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Report to the Congress

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HAZARDOUS WASTE

New Approach Needed to Manage the Resource Conservation and Recovery Act

GAO/RCED-88-115

GAO

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Comptroller General
of the United States

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To the President of the Senate and the
Speaker of the House of Representatives

This report discusses the Environmental Protection Agency's progress in implementing the hazardous waste provisions of the Resource Conservation and Recovery Act of 1976 (RCRA), as amended. This report represents the culmination of our work in the RCRA area over the past 5 years and draws on approximately 30 different reports in reaching overall conclusions about the agency's management of RCRA. It also contains a matter for consideration by the Congress as it deliberates RCRA's reauthorization. The specific issues addressed in this report include the agency's progress in

- identifying hazardous wastes and developing a regulatory framework for controlling hazardous wastes,
- ensuring RCRA facilities' compliance with the regulatory controls, and
- encouraging waste minimization.

Copies of the report are being sent to appropriate House and Senate Committees; the Administrator, Environmental Protection Agency; the Office of Management and Budget; and other interested parties. Copies will also be made available to others upon request.

This work was performed under the direction of Hugh J. Wessinger, Senior Associate Director. Other major contributors are listed in appendix V.

Charles A. Bowsher

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Executive Summary

Purpose

At thousands of contaminated sites around the country, toxic wastes are seeping into groundwater and poisoning soil and air. Cleaning up those sites will cost billions of dollars. The Resource Conservation and Recovery Act of 1976 (RCRA) and its 1984 amendments sought to prevent any further contamination by placing extensive regulatory controls on facilities that handle hazardous wastes and by encouraging a reduction in the amount of hazardous waste produced.

The legislative authorization for RCRA expires in September 1988. To aid the Congress as it considers reauthorization, this report reviews the Environmental Protection Agency's (EPA) progress in implementing RCRA's hazardous waste provisions. Drawing upon information developed in 29 previous GAO reports and other analyses, this report discusses EPA's progress in (1) identifying and regulating hazardous wastes, (2) ensuring regulatory compliance, and (3) encouraging waste minimization.

Background

RCRA defines as hazardous those wastes that pose a threat to human health or the environment when released. To deal with this threat, RCRA requires EPA to identify hazardous wastes and establish regulations governing the generation, transportation, treatment, storage, and disposal of these wastes. Owners or operators of treatment, storage, and disposal facilities must obtain permits and demonstrate their financial ability to clean up any contamination that may occur. Most hazardous waste facilities are operating under interim EPA regulations, but the issuance of permits is expected to be completed by 1992.

Results in Brief

GAO's work indicates that EPA has made limited progress in identifying and regulating hazardous waste, achieving compliance with regulatory controls, and promoting waste minimization.

Frustrated over the pace and comprehensiveness of EPA's actions, Congress, in 1984, enacted very prescriptive RCRA amendments with specific statutory deadlines extending into 1992. Some of the deadlines impose specific controls if EPA fails to act. While it appears that the deadlines have had some success in directing EPA's actions, the experience has been mixed. In addition, EPA believes that the deadlines have limited its flexibility to respond to other hazardous waste priorities, such as requiring cleanup at contaminated facilities.

GAO believes that EPA could strengthen its relationship with the Congress and improve its RCRA efforts by establishing specific measurable goals for its major RCRA efforts and developing a long-term strategy for achieving the goals. EPA's accountability could be maintained through periodic reporting to the Congress, outlining progress in attaining the goals.

Principal Findings

Identifying and Regulating Hazardous Wastes

Under RCRA, EPA is to first identify what wastes are hazardous. EPA has identified about 455 specific wastes and 4 general characteristics of hazardous wastes. The potential universe of hazardous wastes is much greater, however, and could include, among other categories, ore processing and other large-volume industrial wastes that are not subject to RCRA regulation. EPA's approach to studying such wastes has suffered from low priority and changing approaches. In 1986 GAO recommended that EPA develop a plan that specified the tasks required to identify additional wastes and the resources necessary to carry them out. EPA is developing such a plan but could not provide a goal for its completion or implementation.

EPA's progress in developing regulations to control hazardous wastes has similarly been limited. To prod EPA the Congress specified 76 deadlines in the 1984 RCRA amendments, 8 of them containing so-called "hammer" provisions. These provisions automatically impose specific controls if EPA fails to act by the deadline. As of April 1988, 66 of the 76 deadlines had come due and EPA had completed action on less than half of these: 3 of 4 with hammer provisions and 24 others. EPA missed the remaining 38 deadlines, although some progress has been made on many of them.

Progress has also been limited in other important areas that do not have deadlines. For example, EPA has estimated that about 2,500, or half, of the 5,000 RCRA treatment, storage, and disposal facilities may require corrective action to clean up existing contamination. If cleanup were to begin now, it could take until the year 2025 to complete. EPA has given higher priority to meeting statutory deadlines and has yet to set goals or fully implement a cleanup program. In the meantime contamination could be getting worse at these facilities.

Achieving Compliance With Controls

In a series of reviews, GAO found widespread and persistent noncompliance with EPA regulations by both private and government-owned facilities in the areas of groundwater monitoring, closure and postclosure, and financial assurance requirements. In 1984 the Congress provided EPA with funds to develop a strategy to achieve a 90-percent compliance rate for these requirements. EPA developed the strategy requiring a 90-percent compliance goal by 1989 but has not held its regions or the states accountable for meeting the goal. Instead, it focuses on making sure that enforcement actions are taken for violations detected. Actual compliance rates, however, have been about 50 percent for land disposal facilities, the only facilities for which EPA has reliable compliance data.

Encouraging Waste Minimization

In 1976 EPA established a policy to give preference to reducing the volume and toxicity of waste generated rather than disposing of wastes in or on the land. EPA believed that the best way to accomplish this was through a strong regulatory program over hazardous waste handlers, which in turn would encourage hazardous waste generators to develop waste minimization techniques. However, concerned by increasing amounts of hazardous waste being generated and by EPA's minimal progress in this area, the Congress decided, in 1984, to end land disposal of untreated wastes and to require EPA to report on the need for other measures to minimize the amount and toxicity of hazardous wastes.

EPA is working on a number of activities to determine, by the end of 1990, whether a mandatory waste minimization program is needed. It has not set overall quantifiable goals for waste reduction because, according to the agency, it needs better data to determine what goals to set and how to apply them. Once these data are available, however, GAO believes EPA should establish specific, quantifiable goals as the criteria by which to objectively judge the overall progress of its waste minimization program.

Comprehensive and Reliable Hazardous Waste Data

EPA has been unable to develop comprehensive and reliable data for many elements of the RCRA program. EPA and the Congress need such data to assess the impact of or need for changes in hazardous waste legislation and regulations, evaluate trends in regulatory compliance and waste minimization, and develop waste management priorities. EPA has ongoing efforts to improve its hazardous waste information system.

Recommendation

To give a greater sense of direction to the RCRA hazardous waste program, GAO recommends that the Administrator, EPA—in consultation with the Congress—engage in strategic planning for priority efforts. This planning effort should include a strategy that identifies specific measurable goals, the tasks necessary to accomplish the goals, milestones, required resources, organizational responsibilities, and periodic reporting on progress in achieving the stated goals. An integral part of this strategy should include development of the data necessary to formulate and measure progress in attaining such goals. The priority efforts that make up this strategy should, at a minimum, include identifying and regulating hazardous wastes, ensuring regulatory compliance, and encouraging waste minimization.

Matters for Congressional Consideration

While it appears that statutory deadlines have had some success in directing EPA's actions, the experience has been mixed, and EPA believes such deadlines may limit flexibility to address other important areas. GAO believes a preferable alternative is for EPA to be more active in managing RCRA by establishing measurable goals and implementation strategies. Although GAO has addressed its recommendation to the Administrator, EPA, the Congress may also wish to amend RCRA to require EPA to establish, in consultation with the Congress, measurable goals for priority areas and a long-term strategy to achieve the goals.

Agency Comments

EPA stated that GAO's report adequately describes the progress the agency has made in meeting the 1984 RCRA mandates. The agency stated that it recognizes strategic planning is essential to the effective management and implementation of RCRA and cited several planning documents as steps in that direction. GAO does not believe, however, that these documents contain the essential components of strategic planning as defined in this report and called for in GAO's recommendation. EPA's comments are summarized and addressed at the end of each chapter and are included in appendix IV with GAO's detailed response.

Contents

Abbreviations

DOE	Department of Energy
EPA	Environmental Protection Agency
GAO	General Accounting Office
OTA	Office of Technology Assessment
RCED	Resources, Community, and Economic Development Division
RCRA	Resource Conservation and Recovery Act
sqg	small quantity generator

Introduction

Public health and the environment are being threatened at thousands of hazardous waste sites throughout the country because toxic chemicals are seeping into the nation's groundwater and contaminating the land and air. This situation stems from years of poor management practices at facilities that handle hazardous wastes. The magnitude of the environmental threat posed by hazardous waste sites and the need for a federal program to manage such waste were initially recognized by the Congress when it enacted the Resource Conservation and Recovery Act of 1976 (RCRA), Public Law 94-580. RCRA, among other things, required the Environmental Protection Agency (EPA) to implement a comprehensive regulatory program for managing hazardous waste from its generation to final disposal. In 1980 the Congress also enacted the Comprehensive Environmental Response, Compensation, and Liability Act (commonly known as Superfund) to provide for the cleanup of the nation's past, uncontrolled waste sites.

The Congress has reauthorized RCRA twice, extending its program and budget authority. The first reauthorization was in 1980, when the Congress made only minor changes in the legislation. However, concerned, in part, that EPA had been slow in implementing RCRA legislative mandates, the Congress enacted major amendments when it reauthorized the act in 1984. The 1984 amendments mandated major changes in EPA's regulatory program, particularly in restricting land disposal and expanding the wastes and activities regulated by RCRA. Current RCRA legislation expires at the end of fiscal year 1988. The Congress is expected to begin debating RCRA's reauthorization prior to its expiration.

Since 1983 we have focused extensively on the RCRA hazardous waste area[1] and our effort has resulted in the issuance of 29 reports on a broad range of RCRA hazardous waste issues. (See app. I.) This report ties together the results of our previous work for use by the Congress in RCRA reauthorization debates.

