

GAO

Report to the Subcommittee on Interior,
Environment, and Related Agencies,
Committee on Appropriations, House of
Representatives

March 2009

**ENVIRONMENTAL
PROTECTION
AGENCY**

**Major Management
Challenges**





Highlights of [GAO-09-434](#), a report to the Subcommittee on Interior, Environment, and Related Agencies, Committee on Appropriations, House of Representatives

Why GAO Did This Study

The Environmental Protection Agency's (EPA) overarching mission is to protect human health and the environment by implementing and enforcing environmental laws intended to improve the quality of the nation's air and water and to protect its land. EPA's policies and programs affect virtually all segments of the economy, society, and government. As such, it operates in a highly complex and controversial regulatory arena. In recent years, GAO has identified several key challenges EPA faces and corrective actions that would enable the agency to more effectively accomplish its mission.

GAO was asked to identify challenges at EPA that hinder its ability to implement its programs effectively, based on prior GAO work. These challenges include (1) improving agencywide management, (2) transforming EPA's processes for assessing and controlling toxic chemicals, (3) improving implementation of the Clean Air Act, (4) reducing pollution in the nation's waters, (5) speeding the pace of cleanup at Superfund and other hazardous waste sites, and (6) addressing emerging climate change issues.

What GAO Recommends

GAO has made a number of recommendations intended to improve EPA's programs by enhancing the information it uses to manage them and strengthening internal controls. EPA has concurred with most of the recommendations but has been slow to implement some of them.

View [GAO-09-434](#) or key components. For more information, contact John Stephenson at (202) 512-3841 or stephensonj@gao.gov.

ENVIRONMENTAL PROTECTION AGENCY

Major Management Challenges

What GAO Found

EPA faces the following challenges that hinder its ability to implement its programs effectively:

- **Improving agencywide management.** EPA has launched various initiatives to address crosscutting general management issues, including environmental enforcement and compliance, human capital management, and the development and use of environmental information. However, these initiatives have generally fallen considerably short of their intended results.
- **Transforming EPA's processes for assessing and controlling toxic chemicals.** EPA has failed to develop sufficient chemical assessment information to limit public exposure to many chemicals that may pose substantial health risks. In January 2009, GAO added a new issue—the need to transform EPA's process for assessing and controlling toxic chemicals—to its list of high-risk areas warranting increased attention by Congress and the executive branch.
- **Improving implementation of the Clean Air Act.** EPA faces many important challenges related to implementation of the Clean Air Act, including those highlighted by GAO regarding its coordination with other federal agencies, analyses of health impacts from air pollution, and delays in regulating mercury and other air toxics. EPA also faces challenges relating to numerous regulatory proposals that have been overturned or remanded by the courts.
- **Reducing pollution in the nation's waters.** EPA partners with federal, state, and local agencies and others to reduce pollution in the nation's waters. Among the most daunting water pollution control problems, the nation's water utilities face billions of dollars in upgrades to aging and deteriorating infrastructures that left unaddressed can affect the quality of our water. EPA will receive \$6 billion in additional water infrastructure funding from the recently passed stimulus bill.
- **Speeding the pace of cleanup at Superfund and other hazardous waste sites.** Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act, better known as Superfund, in 1980, giving the federal government the authority to ensure the cleanup of hazardous waste sites both on private and public lands. Nonetheless, several key management problems have not been resolved since that time. For example, citing competing priorities and lack of funds, EPA has not implemented a 1980 statutory mandate under Superfund to require businesses handling hazardous substances to provide financial assurances to pay for potential environmental cleanups.
- **Addressing emerging climate change issues.** In GAO's view, the federal government's approach to climate change has been ad hoc and is not well coordinated across government agencies. For example, the federal government lacks a comprehensive approach for targeting federal research dollars toward the development and deployment of low-carbon technologies.

Contents

Letter		1
	Improving Agencywide Management	2
	Transforming EPA's Processes for Assessing and Controlling Toxic Chemicals	6
	Improve Implementation of the Clean Air Act	10
	Reducing Pollution in the Nation's Waters	11
	Speeding the Pace of Cleanup at Superfund and Other Hazardous Waste Sites	15
	Addressing Emerging Climate Change Issues	17
	Concluding Observations	18
Appendix I	GAO Contact and Staff Acknowledgments	20
Related GAO Products		21

This is a work of the U.S. government and is not subject to copyright protection in the United States. The published product may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.



United States Government Accountability Office
Washington, DC 20548

March 4, 2009

The Honorable Norman D. Dicks
Chairman
The Honorable Michael K. Simpson
Ranking Member
Subcommittee on Interior, Environment, and Related Agencies
Committee on Appropriations
House of Representatives

The Environmental Protection Agency (EPA) operates in a highly complex and controversial regulatory arena, and its policies and programs affect virtually all segments of the economy, society, and government. EPA's overarching mission is to protect human health and the environment by implementing and enforcing environmental laws intended to improve the quality of our air and water and to protect our land. As you know, EPA's responsibilities are carried out under a complex set of environmental laws, such as the Clean Air Act and the Toxic Substances Control Act (TSCA). The agency is composed of major offices aligned with environmental laws and 10 regional offices. The agency's budget has been declining in recent years from \$7.8 billion in fiscal year 2000 to \$7.1 billion requested for fiscal year 2009—a decline of about 28 percent in real terms.¹ EPA's 2009 budget included about \$939 million for clean air and climate change, \$2.6 billion for clean water, and \$1.7 billion for land restoration. The just-released President's fiscal year 2010 budget request includes \$ 10.5 billion for EPA. EPA will also receive an additional \$7.2 billion in stimulus funding from the American Recovery and Reinvestment Act of 2009, primarily for water infrastructure projects and Superfund.

Charged initially with cleaning up pollution of the environment, EPA's tasks have become increasingly complicated as we understand more about the dangers and pervasiveness of toxic substances. The emergence of issues such as stratospheric ozone depletion and climate change suggest that the agency's responsibilities will continue to grow. Furthermore, enforcement activities primarily occur in EPA's 10 regions, which possess considerable autonomy—causing significant variations in enforcement

¹The change between EPA's fiscal year 2000 budget and fiscal year 2009 requested budget represented a decline of about 9 percent in nominal terms. In real terms, EPA's budget declined from \$9.8 billion in fiscal year 2000 to the \$7.1 billion requested for fiscal year 2009.

activities from region to region. EPA also implements regulations to benefit public health and the environment while balancing, as appropriate, the cost to industry and others—a particularly controversial issue—and implements laws, such as the Clean Air Act, while complying with numerous court orders resulting from the myriad lawsuits brought against the agency by states, concerned citizens, special interest groups, and others.

Considering EPA's evolving roles and responsibilities, we were asked to identify the major management challenges and program risks that EPA faces as it works to accomplish its mission of protecting human health and the environment. These challenges include (1) improving agencywide management, (2) transforming EPA's processes for assessing and controlling toxic chemicals, (3) improving implementation of the Clean Air Act, (4) reducing pollution in the nation's waters, (5) speeding the pace of cleanup at Superfund and other hazardous waste sites, and (6) addressing emerging climate change issues. All of the material in this report is drawn from our work over the last few years. (See Related GAO Products at the end of this report). In these reports, GAO has made a number of recommendations intended to improve EPA's programs by enhancing the information it uses to manage its programs and strengthening internal controls. EPA has generally concurred with our recommendations, but has been slow to implement some of them.²

Improving Agencywide Management

Our past work has identified several major management challenges at EPA, including ensuring consistent environmental enforcement and compliance, addressing human capital issues, and improving the development and use of environmental information.

