United States Government Accountability Office

GAO

Testimony

Before the Subcommittee on Interior, Environment, and Related Agencies, Committee on Appropriations, U.S. House of Representatives

For Release on Delivery
Expected at 9:30 a.m. EST
Wednesday, March 2, 2011

ENVIRONMENTAL PROTECTION AGENCY

Major Management Challenges

Statement of David C. Trimble, Acting Director
Natural Resources and Environment

March 2, 2011

ENVIRONMENTAL PROTECTION AGENCY

Major Management Challenges

GAO Accountability • Integrity • Reliability

Highlights

Highlights of GAO-11-422T, testimony before the Subcommittee on Interior, Environment, and Related Agencies, Committee on Appropriations, U.S. 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 the laws intended to improve the quality of the nation's air, water, and lands. 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's work has identified several significant and persistent challenges across a range of EPA programs and activities and has proposed corrective actions to enable the agency to more effectively accomplish its mission. Based on this work, this testimony highlights some of the major management challenges facing EPA today, the agency's efforts to address them, and the work GAO believes remains to be done.

What GAO Recommends

GAO has made a number of recommendations intended to improve EPA's programs by, for example, improving the information upon which key regulatory decisions are based; improving oversight over enforcement and other key program activities; and improving EPA's coordination with other agencies in program delivery. EPA has concurred with most of the recommendations and has taken steps to implement some of them.

View GAO-11-422T or key components. For more information, contact David Trimble at (202) 512-3841 or trimbled@gao.gov.

What GAO Found

On the basis of recent GAO work, key management challenges facing EPA include the following:

- *Improving agencywide management.* EPA has struggled for years to deploy its staff efficiently and in a manner that would do the most good. It has also sought to improve the reliability of its environmental enforcement and other program data, as well as its coordination among EPA offices and with other agencies to improve efficiency and leverage limited resources. Generally, the agency's initiatives in these areas have yet to achieve their intended goals. In this connection, GAO is currently examining the extent to which EPA is taking a coordinated approach in managing its laboratories.
- *Transforming EPA's processes for assessing and controlling toxic chemicals.* EPA has yet to develop sufficient chemical assessment information for limiting public exposure to many chemicals that may pose substantial health risks. As a consequence, GAO in February 2011 reaffirmed the need to transform EPA's process for assessing and controlling toxic chemicals by continuing it as one if GAO's "high-risk" areas warranting increased attention by Congress and the executive branch.
- *Reducing pollution in the nation's waters.* Among the nation's most pressing water quality problems with which EPA and other stakeholders struggle are the contributions of diffuse, or "nonpoint," sources of pollution and the challenges posed by deterioration in the nation's premier watersheds, such as the Chesapeake Bay and Great Lakes. Multibillion-dollar liabilities associated with replacing and upgrading the nation's aging water infrastructure are a looming issue that, if not sufficiently addressed, will impact water quality.
- *Addressing the cost and pace of cleanup at Superfund and other hazardous waste sites.* EPA's Superfund program is intended to ensure the cleanup of hazardous waste sites on both private and public lands. Nonetheless, 30 years after the program began, GAO found that cleanup costs for remaining hazardous waste sites will not only be substantial, but that problems with the accuracy and completeness of data on the amount of remaining cleanup work prevent EPA from reliably estimating these costs.
- *Addressing the agency's emerging role in climate change issues.* As a highly interdisciplinary issue, climate change poses management challenges for the federal government at large. For EPA, particular climate change-related challenges pertain to the legal and administrative barriers facing the agency in its ongoing efforts to reduce carbon emissions, its difficulties in coordinating activities involving numerous other agencies and other levels of government, and its efforts to account for and manage data on greenhouse gas emissions.

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss management challenges facing the Environmental Protection Agency (EPA). These challenges are made all the more important by increased demand for improved government performance and responsiveness, as well as greater accountability. 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.

As you know, EPA's responsibilities are carried out under a complex array of environmental laws, including the Clean Air and Clean Water acts, the Toxic Substances Control Act (TSCA), and others. The legal framework within which the agency operates is also shaped by numerous court orders resulting from lawsuits that have been filed over the years by states, concerned citizens, special interest groups, and others. Structurally, EPA comprises headquarters offices largely aligned with its primary authorizing statutes and 10 regional offices that help to implement these statutes across the country. The regional offices possess considerable autonomy, which has sometimes led to questions and concerns about variation from region to region in enforcement and other aspects of program delivery. The agency's budget, while rising in nominal terms from $7.8 billion for fiscal year 2000 to $10.4 billion for fiscal year 2010, has remained relatively flat in real terms.[1] EPA's fiscal year 2010 budget included about $1.1 billion for clean air and climate change, $4.9 billion for clean water (which includes federal funding for both the Clean Water and Drinking Water state revolving funds), and $1.8 billion for land restoration.[2]

My testimony today updates our 2009 report on EPA's management challenges[3] and is drawn largely from our work over the last several years (see Related GAO Products at the end of this statement). Many of these reports included recommendations intended to improve EPA's programs by enhancing the information it uses to manage its programs and

[1]In real terms, using 2011 dollars, EPA's budget equated to $9.9 billion in fiscal year 2000 and $10.4 billion in fiscal year 2010.

[2]EPA's 2011 budget is uncertain, given that the federal government is operating under a continuing resolution set to expire on March 4, 2011.

[3]GAO, *Environmental Protection Agency: Major Management Challenges*, GAO-09-434 (Washington, D.C.: Mar. 4, 2009).

strengthening internal controls.[4] EPA has generally concurred with our recommendations and has taken steps to implement some of them. I will highlight some notable issues arising from our recent work. Some are long-standing issues involving the agency's core programs; others are emerging challenges for which we believe the agency will need to become better prepared. With this in mind, I would like to focus my remarks today on the need to (1) improve key aspects of the agency's overall management, (2) transform EPA's processes for assessing and controlling toxic chemicals, (3) reduce pollution in the nation's waters, (4) address the cost and pace of cleanup at Superfund and other hazardous waste sites, and (5) address the agency's emerging role in climate change issues.