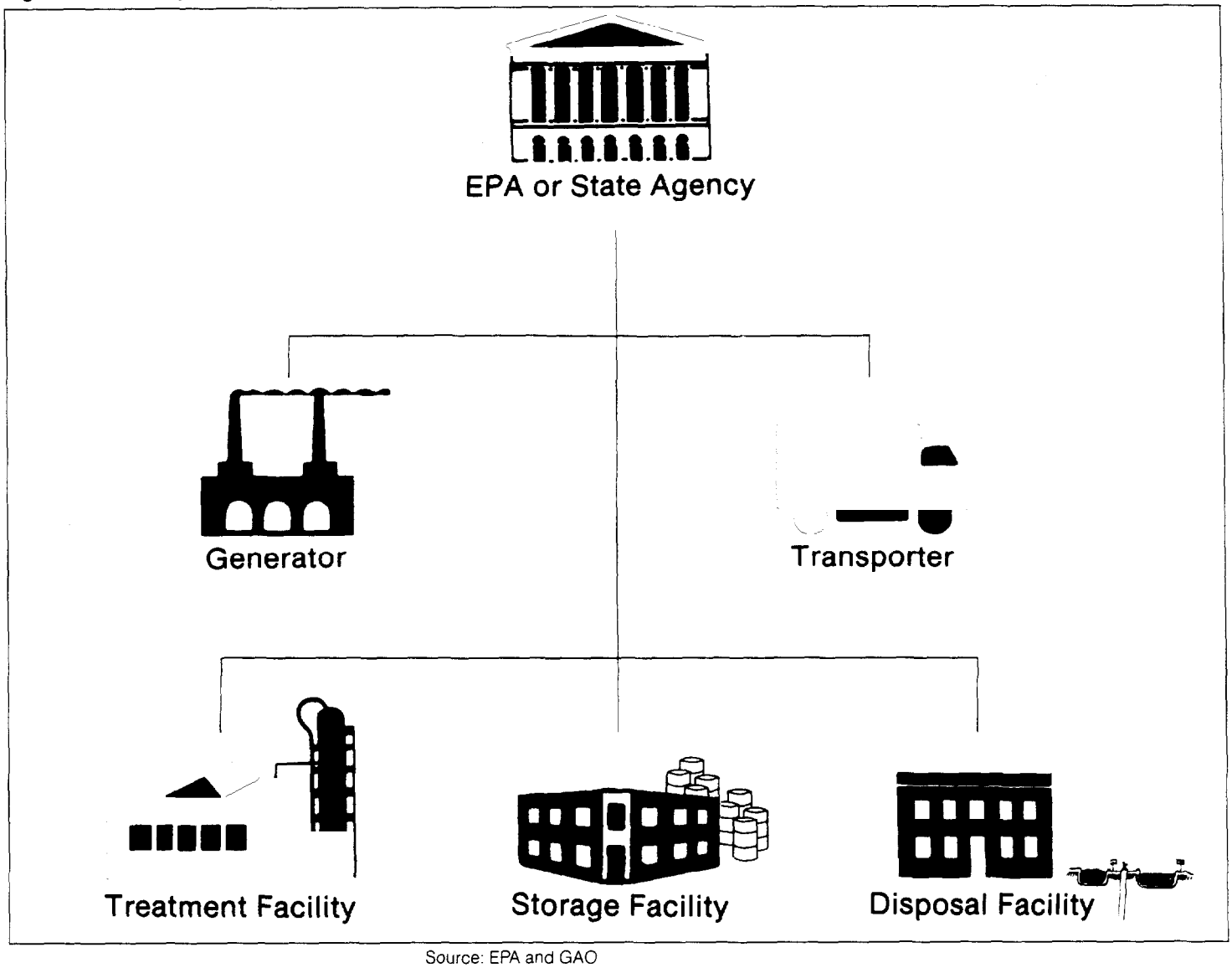
Hazardous Waste Legislation

To control hazardous waste, RCRA requires EPA to first identify which wastes are to be regulated as hazardous and to establish standards to regulate those that handle such waste. These handlers include over 100,000 generators, about 16,500 transporters, and about 5,000 facilities that treat, store, and dispose of hazardous waste. (See fig. 1.1.) The

[1]Our work has focused primarily on the Subtitle C, or hazardous waste portion, of RCRA. We have not conducted reviews of Subtitle D activities, which primarily include state and local solid waste programs, or the Subtitle I program, which the Congress added in the 1984 RCRA amendments to regulate underground storage tanks.

standards for handlers include recordkeeping and labeling practices, manifest systems, and reporting requirements, which are designed to identify the specific hazardous wastes being produced and to track the movement of the hazardous waste from generation to ultimate disposition.

Figure 1.1: The Major Participants in the RCRA Hazardous Waste Program



Source: EPA and GAO

In addition to the above standards, RCRA requires any person or company owning or operating a treatment, storage, or disposal facility to obtain a permit. These facilities are often complex and include the use of surface impoundments, tanks, incinerators, storage drums and containers, and landfills. (See fig. 1.2.) To control these facilities until they have a permit, the act also prescribes a procedure whereby facilities in operation on or before November 19, 1980, may continue operating under "interim status" until a final permit is issued or denied. Facilities with interim status must be in compliance with interim-status regulations, which include general operating and design requirements, until a final decision to either issue or deny their permit has been made. After receiving a permit, facilities must be in compliance with EPA's final permit regulations, which include facility-specific technical standards. Currently, most facilities are operating with interim status, but EPA expects to complete the permit process in 1992.

Figure 1.2: The Chemical Industry Is a Major Generator, Storer, and Disposer of Hazardous Waste

The chemical industry produces about half of the nation's hazardous waste. Since most waste is managed onsite, many generators also maintain treatment, storage, and disposal facilities, such as the surface impoundment in front of this plant.

To ensure that all handlers are complying with regulatory standards, RCRA empowered EPA to conduct onsite inspections. EPA was also empowered with such enforcement authorities as the issuance of compliance orders, the assessment of civil and criminal penalties, and the suspension or revocation of permits.

During the late 1970s and early 1980s, as EPA established the RCRA program, a number of trends began to develop, causing congressional concern about the implementation of RCRA. These included (1) numerous incidents involving contamination at operating hazardous waste facilities, (2) the dramatic increase in the estimated amount of hazardous waste being produced, and (3) EPA's slow progress in promulgating regulations and issuing permits. Because of these concerns, the Congress, when it reauthorized RCRA on November 8, 1984, enacted major amendments (P.L. 98-616) that prescribed specific deadlines and, in some cases, consequences of not meeting the deadlines. A major thrust of the 1984 so-called prescriptive amendments was to discourage land disposal of hazardous waste and to encourage the reduction in the volume and toxicity of hazardous waste being generated.

In addition, a number of incidents involving major contamination at hazardous waste sites, such as Love Canal, were uncovered after RCRA was enacted. Because these were abandoned, or inactive, and therefore not controlled by RCRA, the Congress recognized that new legislation was needed. On December 11, 1980, the Congress enacted Public Law 96-510, or Superfund, to give EPA both funds and the authority to initiate cleanup at abandoned or inactive hazardous waste sites. It also provided EPA with the authority to compel owners or responsible parties whose wastes contributed to the problem to pay for the cleanup.

EPA now has authority, under RCRA, to regulate the ongoing generation of hazardous waste and to prevent future contamination from leaking hazardous waste sites and, under Superfund, to clean up contamination of abandoned, or inactive, hazardous waste sites. The Congress envisioned that the Superfund legislation could eventually be phased out, as abandoned hazardous waste sites would be cleaned up and the RCRA program would prevent future leaking hazardous waste sites from occurring. The Congress reauthorized Superfund in October 1986 for 5 additional years. We had, as with this report, issued a report to assist the Congress with the reauthorization of Superfund.[2]

[2]Cleaning Up Hazardous Wastes: An Overview of Superfund Reauthorization Issues (GAO/RCED-85-69, Mar. 29, 1985).

Federal/State Partnership

Like many other environmental laws, RCRA provides for states to assume the responsibility of implementing and enforcing the RCRA hazardous waste program and requires EPA to oversee the states' programs. The rationale for encouraging the states to implement the RCRA program is that each state is more familiar with regulating its own community and, therefore, is in a better position to more effectively administer the program and respond to local needs than the federal government. To receive authorization from EPA, a state program must be at least equivalent to the federal program and provide for adequate enforcement. However, states may impose more stringent regulations to provide broader coverage than the federal program.

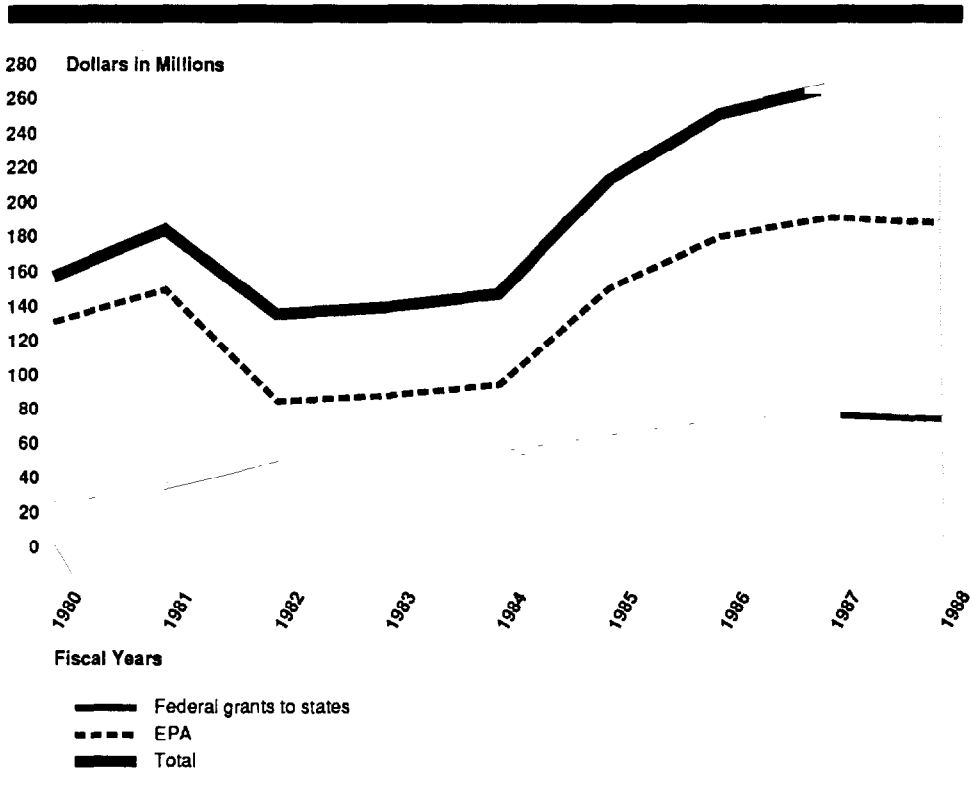
As of June 1988, programs in 42 states, the District of Columbia, and Guam had been authorized and were administering all or part of the RCRA program. EPA administers the RCRA program in the remaining states. To administer the program, the states receive financial assistance from EPA for 75 percent of their programs' cost in the form of annual matching grants. EPA also assists the states by providing them with program guidance, which clarifies and interprets regulatory provisions. RCRA requires EPA to oversee the state programs by monitoring the states' activities.

Federal Funds Spent on RCRA

Federal funds spent by EPA on RCRA activities grew about 65 percent in real terms since 1980, and most of this growth occurred after passage of the 1984 amendments. Figure 1.3 illustrates the real growth in federal spending for RCRA activities for fiscal years 1980 through 1988. As figure 1.3 shows, the total federal funds spent on RCRA activities grew in real terms from about $156 million in fiscal year 1980 to about $259 million appropriated in fiscal year 1988.

As figure 1.3 also shows, the federal funds spent directly by EPA on RCRA actually decreased from about $130 million in fiscal year 1980 to about $94 million in fiscal year 1984. However, since fiscal year 1984, the federal funds spent directly by EPA almost doubled to about $186 million. In constant 1988 dollars, federal grants provided to the states increased from about $26 million in fiscal year 1980 to about $73 million in fiscal year 1988. The increase in federal grants given to the states generally reflects the increasing number of states administering all or part of the RCRA program and the states' increasing responsibilities under RCRA.

Figure 1.3: Federal Funds Spent by EPA on RCRA Hazardous Waste Programs in Constant 1988 Dollars, Fiscal Years 1980-1988



Note: Fiscal year 1988 funds are from EPA's fiscal year 1988 continuing resolution. Annual expenditures have been expressed in 1988 dollars using the implicit price deflator for the gross national product.

Objective, Scope, and Methodology

Our objective was to provide the Congress and others with information that we believe will be useful during deliberations on RCRA's reauthorization. The specific issues addressed in this report are EPA's progress in

- identifying hazardous wastes and developing a regulatory framework for controlling hazardous wastes,
- ensuring RCRA facilities' compliance with regulatory controls, and
- encouraging waste minimization.

We previously reported on a number of RCRA and RCRA-related hazardous waste issues in 29 reports. (See app. I.) The specific objectives, scope, and methodology for these individual reports are contained in the respective reports. In preparing this report we updated and drew upon the messages of our individual reports with additional analyses and

interviews with RCRA program officials at EPA headquarters. We believe this approach provided us with a current and broad understanding of the overall RCRA program.

We also sponsored a conference in September 1987 to identify and discuss the issues that the Congress may address during the next reauthorization of RCRA. At this conference, we obtained comments and opinions on RCRA reauthorization issues from representatives from EPA, the states, the regulated community, and environmental and other public interest groups. The organizations represented at the conference are listed in appendix II.