- *Ensuring consistent environmental enforcement and compliance.* EPA has authorized states to carry out much of the day-to-day responsibilities for timely, appropriate enforcement of environmental laws; however, we found that EPA does not effectively oversee how well the states are carrying out these responsibilities. Specifically, we found that EPA has not

²We conducted our work in accordance with all sections of GAO's Quality Assurance Framework that were relevant to the objectives of each engagement. The framework requires that we plan and perform each engagement to obtain sufficient and appropriate evidence to meet our stated objectives and to discuss any limitations in our work. We believe that the information and data obtained, and the analyses conducted, provided a reasonable basis for the findings and conclusions in each report.

(1) identified the causes of poorly performing state enforcement programs, (2) informed the public about how well the states are implementing their enforcement responsibilities, and (3) assessed the performance of EPA's regional offices in carrying out their state oversight responsibilities—performance that has been inconsistent over the years. EPA has also been slow to improve long-standing problems in its enforcement data, which, among other things, hampers its ability to accurately determine the universe and characteristics of entities needing regulation to ensure that (1) the public is afforded equal protection under environmental laws and (2) regulated parties, taxpayers, and ratepayers are not subjected to widely varying costs of environmental compliance among regions. Further, we have reported that how EPA calculates and reports penalties, the value of injunctive relief, and the amount of resulting pollution reduction may undermine the transparency and accuracy of its reported outcomes and cause EPA to both over- and underreport its enforcement achievements.³

We have recommended that EPA enhance its oversight of regional and state enforcement activities to implement environmental programs consistent with the requirements of federal statutes and regulations. We also recommended that EPA develop an action plan for addressing enforcement problems identified in state programs; ensure that states have sufficient resources to implement and enforce programs, as authorized by EPA; and help the states improve their capacity for enforcement.⁴ EPA should also routinely conduct performance assessments of regional and state enforcement programs and communicate the results of the assessments to the public and the regulated industry. We also recommended that the EPA Administrator take a number of actions to disclose more information when reporting penalties and estimates of the value of injunctive relief and pollution reduction.⁵

EPA has generally agreed with our recommendations and is in the process of implementing them. In particular, the agency has developed an initiative known as the State Review Framework that it believes will (1) address many of the long-term problems related to providing fair, consistent, and

³GAO, *Environmental Enforcement: EPA Needs to Improve the Accuracy and Transparency of Measures Used to Report on Program Effectiveness*, [GAO-08-1111R](#) (Washington, D.C.: Sept. 18, 2008).

⁴GAO, *Environmental Protection: EPA-State Enforcement Partnership Has Improved, but EPA's Oversight Needs Further Enhancements*, [GAO-07-883](#) (Washington, D.C.: July 31, 2007).

⁵[GAO-08-1111R](#).

transparent enforcement throughout the country and (2) obtain accurate data that can be used to determine the extent of state compliance with enforcement standards and the need for corrective actions. However, such efforts are still in the early stages, and their success is uncertain and will depend on continued commitment of senior management along with sufficient priority and resources. EPA also stated that it would take actions to disclose more information when reporting estimates of injunctive relief and pollution reductions and consider our recommendation to report collected penalties.

- *Addressing human capital issues.* EPA has struggled for several years to identify its needs for human resources and to deploy its staff throughout the country in a manner that would do the most good. We found that EPA's process for budgeting and allocating resources does not fully consider the agency's current workload, and that in preparing requests for funding and staffing, EPA makes incremental adjustments, largely based on an antiquated workforce planning system that does not reflect a bottom-up review of the nature or distribution of the current workload.⁶ Moreover, EPA's human capital management systems have not kept pace with changes that have occurred over the years as a result of changing legislative requirements and priorities, changes in environmental conditions in different regions of the country, and the much more active role that states now play in carrying out day-to-day-activities of federal environmental programs.

To remedy its antiquated and unscientific methods for determining workload and allocating staff resources, we recommended that EPA substantially improve its resource planning by identifying the factors that derive the national and regional workload and develop more realistic allocation systems for deploying staff with the requisite skills and capabilities to areas of the country where they are most needed to address the highest-priority needs.

EPA has not paid sufficient attention to human capital issues over the years. During the past several years, EPA has taken a number of actions to improve its workforce management. For example, the agency has developed a strategic approach to ensure that it has, and will continue to

⁶GAO, *EPA's Execution of Its Fiscal year 2007 New Budget Authority for the Enforcement and Compliance Assurance Program in the Regional Offices*, [GAO-08-1109R](#) (Washington, D.C.: Sept. 26, 2008).

have, the requisite competencies to carry out its programs effectively. Nonetheless, the number of regional staff at individual offices and their skills and competencies continue to be driven primarily by historical staffing patterns rather than a fresh assessment of regional needs, given the regional workload and the role that states play in the enforcement process, which varies greatly from region to region.

- Improving development and use of environmental information. Critical, reliable environmental information is needed to provide better scientific understanding of environmental trends and conditions and to better inform the public about environmental progress in their locales. We found substantial gaps between what is known and the goal of full, reliable, and insightful representation of environmental conditions and trends to provide direction for future research and monitoring efforts.⁷ EPA has struggled with providing a focus and the necessary resources for environmental information since its inception in 1970. While many data have been collected over the years, most water, air, and land programs lack the detailed environmental trend information to address the well-being of Americans. EPA program areas have also been hampered by deficiencies in their environmental data systems. For example, the quality of environmental data constrains EPA's ability to assess the effectiveness of its enforcement policies and programs throughout the country and to inform the public about the health and environmental hazards of dangerous chemicals.

We recommended that EPA better emphasize the development and use of environmental indicators and information, not only in its strategic plan but also as a mechanism for prioritizing its allocation of limited resources and measuring the success of environmental policies and programs. GAO and policymakers in the executive and legislative branches have proposed the establishment of a Bureau of Environmental Statistics to provide the focus and resources needed to address the nation's current and long-term environmental conditions and trends. Such a bureau would ensure top-level commitment, interagency coordination, and clear responsibility for ensuring the comprehensiveness and credibility of environmental information. In addition, we recommended that EPA develop a consistent approach to ensure the transparency and accuracy of measures to determine its program effectiveness. Finally, we also recommended that

⁷GAO, Environmental Indicators: Better Coordination Is Needed to Develop Environmental Indicator Sets That Inform Decisions, [GAO-05-52](#) (Washington, D.C.: Nov. 17, 2004).

EPA ensure that information on environmental health risks and on companies that manufacture and use toxic chemicals is effectively collected and communicated to the public.

EPA has generally agreed with our recommendations, and has made some progress in trying to obtain and use improved environmental information over the past several years. However, the agency's efforts have been sporadic and spread among the various EPA offices. As such, the environmental information initiatives at EPA have been incomplete and lack a high-priority, coordinated, strategic approach that is necessary to link limited resources with the most critical data needs.