Improving Agencywide Management

EPA's size, geographical dispersion, reliance on its partnership with state and local governments, and broad and complex mission all combine to make management of the agency a formidable challenge. Our recent work has identified several particular management challenges at EPA, including the need to address workload and workforce planning, to ensure consistent environmental enforcement and compliance data, and to better coordinate with other agencies to more effectively leverage limited resources.

Addressing Workload and Workforce Planning Needs

EPA has struggled for years to identify its human resource needs and to deploy its staff throughout the agency in a manner that would do the most good. In 2008, we reported that rather than establishing a process for budgeting and allocating human resources that fully considers the agency's current workload, EPA makes requests for funding and staffing by making incremental adjustments, largely based on historical precedent.[5] We noted that the agency has not comprehensively analyzed its workload and workforce since the late 1980s to determine the optimal numbers and distribution of staff agencywide. Moreover, EPA's human

[4]We 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.

[5]GAO, *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).

capital management systems have not kept pace with 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 piecemeal methods for determining workload and staff allocation, we recommended that EPA improve its workforce planning by identifying the factors driving its workload and developing more accurate allocation systems for deploying staff with the requisite skills and capabilities to areas where they are most needed. The agency has taken some recent steps to improve its workforce planning. For example, in 2009 it hired a contractor to provide information about the agency's workload in several key areas, such as staffing levels and workload shifts. In addition, the agency asked one of its advisory councils to help in developing its next strategic workforce plan to supersede the last plan established in 2006, which delegated responsibilities to the various offices. We have not evaluated whether EPA has made meaningful progress in these efforts.

Ensuring Consistent Environmental Enforcement and Compliance Data

EPA has authorized states to carry out many of the day-to-day responsibilities for timely and appropriate enforcement of environmental laws and regulations. We have noted instances in the past where EPA has not (1) identified the causes of poorly performing state enforcement programs, (2) informed the public about how well the states are implementing their enforcement responsibilities, or (3) assessed the performance of EPA's regional offices in carrying out their state oversight responsibilities—performance that has generally proven to be inconsistent over the years.[6]

EPA has been slow to improve long-standing problems with often incomplete and unreliable enforcement data. Among other things, enforcement data are needed to accurately identify and characterize regulated entities to improve the transparency and accuracy of the agency's reports to Congress and the public when reporting on the effectiveness of the enforcement programs. Furthermore, we have reported problems in how EPA calculates and reports on measures of

[6]For example, see GAO, *Clean Water Act: Longstanding Issues Impact EPA's and States' Enforcement Efforts*, GAO-10-165T (Washington, D.C.: Oct. 15, 2009).

program effectiveness, such as penalties, the value of injunctive relief, and any resulting reduction in pollution.[7] These problems may undermine the transparency and accuracy of EPA's reported outcomes and cause the agency to either over- or underreport its enforcement achievements.

In recent years, we have recommended ways for EPA to enhance its oversight of regional and state enforcement activities so as to implement environmental programs consistent with the requirements of federal statutes and regulations. In particular, we 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.[8] We also suggested that EPA (1) routinely assess the performance of regional and state enforcement programs and communicate the results of these assessments to the public and the regulated industry and (2) disclose more information when reporting penalties and estimates of the value of injunctive relief and pollution reduction.[9]

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 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. Still, implementation of the framework is clearly a work in progress. During its fiscal year 2008 evaluation of the framework, for example, EPA identified significant noncompliance with water permitting requirements and an unacceptably low level of enforcement activity. In response, in 2009 the agency issued its Clean Water Act Enforcement Action Plan, which described efforts to (1) raise the bar for EPA and state enforcement performance; (2) inform the public clearly and fully about serious Clean

[7]GAO, *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).

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

[9]GAO-08-1111R.

Water Act violations and actions to address them; and (3) use the latest technology to transform the collection, use, and availability of EPA data. In addition, EPA now publishes its State Review Framework reports and data on enforcement performance on its Web site and has developed new Web-based tools to help the public search and analyze the performance data.

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. For example, in 2010, EPA began reporting penalties in a manner that clearly indicates that penalties are reported as assessed, rather than as collected, and began properly presenting time-series data that are adjusted for inflation. Overall, the agency's efforts in this area are still in their early stages, and their success is uncertain. Much will depend on the continued commitment of senior management, along with sufficient priority and resources.

Coordinating with Other Agencies to More Effectively Leverage Limited Resources

EPA relies on other federal and state agencies to help implement its programs. Given the federal deficit and the government's long-term fiscal challenges, it is imperative that EPA improve coordination with its federal and state partners to reduce administrative burdens, redundant activities, and inefficient uses of federal resources. For example, EPA and other federal agencies may work together to fund water infrastructure projects.[10] In 2009, we reported that EPA and six federal agencies obligated $1.4 billion for drinking water and wastewater projects to assist communities in the U.S.-Mexico border region from fiscal years 2000 through 2008.[11] Nevertheless, we found that the agencies' efforts to fund these projects were ineffective because the agencies, with the exception of the Indian Health Service, had not comprehensively assessed the region's needs and lacked coordinated policies and processes for selecting and building projects. As a result, we suggested that Congress may wish to consider

[10]The agencies are the Department of Agriculture; the Department of Housing and Urban Development; the U.S. Army Corps of Engineers; the Economic Development Administration in the Department of Commerce; the Indian Health Service within the Department of Health and Human Services; and the Bureau of Reclamation, within the Department of the Interior.

[11]GAO, *Rural Water Infrastructure: Improved Coordination and Funding Processes Could Enhance Federal Efforts to Meet Needs in the U.S.-Mexico Border Region*, GAO-10-126 (Washington, D.C.: Dec. 18, 2009).

establishing an interagency task force to develop a plan for coordinating funding to address the region's most pressing needs.