Finally, we analyzed numerous non-GAO reports addressing the specific issues discussed in the report. These included studies on waste minimization and waste reduction by EPA, the Office of Technology Assessment, and the Environmental Defense Fund. We conducted our work from May 1987 through January 1988 and in accordance with generally accepted government auditing standards.

Additional Progress Needed in Identifying, Regulating, and Reporting on Hazardous Waste

The first steps to successful nationwide management of hazardous waste are identifying which wastes present a clear threat to human health and the environment and then expeditiously bringing these wastes under regulatory control. However, nearly 12 years after the passage of RCRA, EPA has not identified or brought under regulatory control potentially large volumes of hazardous wastes. We believe EPA's limited progress has resulted from the absence of an overall waste identification goal and a related implementation approach that together would focus and assign priorities in the program.

Since RCRA was enacted, EPA's progress in regulating hazardous wastes that it has identified has been limited and not sufficiently comprehensive to protect the public and the environment. The Congress showed its displeasure with EPA's limited progress when it enacted very prescriptive amendments in 1984. EPA has had some success in implementing the 1984 mandates; however, much more remains to be accomplished to improve protection of public health and the environment from threats posed by hazardous wastes.

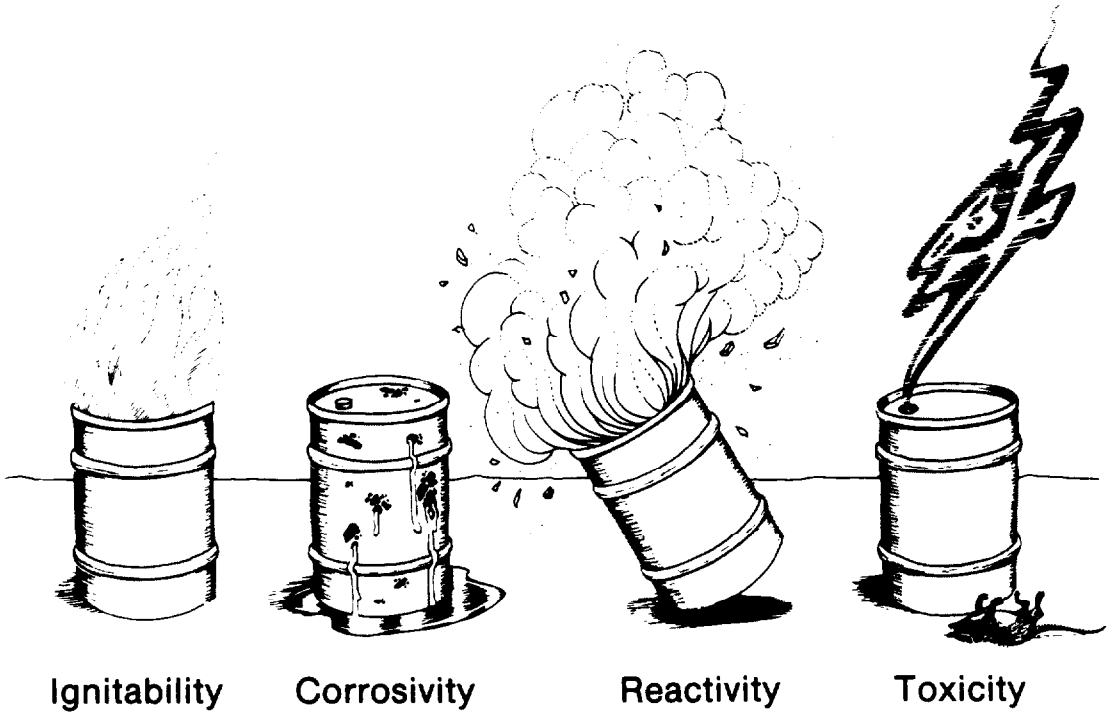
An integral part of a comprehensive regulatory program is reliable and accurate information on the amounts and types of hazardous waste being produced and managed and the compliance status and other information on the facilities that handle hazardous waste. However, EPA has not been able to develop such data for the RCRA program. EPA needs these data, among other reasons, to develop regulations, such as ones that restrict land disposal for certain wastes; for compliance monitoring as discussed in chapter 3; and for measuring progress in waste minimization as discussed in chapter 4. Without reliable data, EPA and the Congress are hampered in their ability to assess the impact of or the need for changes in hazardous waste legislation and regulations, evaluate trends in waste management practices, or develop priorities for the management of hazardous waste.

Limited Progress Made in Identifying Hazardous Wastes

In enacting RCRA in 1976, the Congress required EPA to establish standards for two approaches that would identify which wastes are hazardous and need to be controlled. Under one approach, EPA was to identify the characteristics, or properties, that make a waste hazardous. Under the second approach, EPA was to identify and list specific wastes. In 1980 EPA promulgated regulations that established criteria for determining which wastes are hazardous. These regulations identified four characteristics—ignitability, corrosivity, reactivity, and toxicity (see fig.

2.1)—and listed about 450 known and generally agreed-upon commercial products and production-process wastes that were hazardous.

Figure 2.1: Characteristics That Identify a Waste as Hazardous



Source: EPA

Since 1980 EPA has not identified any new characteristics and has added only five hazardous wastes to its list. This limited progress does not stem from a lack of additional hazardous wastes needing identification and regulation. In a December 1986 report,[1] we found that EPA's limited progress in regulating additional wastes is due to its lack of focus and changing approaches in its waste identification efforts and an absence of an overall program strategy. Further, EPA believes that potentially large numbers of hazardous wastes may need to be brought under some form of regulatory control. However, it has determined neither the universe of industries that must be studied nor the length of time necessary to assess and review all potential hazardous wastes. Consequently, EPA

[1]Hazardous Waste: EPA Has Made Limited Progress in Determining the Wastes to Be Regulated (GAO/RCED-87-27, Dec. 23, 1986).

does not know if it has identified 90 percent or 10 percent of the hazardous wastes that may need to be regulated, according to the division director responsible for hazardous waste identification at the time of our 1986 report.

Waste Identification Efforts

Between 1976 and 1980, EPA's hazardous waste identification efforts focused on identifying characteristics of a waste. EPA studied over a dozen potential characteristics that would help classify a waste as hazardous but promulgated definitions and tests in 1980 for only four: ignitability, corrosivity, reactivity, and toxicity. EPA did not promulgate regulations for other characteristics that it studied (such as carcinogenicity, organic toxicity, and infectiousness[2]) because EPA could not identify suitable tests to measure these characteristics. During this time, EPA's approach for identifying waste was to use characteristics to define broad classes of hazardous waste and to complement the use of characteristics with listings for those specific wastes that are hazardous but do not meet the characteristic tests. The Congress, dissatisfied with EPA's progress in developing additional characteristics, directed EPA to identify additional characteristics by November 1986 and improve its toxicity characteristic by March 1987. EPA intends to address both of these mandates through the expansion of the existing toxicity characteristic. In December 1988 EPA plans to publish final regulations that will revise its toxicity characteristic and will bring 38 new organic chemicals under regulatory control. EPA later plans to add 40 more wastes to this toxicity characteristic.

Because of difficulties in establishing criteria for characteristics, EPA shifted its emphasis on waste identification to a listing approach in 1981. EPA began what it calls its industry studies program to identify and list additional chemical products and industrial wastes that may be hazardous. In its four industry studies, EPA reviewed information on about 1,100 industrial production processes and promulgated regulations listing 5 wastes. For most of the wastes generated from these 1,100 industrial production processes, EPA said it had either no information or insufficient information to determine whether additional wastes needed to be listed. Consequently, EPA could not tell us how many more potentially hazardous wastes may need to be regulated. In 1986 EPA had

[2]Even though EPA did not identify infectiousness as a characteristic, it did publish a guide for infectious waste management in June 1986. However, a bill pending as of June 1988, H.R. 3515, would direct EPA to promulgate regulations on the management of infectious waste.

planned to initiate additional industry studies, such as on the pharmaceutical and paper and pulp industries, but it did not. Instead, EPA refocused its waste identification program to again rely primarily on characteristics to identify hazardous wastes; the agency plans to develop a strategy to implement this approach. According to EPA officials, they had determined that the industry study process was very resource-intensive and resulted in few wastes being listed. Thus, by returning to its initial approach of relying primarily on characteristics, EPA believes that it will be able to more efficiently use its limited resources for identifying additional hazardous wastes.

In addition to these waste identification efforts, the Congress directed EPA to study four large-volume wastes that are exempted by law from control under Subtitle C: drilling fluids and other wastes resulting from oil and gas production, by-products of fossil fuel combustion, mining and ore processing wastes, and cement kiln dust. The Congress exempted these wastes because it wanted additional information to determine the level of control needed and the economic impact of regulating these wastes. The Congress gave EPA until October 1982 to complete the oil- and gas-drilling and fossil fuel studies and until October 1983 to complete the mining and ore processing and cement kiln dust studies.[3] EPA completed a study on selected mining wastes in 1985—2 years late—and is addressing ore processing wastes separately. It expects to issue an ore-processing waste study in December 1988. EPA issued the oil and gas study in 1987—5 years late—and the fossil fuels study in 1988—more than 5 years late. In EPA's reports to the Congress on selected mining wastes and oil- and gas-drilling wastes, EPA concluded that some of these wastes, if continued to be exempted from regulatory control, could pose unreasonable or potential risks to public health and the environment. EPA has proposed regulating selected mining wastes under Subtitle D of RCRA (nonhazardous waste) but has not yet identified the specific regulatory controls needed. It has until June 1988 for oil- and gas-drilling wastes and September 1988 for fossil fuel wastes to determine if these wastes should be regulated under Subtitle C (hazardous waste). EPA has no plans to perform the cement kiln study because it considers this study to be a low priority compared to other RCRA program responsibilities. (See table 2.1.)

[3]In our December 1986 report on waste identification, we describe EPA's performance in completing these studies and reasons for delays.

Table 2.1: Status of Congressionally Mandated Studies

Study	Statutory deadline	Date completed	Estimated completion date
Mining waste	10–83[a]	12–85	
Ore processing	10–83		12–88
Fossil fuels	10–82	3–88	
Oil and gas	10–82	12–87	
Cement kiln dust	10–83		None
Subtitle D criteria	11–87		8–88

[a]The original statutory deadline was October 1979. The Congress changed the deadline in 1980 to October 1983 so that the study could be completed in conjunction with the ore processing study.

The Congress also, in the 1984 RCRA amendments, directed EPA to study and issue a report by November 1987 on the extent to which the performance standards established for nonhazardous (Subtitle D) municipal and industrial landfills and surface impoundments were protecting human health and the environment from groundwater contamination.[4] In August 1988 EPA plans to issue a report on nonhazardous facilities and to propose regulations for the approximately 6,000 operating municipal landfills that will cover groundwater monitoring, corrective action, and location standards. For the over 200,000 other nonhazardous facilities, such as industrial landfills and surface impoundments, EPA is still in the process of identifying the types of waste contained in them, whether they pose human health and environmental threats, and whether additional controls are needed. Currently, the agency is conducting a survey of industrial waste facilities to collect preliminary information.

In our December 1986 report discussed earlier, we stated that EPA's waste identification efforts have been hampered by low or changing priorities, staff shortages, inadequate funding, and changing approaches or strategies. In that report, we recommended that EPA develop a plan laying out what actions will be necessary to identify the universe of wastes that need to be controlled. We stated that such a plan should contain, at a minimum, the additional waste characteristics that need to be developed and the industry wastes that need to be evaluated, milestones to accomplish these tasks, needed resources, and organizational responsibilities. EPA's response to this recommendation is discussed below.