Transforming EPA's Processes for Assessing and Controlling Toxic Chemicals

EPA's ability to effectively implement its mission of protecting public health and the environment depends on credible and timely assessment of the risks posed by toxic chemicals. Such assessments are the cornerstone of scientifically sound environmental decisions, policies, and regulations under a variety of statutes, such as TSCA. However, EPA has failed to develop sufficient chemical assessment information to determine whether it should establish controls to limit public exposure to many chemicals that may pose substantial health risks. As discussed below, in a number of reports, we have identified actions that are needed to (1) enhance EPA's ability under TSCA, among other things, to obtain health and safety information from the chemical industry and (2) streamline and increase the transparency of EPA's Integrated Risk Information System (IRIS) that provides EPA's scientific position on the potential human health effects of more than 540 chemicals.

TSCA generally places the burden of obtaining data on chemicals used in commerce on EPA, rather than on the companies that produce the chemicals. For example, TSCA requires EPA to demonstrate certain health or environmental risks before it can require companies to further test their chemicals. As a result, EPA does not routinely assess the risks of the roughly 80,000 industrial chemicals in use. Moreover, TSCA does not require chemical companies to test the approximately 700 new chemicals introduced into commerce annually for their toxicity, and companies generally do not voluntarily perform such testing. Further, the procedures EPA must follow in obtaining test data from companies can take years to complete. In contrast, the European Union's chemical control legislation generally places the burden on companies to provide health effects data

on the chemicals they produce. In previous reports on TSCA, we have suggested that Congress consider statutory changes to strengthen EPA's authority to obtain information from the chemical industry.⁸ We continue to believe that giving EPA more authority to obtain data from the companies producing chemicals would improve the effectiveness of TSCA and thereby enhance EPA's ability to protect public health and the environment.

In addition, while TSCA authorizes EPA to issue regulations that may, among other things, ban existing toxic chemicals or place limits on their production or use, the statutory requirements EPA must meet present a legal threshold that has proven difficult for EPA and discourages the agency from using these authorities. For example, EPA must demonstrate "unreasonable risk," which EPA believes requires it to conduct extensive cost-benefit analyses, to ban or limit chemical production. Since 1976, EPA has issued regulations to control only five existing chemicals determined to present an unreasonable risk. Further, its 1989 regulation phasing out most uses of asbestos was vacated by a federal appeals court in 1991 because it was not based on "substantial evidence." In contrast, the European Union and a number of other countries have largely banned asbestos, a known human carcinogen that can cause lung cancer and other diseases. We have previously suggested that Congress consider amending TSCA to reduce the evidentiary burden EPA must meet to control toxic substances and continue to believe such change warrants serious consideration.⁹

Also, under TSCA, EPA has a limited ability to provide the public with information on chemical production and risk because of the act's prohibitions on the disclosure of confidential business information. About 95 percent of the notices companies have provided to EPA on new chemicals contain some information claimed as confidential. While EPA believes that some claims of confidential business information may be unwarranted, challenging the claims is time- and resource-intensive, and EPA does not challenge most claims. Importantly, state environmental

⁸GAO, *Chemical Regulation: Comparison of U.S. and Recently Enacted European Union Approaches to Protect against the Risks of Toxic Chemicals*, [GAO-07-825](#) (Washington, D.C.: Aug. 17, 2007), and *Chemical Regulation: Options Exist to Improve EPA's Ability to Assess Health Risks and Manage Its Chemical Review Program*, [GAO-05-458](#) (Washington, D.C.: June 13, 2005).

⁹[GAO-07-825](#).

agencies and others have said that information claimed as confidential would help them in such activities as developing contingency plans to alert emergency response personnel to the presence of highly toxic substances at manufacturing facilities. The European Union's chemical control legislation generally provides greater public access to the chemical information it receives. We previously suggested that Congress (1) consider authorizing EPA to share with the states and foreign governments the confidential business information that chemical companies provide to EPA, subject to regulations to be established by EPA that would set forth the procedures to be followed by all recipients of the information in order to protect the information from unauthorized disclosures, and (2) consider limiting the length of time for which information may be claimed as confidential without resubstantiation of the need for confidentiality.¹⁰

We have also identified significant problems with EPA's process for developing chemical assessments under EPA's IRIS program. Created in 1985 to provide EPA with consensus opinions within the agency on the health effects of chronic exposure to chemicals, the IRIS database provides the basic information EPA needs to determine whether it should establish controls, for example, to protect the public from exposure to toxic chemicals in the air and water and at hazardous waste sites. In 2008, we reported that the IRIS database, which contains assessments of more than 540 toxic chemicals, is at serious risk of becoming obsolete because EPA has not been able to keep its existing assessments current or to complete assessments of the most important chemicals of concern.¹¹ Factors contributing to EPA's inability to complete assessments in a timely manner—including reviews required by the Office of Management and Budget (OMB) of IRIS assessments; certain management decisions, such as delaying some assessments to await new research; and the compounding effect of delays—can force EPA to essentially restart assessments to incorporate changing science and methods.

In fact, a number of key chemicals have been caught in a seemingly endless review cycle, limiting EPA's ability to protect the public health from ubiquitous chemicals that are likely to cause cancer or other serious health effects. For example, EPA's formaldehyde and dioxin assessments

¹⁰GAO-07-825.

¹¹GAO, Chemical Assessments: Low Productivity and New Interagency Review Process Limit the Usefulness and Credibility of EPA's Integrated Risk Information System, GAO-08-440 (Washington, D.C.: Mar. 7, 2008).

have been in progress for about 12 and 18 years, respectively. Overall, EPA has finalized a total of only 9 assessments in the past 3 fiscal years; as of December 2007, most of the 70 ongoing assessments had been in progress for more than 5 years; and more than half of all current assessments may be outdated. Moreover, the OMB-required reviews, which are not publicly available, limit the credibility of the assessments because they involve federal agencies that may be affected by the assessments should they lead to regulatory actions. We recommended that EPA adopt a streamlined, more transparent assessment process. In its response, EPA estimated that under its proposed changes to the assessment process, most assessments would take from 3 to 4-1/2 years and mission-critical assessments would take up to 6 years. However, we believe that an IRIS assessment process built around such time frames is problematic. As we stated in our reports, when assessments take longer than 2 years, they can become subject to substantial delays stemming from the need to redo key analyses to take into account changing science and assessment methodologies.¹²

Some of our prior recommendations on IRIS and TSCA, aimed at providing EPA with information needed to support its assessment of toxic chemicals, have not been implemented. For example, when EPA implemented a new IRIS assessment process in 2008, it did not incorporate our recommendations to streamline and increase the transparency of the process. In fact, the new IRIS assessment process exacerbates the productivity and credibility concerns GAO identified. Further, our recommendations aimed at providing EPA with the information needed to support its assessments of industrial chemicals under TSCA have not been implemented. Without greater attention to EPA's efforts to assess toxic chemicals, the nation lacks assurance that human health and the environment are adequately protected. Because of the importance of this issue, and the lack of progress in implementing much-needed change to TSCA, in January 2009 we added transforming EPA's processes for assessing and controlling toxic chemicals to our list of high-risk areas needing added attention by Congress and the executive branch.

¹²GAO-08-440.

