court decisions that impact the basis for determining whether discrimination has occurred under Title VI. We interviewed officials from EPA's Office of Water and regional UIC offices, as well as from the four states with commercial Class I deep injection wells in operation or under construction to determine how they have incorporated environmental justice practices into their permitting process. We also

verified with the officials the number of environmental justice appeals or Title VI complaints involving deep injection wells.

To determine the adequacy of financial assurances for providing funds to properly shut down Class I wells if owners go bankrupt, we reviewed federal and state regulations to determine the financial assurance requirements. We obtained information on how financial assurance regulations are implemented from EPA and state program officials and reviewed documentation for Class I wells currently operating, as well as for wells with owners in bankruptcy, to determine if the owners had provided sufficient financial assurances. We also discussed with EPA officials the efforts of an ongoing agency work group that is assessing the adequacy of financial assurance requirements for injection wells and reviewed documentation on the issues the group is addressing. Because the UIC financial assurance requirements were based on RCRA financial requirements, we obtained information on recent reviews and proposed changes to the RCRA financial assurance requirements. Specifically, we obtained and reviewed an EPA Office of Inspector General report on the adequacy of RCRA financial assurance requirements and proposed agency changes to the requirements.

We conducted our work from May 2002 through May 2003 in accordance with generally accepted government auditing standards.

# Appendix III: Comments from the Environmental Protection Agency

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

MAY 22 2003

John B. Stephenson  
Director, Natural Resources and Environment  
United States General Accounting Office  
Washington, DC 20543

OFFICE OF  
WATER

Dear Mr. Stephenson:

Thank you for the opportunity to review the General Accounting Office's (GAO) draft report: Deep Injection Wells - EPA Needs to Address Community Concerns Earlier and Strengthen Financial Assurance Requirements (GAO-03-761), dated May, 2003. The Environmental Protection Agency (EPA) has coordinated with your Office throughout the study. The Underground Injection Control (UIC) program is highly technical and certain aspects of the Class I hazardous waste injection well component of the program can be particularly controversial. The Agency has provided extensive material at your request and professional staff have been available for numerous meetings.

You provided the Agency a very brief period to review your final draft report. We have identified three major areas of concern with this report:

1. The report mischaracterizes EPA authority under the Underground Injection Control program and therefore the relevant scope of public involvement and comment opportunities.
2. The report implies a significant deficiency in the UIC financial assurance requirements for deep injection wells that does not exist.
3. The report continues to contain a number of mistakes and factual errors despite EPA providing GAO with corrections on several occasions.

Each of these will be discussed in detail below.

The Underground Injection Control program is a cornerstone in the protection of our nation's drinking water. It is one of our key source water contamination prevention programs in that regard. The Class I UIC deep well program, which is the focus of your study, constitutes only a small fraction of the estimated 650,000 to 800,000 injection wells in the United States. Since the mid-1980s, EPA, in conjunction with our state partners, has spent a considerable amount of time and resources in developing and implementing a safe and effective Class I hazardous waste well program. Reports completed by your Office in December 1994, as well as studies prepared by the Office of Water in 1991 and a March 2001 study for Congress, have provided a favorable review of the manner in which the Class I UIC program is working to protect drinking water resources.

Our initial concern with the report involves your recommendation that EPA needs to involve the public earlier in the permitting process for commercial Class I deep injection wells to better address community concerns. As you are aware, permit applications for Class I hazardous waste injection wells, whether commercial or non-commercial, are reviewed in great detail by

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See comment 1.

EPA and primacy state agencies with respect to all technical matters. Operators of Class I hazardous injection wells must also get final approval by EPA for an exemption to Land Disposal Restrictions under the Hazardous and Solid Waste Amendment (HSWA) of 1984 to the Resource Conservation and Recovery Act (RCRA). UIC regulations establish clear procedures for extensive public involvement, through public comment and hearings, during these activities. The procedures are set forth in detail in the Code of Federal Regulations (40 CFR Part 124 - Procedures for Decision Making). However, as you know, the extent of these permitting activities and, therefore, the related public participation is limited to the scope of the Congressionally established program. Your report and recommendations attribute responsibilities to the federal UIC program beyond the scope which Congress assigned in the Safe Drinking Water Act (SDWA). Part of the confusion is generated by your intermingling the discussion of deep injection wells and hazardous waste surface treatment and storage facilities. On the federal level, the former is regulated by the SDWA UIC program while the latter is covered by RCRA. Thus, the UIC program addresses issues related to deep injection well permitting as it is authorized to do under the law, while the State of Michigan has separate responsibilities under RCRA that they follow as well.

See comment 2.

The wording and recommendations of your report imply that the UIC program has authority and responsibility for the siting of hazardous waste treatment and storage facilities. In fact, the statutory mandate for the UIC program is the protection of Underground Sources of Drinking Water (USDW) from the subsurface emplacement of fluids. Congress did not provide the EPA UIC program with authority over surface siting of injection wells for reasons unrelated to the protection of USDWs. Your report suggests that the EPA UIC program provide additional opportunities for public involvement to address citizen concerns raised in Michigan about the location of hazardous treatment and storage facilities. The concerns cited in your report include noise, odor, traffic from trucks and potential impacts on property values. However, none of these are relevant to the Congressionally established mission of the UIC program. Rather, there are numerous other local, state and federal programs charged with considering these potential impacts. Your report nonetheless suggests these are within the scope of UIC authority. Your final report should correct this inaccuracy and avoid creating confusion. If your intent is to recommend to Congress that it should expand EPA's SDWA mandate to give it authority to control local siting and land use decisions, it should be stated more clearly. If that is your intent, I am concerned that such a step is unnecessary and that expanding the UIC program's authority may inappropriately interfere with state or local decision-making. In the case of the Michigan UIC wells that is at the center of your report, EPA has, over the years, provided extensive and multiple opportunities for public coordination, input and formal comment.