[4]Subsequent to the 1984 RCRA amendments, the Congress has become increasingly concerned over the potential hazards of residues from incinerators burning municipal wastes. As of June 1988 two pending bills, H.R. 2517 and S. 1566, would require EPA to promulgate regulations for identifying potentially hazardous incinerator ash; and three pending bills, H.R. 2452, H.R. 2516, and S. 1565, would require additional controls over air emissions from municipal waste incinerators.

EPA Is Refocusing Its Waste Identification Efforts

Since 1986 EPA has made or is in the process of making a number of changes to improve its waste identification efforts. It has reorganized its waste characteristics and specific waste listings activities under one branch. It also created a separate branch and established proposed study plans to complete its large-volume waste studies. In addition, as discussed above, EPA has returned to its original plan to use characteristics as the basic approach to identifying additional hazardous wastes and has ongoing work to develop additional characteristics. EPA is also focusing its efforts on relisting[5] currently listed wastes with concentration-based levels. Further, EPA is in the discussion and analysis stage of assessing its waste identification efforts with the goal of developing an overall long-term implementation strategy that is to include time frames, resources, and specific tasks. EPA officials responsible for developing this strategy could not provide a timetable for when this long-term strategy would be developed and a goal for when it would be implemented.

While EPA's actual and proposed changes are a step in the right direction, it has not identified any additional characteristics or listed any additional wastes since it refocused its waste identification efforts in 1986. In addition, EPA has completed action on about one third (7 of 24) of the 1984 statutory deadlines for waste identification. We therefore believe that EPA needs to follow through on its efforts to develop and implement a comprehensive waste identification strategy.

Development of Regulatory Controls Has Been Limited

After identifying the specific hazardous wastes to be regulated, the next step is to promulgate regulations to control generators, transporters, and the facilities that treat, store, and dispose of hazardous wastes. These regulatory requirements were promulgated between 1980 and 1983—from 2 to 5 years after the Congress required EPA to promulgate them. This pace led to congressional concern about EPA's progress in implementing regulatory controls and whether the regulations being promulgated were sufficiently comprehensive to protect public health and the environment from the mismanagement of hazardous wastes. Because of these concerns, the Congress enacted 76 statutory deadline provisions in the 1984 RCRA amendments. However, the 76 statutory deadline provisions may be impeding other important RCRA efforts. Since enactment of the 1984 amendments, EPA has made progress, but more remains to be

[5]Relisting is a process through which EPA will identify for all currently listed wastes the concentration level at which EPA will consider a listed waste to be hazardous. If the concentration levels are below those set for the waste, the waste will not be considered hazardous.

accomplished to improve the protection of public health and the environment from threats posed by hazardous wastes.

EPA's Initial Progress in Implementing RCRA

Under RCRA, EPA was required to develop and implement regulations by April 1978 to control the nation's hazardous wastes from their generation to their final disposal. However, in part because of the size and complexity of the task, EPA was not able to meet this statutory deadline. It did promulgate these regulations between 1980 and 1983, some of them under court order, such as the standards for land disposal facilities in 1982. The initial regulations include those for the identification of hazardous wastes, discussed in the previous section, and the establishment of operating standards for generators; transporters; and treatment, storage, and disposal facilities. Table 2.2 summarizes the regulatory requirements for these facilities.

Table 2.2: Summary of RCRA Hazardous Waste Regulatory Requirements for Generators; Transporters; and Treatment, Storage, and Disposal Facilities

RCRA requirements	Generators	Transporters	Treatment, storage, disposal facilities[a]
Determine if wastes are hazardous	X		X
Notify EPA if RCRA hazardous waste handler and obtain identification number	X	X	X
Train personnel in waste management procedures and emergency response	X	X	X
Preparedness and prevention measures and notification of releases	X	X	X
Contingency planning and emergency procedures	X		X
Inspect facility operations periodically	X		X
Track waste with manifest system	X	X	X
Recordkeeping and reporting	X		X
Package marking, labeling, and transport vehicle placarding		X	
Physical security			X
Use and manage containers, landfills, and other operating areas properly			X
Design and operate waste handling areas adequately[b]			X
Groundwater monitoring			X
Closure and postclosure care			X
Ensure financial responsibility for closure and postclosure care			X

[a]Treatment, storage, or disposal facilities in operation on or before November 19, 1980, could continue operating under "interim status" until a hazardous waste permit was issued, at which time the facility must be in compliance with the final permit regulations.

[b]This includes the design and operation of tanks, surface impoundments, waste piles, land treatment facilities, landfills, incinerators, and injection wells.

Congressional Concern Over EPA's Progress in Implementing RCRA

As discussed previously, between 1982 and 1984, considerable congressional debate and concern were focused on EPA's implementation of the RCRA program. Much of the debate and concern centered on (1) EPA's limited progress in promulgating regulations under the RCRA legislation, (2) numerous incidents involving contamination at operating hazardous waste facilities, (3) the dramatic increase in the estimated amount of hazardous waste being produced, and (4) the extensive reliance on land disposal for managing hazardous wastes. In passing the 1984 RCRA amendments, the Congress showed its concern with EPA's prior limited progress by enacting 76 statutory deadlines, including 8 with hammer provisions. The hammer provisions specified in the amendments what

actions would take place if EPA did not meet the statutory deadlines. The Congress also enacted other mandates that did not contain deadlines.

EPA Has Made Some Progress in Meeting the 1984 Statutory Deadlines

As of April 1988, 4 of the 8 statutory deadlines with hammer provisions and 62 of the 68 statutory deadlines without hammer provisions have passed. EPA has completed action on 3 of the 4 statutory deadlines with hammer provisions and on 24, or 39 percent, of the 62 deadlines without hammer provisions. In addition, EPA has ongoing work to complete many of the statutory deadlines that it has not yet met. (See app. III for a list of all the statutory deadlines and the status of action on these deadlines.) For other mandates in the 1984 RCRA amendments that do not have statutory deadlines, EPA's action may take years to complete.

EPA has completed action on three statutory deadlines with hammer provisions. They include (1) regulating small quantity generators—those that produce between 100 and 1,000 kilograms of hazardous wastes per month—by March 1986, (2) promulgating regulations that will prohibit the land disposal of certain solvents and dioxins by November 1986, and (3) promulgating the regulations restricting land disposal for certain specified wastes by July 1987. For the fourth hammer provision, EPA had completed action by the November 1986 deadline on 147 of 150 delisting petitions requesting exemption from controlling waste listed as hazardous. As a result of not meeting the deadline, the hammer provision ended the temporary exemption that had been in effect for the remaining three petitions. As of April 1988, EPA planned to make final decisions on two remaining petitions by August 1988. The third petition had been withdrawn. Examples of statutory deadlines that EPA has completed without hammer provisions include listing five hazardous wastes and issuing various regulations and reports to the Congress. (See app. III for a complete list of the statutory deadlines that EPA has completed.)

EPA is currently giving high priority to meeting four other statutory deadlines that are coming up in the next 2 years. Two of these mandates include taking final permit action (either approving or denying the permit applications) for all interim status land disposal facilities by November 1988 and incinerators by November 1989. While as of January 1988, EPA has taken final permit action on only 136 of the 323 operating land disposal facilities and 55 of the 204 incinerator facilities, EPA has stated that it fully intends to take final permit action for all the land disposal facilities and operating incinerators by their respective statutory deadlines. We have found that two of the factors that have delayed final

permit action for land disposal facilities and limited the scope of corrective action measures in the permits are (1) the quality of groundwater monitoring data being submitted by these facilities to EPA and the states and (2) the lack of an internal control system to ensure that the groundwater monitoring data are adequate and reliable.[6] EPA is also giving high priority to banning certain untreated hazardous wastes from land disposal by August 1988 and banning other untreated hazardous wastes from land disposal by June 1989.

EPA had not completed action on 38 of the 62 statutory deadlines without hammer provisions that passed as of April 1988. Some of these statutory deadlines include promulgating regulations to (1) establish financial responsibility requirements for underground storage tanks, (2) provide minimum technological standards for landfills and surface impoundments, (3) monitor and control the air emissions at treatment, storage, and disposal facilities, and (4) establish technical standards for burning hazardous waste fuels. Other deadlines include listing 15 specific wastes, such as used oil, petroleum refining wastes, dyes and pigments, and paint production wastes.

According to the former Director of EPA's Office of Solid Waste,[7] the lack of resources to comply with all the statutory deadlines was a major reason why some of the statutory deadlines have not been met. Because of the large number and prescriptive nature of the 1984 amendments and the RCRA program's limited resources, according to the Director, she had to prioritize which statutory deadlines would receive her office's attention and resources. For example, she suspended efforts on several statutory deadlines concerning the listing of specific wastes (linuron, bromacil, and chlorinated aliphatics) because, in her opinion, these efforts would consume too many resources and provide minimum results. Therefore, she directed her staff to work on other waste identification efforts. Upon taking office, the Director found it difficult to implement a RCRA program that was so prescriptive. She indicated that at that time, she had planned to develop a "proactive" management approach in developing a RCRA program that could be more easily implemented.

[6]Hazardous Waste: Groundwater Conditions at Many Land Disposal Facilities Remain Uncertain (GAO/RCED-88-29, Feb. 18, 1988).

[7]The Director of the Office of Solid Waste resigned effective February 12, 1988, after holding that position since September 1985. We briefed the Director about 1 week before she resigned and her comments are based on that briefing.

Statutory Deadlines May Impede Other Important Efforts

The former Director also pointed out that the 1984 RCRA amendments without statutory deadlines had been affected by those with deadlines. The prescriptive nature of the 1984 amendments has caused EPA to be reactive in its implementation of RCRA and has reduced the agency's ability to respond to changes in program priorities that arose after the deadlines were enacted, according to the Director. For example, while the 1984 amendments placed a statutory deadline for EPA to issue or deny permits, the Congress did not impose a similar deadline for EPA to complete the regulatory procedures for closing land disposal facilities that decided not to obtain an operating permit. Therefore, EPA gave higher priority to completing permit actions. The Director's point of statutory deadlines' being an impediment to taking action in other important program areas without deadlines was previously discussed during a December 15, 1987, hearing on EPA's closure activities.[8] During this hearing, the following points were made:

- Many land disposal facilities were closing because they could not meet or wanted to avoid the strict standards that the Congress required for land disposal facilities.
- Proper and timely closure of these facilities is important because adherence to the closure requirements is one of the government's last opportunities to ensure (1) that owners and operators of closed facilities—and not the federal government through the Superfund program—are held financially responsible for future site cleanups and (2) that facilities are closed in a manner that minimizes, for example, contamination of drinking water.
- EPA has not been able to meet the time frames that it established in its regulations to complete closure actions because of the higher priority it placed on permit activities and limited program resources.

Another example of an important 1984 amendment provision with no statutory deadline and where EPA's progress may have been hindered by the statutory deadlines is the expansion of EPA's authority to require corrective action, or cleanup, at about 5,000 land disposal, incinerator, and treatment and storage facilities. Corrective action is a RCRA program that requires all hazardous waste treatment, storage, and disposal facilities that have accepted waste since November 19, 1980, to clean up contamination caused by the facilities' operations. In a December 1987

[8]On December 15, 1987, the Subcommittee on Environment, Energy, and Natural Resources, House Committee on Government Operations, held a hearing on the closure status of RCRA hazardous waste land disposal facilities. Testifying before the committee were EPA, the General Accounting Office (GAO/RCED-T-88-13), the Environmental Defense Fund, and the Connecticut Fund for the Environment.

report,[9] we found that EPA's progress in developing a corrective action program had been slow. Further, although EPA estimates that about one-half of these 5,000 facilities, or about 2,500, may be leaking and require corrective action, EPA has made very little progress in achieving actual cleanups or in setting goals for actual cleanups because of other RCRA program priorities and the complexity involved in identifying the extent of contamination and the level of cleanup required. The RCRA corrective action program could take until at least the year 2025 to complete and may be as large as the Superfund cleanup program, which EPA estimates may require cleanup of about 2,500 sites at an estimated cost of up to $22.7 billion. In the meantime, the longer EPA waits to actually implement corrective action at RCRA facilities, the greater the risk will become that the contamination at the leaking facilities will worsen and that a number of these facilities will have to be cleaned up under Superfund. In fact, EPA estimates that about 800 RCRA facilities may have to be transferred to the Superfund program for cleanup. If this occurs, public funds may be required to perform some of the cleanups.