Improve Implementation of the Clean Air Act

The Clean Air Act, a comprehensive federal law that regulates air pollution from stationary and mobile sources, was passed in 1963 to improve and protect the quality of the nation's air. The act was substantially overhauled in 1970 when Congress required EPA to establish national ambient air quality standards for pollutants at levels that are necessary to protect public health with an adequate margin of safety and to protect public welfare from adverse effects. EPA has set such standards for ozone, carbon monoxide, particulate matter, sulfur oxides, nitrogen dioxide, and lead. In addition, the act directed the states to specify how they would achieve and maintain compliance with the national standard for each pollutant. Congress amended the act again in 1977 and 1990. The 1977 amendments were passed primarily to set new goals and dates for attaining the standards because many areas of the country had failed to meet the deadlines set previously. The act was amended again in 1990 when several new themes were incorporated into it, including encouraging the use of market-based approaches to reduce emissions, such as cap-and-trade programs.

In recent years, our work has identified several key challenges in implementing the Clean Air Act, and made recommendations to EPA intended to enhance the effectiveness of its clean air programs. First, we have identified areas where EPA could improve its coordination with the Department of Transportation in making planning decisions.¹³ Second, we have found that while EPA had taken steps to strengthen its estimates of health benefits from rules reducing particulate matter air pollution, the agency needed to ensure continued resources toward improving analysis of the uncertainty underlying its estimates.¹⁴ Third, we have identified delays and shortcomings with EPA's development of rules intended to limit emissions of toxic air pollutants and recommended that the agency develop a plan to improve its management of the air toxics program.¹⁵ In fact, when addressing EPA's air quality standards in a recent hearing on children's health, we noted that EPA largely disregarded recommendations

¹³GAO, *Environmental Protection: Federal Planning Requirements for Transportation and Air Quality Protection Could Potentially Be More Efficient and Better Linked*, [GAO-03-581](#) (Washington, D.C.: Apr. 28, 2003).

¹⁴GAO, *Particulate Matter: EPA Has Started to Address the National Academies' Recommendations on Estimating Health Benefits, but More Progress Is Needed*, [GAO-06-780](#) (Washington, D.C.: July 14, 2006).

¹⁵GAO, *Clean Air Act: EPA Should Improve the Management of Its Air Toxics Program*, [GAO-06-669](#) (Washington, D.C.: June 23, 2006).

from its advisory committee, and recommended that the agency examine ways to use its advisors to reinvigorate its focus on the health of children, who are often disproportionately affected by air pollution.¹⁶ Fourth, we identified major shortcomings with EPA's economic justification for a proposed rule to limit mercury emissions from power plants and recommended, among other things, that the agency conduct its analysis consistent with OMB guidance for economic analysis and better document its findings.¹⁷ EPA stated that it would address the recommendations by, for example, conducting additional analysis on the rule.

EPA also faces a number of challenges related to clean air regulatory decisions that have been vacated or remanded to the agency by the courts. These include regulatory proposals or agency decisions related to (1) mercury emissions from coal-fired power plants; (2) long-range transport of sulfur dioxide and nitrogen oxides—pollutants that contribute to acid rain and other air quality problems—emitted by power plants; (3) the New Source Review program, a permitting program that among other goals seeks to prevent air quality degradation from the addition of new and modified factories, industrial boilers, and power plants; and (4) whether EPA and the states can use existing authority under the Clean Air Act to regulate greenhouse gases. Each of these issues, along with those identified in our prior work, will require substantial management attention in the near term.

Reducing Pollution in the Nation's Waters

The Clean Water Act establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating the quality of surface waters. However, the law's effectiveness has been challenged by the fact that many pollution sources are decentralized and diffuse in nature, and therefore difficult to monitor and regulate. One such source is urban storm water runoff. Pollutants and sediment carried by storm water, as well as the volume and temperature of runoff, can alter aquatic habitats and make it hard for fish and other organisms to survive.¹⁸

¹⁶GAO, *Environmental Health: EPA Efforts to Address Children's Health Issues Need Greater Focus, Direction, and Top-Level Commitment*, [GAO-08-1155T](#) (Washington, D.C.: Sept. 16, 2008).

¹⁷GAO, *Clean Air Act: Observations on EPA's Cost-Benefit Analysis of Its Mercury Control Options*, [GAO-05-252](#) (Washington, D.C.: Feb. 28, 2005).

¹⁸GAO, *Clean Water: Further Implementation and Better Cost Data Needed to Determine Impact of EPA's Storm Water Program on Communities*, [GAO-07-479](#) (Washington, D.C.: May 31, 2007).

Some pollutants can also make fish and shellfish unsafe to eat. Moreover, polluted storm water runoff can negatively affect those who use fresh- and saltwater areas for swimming and boating. For example, swimmers in water with high levels of bacteria have a greater risk of contracting gastrointestinal or respiratory illnesses. However, EPA still has not developed rapid water-testing methods and current water quality standards.¹⁹

The safety of our nation's water is also threatened by other factors, such as pollutants discharged from large-scale animal feeding operations that enter water bodies. More than a dozen government-sponsored or peer-reviewed studies since 2002 on water pollutants emitted by concentrated animal-feeding operations found increased levels of phosphorus, nitrogen, or hormones in surface water and groundwater near animal-feeding operations. According to EPA, excessive amounts of these nutrients can deplete oxygen in water, which could result in fish deaths, reduced aquatic diversity, and illness in infants.²⁰ Despite its long-term regulation of concentrated animal-feeding operations, EPA still lacks comprehensive and reliable data on the number, location, and size of the operations that have been issued permits and the amounts of discharges they release. As a result, EPA has neither the information it needs to assess the extent to which concentrated animal-feeding operations may be contributing to water pollution, nor the information it needs to ensure compliance with the Clean Water Act.²¹

EPA partners with federal, state, and local agencies, as well as nongovernmental organizations, to develop and implement approaches that can reduce pollution in our nation's significant water bodies. However, after decades of EPA and its partners spearheading restoration efforts in areas such as the Great Lakes and the Chesapeake Bay, improvements in these water bodies remain elusive. Lack of targeted strategies; coordination among federal, state, and local stakeholders; and realistic goals to ensure that limited restoration resources are being used

¹⁹GAO, *Physical Infrastructure: Challenges and Investment Options for the Nation's Infrastructure*, [GAO-08-763T](#) (Washington, D.C.: May 8, 2008).

²⁰GAO, *Concentrated Animal Feeding Operations: EPA Needs More Information and a Clearly Defined Strategy to Protect Air and Water Quality from Pollutants of Concern*, [GAO-08-944](#) (Washington, D.C.: Sept. 4, 2008).

²¹[GAO-08-944](#).

for the most effective restoration activities appear to be long-standing issues impeding such efforts.

In recent years, we have made many recommendations to help EPA address these problems. To more effectively regulate the discharges from large-scale animal-feeding operations, EPA should complete its efforts to develop an inventory of permitted operations.²² In addition, we recommended that EPA evaluate the implementation of the storm water program and issue additional program guidance and consider regulatory changes to improve the quality and consistency of activity reporting by communities. To better protect the safety of our nation's beaches, EPA needs to publish new or revised water quality criteria for pathogens and pathogen indicators and develop specific guidance on monitoring frequency and methods of public notification.²³ In addition, we recommended that EPA ensure that the Chesapeake Bay Program—a partnership between EPA, several states, and the Chesapeake Bay Commission—develops a coordinated implementation strategy that unifies its various planning documents and establishes a means to better target its limited resources to the most cost-effective restoration activities.²⁴ We also recommended that for its Great Lakes Initiative, EPA develop a more consistent permitting strategy for controlling mercury and gather more information to help it develop water quality standards and assess the effect of programs intended to minimize pollutants that are exceeding standards.²⁵

EPA agreed with our recommendations in these areas. For example, while EPA expected to take several years to fully implement a national data system, EPA and states are currently working to develop and implement a national data system to collect and record facility-specific information on concentrated animal-feeding operations and other facilities through its Integrated Compliance Information System, and has initiated an effort to

²²[GAO-08-944](#).