In addition to funding water infrastructure projects, EPA has coordinated with numerous federal and state agencies as the lead agency in a multi-billion dollar effort to restore the Chesapeake Bay. We found, however, that key commitments and plans were inconsistent with one another, and some were viewed to be unachievable by some partners. In 2008, we reported that the Chesapeake Bay Program (a partnership among EPA, several states, and the Chesapeake Bay Commission) had taken several actions in response to our findings, such as developing a strategic framework to unify planning documents and identify how it will pursue its goals. While these actions are positive steps, we found that additional actions are needed before the program has the comprehensive, coordinated implementation strategy we recommended.[12]

Transforming EPA's Processes for Assessing and Controlling Toxic Chemicals

As we reported in March 2009, 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, including TSCA. EPA assesses chemicals under its Integrated Risk Information System (IRIS) program and is authorized under TSCA to obtain information on the risks of chemicals and to control those it determines pose an unreasonable risk. Because EPA had not developed sufficient chemical assessment information under these programs to limit public exposure to many chemicals that may pose substantial health risks, in 2009 we added this issue to our list of areas at high risk for waste, fraud, abuse, and mismanagement or in need of broad-based transformation.[13] In

[12]GAO, *Chesapeake Bay Program: Recent Actions Are Positive Steps Toward More Effectively Guiding Restoration Efforts*, GAO-08-1033T (Washington, D.C.: July 30, 2008). In May 2009, the President issued an executive order establishing a Federal Leadership Committee for the Chesapeake Bay to oversee the development and coordination of programs and activities of agencies participating in the protection and restoration of the bay. The committee is chaired by EPA and includes six other federal agencies. Part of the Committee's responsibilities included developing a strategy for coordinated implementation of existing programs and projects to guide efforts to protect and restore the Chesapeake Bay. The resulting strategy was issued in May 2010. We have ongoing work assessing this strategy.

[13]GAO, *High Risk Series: An Update*, GAO-09-271 (Washington, D.C.: Jan. 22, 2009); GAO, *High Risk Series: An Update*, GAO-11-278 (Washington, D.C.: Feb. 16, 2011).

a number of reports, we have also made recommendations to (1) improve the timeliness and credibility of EPA's IRIS program, which provides EPA's scientific position on the potential human health effects of more than 540 chemicals, and (2) enhance EPA's ability under TSCA to, among other things, obtain health and safety information from the chemical industry. We also recently addressed nanotechnology as an emerging area of toxic substance regulation.

Addressing IRIS' Timeliness, Transparency, and Credibility

EPA's IRIS database provides the basic information the agency needs to determine whether it should establish controls to protect the public from exposure to toxic chemicals in the air, in water, and at hazardous waste sites. In March 2008, we reported that IRIS' viability was at risk because EPA had been unable to complete timely and credible chemical assessments—including those for chemicals of greatest concern, such as formaldehyde and dioxin.[14] Assessments of these two chemicals have been in progress for 13 and 19 years, respectively. In addition, EPA had been unable to decrease its long-standing backlog of ongoing assessments or to keep its existing assessments current.

In May 2009, EPA revised its IRIS assessment process. If implemented effectively, these assessment reforms will be largely responsive to our 2008 recommendations. Among other things, they will restore EPA's control of the process and increase its transparency. Specifically, under the prior process, interagency reviews were required and managed by the Office of Management and Budget, and EPA was not allowed to proceed with assessments at various stages until the office agreed that EPA had sufficiently responded to interagency comments. In contrast, under the reforms, EPA is to manage the entire assessment process, and all written comments on draft assessments provided during the interagency process are to be part of the public record. It is too soon to determine whether the reforms will be effective, but EPA reports it has made some progress in addressing its assessment backlog.[15] We are currently reviewing EPA's implementation of the revised process.

[14]GAO, *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).

[15]GAO-08-440.

Addressing EPA's Ability to Obtain Chemical Health and Safety Information

We have also reported that EPA's assessments of industrial chemicals under TSCA provide limited information on health and environmental risks.[16] In contrast to the approach taken by the European Union—which generally places the burden on companies to provide data on the chemicals they produce and to address the risks posed by these chemicals to human health and the environment—TSCA generally places the burden on EPA to obtain information about the roughly 80,000 chemicals in the agency's TSCA inventory. For example, the act requires EPA to demonstrate certain health or environmental risks before it can require companies to further test their chemicals. Consequently, EPA does not routinely assess the risks of the industrial chemicals already in use.[17]

For the approximately 700 new chemicals introduced into commerce annually, chemical companies are required to provide EPA with certain information in premanufacture notices, and EPA can ban or limit the chemicals' use if the information is inadequate. Nevertheless, although 85 percent of the notices lack any health or safety test data, EPA does not often use its authority to obtain more information. After our reports, EPA began taking steps to address some of these issues. For example, under its existing authorities, EPA has initiated actions on such chemicals as mercury and lead to, for example, ban or phase out their use in certain products. Most of these actions are in their early stages of development.

As we reported in our February 2011 *High-Risk Update*, EPA needs to continue to demonstrate a strong commitment to and support of the IRIS program and its TSCA initiatives. Specifically, we stated that EPA needs to ensure that its 2009 IRIS reforms are implemented effectively and that the program can routinely provide timely and credible assessments. Regarding TSCA, we have recommended both statutory and regulatory changes to, among other things, provide EPA with additional authorities to obtain health and safety information from the chemical industry and to shift more of the burden to chemical companies for demonstrating the safety of their

[16]GAO, *Chemical Regulation: Options for Enhancing the Effectiveness of the Toxic Substances Control Act*, GAO-09-428T (Washington, D.C.: Feb. 26, 2009).

[17]GAO-11-278.

chemicals.[18] The EPA Administrator has expressed support for TSCA reforms and in 2010 developed principles for addressing them.

Addressing Nanotechnology as an Emerging TSCA Issue

Finally, one emerging area of toxic substance regulation on which we recently reported, and for which EPA faces challenges, is the area of nanotechnology.[19] Nanotechnology involves the ability to control matter at the scale of a nanometer—one billionth of a meter. The world market for products containing nanomaterials is expected to reach $2.6 trillion by 2015. EPA has taken some regulatory action under TSCA to address potential risks to human health and the environment related to nanotechnology, but other planned actions have not yet gone into effect. Overall, EPA has issued four regulations characterizing the manufacture of four different nanomaterials as significant new uses of existing chemicals under TSCA.