At about the time the Director of the Office of Solid Waste resigned, we met with the then Acting Director to get his position on the effect statutory deadlines have had on other RCRA mandates. RCRA mandates without statutory deadlines, according to the Acting Director, have not received the same resources or attention as those with statutory deadlines. However, he indicated that other factors, such as the complexity of the task and the amount of public involvement, have also impeded progress in completing actions on RCRA mandates without statutory deadlines.

Reliable Nationwide Data on Hazardous Wastes Are Needed

To successfully administer a regulatory program such as RCRA, information on the types and volumes of hazardous waste being produced and managed and the facilities that handle hazardous waste is essential. EPA has had repeated problems in gathering the data to produce biennial reports on the amount of hazardous waste being produced and managed. EPA has two efforts in addition to the biennial report to gather this data—a survey of generators and a survey of treatment, storage, disposal, and recycling facilities. EPA is also in the process of developing a new information management system for the RCRA program. If successful, these efforts may provide the Congress and EPA with some of the data necessary to assess the impact of hazardous waste regulations,

[9]Hazardous Waste: Corrective Action Cleanups Will Take Years to Complete (GAO/RCED-88-48, Dec. 9, 1987).

evaluate trends in waste management practices, and develop program priorities. In the meantime, however, the Congress and EPA still lack nationwide data on the production and management of hazardous wastes. As a result, ongoing efforts to better manage the production of hazardous wastes will continue to be hampered.

In our December 1986 report on EPA's progress in determining the wastes to be regulated, we reported that EPA was experiencing problems in its repeated attempts to collect accurate and complete data on the production and management of hazardous wastes and to present these data in a series of reports. For example, EPA decided not to issue its first biennial report after it determined that the data collected on hazardous waste generated in 1983 were incomplete and unreliable. Our report discussed a variety of causes for the unreliable data and identified three factors—a lack of commitment at the federal and state level to produce the report, definitional problems with respect to what is to be reported, and the lack of a standardized form for facilities to report their data—as the primary causes. While EPA took steps in 1986 to improve the reliability of the data collected for future biennial reports, our report concluded that these actions would be too late to improve data collected for the 1985 biennial report. EPA did encounter problems with the accuracy and reliability of the 1985 data but plans to issue this report in the summer of 1988 with an acknowledgement of data limitations.

In another report we issued in February 1987,[10] we found that inadequate national data on the generation and disposition of hazardous wastes prevented the determination of whether the nation has sufficient capacity to manage the volume of hazardous wastes being produced now and projected for the future. Available information was not reliable to estimate with confidence the amount, location, or sources of hazardous wastes, either nationally or at the state level. As concluded in our report, before such an information base could be established, certain methodological issues needed to be addressed, including the ways in which hazardous wastes are defined, estimates are developed, and studies are designed. Currently, we are evaluating these methodological issues.

Despite EPA's unsuccessful efforts to develop a reliable nationwide data base on the generation and disposition of hazardous wastes, EPA may still be able to obtain useful data through two survey efforts. The first survey is collecting information on the types and volumes of hazardous

[10]Hazardous Waste: Uncertainties of Existing Data (GAO/PEMD-87-11BR, Feb. 18, 1987).

wastes generated during 1986. The second survey is collecting information on the types and volumes of hazardous wastes treated, stored, recycled, and disposed of. EPA plans to combine these two surveys to establish a comprehensive data base on hazardous waste management capacity in 1989.

In addition to the difficulties in obtaining reliable data on the types and volumes of hazardous waste being produced and managed, EPA has had problems establishing reliable, comprehensive data on generators and treatment, storage, and disposal facilities for regulatory development, compliance monitoring, and other program administrative needs. EPA had developed for the RCRA program an automated data system referred to as the Hazardous Waste Data Management System. Because of problems with this system,[11] EPA decided in 1985 to abandon it and establish a new one called the Resource Conservation and Recovery Information System. EPA plans to convert to this new system in 1989. EPA is designing this system to provide consistent, high quality data and to improve data retrieval and analysis capabilities.

Conclusions

Identifying which wastes are hazardous and need to be controlled is the first step to successful nationwide management of hazardous wastes. However, nearly 12 years after the passage of RCRA, EPA has not identified or brought under regulatory control potentially large volumes of hazardous waste. Although EPA has had a number of wastes identification efforts underway, it has not completed these efforts or decided how to regulate these wastes. EPA's limited progress in identifying and controlling additional hazardous waste has been due to its changing approaches, inadequate resources, and the absence of an overall implementation approach to systematically identify and regulate all the wastes that need to be regulated. While EPA appears to be developing a GAO-recommended plan for waste identification efforts, it has not established a timetable for completing and implementing this plan. We believe it is important that EPA develop and implement this plan expeditiously to identify additional wastes that need to be regulated. The specific elements that this implementation approach should contain are discussed in chapter 5.

[11] In our report, Assessment of EPA's Hazardous Waste Enforcement Strategy (GAO/RCED-85-166, Sept. 5, 1985), we highlighted the problems that EPA was having using this system to track compliance status and to determine if additional enforcement actions were needed because the system's data were questionable and difficult to retrieve.

EPA has been reacting to the 1984 RCRA amendments and it has had mixed success in completing actions on these amendments. It has been more successful in meeting statutory deadlines with hammer provisions than in meeting other statutory deadlines or in implementing mandates without deadlines, such as the corrective action program. According to EPA's former Director of the Office of Solid Waste, because of the large number and prescriptive nature of the 1984 RCRA amendments and limited resources, she had to prioritize the mandates and devote resources to the most important.

Although EPA must comply with the current prescriptive RCRA mandates, we believe EPA needs to demonstrate to the Congress a more active approach in setting its own goals and agenda to protect the human health and the environment. If EPA can demonstrate a more active approach, the Congress may not find it necessary to enact such prescriptive amendments in future RCRA legislation. In chapter 5, we discuss a way EPA may accomplish this.

Finally, an integral part of a comprehensive regulatory program is reliable and accurate information on the amounts and types of hazardous wastes being generated and managed and on the facilities handling such wastes. EPA has not fully developed this portion of its regulatory program. It currently has a number of efforts underway to collect and analyze hazardous waste data, including the improvements to the biennial reporting process and the establishment of a new information management system. If successful, these efforts may provide EPA and the Congress with some of the data necessary to assess the impact of hazardous waste regulations, evaluate trends in waste management practices, and develop waste management priorities.

Agency Comments and Our Evaluation

In commenting on a draft of this report, EPA agreed that it has not brought many additional wastes under hazardous waste control since 1980. However, the agency said it intends to do so by improving its toxicity characteristic and by promulgating additional rules to list individual wastes. While we had recognized these efforts in this chapter and in appendix III of our draft, we did revise the chapter to include the number of additional wastes that EPA expects to identify and control by improving its toxicity characteristic. EPA's comments were silent, however, on if and when it expects to (1) develop and implement its long-term waste identification strategy, (2) bring large-volume wastes identified as hazardous under control, and (3) identify the types of wastes in

over 200,000 industrial landfills and surface impoundments and determine whether controls are needed for them. Until EPA accomplishes these tasks, we believe that EPA will not be able to assure itself and the public that it has brought under control all the wastes that need to be identified and controlled.

EPA said that our report reflected the agency's progress in fulfilling the 1984 RCRA mandates and some of the factors that constrained the completion of certain legislative mandates. EPA also concurred that reliable nationwide data on hazardous waste are needed to set program priorities and design appropriate regulatory controls. It described, as we have in our report, how it intends to collect these data. For more details on EPA's comments and our response to them, see appendix IV.

Noncompliance With Regulations Has Been Widespread and Persistent

To ensure that hazardous waste handlers comply with regulatory controls, RCRA provides EPA with extensive inspection and enforcement powers. In reports we have issued over the past 5 years, however, we disclosed widespread and persistent noncompliance among both private and federal government facilities, particularly in the areas of groundwater monitoring, facility closure and postclosure, and financial responsibility requirements. Problems occurred in part because of the technical complexity of the regulations and the cost of complying with them. In addition, in the past, EPA and the states took only limited enforcement action. Problems continue with inspection quality and the timeliness and appropriateness of enforcement actions.

Following our reviews in 1983 and 1984, the Congress provided funds to EPA with the expectation that EPA would develop a strategy to achieve 90-percent compliance for facilities subject to groundwater monitoring, facility closure and postclosure, and financial responsibility requirements. EPA developed this compliance strategy in 1985; however, the approach EPA developed lacked key elements. Although some of these elements have since been added, EPA has not held its regions and the states accountable for making progress toward achieving a goal of 90-percent actual compliance. While EPA has taken a number of steps to improve compliance, some of them on the basis of our recommendations, only about half of the land disposal facilities have been in compliance with the above-cited requirements over the last 3 fiscal years.

Extent of Compliance With RCRA Regulations

According to RCRA, inadequate controls on hazardous waste result in substantial risks to human health and the environment. To make sure that hazardous waste handlers comply with regulations, RCRA authorizes civil and criminal sanctions and grants EPA access to hazardous waste facilities, records, and waste samples.

In reports issued in September 1983 and June 1984,[1] we found that significant numbers of hazardous waste facilities were either not in compliance or the extent of compliance was unknown for three of the more important RCRA regulatory requirements: groundwater monitoring, financial responsibility, and closure and postclosure regulations. In these two reports that reviewed six state programs, we found that about 78 percent of the hazardous waste facilities in Illinois, Tennessee, and

[1]Interim Report on Inspection, Enforcement, and Permitting Activities at Hazardous Waste Facilities (GAO/RCED-83-241, Sept. 21, 1983). Inspection, Enforcement, and Permitting Activities at New Jersey and Tennessee Hazardous Waste Facilities (GAO/RCED-84-7, June 22, 1984).

North Carolina were not in compliance with groundwater monitoring requirements and that Massachusetts and California had not inspected enough facilities to tell whether the facilities in the two states met monitoring requirements. Groundwater monitoring is a requirement imposed on all owners and operators of land disposal facilities, where hazardous wastes can make contact with the ground. These owner/operators are required to install monitoring wells around their facilities to detect any contaminants that are leaking into the underlying groundwater.

Two other surveys also found compliance problems with groundwater monitoring requirements. A 1983 EPA survey found that 64 percent of a national sample of hazardous waste facilities were not in compliance with groundwater monitoring requirements. Still later, in 1985, a survey conducted by the Subcommittee on Oversight and Investigations, House Committee on Energy and Commerce,[2] found that 25 percent of 1,246 facilities subject to groundwater monitoring requirements had inadequate well systems and 41 percent had nominally adequate systems.

We also found that none of the six states could report on facilities' compliance with financial responsibility or closure and postclosure requirements. The financial responsibility requirement of RCRA is meant to guarantee that facility owner/operators can pay liability claims and the costs involved with meeting closure and postclosure requirements, which set standards for closing a facility and for monitoring groundwater around land disposal facilities for a period of up to 30 years after closing. Owner/operators must pass a financial means test, establish a trust fund, or provide some other assurance of their ability to pay these costs.

To show that they meet these requirements, owner/operators must develop closure and postclosure plans, with cost estimates. However, we found that none of the six states routinely reviewed these documents, and they had no way of knowing whether the plans were sound, estimates of costs reasonable, and financial assurance guarantees sufficient.