²³GAO, *Great Lakes: EPA and States Have Made Progress in Implementing the BEACH Act, but Additional Actions Could Improve Public Health Protection*, [GAO-07-591](#) (Washington, D.C.: May 1, 2007).

²⁴GAO, *Chesapeake Bay Program: Improved Strategies Are Needed to Better Assess, Report, and Manage Restoration Progress*, [GAO-06-96](#) (Washington, D.C.: Oct. 28, 2005).

²⁵GAO, *Great Lakes Initiative: EPA and States Have Made Progress, but Much Remains to Be Done If Water Quality Goals Are to Be Achieved*, [GAO-08-312T](#) (Washington, D.C.: Jan. 23, 2008).

develop a rule to establish required data elements and reporting frequencies. Likewise, for the storm water program, EPA has taken steps to improve the quality and consistency of program data reported by communities and is currently developing guidance, including a reporting form that it believes will help the agency obtain better data for evaluating the program. Finally, EPA agreed with our recommendations regarding the Chesapeake Bay Program, and plans to work with the Great Lakes states in assessing approaches for reducing mercury in lieu of developing a mercury permitting strategy.

In addition, in coming years among the most daunting water pollution control problems will be those faced by the nation's water utilities in grappling with the multibillion-dollar costs of upgrading aging and deteriorating infrastructures and building new ones to serve a growing population.²⁶ Frequent and highly publicized incidences of combined sewer overflows into rivers and streams as well as water main breaks in the nation's largest cities are the most visible manifestation of this mounting problem. Overall, water infrastructure needs across the country have been estimated to cost from \$485 billion to nearly \$1.2 trillion over the next 20 years. Even before the current financial crisis, many water utilities had difficulty raising funds to repair, replace, or upgrade aging capital assets; comply with regulatory requirements; and expand capacity to meet increased demand. For example, based on a nationwide survey of several thousand drinking water and wastewater utilities, we reported several years ago that about one-third of the utilities (1) deferred maintenance because of insufficient funds, (2) had 20 percent or more of their pipelines nearing the end of their useful life, and (3) lacked basic plans for managing their capital assets.²⁷

We noted in the past that better management techniques can, at least to some extent, help utilities make the best use of available dollars in their struggle to meet their infrastructure needs. For example, we recommended comprehensive asset management—a technique whereby water systems systematically identify their needs, set priorities, and better target their investments—as a tool for helping utilities make better use of

²⁶ [GAO-08-763T](#), and GAO, *Water Infrastructure: Comprehensive Asset Management Has Potential to Help Utilities Better Identify Needs and Plan Future Investments*, [GAO-04-461](#) (Washington, D.C.: Mar. 19, 2004).

²⁷ GAO, *Water Infrastructure: Information on Financing, Capital Planning, and Privatization*, [GAO-02-764](#) (Washington, D.C.: Aug. 16, 2002).

available funds. Additional funds, however, will ultimately be needed to narrow the enormous gap between water infrastructure needs and available resources. Of note, EPA will receive \$6 billion in additional water infrastructure funding from the recently passed stimulus bill. EPA agreed with our recommendations, and while it has undertaken a number of approaches to encourage asset management, such as implementing a sustainable infrastructure initiative and offering training sessions on best practices, there is further work needed to encourage comprehensive asset management across the nation.

Speeding the Pace of Cleanup at Superfund and Other Hazardous Waste Sites

In 1980, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act, establishing the Superfund program and giving the federal government the authority to respond to chemical emergencies and to clean up hazardous waste sites on private and public lands. The Superfund program addresses both short- and long-term risks from toxic chemicals. The act established a trust fund financed primarily by taxes on crude oil and certain chemicals to pay for EPA's cleanup activities. The authority for these taxes expired in 1995; EPA must now primarily rely on annual appropriations from the general fund to fund cleanups. These appropriations, when adjusted for inflation, have been declining and the pace of cleanups has slowed.²⁸ Furthermore, citing competing priorities and lack of funds, EPA has not implemented a 1980 statutory mandate under Superfund to require businesses handling hazardous substances to demonstrate their ability to pay for potential environmental cleanups—that is, to provide financial assurances.²⁹ Because of this inaction, EPA has exposed the Superfund program and U.S. taxpayers to potentially enormous cleanup costs at gold, lead, and other mining sites and other industrial operations. In addition, we found that EPA faces challenges in ensuring that institutional controls—legal or administrative restrictions on land or resource use to protect against exposure to residual contamination at hazardous waste sites—are adequately implemented, monitored, and enforced.³⁰

²⁸GAO, *Superfund: Funding and Reported Costs of Enforcement and Administration Activities*, [GAO-08-841R](#) (Washington, D.C.: July 18, 2008).

²⁹GAO, *Environmental Liabilities: EPA Should Do More to Ensure That Liable Parties Meet Their Cleanup Obligations*, [GAO-05-658](#) (Washington, D.C.: Aug. 17, 2005).

³⁰GAO, *Hazardous Waste Sites: Improved Effectiveness of Controls at Sites Could Better Protect the Public*, [GAO-05-163](#) (Washington, D.C.: Jan. 28, 2005).

In 1984, Congress required EPA to devise regulations for the design and operation of underground tanks. In response, in 1985, EPA began developing the Underground Storage Tank program to prevent releases of petroleum and hazardous substances into the environment, detect releases when they occur, and clean up any contamination resulting from a release. To support the program and provide public funding to states to ensure that releases from tanks are cleaned up, in 1986 Congress established the Leaking Underground Storage Tank Trust Fund, funded primarily through an excise tax on gasoline and other motor fuels. The fund has since grown to an estimated \$3.2 billion at the end of fiscal year 2008, yet the pace of cleanup remains slow. Under the program, tank owners and operators are primarily responsible for paying to clean up releases from their tanks. They can demonstrate their financial responsibility by using, among other options, state financial assurance funds. However, we found that tank owners sometimes fail to maintain adequate financial responsibility coverage and that several states' assurance funds may lack sufficient resources to ensure timely cleanups.³¹

Finally, in 2005 we found that federal and state agencies had identified perchlorate—a component of rocket fuel known to affect human health—in groundwater, soil, or public drinking water systems at almost 400 sites across the country. Nevertheless, there is no federal drinking water standard or specific requirement to clean up perchlorate and the National Academy of Sciences called for additional research on the effects of perchlorate exposure.³²

We have made several recommendations to help EPA more quickly clean up hazardous waste sites. Specifically, we recommended that EPA (1) ensure that financial assurances are in place for sites that manufacture or use toxic chemicals; (2) improve the institutional controls at contaminated sites to ensure better protection of the public from inappropriate use of such sites; (3) ensure that the owners of underground storage tanks maintain access to adequate financial resources for cleaning up leaks and that state insurance funds provide reliable coverage for cleaning up

³¹GAO, *Leaking Underground Storage Tanks: EPA Should Take Steps to Better Ensure the Effective Use of Public Funding for Cleanups*, [GAO-07-152](#) (Washington, D.C.: Feb. 8, 2007).