In our May 2010 report, we recommended, among other things, that EPA finalize a number of regulatory actions it had planned to pursue. Specifically, according to EPA, the agency plans to propose a new rule that would regulate, in a single rule, a range of nanoscale versions of existing chemicals as significant new uses of those chemicals. EPA also plans to require companies to provide certain information on nanomaterials—including production volume, methods of manufacture and processing, exposure and release, and available health and safety studies—and plans to require companies to generate test data on the health effects of different nanomaterials. At the time our report was released, EPA reported that it planned to propose these rules by December 2010, but has not yet done so. While EPA continues to work on these rules, however, products may be entering the market without EPA review of available information on their potential risk. In addition, although EPA requires chemical companies to periodically provide certain information on many of the chemicals currently in commerce, it has not extended this requirement to nanomaterials.

[18]GAO, *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).

[19]GAO, *Nanotechnology: Nanomaterials Are Widely Used in Commerce, but EPA Faces Challenges in Regulating Risk*, GAO-10-549 (Washington, D. C: May 25, 2010).

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. Since its enactment, much progress has been achieved under the act to control pollution from wastewater treatment plants and other specific "point sources" of discharge. Since that time, however, other challenges have emerged and continue to confront EPA and other levels of government in their efforts to ensure safe and abundant water supplies for the American people. These challenges include (1) the need to focus more attention on diffuse, or "nonpoint," sources of pollution to address the most significant of the nation's remaining water quality problems; (2) the unique challenges posed by deterioration in the nation's premier watersheds including, among others, the Chesapeake Bay and Great Lakes; and (3) daunting challenges posed by the multibillion dollar liabilities associated with replacing, maintaining, and building new water infrastructure.

Controlling Nonpoint Sources of Pollution

The Clean Water Act's effectiveness has become increasingly challenged by a recognition that the largest share of the nation's remaining water quality problems are more decentralized and diffuse in nature—and therefore more difficult to monitor and regulate. One such nonpoint pollution source, for example, 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.[20] Polluted storm water runoff can also make fish and shellfish unsafe to eat and can adversely affect people using fresh- and saltwater areas for recreation. In 2007, we reported that while many communities were still implementing their first permits for controlling storm water runoff, several factors influence the extent to which EPA's storm water program burdens a community, such as prior storm water management experience.[21] We recommended that EPA evaluate the implementation of its storm water program, issue additional program guidance, and consider regulatory changes to improve the quality and consistency of activity reporting by communities. EPA agreed with our

[20]Discharges from urban storm water runoff share many of the traits of a diffuse, nonpoint source, but they are technically treated and regulated under the Clean Water Act as a point source.

[21]GAO, *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).

recommendations to develop guidance to help the agency obtain better data to evaluate the program and provided additional program guidance to states and regions on such items as storm water pollution prevention plans. In 2009, the agency issued a guide to assist permit writers in strengthening storm water permits in 2010.

The agricultural sector accounts for a large share of water problems stemming from nonpoint sources and therefore much of the effort to control such pollution lies within the jurisdiction of the U.S. Department of Agriculture. Crop production, for example, impairs water quality as pesticides, fertilizer, and sediment run off fields and into nearby water bodies. Of particular note, a 10-year, nationwide study published in 2006 by the U.S. Geological Survey detected pesticides in 97 percent of streams in agricultural and urban watersheds. In 2009, we reported that many experts believe that the increased use of pesticides (insecticides and herbicides) related in particular to increased crop production for biofuels, will likely further degrade surface and ground water quality.[22]

Another major source of agriculture-related pollution stems from discharges associated with large-scale animal feeding operations.[23] 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. Excessive amounts of these nutrients can deplete oxygen in water, which could result in fish deaths, reduced aquatic diversity, and illness in infants. Our 2008 report on the subject found that 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 discharge they release.[24] As a result, EPA has neither the information it needs to assess the extent to

[22]GAO, *Biofuels: Potential Effects and Challenges of Required Increases in Production and Use*, GAO-09-446 (Washington, D.C.: Aug. 25, 2009).

[23]Discharges from concentrated animal feeding operations share many of the traits of a diffuse, nonpoint source, but they are technically treated and regulated under the Clean Water Act as a point source.

[24]GAO, *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). Among other things, the report recommended that EPA complete its efforts to develop an inventory of permitted operations.

which these concentrated animal-feeding operations may be contributing to water pollution, nor the information it needs to ensure compliance with the Clean Water Act.

The question of how well EPA is coordinating its own efforts to control agricultural pollution with Agriculture is an important part of our ongoing review of the agency's Nonpoint Source Management Program, established under section 319 of the Clean Water Act. This program supports state nonpoint source management programs, providing funds to states to implement projects directed toward resolving nonpoint source pollution problems. Among the key issues being addressed in this broad program review are the extent to which EPA coordinates the implementation of its section 319 program with similar efforts to control agricultural nonpoint sources of pollution undertaken by Agriculture, as well as with other federally funded efforts to control nonpoint sources of pollution (including efforts funded through EPA's own Clean Water State Revolving Fund).

Emphasizing a Watershed-Based Approach

EPA has increasingly emphasized a "watershed-based approach" that attempts to restore and protect the nation's water resources by taking into account the full range of stresses emanating from all pollution sources. Under this holistic approach, EPA and its partners seek to identify the priority threats to large, often multistate watersheds like the Great Lakes and Chesapeake Bay. EPA partners with federal, state, and local agencies and nongovernmental organizations to develop and implement approaches that reduce pollution in our nation's significant water bodies.

Nonetheless, after decades of effort and expense by EPA and its partners to spearhead restoration efforts for these watersheds, we reported that these efforts have been impeded by a lack of targeted strategies; poor coordination among federal, state, and local stakeholders; and unrealistic goals for ensuring that limited restoration resources are being used for the most effective restoration activities. In 2006, for example, we recommended that EPA ensure that the Chesapeake Bay Program develop a coordinated implementation strategy unifying its various planning documents and establishing a means to better target its limited resources to the most cost-effective restoration activities.[25] Along similar lines, in 2008 we recommended that EPA develop for its Great Lakes Initiative a

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

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.[26]

EPA has taken some actions in response to our recommendations. In addition, in May 2009, the President issued an executive order establishing a Federal Leadership Committee for the Chesapeake Bay to oversee the development and coordination of programs and activities of agencies participating in protection and restoration of the bay. Chaired by EPA, the committee includes six other federal agencies. Part of its responsibilities included developing a strategy for coordinated implementation of existing programs and projects to guide efforts to protect and restore Chesapeake Bay. The resulting strategy was issued in May 2010. We are currently assessing this strategy. Additionally, EPA has indicated that it plans to work with the Great Lakes states in assessing approaches for reducing mercury in lieu of developing a mercury permitting strategy.