Since our reports EPA has placed more emphasis on inspecting and enforcing compliance with regulatory requirements. For example, EPA has taken formal enforcement actions against 85 percent or more of the land disposal facilities that have been out of compliance with groundwater monitoring, closure and postclosure, and financial responsibility

[2]Groundwater Monitoring Survey (Committee Print 99-I, Apr. 24, 1985).

requirements in each of fiscal years 1985 through 1987. However, regulatory compliance at land disposal facilities continues to be a problem. According to EPA data, actual compliance with the above-mentioned requirements at the 1,450 land disposal facilities for fiscal years 1985 through 1987 has remained fairly constant—ranging between 44 percent and 57 percent.

Federal Facilities

Compliance with RCRA regulations has also been a problem at federal facilities. In a 1986 report on Department of Defense installations,[3] we found that 12 of 14 installations had 72 outstanding RCRA violations. Two-thirds of these violations were of the most serious type, involving either an actual or threatened release of hazardous waste to the environment or a failure to ensure groundwater protection, proper closing procedures, or proper shipment. In reports on military installations in Oklahoma and Guam, we found numerous instances of improper storage and handling and improper dumping or spills.[4] (See figs. 3.1 and 3.2.)

Civilian federal agencies also have had many RCRA violations. In a 1986 report,[5] we found that nearly half of the 72 civilian agency facilities we visited had been cited for RCRA violations, and some of these violations went uncorrected for more than 3 years. Moreover, these 72 facilities were the only installations of the 247 identified as handling hazardous wastes that had been inspected by EPA or state authorities as of the end of 1984. Poor waste management practices by federal agencies can lead to significant public health and environmental threats. In September 1986 we issued a report that examined environmental conditions at nine Department of Energy (DOE) facilities nationwide and found that groundwater and soil had been contaminated at most of these facilities.[6] At eight facilities the groundwater had been contaminated to high levels with hazardous and/or radioactive material. For example, DOE facilities in Colorado, South Carolina, and Tennessee contaminated the groundwater with solvents (cleaning agents) at as much as 1,000 times above

[3]Hazardous Waste: DOD's Efforts to Improve Management of Generation, Storage, and Disposal (GAO/NSIAD-86-60, May 19, 1986).

[4]Hazardous Waste Management at Tinker Air Force Base—Problems Noted, Improvements Needed (GAO/NSIAD-85-91, July 19, 1985). Hazardous Waste: DOD Installations in Guam Having Difficulty Complying With Regulations (GAO/NSIAD-87-87, Apr. 22, 1987).

[5]Hazardous Waste: Federal Civil Agencies Slow to Comply with Regulatory Requirements (GAO/RCED-86-76, May 6, 1986).

[6]Nuclear Energy: Environmental Issues at DOE's Nuclear Defense Facilities (GAO/RCED-86-192, Sept. 8, 1986).

Figure 3.1: Pollutants Discharged Directly on the Ground at a Military Base

Figure 3.2: Inadequate Hazardous Waste Storage Site Located Near Storm Sewer Lines at a Military Base

proposed drinking water standards. Other DOE facilities in South Carolina and Washington contaminated the groundwater with radioactive materials at more than 400 times the drinking water standards.

Hazardous wastes mixed with radioactive wastes has been a particular problem at DOE installations. In another 1986 report,[7] for example, we found that DOE's Hanford, Washington, facility, where nuclear weapons materials have been produced for more than 40 years, was continuing to dispose of certain mixed hazardous and low-level radioactive wastes directly into the soil. Although this manner of disposal is not permitted under RCRA because of potential groundwater contamination, DOE officials at Hanford argued at the time that these types of mixed wastes are specifically exempt from RCRA, which excludes radioactive wastes regulated under the Atomic Energy Act. We therefore recommended that the Congress consider whether these exclusions are still appropriate. Since then DOE has agreed with EPA to manage mixed waste in conformance with RCRA requirements; and legislation, H.R. 3784, is pending as of June 1988 in the Congress that would make this practice a statutory requirement.

Reasons for Noncompliance

Our work indicates that the principal reasons for noncompliance included the technical complexity of the regulations and the cost of complying with them. The limited number of enforcement actions had also been a problem in the past. EPA has increased the number of enforcement actions taken against out-of-compliance facilities. Nevertheless, our recent work has detected problems in inspection quality and the timeliness and appropriateness of enforcement actions.

Groundwater monitoring systems illustrate the complexity and costs involved. Each system must be tailored to an individual facility. Because the number of wells and the intervals and depths at which the wells should be placed are based on technical judgments, disagreements may occur between EPA or states and the owner/operators. Groundwater monitoring is also expensive. For example, a geologist specializing in groundwater monitoring estimated that the cost of installing the minimum four wells and collecting samples in 1 year is almost $17,000. However, many facilities require far more than four wells, particularly if evidence exists of contamination and the extent of migration has to be measured. Monitoring costs may become an even greater consideration

[7]Nuclear Waste: Unresolved Issues Concerning Hanford's Waste Management Practices (GAO/RCED-87-30, Nov. 4, 1986).

to facilities that are closing and are therefore no longer generating income.

Noncompliance has also been the result of ineffective enforcement on the part of EPA and the states. As indicated in our previously mentioned 1983 and 1984 reports, few enforcement actions had been taken, and these actions generally involved the issuance of warning letters rather than formal enforcement orders and penalties. The 1985 Oversight and Investigations Subcommittee survey previously mentioned also found that enforcement actions had been deficient.

We also found that among civilian agencies, RCRA had been given little emphasis and officials had little knowledge and expertise in what RCRA requires and how it applies to their agencies' activities.

EPA Efforts to Improve Compliance

As a result of persistent and widespread noncompliance, the Congress included in the 1984 amendments to RCRA a requirement that land disposal facilities cease operating if they could not certify compliance with groundwater monitoring and financial responsibility requirements. As of January 1988, 956 of the 1,451 land disposal facilities nationwide had not certified compliance and therefore had to close. Even those facilities that did cease to operate, however, must still meet requirements for closure and postclosure.

The Senate Appropriations Committee added $200,000 in fiscal year 1985 funds, which were subsequently passed by the Congress, with the expectation that EPA would develop a strategy to achieve 90-percent compliance with national requirements for groundwater monitoring, closure and postclosure activities, and financial responsibility for facilities subject to these requirements. In response, EPA developed a strategy in March 1985 to achieve 90-percent compliance by 1989. The strategy had three basic objectives: (1) to know the compliance status of the regulated community, (2) to develop a vigorous enforcement program, and (3) to establish an effective federal-state relationship.

EPA's strategy rested on several initiatives the agency planned to implement, including the following:

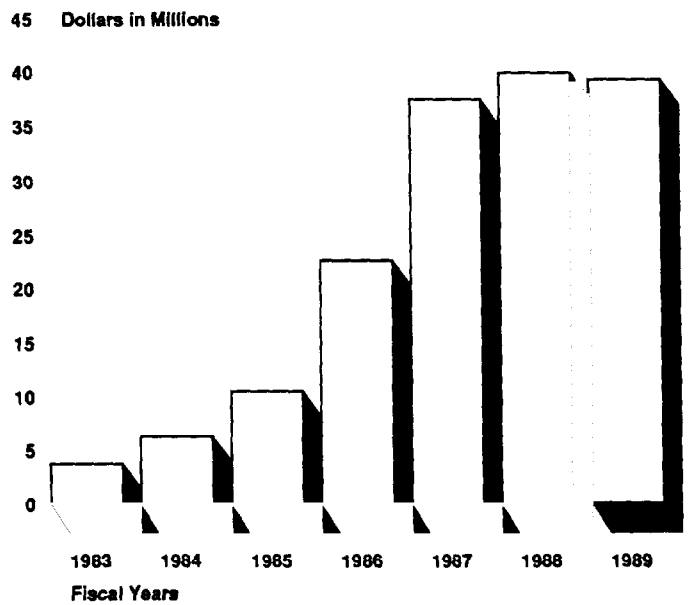
An enforcement response policy to end past practices of using low-level enforcement actions, such as warning letters, for high-priority violators.

This policy also stated EPA's intent to take further action when compliance is not achieved or when states fail to take timely and appropriate action, setting specific deadlines for serious violations.

- A RCRA civil penalty policy outlining the appropriate enforcement actions to be taken.
- Development of more comprehensive guidance on groundwater monitoring and guidance and training on conducting groundwater-monitoring inspections.
- The establishment of effective federal-state relationships through the use of enforcement agreements and criteria that define a quality RCRA program.

EPA also dramatically increased the resources devoted to inspections and other enforcement-related functions. (See fig. 3.3.) In addition, it conducted intensive and focused enforcement efforts with respect to the compliance certification requirement discussed above and with respect to groundwater monitoring requirements.

Figure 3.3: EPA Funds Devoted to RCRA Enforcement in Constant 1988 Dollars, Fiscal Years 1983-1989



Note: The figure contains actual budget amounts except for fiscal year 1988 which is an estimate and fiscal year 1989 which is the requested amount.

Noncompliance Problems Have Continued

Despite these actions by EPA, we found continued problems. After reviewing the compliance strategy in 1985, we found that although it provided a detailed framework for inspection, follow-up, and enforcement, the strategy lacked several key elements.[8] For example, it did not indicate the resources necessary, including the training and skills mix requirements, to achieve a 90-percent compliance rate. It also did not contain a mechanism for tracking progress toward the goal. Finally, the strategy and goal were not communicated to the states who are primarily responsible for enforcing compliance until after our report identified this shortcoming. Following our report, EPA developed a computerized information system that allowed the agency to more accurately track land disposal facilities that were out of compliance. Also following our report, in July 1986, EPA's Assistant Administrator for Solid Waste and Emergency Response issued a memorandum to EPA regions and the states to inform them of the agency's compliance strategy.

Current Status

EPA does not appear to have progressed very far in achieving an actual compliance rate of 90 percent. As noted earlier, about half of all land disposal facilities were not in compliance with groundwater-monitoring, closure and postclosure, or financial responsibility requirements. Yet state and regional enforcement officials are not held accountable for achieving a 90-percent rate of actual compliance, nor are accurate compliance rates available for treatment and storage facilities.

EPA believes that it is more appropriate to hold enforcement officials accountable for accomplishing activities, such as conducting inspections and taking enforcement actions, than for achieving actual compliance rates. In his July 1986 memorandum on the compliance strategy, EPA's Assistant Administrator told regional officials that to meet the objective of the strategy, not less than 90 percent of out-of-compliance facilities had to receive an initial, formal enforcement action. EPA subsequently interpreted this to mean that instead of aiming solely for 90-percent actual compliance, its goal is to achieve 90-percent compliance by either bringing land disposal facilities into actual compliance or taking enforcement actions against facilities that are out of compliance.

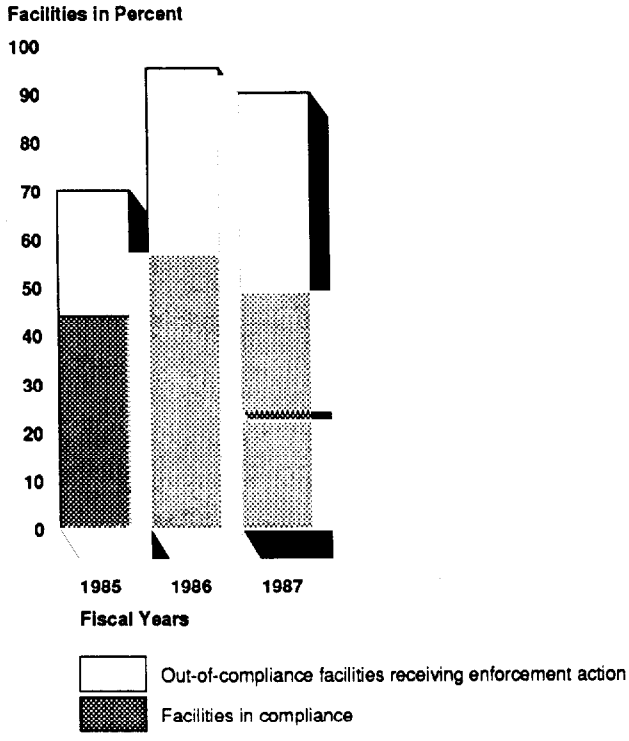
In the same memorandum the Assistant Administrator applied the goal of 90-percent actual compliance only to the approximately 1,450 land disposal facilities nationwide. The memorandum omitted mention of the approximately 3,500 treatment and storage facilities that also must

[8] Assessment of EPA's Hazardous Waste Enforcement Strategy (GAO/RCED-85-166, Sept. 5, 1985).

comply with some of the same regulatory requirements. Although EPA believes that some treatment and storage facilities pose significant environmental threats, it believes that land disposal facilities pose the greatest threats and that its compliance strategy is limited to land disposal facilities.