³²GAO, *Perchlorate: A System to Track Sampling and Cleanup Results Is Needed*, [GAO-05-462](#) (Washington, D.C.: May 20, 2005).

leaking tanks; and (4) establish a formal structure to centrally track and monitor perchlorate detections and the status of cleanup efforts.

EPA has generally agreed with our recommendations in these areas, but has not yet implemented any of them. EPA disagreed with our recommendation regarding establishing a perchlorate tracking structure because the agency believes that it already has sufficient capability to track and monitor perchlorate detection and cleanup efforts. Nevertheless, we continue to believe that such a system would better inform the public and others about perchlorate's presence in their communities.

Addressing Emerging Climate Change Issues

In addition to the challenges with which EPA has struggled for years, new challenges are emerging, chief among them, climate change. Changes in the earth's climate attributable to increased concentrations of greenhouse gases may have significant environmental and economic impacts in the United States and internationally. Among other potential impacts, climate change could threaten coastal areas with rising sea levels, alter agricultural productivity, and increase the intensity and frequency of floods and tropical storms. Furthermore, climate change has implications for the fiscal health of the federal government, affecting federal crop and flood insurance programs, and placing new stresses on infrastructure and natural resources. Accordingly, there are numerous legislative proposals for reducing greenhouse gas emissions and reducing the nation's use and dependence on fossil fuels. EPA will be at the center of the federal government's strategy for addressing this monumental challenge.

We have previously reported that the federal government's approach to climate change has been ad hoc, not comprehensive, and not well coordinated across government agencies. Specifically, the federal government lacks a comprehensive approach for targeting federal research dollars at the development and deployment of low-carbon technologies. Federal land management agencies are behind in their efforts to develop strategies and guidance for adapting to climate change, and federal crop insurance and flood insurance have not yet embraced the implications of climate change on their portfolios. Moreover, the technical challenges of carbon capture and storage; biofuels development, production, and distribution; and alternative sources of energy have not been fully researched. Finally, energy conservation efforts have remained stagnant over the past decade.

To inform Congress as it considers various legislative proposals for addressing climate change, we reported on the economic implications of

different policy options, lessons learned from the European Union's efforts to implement mandatory carbon reductions, and the Clean Development Mechanism under the Kyoto Protocol. We also reported on the challenges in carbon capture and storage—another key component of most climate change legislative proposals—and identified problems that must be resolved. We have also issued information on the carbon offset market, and identified challenges that must be resolved before this can be a part of climate change legislation.

We have made several recommendations to help various federal agencies better address climate changes, including recommending that EPA and the Department of Energy put more rigor into their voluntary emission reduction programs and track and report results. We also recommended that federal agencies develop clear written communications to resource managers that explains how managers are expected to address the effects of climate change.³³ In addition, we recommended that federal agencies better coordinate and more comprehensively identify and address research gaps in alternative fuels, clean coal, and other emission reduction technologies. Finally, we recommended that federal agencies step up energy conservation efforts.³⁴ Agencies responsible for voluntary climate change programs, including EPA, as well as agencies responsible for climate change research generally agreed with our recommendations but have been slow to implement them.

Concluding Observations

While EPA has made some progress in improving its operations, many of the same issues still remain. EPA's mission is, without question, a difficult one: its policies and programs affect virtually all segments of the economy, society, and government, and it is in the unenviable position of enforcing myriad inherently controversial environmental laws and maintaining a delicate balance between the benefits to public health and the environment with the cost to industry and others. Nevertheless, the repetitive and persistent nature of the shortcomings we have observed

³³GAO, *Climate Change: Federal Agencies Should Do More to Make Funding Reports Clearer and Encourage Progress on Two Voluntary Programs*, [GAO-06-1126T](#) (Washington, D.C.: Sept. 27, 2006), and *Climate Change: EPA and DOE Should Do More to Encourage Progress Under Two Voluntary Programs*, [GAO-06-97](#) (Washington, D.C.: Apr. 25, 2006).

³⁴GAO, *Climate Change Research: Agencies Have Data-Sharing Policies but Could Do More to Enhance the Availability of Data from Federally Funded Research*, [GAO-07-1172](#) (Washington, D.C.: Sept. 28, 2007).

over the years points to serious challenges for EPA to effectively implement its programs. Until it addresses these long-standing challenges, EPA is unlikely to be able to respond effectively to much larger emerging challenges, such as climate change. Facing these challenges head-on will require a sustained commitment by agency leadership. As a new administration takes office and begins to chart the agency's course, it will be important for Congress and EPA to continue to focus on the issues we have identified.

We are sending copies of this report to interested congressional committees and the Administrator of EPA. The report also is available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staffs have any questions about this report, please contact me at (202) 512-3841 or stephensonj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix I.

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

John B. Stephenson
Director, Natural Resources and Environment

Appendix I: GAO Contact and Staff Acknowledgments

GAO Contact

John B. Stephenson, (202) 512-3841 or stephensonb@gao.gov

Acknowledgments

In addition to the contact named above, other key contributors to this report include Kevin Bray, Antoinette Capaccio, Kate Cardamone, Steve Elstein, Liz Erdmann, Christine Fishkin, Brian Friedman, John Gates, Melissa Hermes, Michael Hix, Anne Johnson, Rich Johnson, Karen Keegan, Ed Kratzer, Justin Mausel, Sherry McDonald, Mehrzad Nadji, Emily Norman, Alison O'Neill, Vincent Price, Diane Raynes, John Smith, Joe Thompson, and Lisa Vojta.

Related GAO Products

High-Risk Series

High-Risk Series: An Update. [GAO-09-271](#). Washington, D.C.: January 2009.

Improving Agencywide Management

Environmental Enforcement and Compliance

EPA's Execution of Its Fiscal year 2007 New Budget Authority for the Enforcement and Compliance Assurance Program in the Regional Offices. [GAO-08-1109R](#). Washington, D.C.: September 26, 2008.

Environmental Enforcement: EPA Needs to Improve the Accuracy and Transparency of Measures Used to Report on Program Effectiveness. [GAO-08-1111R](#). Washington, D.C.: September 18, 2008.

Environmental Protection: EPA-State Enforcement Partnership Has Improved, but EPA's Oversight Needs Further Enhancement. [GAO-07-883](#). Washington, D.C.: July 31, 2007.

Environmental Compliance and Enforcement: EPA's Effort to Improve and Make More Consistent Its Compliance and Enforcement Activities. [GAO-06-840T](#). Washington, D.C.: June 28, 2006.

Assessing Human Capital Issues

EPA's Execution of Its Fiscal year 2007 New Budget Authority for the Enforcement and Compliance Assurance Program in the Regional Offices. [GAO-08-1109R](#). Washington, D.C.: September 26, 2008.

Environmental Protection: EPA-State Enforcement Partnership Has Improved, but EPA's Oversight Needs Further Enhancement. [GAO-07-883](#). Washington, D.C.: July 31, 2007.

Environmental Compliance and Enforcement: EPA's Effort to Improve and Make More Consistent Its Compliance and Enforcement Activities. [GAO-06-840T](#). Washington, D.C.: June 28, 2006.