Rebuilding the Nation's Aging Water Infrastructure

Some of the most daunting water pollution control problems will be those faced by EPA and the nation's water utilities in addressing the multibillion-dollar costs of upgrading aging and deteriorating water infrastructure and building new infrastructure to serve a growing population. The investment made throughout the 1970s and 1980s to build and upgrade the nation's water infrastructure accounted for much of the progress in past years to deal with what were, at that time, the pressing water issues of high bacterial contamination and toxic water pollution. Many of the wastewater treatment plants and other water infrastructure built in those years, however, have since reached, or will soon reach, the end of their design lives. Frequent and highly publicized incidents of combined sewer overflows into rivers and streams, as well as water main breaks in the nation's largest cities, have been perhaps the most visible manifestations that the problem is growing.

EPA provides funding to the states for water infrastructure upgrades and construction through the Clean Water and the Drinking Water state revolving funds, authorized by Congress in 1987 and 1996, respectively.

[26]GAO, *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).

Congress provided $2.1 billion and $1.4 billion, respectively, for each program in fiscal year 2010. These funds supplement other revenue—from water rates or other taxes—raised by local utilities to pay for their infrastructure projects. While EPA also received and distributed about $6 billion in additional water infrastructure funding under the American Recovery and Reinvestment Act, the total cost to meet water infrastructure needs across the country through 2029 has been estimated to be from $485 billion to $1.2 trillion.

EPA faces a challenge in working with the states and utilities to address this issue. We have 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. 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 available funds. However, additional funds—or revenue from rate increases—will still likely be needed to address future needs.

To address options for alternative funding sources for these infrastructure needs, we have issued reports providing information on various proposals to develop alternative funding sources and mechanisms to address current and projected water infrastructure needs. In 2009, we reviewed one proposal to establish a Clean Water Trust Fund, which would provide a dedicated source of federal funding for wastewater infrastructure.[27] Stakeholders we interviewed disagreed over whether EPA should administer such a trust fund as part of the Clean Water State Revolving Fund. These stakeholders also disagreed over whether funding should be provided as loans or grants to recipients, although a majority did agree that funds should pay for capital projects. We also discussed potential revenue sources for funding a Clean Water Trust Fund and obstacles to generating revenue from these sources.

In 2010, we examined two other proposed alternative funding sources for water infrastructure projects: a national infrastructure bank and public-private partnerships.[28] Concerning an infrastructure bank, stakeholders

[27]GAO, *Clean Water Infrastructure: A Variety of Issues Need to Be Considered When Designing a Clean Water Trust Fund*, GAO-09-657 (Washington, D.C.: May 29, 2009).

[28]GAO, *Wastewater Infrastructure Financing: Stakeholder Views on a National Infrastructure Bank and Public-Private Partnerships*, GAO-10-728 (Washington, D.C.: June 30, 2010).

disagreed over whether an infrastructure bank should be administered by a federal agency or structured as a government corporation or other entity and over which types of projects—such as large infrastructure projects or small ones—should be eligible for bank financing. Stakeholders did agree, however, that federal funds should be used to finance a bank initially but that other mechanisms could be used to generate funds for financing projects over the long term. Regarding public-private partnerships, officials for the 7 municipalities that had experience with such arrangements said that advantages of public-private partnerships include access to nontraditional funding sources, creating potential efficiency through economies of scale, and completing projects more quickly. These officials also identified challenges to public-private partnerships, such as local opposition to potential or perceived rate increases, higher interest rates charged by private entities involved in the partnership, and increased project costs because of complex contracts and arrangements.

As a related matter, in 2010, we reviewed 14 states' spending of Recovery Act funding on water infrastructure projects.[29] The Recovery Act provided $6 billion in additional funding for states, $2 billion for the Drinking Water State Revolving Fund and $4 billion for the Clean Water State Revolving Fund. We found that these states allocated the funding to 504 drinking water projects and 890 clean water projects. We also found that the states met Recovery Act requirements for providing Clean Water revolving fund assistance for "green" projects (projects that included environmentally friendly infrastructure, provided water- or energy-efficiency improvements, or other environmentally innovative activities).[30] We found, however, that attention and monitoring by EPA and the states of Recovery Act projects could be strengthened. As a result, we recommended that EPA work with the states to implement specific oversight procedures to monitor and ensure Recovery Act compliance. EPA issued new guidance in June 2010. We are continuing our review of EPA's implementation of Recovery Act funds and how the funds will help address states' water quality problems. As part of this work, we will continue to assess EPA's and the states' monitoring of Recovery Act projects.

[29]GAO, *Recovery Act: States' and Localities' Use of Funds and Actions Needed To Address Implementation Challenges and Bolster Accountability*, GAO-10-604 (Washington, D.C.: May 26, 2010).

[30]States were also required to use at least 20 percent of funds provided under the Recovery Act for Clean Water revolving funds as a "green reserve" to provide assistance for green infrastructure projects, water or energy efficiency improvements, or other environmentally innovative activities.

Costs and Pace of Cleanup at Superfund and Other Hazardous Waste Sites

To protect human health and the environment from the effects of hazardous substances, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act in 1980, which established the Superfund program. Since 1980, EPA has identified more than 47,000 hazardous waste sites potentially requiring cleanup. As of the beginning of fiscal year 2010, 1,269 of the most seriously contaminated sites were included on EPA's National Priorities List: 1,111 nonfederal sites and 158 federal facilities. Among the key findings of our recent work are that (1) cleanup costs are likely to be substantial, (2) problems with the accuracy and completeness of data prevent the agency from estimating future cleanup costs, and (3) several key obstacles have delayed cleanup progress at Department of Defense (DOD) installations. Our recent work provides an indication of the challenges that lie ahead for this important program.