Figure 3.4 shows EPA's progress in meeting its goal for land disposal facilities. In fiscal year 1985, 70 percent of the land disposal facilities were either in compliance or had enforcement actions taken. For fiscal years 1986 and 1987, the rates rose to 95 percent and 90 percent, respectively.

Figure 3.4: Land Disposal Facilities in Compliance and Out-of-Compliance Facilities Receiving an Enforcement Action, Fiscal Years 1985-1987



Note: "Facilities in Compliance" reflects the percentage of land disposal facilities in compliance with groundwater monitoring, closure/postclosure, and financial responsibility requirements at the end of the fiscal year.

"Out-of-compliance facilities receiving enforcement action" represents the percentage of land disposal facilities with a violation of one or more of the above cited requirements that received an enforcement action by the end of the fiscal year.

EPA believes that it is inappropriate to hold regions and states accountable for achieving an actual 90-percent compliance goal because (1) compliance can change with new requirements or stricter enforcement, (2) regions and states may put forth less effort to discover violations and take enforcement actions if their performance is measured solely against compliance rates, and (3) an actual 90-percent compliance rate may never be achievable given the complexity of some of its regulations—particularly those addressing groundwater monitoring.

We believe, however, EPA's goal should be to achieve actual compliance and that compliance should be used to measure the effectiveness of EPA's RCRA enforcement program. Oversight of the inspectors and other accountability measures may be necessary to make sure that enforcement officials discover and address violations, and a goal based on actual compliance may need to be reduced to reflect changing requirements or the technical complexity and difficulty involved. However, actual compliance is an important measure of performance. Otherwise, enforcement officials may have little incentive to take the types of enforcement action necessary to get facilities back into actual compliance and deter future violations.

As discussed previously, EPA enforcement data show that it has been taking enforcement actions against a high percentage of land disposal facilities for the last 3 fiscal years (85 percent or more), but as shown in figure 3.4, the percent of facilities in actual compliance has remained at about 50 percent for these years. In addition, in June 1988[9] we reported that EPA and the states had met EPA's criteria for taking timely and appropriate enforcement actions in only 37 percent of the over 800 enforcement cases we reviewed. For example, in some cases penalties, although called for by EPA criteria, had not been assessed. In that report we concluded that until EPA's enforcement performance is improved, no assurance exists that threatening environmental conditions are being dealt with in a timely, consistent, and equitable manner and that the deterrent effect of enforcement actions could be weakened.

In addition, we found problems with the quality of inspections and internal controls over groundwater monitoring data and analysis. Even though inspections increased in numbers, they were not thorough and complete. After observing 26 inspections around the country, we

[9]Hazardous Waste: Many Enforcement Actions Do Not Meet EPA Standards (GAO/RCED-88-140, June 8, 1988).

reported in November 1987[10] that inspectors missed almost as many violations as they found—181 misses compared to 200 discoveries. (See fig. 3.5.) In response to our recommendations for better inspection training and guidance, EPA is preparing additional guidance and regulations on how to conduct inspections, developing a continuing training program for inspectors, and increasing its oversight of inspector performance.

Figure 3.5: Improper Stacking of Damaged Hazardous Waste Containers That Was Not Detected by EPA Contractor Inspector

Likewise, we found that groundwater quality at many land disposal facilities is still uncertain because of the absence of internal controls to ensure that adequate groundwater monitoring data are collected and analyzed. Before they can receive their final permits, facilities have to determine whether or not they are leaking contaminants into groundwater and, if so, the extent, rate, and magnitude of the contamination.

[10]Hazardous Waste: Facility Inspections Are Not Thorough and Complete (GAO/RCED-88-20, Nov. 17, 1987).

However, our February 1988 report[11] found that 39 of the 50 land disposal facilities we looked at had not developed the information to make these determinations, largely because EPA had not received adequate groundwater monitoring data from facility owners and operators. We therefore recommended that EPA develop quality standards for the information to be submitted by facility owners and operators. We stated that the implementation of these standards could provide the basis for the development of an internal control system to ensure that quality is maintained. EPA currently has initiatives underway to establish data quality objectives and additional quality controls for the groundwater monitoring program.

Federal Facilities

As reported in our previously mentioned 1986 report on civilian agencies, EPA had developed a federal facility compliance strategy that provided for administrative solutions to obtaining compliance at federal facilities. The strategy reflected the Department of Justice's position not to take judicial action on EPA's behalf against another federal agency, as well as Presidential Executive Orders that provide for resolution of federal agency compliance problems through a nonadversarial approach.

In our review, we found that this strategy was not consistent with EPA's overall enforcement policy because it did not contain a specific deadline for further action if the facility did not act after EPA issued its violation notice. In view of the lengthy periods of noncompliance we found during our review, we recommended that EPA's federal facilities strategy incorporate specific deadlines for escalating unresolved problems to EPA headquarters. EPA implemented the thrust of this recommendation in a March 24, 1988, directive to the EPA regional administrators, which established such deadlines.

As of June 1988, several bills were pending in the House of Representatives aimed at strengthening RCRA authority over hazardous waste management in federal agencies. One of them, H.R. 3782, would create a Special Environmental Counsel to take enforcement actions against federal agencies, and another, H.R. 3785, would waive the federal government's immunity from suit by state and federal RCRA authorities.

While these bills would appear to strengthen EPA's hand in dealing with federal noncompliance, the Department of Justice has indicated its

[11]Hazardous Waste: Groundwater Conditions at Many Land Disposal Facilities Remain Uncertain (GAO/RCED-88-29, Feb. 18, 1988).

belief that they raise separation of powers questions. Until these bills are acted upon and this issue is resolved, we believe it is important that EPA expeditiously elevate and resolve federal facility compliance disputes through implementation of the federal facility compliance strategy discussed above.

Conclusions

Although progress has been limited, EPA has devoted greater resources and undertaken a number of efforts aimed at improving enforcement of RCRA. The agency has also been responsive to our recent recommendations regarding groundwater data quality, inspection quality, and promptness in taking enforcement actions. EPA has also responded to our recommendation to expeditiously elevate and resolve federal facility compliance agreement disputes by adopting specific deadlines to escalate unresolved disputes. We believe that timely resolution of these disputes is necessary because federal facilities should be the role model in complying with hazardous waste requirements.

We are concerned, however, that EPA may lose sight of the importance of getting facilities into actual compliance. While we fully support EPA's increased attention to enforcement actions, we believe that enforcement officials must be held accountable for not only the degree of activity but also for achieving results—getting facilities into compliance. The inspection and enforcement activity measures EPA now uses to measure regional and state performance may be necessary to ensure that the regions and states continue to identify and take action against out-of-compliance facilities. However, the overall goal should be to get facilities back into actual compliance. If a goal of 90-percent actual compliance is unattainable because of the technical complexity of its regulations or other reasons, EPA may want to propose reducing it to something less than 90 percent, but compliance should be at least one measure of performance. The importance of goal setting and performance monitoring in a wide variety of areas is discussed further in chapter 5.

Agency Comments and Our Evaluation

According to EPA, we did not point out in our report that EPA allows enforcement actions against noncompliant facilities to count toward achieving the 90-percent compliance goal and that the goal pertains only to land disposal facilities. In addition, EPA said that we should include data showing the extent of enforcement actions against land disposal facilities. EPA also questioned our position that actual compliance rates would be a better measure of regional and state performance than the extent of inspections, enforcement actions, or other currently used

accountability measures. We have added information or clarified our position on each of these points. As noted above, however, we believe that in focusing on enforcement actions and similar measures, EPA may be losing sight of the importance of getting facilities into actual compliance. If EPA believes a goal of 90-percent actual compliance is unattainable, it may want to propose reducing the goal to something less than 90 percent. For a more detailed discussion of EPA's comments and our responses, see appendix IV.

Waste Minimization Efforts Have Been Limited: Specific, Quantifiable Goals Needed

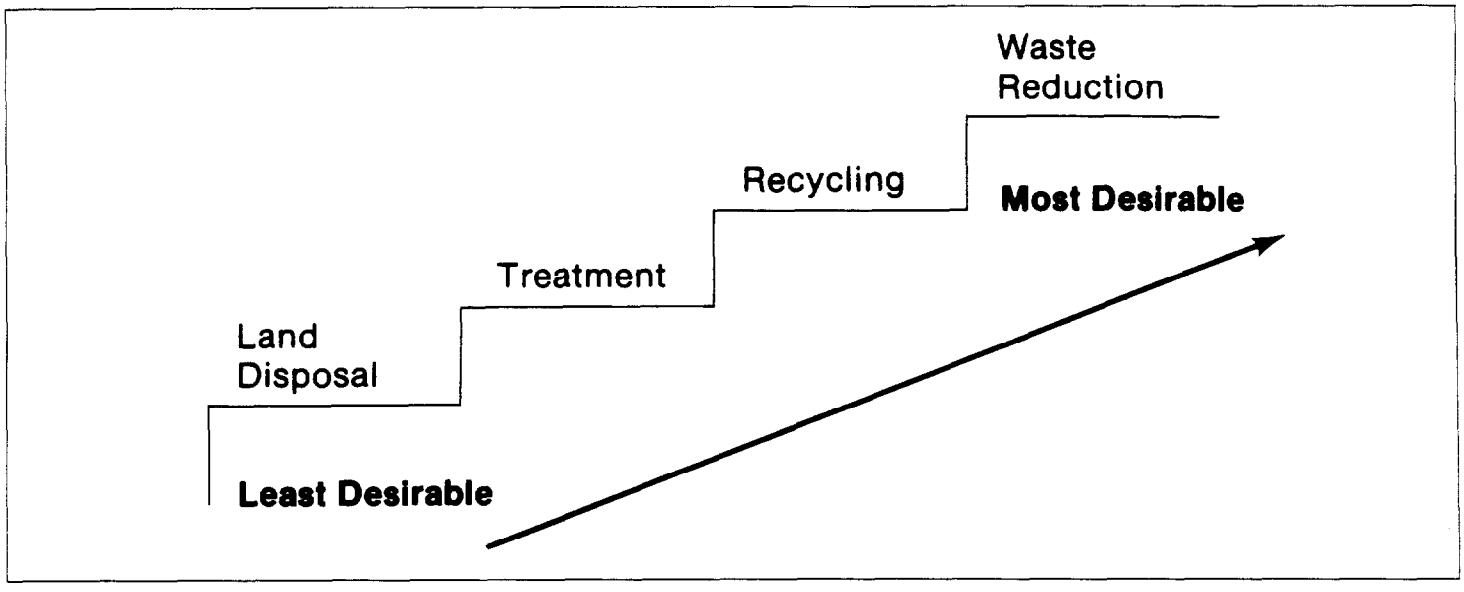
The generally preferred approach to managing hazardous waste is to reduce, to the extent feasible, the volume and toxicity of hazardous waste produced, treated, stored, and disposed of. This preferred management approach is commonly referred to as waste minimization or waste reduction. In fact, EPA recognized this management approach even before RCRA was enacted when, in August 1976, EPA stated that hazardous waste management should include a preference for waste reduction and recycling over treatment, storage, and disposal. Despite this 1976 preference, EPA's efforts to foster waste minimization since the passage of RCRA have been limited. However, EPA has come under increasing pressure from the Congress to establish a waste minimization program and determine what efforts are needed to reduce the volume and toxicity of hazardous waste generated. As a result, EPA currently has a number of initiatives underway to determine the need for and extent of a waste minimization program. Eventually, EPA will need to establish specific, quantifiable waste minimization goals, or benchmarks, so that the success of waste minimization efforts can be measured and the need for changes identified.