Clean Water Act: Improved Resource Planning Would Help EPA Better Respond to Changing Needs and Fiscal Constraints. [GAO-05-721](#). Washington, D.C.: July 22, 2005.

Human Capital: Implementing an Effective Workforce Strategy Would Help EPA to Achieve Its Strategic Goals. [GAO-01-812](#). Washington, D.C.: July 31, 2001.

Improving the Development and Use of Environmental information

Environmental Protection: EPA Needs to Follow Best Practices and Procedures When Reorganizing Its Library Network. [GAO-08-579T](#). Washington, D.C.: March 13, 2008.

Environmental Protection: EPA Needs to Ensure That Best Practices and Procedures Are Followed When Making Further Changes to Its Library Network. [GAO-08-304](#). Washington, D.C.: February 29, 2008.

Toxic Chemical Releases: EPA Actions Could Reduce Environmental Information Available to Many Communities. [GAO-08-128](#). Washington, D.C.: November 30, 2007.

Measuring Our Nation's Natural Resources and Environmental Sustainability: Highlights of a Forum Jointly Convened by the Comptroller General of the United States and the National Academy of Science. [GAO-08-127SP](#). Washington, D.C.: October 2007.

Environmental Right-To-Know: EPA's Recent Rule Could Reduce Availability of Toxic Chemical Information Used to Assess Environmental Justice. [GAO-08-115T](#). Washington, D.C.: October 4, 2007.

Environmental Justice: Measurable Benchmarks Needed to Gauge EPA Progress in Correcting Past Problems. [GAO-07-1140T](#). Washington, D.C.: July 25, 2007.

Environmental Information: EPA Actions Could Reduce the Availability of Environmental Information to the Public. [GAO-07-464T](#). Washington, D.C.: February 6, 2007.

Environmental Indicators: Better Coordination Is Needed to Develop Environmental Indicator Sets That Inform Decisions. [GAO-05-52](#). Washington, D.C.: November 17, 2004.

Transforming EPA's Processes for Assessing and Controlling Toxic Chemicals

EPA's Execution of Its Fiscal year 2007 New Budget Authority for the Enforcement and Compliance Assurance Program in the Regional Offices. [GAO-08-1109R](#). Washington, D.C.: September 26, 2008.

Environmental Health: EPA Efforts to Address Children's Health Issues Need Greater Focus, Direction, and Top-Level Commitment. [GAO-08-1155T](#). Washington, D.C.: September 16, 2008.

Chemical Assessments: EPA's New Assessment Process Will Further Limit the Productivity and Credibility of Its Integrated Risk Information System. [GAO-08-810T](#). Washington, D.C.: May 21, 2008.

Toxic Chemicals: EPA's New Assessment Process Will Increase Challenges EPA Faces in Evaluating and Regulating Chemicals. [GAO-08-743T](#). Washington, D.C.: April 29, 2008.

Chemical Assessments: Low Productivity and New Interagency Review Process Limit the Usefulness and Credibility of EPA's Integrated Risk Information System. [GAO-08-440](#). Washington, D.C.: March 7, 2008.

Chemical Regulation: Comparison of U.S. and Recently Enacted European Union Approaches to Protect against the Risks of Toxic Chemicals. [GAO-07-825](#). Washington, D.C.: August 17, 2007.

Environmental Contamination: Department of Defense Activities Related to Trichloroethylene, Perchlorate, and Other Emerging Contaminants. [GAO-07-1042T](#). Washington, D.C.: July 12, 2007.

Perchlorate: EPA Does Not Systematically Track Incidents of Contamination. [GAO-07-797T](#). Washington, D.C.: April 25, 2007.

Chemical Regulation: Actions Are Needed to Improve the Effectiveness of EPA's Chemical Review Program. [GAO-06-1032T](#). Washington, D.C.: August 2, 2006.

Chemical Regulation: Approaches in the United States, Canada, and the European Union. Washington, D.C.: [GAO-06-217R](#). November 4, 2005.

Chemical Regulation: Options Exist to Improve EPA's Ability to Assess Health Risks and Manage Its Chemical Review Program. [GAO-05-458](#). Washington, D.C.: June 13, 2005.

Improving Implementation of the Clean Air Act

World Trade Center: EPA's Most Recent Test and Clean Program Raises Concerns That Need to Be Addressed to Better Prepare for Indoor Contamination Following Disasters. [GAO-07-1091](#). Washington, D.C.: September 5, 2007.

Particulate Matter: EPA Needs to Make More Progress in Addressing the National Academies' Recommendations on Estimating Health Benefits. [GAO-06-992T](#). Washington, D.C.: July 19, 2006.

Particulate Matter: EPA Has Started to Address the National Academies' Recommendations on Estimating Health Benefits, but More Progress Is Needed. [GAO-06-780](#). Washington, D.C.: July 14, 2006.

Clean Air Act: EPA Should Improve the Management of Its Air Toxics Program. [GAO-06-669](#). Washington, D.C.: June 23, 2006.

Air Pollution: Estimated Emissions from Two New Mexicali Power Plants Are Low, but Health Impacts Are Unknown. [GAO-05-823](#). Washington, D.C.: August 12, 2005.

Clean Air Act: Emerging Mercury Control Technologies Have Shown Promising Results, but Data on Long-Term Performance Are Limited. [GAO-05-612](#). Washington, D.C.: May 31, 2005.

Reducing Pollution in the Nation's Waters

Environmental Health: EPA Efforts to Address Children's Health Issues Need Greater Focus, Direction, and Top-Level Commitment. [GAO-08-1155T](#). Washington, D.C.: September 16, 2008.

Recent Actions by the Chesapeake Bay Program Are Positive Steps Toward More Effectively Guiding the Restoration Effort, but Additional Steps Are Needed. [GAO-08-1131R](#). Washington, D.C.: August 28, 2008.

Chesapeake Bay Program: Recent Actions Are Positive Steps Toward More Effectively Guiding the Restoration Effort. [GAO-08-1033T](#). Washington, D.C.: July 30, 2008.

Concentrated Animal Feeding Operations: EPA Needs More Information and a Clearly Defined Strategy to Protect Air and Water Quality from Pollutants of Concern. [GAO-08-944](#). Washington, D.C.: Sept. 4, 2008.

Physical Infrastructure: Challenges and Investment Options for the Nation's Infrastructure. [GAO-08-763T](#). Washington, D.C.: May 8, 2008.

International Boundary and Water Commission: Two Alternatives for Improving Wastewater Treatment at the United States-Mexico Border. [GAO-08-595R](#). Washington, D.C.: April 24, 2008.

Great Lakes Initiative: EPA and States Have Made Progress, but Much Remains to Be Done If Water Quality Goals Are to Be Achieved. [GAO-08-312T](#). Washington, D.C.: January 23, 2008.

Coastal Wetlands: Lessons Learned from Past Efforts in Louisiana Could Help Guide Future Restoration and Protection. [GAO-08-130](#). Washington, D.C.: December 14, 2007.

South Florida Ecosystem: Some Restoration Progress Has Been Made, but the Effort Faces Significant Delays, Implementation Challenges, and Rising Costs. [GAO-07-1250T](#). Washington, D.C.: September 19, 2007.