Addressing Substantial Cleanup Costs

We and other organizations have cited the growing gap between the costs associated with cleaning up sites remaining on the National Priorities List and funds available to do so. Cleanup efforts at listed sites are typically expensive and can take many years. While responsible parties are liable for conducting or paying for site cleanup of hazardous substances—and EPA can seek reimbursement for its cleanup costs from these parties—the parties in some cases cannot be identified or may be unwilling or financially unable to perform the cleanup. To fund EPA-led cleanups at nonfederal National Priorities sites, EPA uses the Hazardous Substance Superfund (trust fund) from which EPA receives annual appropriations. Historically, the trust fund was financed primarily by taxes on crude oil and certain chemicals, as well as an environmental tax on corporations based on their taxable income. The authority for these taxes expired in 1995, however, and shortly thereafter the balance in the trust fund started to diminish. Since 2001, appropriations from general revenues have been the largest source of funding for the trust fund. At the start of fiscal year 2009, the trust fund had a balance of $137 million. Superfund program appropriations have averaged about $1.2 billion annually since 1981, although the annual level of these appropriated funds has generally declined in recent years when adjusted for inflation.

In June 2010 we reported that EPA's cost to remediate existing and future National Priorities sites will likely exceed current funding levels.[31]

[31]GAO, *Superfund: Costs to Remediate Existing and Future Sites Will Likely Exceed Current Funding Levels*, GAO-10-857T (Washington, D.C.: June 22, 2010).

Considerable work remains at most nonfederal sites on the list with unknown or unacceptable human exposures, and some site cleanups have not been funded at a level that is sufficient to ensure meaningful results. Moreover, site costs are likely to increase because, according to EPA, in the program's early years the agency focused resources on sites that needed less construction work and were farther along in the cleanup process. Consequently, the sites that have been on the National Priorities List the longest without completing construction of cleanup remedies are likely to face more complex and costly future cleanup work.

Resolving Data Limitations Hindering Estimates of Program Costs

While remedial actions have been implemented or are under way at most sites on the National Priorities List, the amount of work remaining is unclear because, as we reported in July 2009, data on whether construction is complete at sites do not provide a clear picture of the amount of work that actually remains at sites, and the progress of cleanup is even less clear for sites where construction is not complete.[32] EPA program status reports do not provide information on the number and cleanup status of megasites—sites with actual or expected total cleanup costs, including removal and remedial action costs, that are expected to amount to $50 million or more (especially mining and sediment sites). This information could help indicate the types of conditions driving EPA's remedy decisions at sites that were listed more recently, as well as the impediments to cleanup progress at older sites. Additionally, these reports do not provide information on the number of sites where responsible parties are financially unable to help pay for cleanup activities or on the potential impact on EPA's ability to carry out cleanup activities when it cannot obtain reimbursement from responsible parties for agency cleanup costs. Such information could help indicate the factors that are driving program expenditures and potential future costs.

Accordingly, we recommended that EPA assess the comprehensiveness and reliability of the data the agency collects and, where necessary, improve the data to provide aggregated information on (1) the status and cost of cleanups at individual sites, particularly complex and expensive sites; (2) the extent to which there are viable responsible parties at sites on the National Priorities List; and (3) the potential financial impacts from

[32]GAO, *Superfund: Litigation Has Decreased and EPA Needs Better Information on Site Cleanup and Cost Issues to Estimate Future Program Funding Requirements*, GAO-09-656 (Washington, D.C.: July 15, 2009).

EPA's inability to obtain reimbursement for agency cleanup costs from nonviable responsible parties. EPA agreed to assess data reported on program status and costs but did not agree to assess and report data on the extent to which there are viable responsible parties, nor on the financial impacts if such parties cannot be identified. We believe these data are essential to assess EPA's future funding needs.

As we reported in May 2010, most EPA regional offices expect an increase in the number of sites added to the National Priorities List over the next 5 years but cannot estimate the associated cleanup costs.[33] One factor that could increase the number of sites eligible for the list is whether EPA begins to assess the risks of subsurface hazardous substances leaking upward into homes and businesses (vapor intrusion). As a result, we recommended that EPA determine the extent to which EPA will consider vapor intrusion as part of the listing process for the National Priorities List and how this phenomenon will affect the number of sites listed in the future. EPA agreed with our recommendation.

Confronting Difficulties in the Cleanup of DOD Superfund Sites

Our July 2010 report on DOD-related Superfund sites identified several obstacles—including poor coordination, lack of interagency agreements, contract management, and legal limitations—that have delayed cleanups.[34] First, poor coordination with regulators and incomplete record reviews have resulted in poor decision making, such as placing military personnel in housing at risk of contamination, ultimately leading to their evacuation. Second, because DOD had not signed interagency agreements at some of its National Priorities List sites, EPA lacked the mechanisms to ensure that cleanup proceeds expeditiously, is properly done, and has public input as required by law. Third, DOD's use of performance-based contracts to clean up installations has affected how the cleanup work was scoped and conducted and has created pressure on contractors to operate within price caps and meet deadlines, which may conflict with regulatory review times and encourage the department to take shortcuts. Finally, EPA has virtually no enforcement tools available to compel agency compliance with the law

[33]GAO, *Superfund: EPA's Estimated Costs to Remediate Existing Sites Exceed Current Funding Levels, and More Sites Are Expected to Be Added to the National Priorities List*, GAO-10-380 (Washington, D.C.: May 6, 2010).

[34]GAO, *Superfund: Interagency Agreements and Improved Project Management Needed to Achieve Cleanup Progress at Key Defense Installations*, GAO-10-348 (Washington, D.C.: July 15, 2010); GAO, S*uperfund: Greater EPA Enforcement and Reporting Are Needed to Enhance Cleanup at DOD Sites*, GAO-09-278 (Washington, D.C.: Mar. 13, 2009).

at installations without an interagency agreement, unless EPA has concurrence from the Department of Justice, whose policy generally precludes one agency from bringing suit against another.