See comment 3.

GAO's finding that "...financial assurance requirements may not ensure that adequate resources are available to close a commercial deep injection well..." is also problematic. This finding is inconsistent with the long history of the success of financial assurance provisions for Class I wells in meeting their programmatic goals. It is also inconsistent with the specific examples contained in your report. Your extensive investigation found only two instances where there might be potential inadequacies in financial assurance for UIC Class I permits. Even in those two cases, your report finds there were "...unique circumstances..." in one of those cases, the well was never completed and there was never any injection of fluids. In the second case, you note that the state of Texas, which operates the program governing this well, does not have concerns about any threats from the injected wastes. Despite your recognition that these situations do not represent the program, you nonetheless suggest they constitute a potential

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See comment 4.

See comment 5.

program deficiency justifying new federal regulations. Rather than rely on the primary data of the strong record of financial assurance in the Class I UIC program, you attempt to support your recommendation by discussing the experience in an entirely separate program. Using exceptions as if they were the norm and tangential examples in place of the actual record of the program under examination is highly inappropriate. Your discussion of EPA's UIC financial assurance work group is also misleading. As we have explained, that group is examining the need to change the requirements for an entirely different class of well. That effort is based upon a concern that changing circumstances for small well operators may necessitate some fine tuning of requirements. The effort is targeted at that well type because of a best professional evaluation of evolving program needs for those wells. We have not seen a similar need for the hazardous deep injection wells. Your recommendation that this effort be expanded to include the Class I wells ignores our professional advice without explanation or justification. As noted above, EPA and the states have a demonstrated history of success in the important area of financial assurance and we will continue to ensure that permits appropriately address financial responsibility.

See comment 6.

Finally, there are still various factual and technical errors, as we have pointed out during the development of the report, most recently in specific comments by an email message on May 22. We hope that you will address these issues to ensure the accuracy of your document. On future technical reports such as this, you may wish to consider the benefits of conducting an independent technical peer review as is generally done for comparable studies in most other Federal government organizations.

I hope these concerns can be addressed in your final report. I believe they will make it a stronger, clearer, more accurate and more informative document. If you choose not to address these comments, please include this letter in your final report.

If there are additional questions or if you wish further clarification of our comments, please contact William R. Diamond, Director, Drinking Water Protection Division, in the Office of Ground Water and Drinking Water, at (202) 564-3751. We look forward to working with you on this project and future reports concerning the quality of our nation's drinking water.

Sincerely,

  
for G. Tracy Mehan, III  
Assistant Administrator

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## GAO's Comments

1. We agree that EPA's UIC regulations establish procedures for public involvement through public comment and hearings during the permitting activities for Class I hazardous injection wells. We have made changes to our report to further clarify EPA's authority and to explain that the agency does not have the authority to address all community concerns. However, we believe that earlier public involvement would allow communities a greater opportunity to contact appropriate state and local officials regarding those concerns not within EPA's authority. No provisions in the SDWA preclude EPA from involving communities earlier in the permitting process, before draft construction permits are prepared. Involving the community earlier is consistent with, and in the spirit of, EPA's policy stressing the importance of early public involvement.
2. It is not our intent to imply that the UIC program has authority and responsibility for siting hazardous waste treatment and storage facilities. Our report clearly states that these facilities are covered under RCRA. We also did not intend to suggest that the UIC program provide additional opportunities to address citizen concerns in Michigan. Our report describes the opportunities provided for public comment in Michigan, but it does not conclude that additional opportunities should have been provided. It should be noted, however, that EPA Region V program officials did provide additional opportunities to address citizen concerns by conducting a second hearing on the no-migration petition for the well site in Romulus, Michigan.
3. We disagree with EPA that our characterization of the financial assurance requirements is problematic and that the financial assurance provisions for Class I wells have a long history of success. We believe there is sufficient evidence to suggest a reexamination of the financial assurance requirements. Our report describes instances in which owners filed for bankruptcy and did not have sufficient financial resources to close wells. While these instances may be limited, they demonstrate there is a potential burden to taxpayers if financial assurance requirements are not adequate.
4. We do not agree that the discussion of problems with RCRA financial assurance requirements is inadequate support for our recommendation to examine UIC financial assurance requirements. The UIC regulations were based on the RCRA regulations and, with few exceptions, are almost identical. Potential deficiencies with the RCRA requirements would also apply to the UIC program.
5. We disagree with EPA's statement that our discussion of the financial assurance work group is misleading because the group is

examining the requirements for a different class of well. Our report acknowledges that the working group is examining the requirements for Class II oil and gas wells, but it may develop information that is applicable to Class I injection wells. We have clarified our recommendation to state more directly that EPA should consider the group's results and recommendations for Class I wells.

6. We disagree that on several occasions EPA has pointed out factual errors during the development of our report that we did not address. In accordance with our normal practice, we made changes to the draft report based on comments received on a statement of facts provided during our final meeting with EPA. The agency also provided technical comments on the draft report. While EPA may disagree with our interpretation of the facts, we are unaware of any factual or technical comments that EPA provided and that we did not address.

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# Appendix IV: GAO Contacts and Staff Acknowledgments

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## GAO Contacts

John B. Stephenson, (202) 512-3841  
John Wanska, (312) 220-7628

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## Acknowledgments

In addition to the individuals named above, Mary Nugent and Kimberly Clark made key contributions to the report. Important contributions were also made by Carol Shulman and Amy Webbink.



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Jeff Nelligan, Managing Director, [NelliganJ@gao.gov](mailto:NelliganJ@gao.gov) (202) 512-4800  
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