Maritime Transportation: Major Oil Spills Occur Infrequently, but Risks to the Federal Oil Spill Fund Remain. [GAO-07-1085](#). Washington, D.C.: September 7, 2007.

The BEACH Act of 2000: EPA and States Have Made Progress Implementing the Act, but Further Actions Could Increase Public Health Protection. [GAO-07-1073T](#). Washington, D.C.: July 12, 2007.

South Florida Ecosystem: Restoration Is Moving Forward but Is Facing Significant Delays, Implementation Challenges, and Rising Costs. [GAO-07-520](#). Washington, D.C.: May 31, 2007.

Clean Water: Further Implementation and Better Cost Data Needed to Determine Impact of EPA's Storm Water Program on Communities. [GAO-07-479](#). Washington, D.C.: May 31, 2007.

Great Lakes: EPA and States Have Made Progress in Implementing the BEACH Act, but Additional Actions Could Improve Public Health Protection. [GAO-07-591](#). Washington, D.C.: May 1, 2007.

Chesapeake Bay Program: Improved Strategies Needed to Better Guide Restoration Efforts. [GAO-06-614T](#). Washington, D.C.: July 13, 2006.

Chesapeake Bay Program: Improved Strategies Are Needed to Better Assess, Report, and Manage Restoration Progress, [GAO-06-96](#). Washington, D.C.: Oct. 28, 2005.

Great Lakes Initiative: EPA Needs to Better Ensure the Complete and Consistent Implementation of Water Quality Standards. [GAO-05-829](#). Washington, D.C.: July 27, 2005.

Water Infrastructure: Comprehensive Asset Management Has Potential to Help Utilities Better Identify Needs and Plan Future Investments, [GAO-04-461](#). Washington, D.C.: Mar. 19, 2004.

Speeding the Pace of
Cleanup at Superfund and
Other Hazardous Waste
Sites

Electronic Waste: Harmful U.S. Exports Flow Virtually Unrestricted Because of Minimal EPA Enforcement and Narrow Regulation. [GAO-08-1166T](#). Washington, D.C.: September 17, 2008.

Hurricane Katrina: Continuing Debris Removal and Disposal Issues. [GAO-08-985R](#). Washington, D.C.: August 25, 2008.

Superfund: Funding and Reported Costs of Enforcement and Administration Activities. [GAO-08-841R](#). Washington, D.C.: July 18, 2008.

Aboveground Oil Storage Tanks: More Complete Facility Data Could Improve Implementation of EPA's Spill Prevention Program. [GAO-08-482](#). Washington, D.C.: April 30, 2008.

Hazardous Waste: Information on How DOD and Federal and State Regulators Oversee the Off-Site Disposal of Waste from DOD Installations. [GAO-08-74](#). Washington, D.C.: November 13, 2007.

Hazardous Materials: EPA May Need to Reassess Sites Receiving Asbestos-Contaminated Ore from Libby, Montana, and Should Improve Its Public Notification Process. [GAO-08-71](#). Washington, D.C.: October 12, 2007.

Aboveground Oil Storage Tanks: Observations on EPA's Economic Analyses of Amendments to the Spill Prevention, Control, and Countermeasure Rule. [GAO-07-763](#). Washington, D.C.: July 27, 2007.

Hurricane Katrina: EPA's Current and Future Environmental Protection Efforts Could Be Enhanced by Addressing Issues and Challenges Faced on the Gulf Coast. [GAO-07-651](#). Washington, D.C.: June 25, 2007.

Leaking Underground Storage Tanks: EPA Should Take Steps to Better Ensure the Effective Use of Public Funding for Cleanups. [GAO-07-152](#). Washington, D.C.: February 8, 2007.

Recycling: Additional Efforts Could Increase Municipal Recycling. [GAO-07-37](#). Washington, D.C.: December 29, 2006.

Environmental Liabilities: EPA Should Do More to Ensure That Liable Parties Meet Their Cleanup Obligations, [GAO-05-658](#). Washington, D.C.: Aug. 17, 2005.

Perchlorate: A System to Track Sampling and Cleanup Results Is Needed, [GAO-05-462](#). Washington, D.C.: May 20, 2005.

Hazardous Waste Sites: Improved Effectiveness of Controls at Sites Could Better Protect the Public, [GAO-05-163](#). Washington, D.C.: Jan. 28, 2005.

Addressing Emerging Climate Change Issues

Climate Change: Federal Actions Will Greatly Affect the Viability of Carbon Capture and Storage As a Key Mitigation Option. [GAO-08-1080](#). Washington, D.C.: September 30, 2008.

Carbon Offsets: The U.S. Voluntary Market Is Growing, but Quality Assurance Poses Challenges for Market Participants. [GAO-08-1048](#). Washington, D.C.: August 29, 2008.

Climate Change: Expert Opinion on the Economics of Policy Options to Address Climate Change. [GAO-08-605](#). Washington, D.C.: May 9, 2008.

Climate Change Research: Agencies Have Data-Sharing Policies but Could Do More to Enhance the Availability of Data from Federally Funded Research. [GAO-07-1172](#). Washington, D.C.: September 28, 2007.

Climate Change: Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources. [GAO-07-863](#). Washington, D.C.: August 7, 2007.

Biofuels: DOE Lacks a Strategic Approach to Coordinate Increasing Production with Infrastructure Development and Vehicle Needs. [GAO-07-713](#). Washington, D.C.: June 8, 2007.

Climate Change: Financial Risks to Federal and Private Insurers in Coming Decades are Potentially Significant. [GAO-07-820T](#). Washington, D.C.: May 3, 2007.

Climate Change: Financial Risks to Federal and Private Insurers in Coming Decades Are Potentially Significant. [GAO-07-285](#). Washington, D.C.: March 16, 2007.

Energy Efficiency: Long-standing Problems with DOE's Program for Setting Efficiency Standards Continue to Result in Forgone Energy Savings. [GAO-07-42](#). Washington, D.C.: January 31, 2007.

Climate Change: Federal Agencies Should Do More to Make Funding Reports Clearer and Encourage Progress on Two Voluntary Programs. [GAO-06-1126T](#). Washington, D.C.: September 27, 2006.

Climate Change: Greater Clarity and Consistency Are Needed in Reporting Federal Climate Change Funding. [GAO-06-1122T](#). Washington, D.C.: September 21, 2006.

Climate Change: EPA and DOE Should Do More to Encourage Progress Under Two Voluntary Programs. [GAO-06-97](#). Washington, D.C.: April 25, 2006.

GAO's Mission

The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's Web site (www.gao.gov). Each weekday afternoon, GAO posts on its Web site newly released reports, testimony, and correspondence. To have GAO e-mail you a list of newly posted products, go to www.gao.gov and select "E-mail Updates."

Order by Phone

The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's Web site, <http://www.gao.gov/ordering.htm>.

Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Web site: www.gao.gov/fraudnet/fraudnet.htm

E-mail: fraudnet@gao.gov

Automated answering system: (800) 424-5454 or (202) 512-7470

Congressional Relations

Ralph Dawn, Managing Director, dawnr@gao.gov, (202) 512-4400
U.S. Government Accountability Office, 441 G Street NW, Room 7125
Washington, DC 20548

Public Affairs

Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800
U.S. Government Accountability Office, 441 G Street NW, Room 7149
Washington, DC 20548