Addressing EPA's Emerging Role in Climate Change

As one of the most complicated interdisciplinary environmental issues currently facing the federal government, climate change poses particular management challenges for EPA. We have previously reported that, in addition to its environmental implications, 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. We have also analyzed and reported on recent legislative and regulatory efforts to reduce greenhouse gas emissions. Recent GAO work has also identified a range of climate change management challenges for the federal government at large, including a broad array of departments with diverse missions. For EPA, particular challenges relate to the agency's ongoing efforts to reduce carbon emissions; to coordinate activities with other agencies; and to account for and manage data on greenhouse gas emissions.

Legislative and Regulatory Greenhouse Gas Emissions Reduction Efforts

Several bills that would have established comprehensive emissions reduction programs were introduced and debated during the 111th Congress, although none became law. To provide the Congress with relevant information during these deliberations, however, we reported on the economic implications of different policy options and on lessons learned from the European Union's own efforts to implement mandatory carbon reductions. We found, for example, that the European Union set its overall emissions limit, or "cap," too high (i.e., at a level that was higher than actual emissions) because of uncertainty surrounding the emissions data used to set the cap.[35] We also reported on carbon offsets—reductions of greenhouse gas emissions from an activity on one place to compensate

[35]GAO, *International Climate Change Programs: Lessons Learned from the European Union's Emissions Trading Scheme and the Kyoto Protocol's Clean Development Mechanism*, GAO-09-151 (Washington, D.C.: Nov. 18, 2008). GAO did not recommend executive action in response to this work, but stated that, in deliberating legislation for emissions trading, Congress may wish to consider the lessons learned from the European Union's efforts.

for emissions elsewhere—noting that the credibility of offsets could compromise the environmental integrity of a system to reduce emissions.[36]

In the absence of a law establishing a cap-and-trade program in the United States, EPA is implementing a regulatory program to reduce greenhouse gas emissions that is facing an array of legal challenges. Specifically, in 2009 EPA issued a finding that greenhouse gas emissions from new motor vehicles are contributing to air pollution that is endangering public health and welfare. This finding, known as the Endangerment Finding, is the foundation for all of EPA's efforts to regulate greenhouse gases under the Clean Air Act. Twenty-six lawsuits have been filed challenging the endangerment finding for greenhouse gases. Nonetheless, the EPA rule establishing emissions standards for light-duty motor vehicles went into effect on January 2, 2011. Additional rules subjecting certain stationary sources to regulation under the Clean Air Act as of January 2, 2011, have also been challenged. All of these lawsuits are to be heard together by the same panel of judges. Moreover, to date, five bills that would preclude EPA from regulating greenhouse gases under the Clean Air Act have been introduced in the 112th Congress.

Coordinating Climate Change Activities with Other Agencies

Climate change has the potential to affect every sector and level of government operations. Consequently, there are areas in which EPA will need to work closely with other agencies and to clarify its own role within broader, governmentwide efforts. One example arose during our 2008 work on the federal government's examination of carbon capture and storage as a means of reducing carbon emissions from the electric utility sector. Carbon capture and storage involves capturing carbon dioxide from a power plant's emissions, transporting it to an underground storage location, and then injecting it into a geologic formation for long-term storage. In addition to its formidable technological challenges, we noted that carbon capture and storage faces significant legal and regulatory uncertainties. We noted that EPA was addressing some of these uncertainties (specifically by issuing a rule to govern underground injection of carbon dioxide for geologic sequestration), but that "many of

[36]GAO, *Carbon Offsets: The U.S. Voluntary Market Is Growing, but Quality Assurance Poses Challenges for Market Participants*, GAO-08-1048 (Washington, D.C.: Aug. 29, 2008). GAO did not recommend executive action based on this work, but stated that, as it considers legislation that allows the use of offsets for compliance, Congress might consider, among other things, directing the establishment of standardized quality assurance mechanisms.

them fall within the domain of the Departments of Energy, the Interior, Transportation, the Federal Energy Regulatory Commission, and other agencies in a manner that would require collaboration between agencies and, in many cases, coordination with state governments and other entities."[37]

We recommended that EPA more comprehensively examine barriers to the development of carbon capture and storage by identifying key issues that fall outside the agency's Safe Drinking Water Act authority. EPA's Office of Water responded to GAO that it is committed to work both with other offices within the agency as well as other "partner federal agencies" to assess the implications of various statutes on the development of carbon capture and storage. As a related matter, the White House established an Interagency Task Force on Carbon Capture and Storage on February 3, 2010, to develop a comprehensive and coordinated federal strategy to speed the commercial development and deployment of clean coal technologies. Among other things, the Task Force's August 2010 report recommended that EPA and other relevant agencies work to quickly and collaboratively propose, finalize, and implement a regulatory framework to ensure safe and effective carbon capture and storage deployment.

Developing and Managing Data on Greenhouse Gas Emissions

High-quality data on greenhouse gas emissions are critical to the development and implementation of domestic and international efforts to address climate change. As we recently reported, for example, a European Union program designed to control carbon emissions has run into difficulties due to a lack of facility-specific data on baseline emissions.[38]

EPA faces particular challenges in accounting for and managing emissions data from facilities. The Consolidated Appropriations Act of 2008 directed EPA to issue a regulation requiring mandatory reporting of greenhouse gas emissions above appropriate thresholds in all sectors of the economy. EPA issued the regulation under its Clean Air Act authority on October 30, 2009. The regulation includes provisions to ensure the accuracy of emissions data through monitoring, record-keeping, and verification

[37]GAO, *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.: Sept. 30, 2008).

[38]GAO-09-151.

requirements. According to EPA, the rule covers approximately 10,000 facilities responsible for an estimated 85 to 90 percent of total U.S. greenhouse gas emissions. Data collection, monitoring, and verification for a universe of facilities this large could be expected to pose a formidable challenge for EPA especially in light of the tight budget environment.[39]

Mr. Chairman, this concludes my prepared statement. I would be pleased to answer any questions that you or other Members of the Subcommittee may have at this time.

GAO Contacts and Staff Acknowledgments

For further information about this testimony, please contact David Trimble at (202) 512-3841 or trimbled@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Individuals making key contributions to this testimony include Steve Elstein, Assistant Director, Nathan Anderson, and Joseph D. Thompson. Also contributing to this testimony were Liz Beardsley; Antoinette Capaccio; Ellen Chu; Emily Eischen; Elizabeth Erdmann; Christine Fishkin; Mike Hix; Richard P. Johnson; James R. Jones, Jr.; Susan Iott; Barbara Patterson; Vincent Price; Diane Raynes; Daniel Semick; John C. Smith; and Jeanette Soares.

[39]GAO, *Climate Change Science: High Quality Greenhouse Gas Emissions Data Are a Cornerstone of Programs to Address Climate Change*. GAO-09-423T (Washington, D.C.: Feb. 24, 2009).

Related GAO Products

High Risk Series

High Risk Series: An Update, GAO-11-278. Washington, D.C.: February 2011.

High-Risk Series: An Update. GAO-09-271. Washington, D.C.: January 2009.

Improving Agencywide Management

Workforce Planning: Interior, EPA, and the Forest Service Should Strengthen Linkages to Their Strategic Plans and Improve Evaluation, GAO-10-413. Washington, D.C.: March 31, 2010.

Clean Water Act: Longstanding Issues Impact EPA's and States' Enforcement Efforts GAO-10-165T. Washington, D.C.: October 15, 2009.

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.

Chesapeake Bay Program: Recent Actions Are Positive Steps Toward More Effectively Guiding Restoration Efforts. GAO-08-1033T. Washington, D.C.: July 30, 2008.

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 Protection: EPA-State Enforcement Partnership Has Improved, but EPA's Oversight Needs Further Enhancement. GAO-07-883. Washington, D.C.: July 31, 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 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.

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

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

Transforming EPA's Processes for Assessing and Controlling Toxic Chemicals

Nanotechnology: Nanomaterials Are Widely Used in Commerce, but EPA Faces Challenges in Regulating Risk. GAO-10-549. Washington, D. C: May 25, 2010.

Chemical Regulation: Observations on Improving the Toxic Substances Control Act. GAO-10-292T. Washington, D.C.: December 2, 2009.

EPA Chemical Assessments: Process Reforms Offer the Potential to Address Key Problems. GAO-09-774T. Washington, D.C.: June 11, 2009.

Scientific Integrity: EPA's Efforts to Enhance the Credibility and Transparency of Its Scientific Processes. GAO-09-773T. Washington, D.C.: June 9, 2009.

Chemical Regulation: Options for Enhancing the Effectiveness of the Toxic Substances Control Act. GAO-09-428T. Washington, D.C.: February 26, 2009.

High Risk Series: An Update. GAO-09-271. Washington, D.C.: January, 2009.

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.

Reducing Pollution in the Nation's Waters

Wastewater Infrastructure Financing: Stakeholder Views on a National Infrastructure Bank and Public-Private Partnerships. GAO-10-728. Washington, D.C.: June 30, 2010.

Recovery Act: Status of States' and Localities' Use of Funds and Efforts to Ensure Accountability. GAO-10-604. Washington, D.C.: May 26, 2010.

Biofuels: Potential Effects and Challenges of Required Increases in Production and Use. GAO-09-446. Washington, D.C.: August 25, 2009.

Clean Water Infrastructure: A Variety of Issues Need to Be Considered When Designing a Clean Water Trust Fund. GAO-09-657. Washington, D.C.: May 29, 2009.

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.

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.: September 4, 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.

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.: October 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.: March 19, 2004.

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

Superfund: Interagency Agreements and Improved Project Management Needed to Achieve Cleanup Progress at Key Defense Installations. GAO-10-348. Washington, D.C.: July 15, 2010.

Superfund: Costs to Remediate Existing and Future Sites Will Likely Exceed Current Funding Levels. GAO-10-857T. Washington, D.C.: June 22, 2010.

Superfund: EPA's Estimated Costs to Remediate Existing Sites Exceed Current Funding Levels, and More Sites Are Expected to Be Added to the National Priorities List. GAO-10-380. Washington, D.C.: May 6, 2010.

Superfund: Litigation Has Decreased and EPA Needs Better Information on Site Cleanup and Cost Issues to Estimate Future Program Funding Requirements. GAO-09-656. Washington, D.C.: July 15, 2009.

Superfund: Greater EPA Enforcement and Reporting Are Needed to Enhance Cleanup at DOD Sites. GAO-09-278. Washington, D.C.: March 13, 2009.

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.: August 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.: January 28, 2005.

Addressing Emerging Climate Change Issues

Climate Change: A Coordinated Strategy Could Focus Federal Geoengineering Research and Inform Governance Efforts. GAO-10-903. September 23, 2010.

Carbon Trading: Current Situation and Oversight Considerations for Policymakers. GAO-10-851R. Washington, D.C.: August 19, 2010.

Climate Change: The Quality, Comparability, and Review of Emissions Inventories Vary Between Developed and Developing Nations. GAO-10-818. July 30, 2010.

Climate Change: Observations on Options for Selling Emissions Allowances in a Cap-and-Trade Program. GAO-10-377. Washington, D.C.: February 24, 2010.

Climate Change Adaptation: Strategic Federal Planning Could Help Government Officials Make More Informed Decisions. GAO-10-113. Washington, D.C.: October 7, 2009.

*Climate Change Adaptation: Information on Selected Federal Efforts To Adapt To a Changing Climate (*GAO-10-114SP, *October 7, 2009), an E-supplement to* GAO-10-113. GAO-10-114SP. Washington, D.C.: October 7, 2009.

*Aviation and Climate Change: Aircraft Emissions Expected to Grow, but Technological and Operational Improvements and Government Policies Can Help Control Emissions.*GAO-09-554. Washington, D.C.: June 8, 2009.

Climate Change Science: High Quality Greenhouse Gas Emissions Data are a Cornerstone of Programs to Address Climate Change. GAO-09-423T. Washington, D.C.: February 24, 2009.

International Climate Change Programs: Lessons Learned from the European Union's Emissions Trading Scheme and the Kyoto Protocol's Clean Development Mechanism. GAO-09-151. Washington, D.C.: November 18, 2008.

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-07-285. Washington, D.C.: March 16, 2007.

Climate Change: Federal Reports on Climate Change Funding Should Be Clearer and More Complete. GAO-05-461. Washington, D.C.: August 25, 2005.

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