Waste Minimization Efforts Have Been Limited but Are Increasing

EPA, in an August 18, 1976, Federal Register notice (41 FR 35050), stated that the desired approach to managing hazardous waste should be based on a hierarchy headed by waste reduction. Waste reduction includes reducing the volume and toxicity of hazardous waste at the source through production process changes. This is referred to as source reduction. Next in the hierarchy was recycling followed by waste treatment (including incineration). Land disposal was considered the least desirable because of the continuing threat of a release of contaminants. (See fig. 4.1.)

In place of a waste reduction program, EPA concentrated its efforts from 1976 to 1986 on developing the hazardous waste regulatory program discussed in the previous chapters. EPA believed that a strong regulatory program over the generation, transportation, treatment, storage, and disposal of hazardous waste would provide sufficient incentive for waste minimization efforts. However, because of concern over the increasing amounts of hazardous waste being generated, as part of the 1984 RCRA amendments, the Congress declared it a national policy to minimize the generation of hazardous waste. In so doing, the Congress mandated that EPA evaluate and report to the Congress by October 1986 on the feasibility and desirability of legislative changes or regulatory measures to carry out a national policy of minimizing the volume and toxicity of hazardous waste.

Figure 4.1: EPA's 1976 Hierarchy of Preference for Managing Hazardous Waste



At the same time, the Congress imposed restrictions on land disposal, declaring it to be the least favored method for managing hazardous waste. (See fig. 4.2.) Under the 1984 amendments, EPA has a series of deadlines, beginning in 1986 and continuing annually through 1990, for setting hazardous waste treatment standards. Once these treatment standards are set, untreated hazardous waste cannot be disposed of on the land.

EPA issued its report to the Congress entitled Minimization of Hazardous Waste in October 1986. Since then, several organizations interested in waste minimization reported on the need for greater federal involvement in the reduction of hazardous waste. Partly as a result of these reports, a number of bills were introduced in the 100th Congress that, if enacted, would require EPA to play a much more active role in waste minimization efforts. Because of the increased visibility that waste minimization has received, EPA is currently becoming more active in this area and has a number of initiatives underway. However, EPA has not yet decided on how comprehensive its waste minimization efforts should be.

Figure 4.2: Waste Minimization Should Help Reduce the Volume and Toxicity of Hazardous Waste Disposed of in Landfills

EPA's 1986 Report to the Congress on Waste Minimization

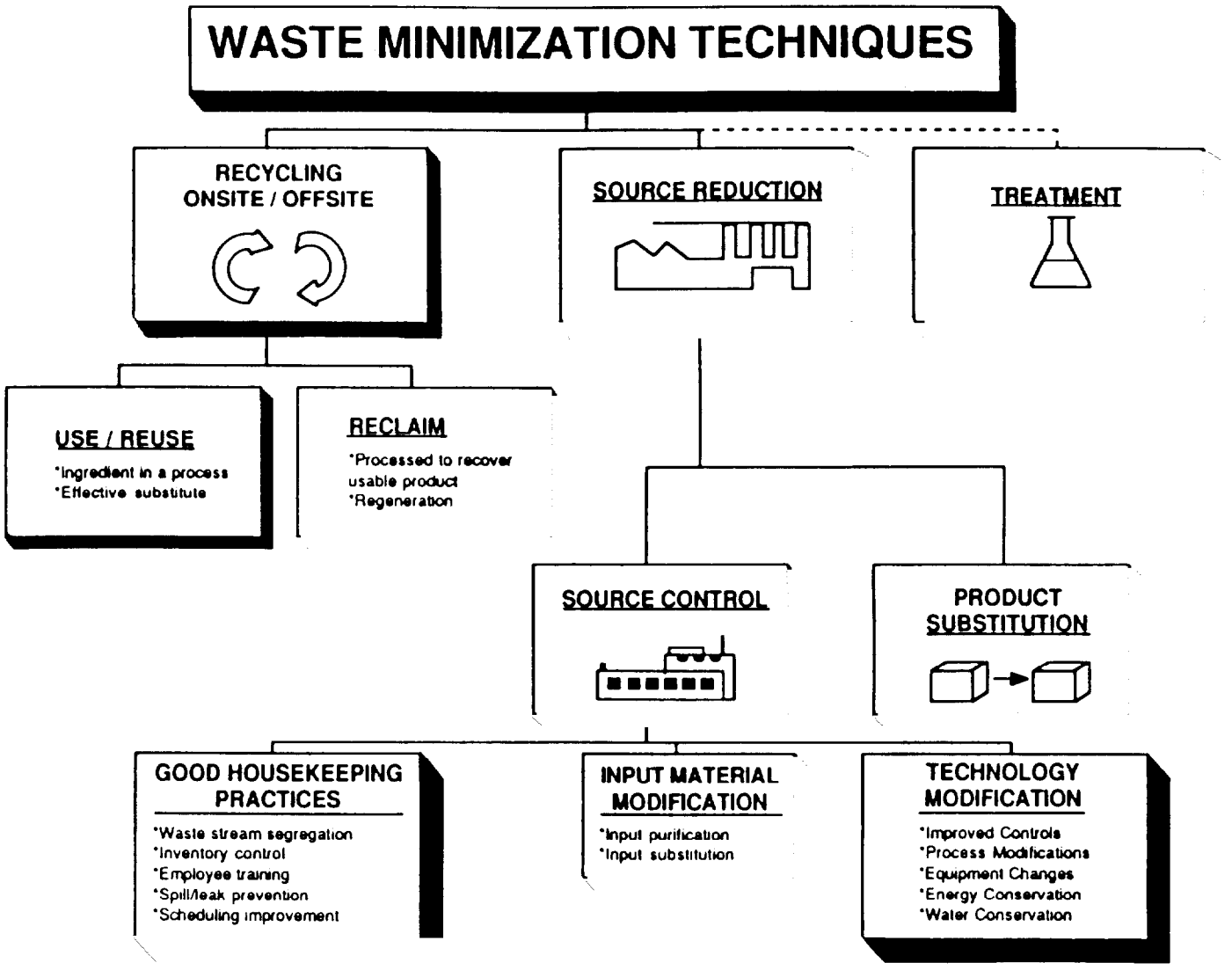
In its 1986 report to the Congress, EPA pointed out that aggressive action in favor of waste minimization is clearly needed and that preventing the generation of waste is the only way to eliminate risk. However, the report concluded that it was not yet feasible or desirable to require mandatory waste minimization efforts, because EPA needed more time to collect and evaluate information on waste minimization. The types of information EPA said it needed to collect and evaluate included (1) baseline information on the volumes and toxicity of wastes generated, (2) trend data on source reduction, recycling, and treatment and disposal capacity, and (3) human health and environmental impacts of treatment and disposal practices. The report said that it would take EPA a few years to collect and evaluate these data. The report concluded that it would be December 1990 at the earliest before EPA could recommend and report back to the Congress on the need for a mandatory waste minimization program.

The report also concluded that EPA does need to aggressively promote waste minimization or EPA may miss a unique opportunity to make waste minimization a more widely adopted industrial strategy for hazardous

waste management. According to the report, EPA's short-term (until December 1990) waste minimization strategy will, in addition to its data collection and analysis effort, consist of an aggressive nonregulatory program. Overall, this nonregulatory program would include a strong technical assistance and information transfer program, implemented through the states, to promote voluntary waste minimization in industry, government, and the nonprofit sectors of the economy. Although EPA's report stated that a major benefit to a technical assistance program is that it can be started immediately and show benefits within months, it also cautioned that past technical assistance programs implemented by EPA have often not been successful. The report did not give reasons for this lack of success.

In its report, EPA also defined waste minimization as the reduction, to the extent feasible, of hazardous waste that is generated or subsequently treated, stored, or disposed of. The report further stated that waste minimization includes source reduction and recycling activities and defined each of these terms. The report defined source reduction as the reduction or elimination of waste generation at the source usually within a process, implying any actions that reduce the amount of waste exiting from a process. Recycling was defined basically as the use, reuse, or reclamation of a waste either onsite or offsite after it is generated by a particular process. How waste minimization can be accomplished is depicted in figure 4.3.

Figure 4.3: Waste Minimization Techniques



Source: EPA, Report to Congress: Minimization of Hazardous Waste, Oct. 1986.

Other National Studies on Waste Reduction

The Congress' declaration of a national policy to minimize the generation of hazardous waste prompted a number of national studies on waste reduction. In addition to EPA's report to the Congress, other major studies included Approaches to Source Reduction by the Environmental Defense Fund in June 1986 and two reports by the Office of Technology Assessment (OTA)—Serious Reduction of Hazardous Waste in September

1986 and From Pollution to Prevention: A Progress Report on Waste Reduction in June 1987. Although the scope of waste reduction activities and methodologies used in these reports differed, each report concluded that despite agreement that reducing the generation of hazardous waste is a highly attractive concept and is preferable to controlling waste already generated, both government and industry waste reduction efforts are fragmented and lack a systematic and comprehensive framework for dealing with waste reduction. These reports also concluded that until this framework is developed, overall waste reduction efforts will lag.

The September 1986 and June 1987 OTA reports taken together appear to be the most comprehensive treatment of this issue. Various congressional committees requested the reports to bring into focus congressional policy options on reducing the generation of hazardous waste and environmental pollutants. OTA examined federal actions to reduce the generation of hazardous waste and summarized what state and local governments and industry had done to reduce waste. The OTA reports found that

- a concerted national effort to reduce the generation of hazardous wastes and environmental pollutants is the next logical step in the development of a comprehensive national environmental protection system,
- industry could technically and economically reduce the generation of hazardous waste and environmental pollutants by up to 50 percent over 5 years but only if waste reduction is adopted comprehensively, and
- a comprehensive waste reduction effort may not be adopted unless the Congress mandates it.

The studies provided the Congress with a range of policy options that the Congress may want to consider in enacting waste reduction legislation. These suggestions included establishing within EPA

- an Office of Waste Reduction, which would be the focal point for federal waste reduction activities,
- a states grant program that could support ongoing state waste reduction programs; help start new waste reduction programs; provide in-plant technical assistance programs to industry; and provide education, training, information transfer, and limited research and development, and
- a 10-percent year-to-year voluntary goal of waste reduction over 5 years to draw attention to waste reduction and provide a simple way to measure waste reduction and justify waste-reduction actions.

Congressional Bills to Foster Waste Reduction Efforts

Based partly on the findings and conclusions reached in the above-mentioned national studies on waste reduction, seven bills are pending in the 100th Congress as of June 1988 that would foster waste reduction or waste minimization efforts by more actively involving EPA in these efforts. Five of these bills (H.R. 2800, S. 1429, H.R. 3094, H.R. 2599, S. 1331) propose establishing an Office of Waste Reduction in EPA to give more emphasis and primacy to waste reduction as a national policy goal. The other two bills (H.R. 737 and H.R. 3300) would require EPA to establish a comprehensive plan to reduce and manage the nation's hazardous waste and to make legislative recommendations that would provide incentives to promote the development of hazardous waste reductions and treatment technologies. Another bill (H.R. 3491) would provide industry a tax credit as an incentive for recycling hazardous waste.

Of the five bills proposing the establishment of an Office of Waste Reduction in EPA, H.R. 2800 and S. 1429 are companion bills and appear to be the most comprehensive in calling for EPA to play a more active role in waste reduction efforts. Sponsoring members of the two bills believe that industry has not fully realized all opportunities to make economical and efficient waste reduction investments, partly because the government's existing regulatory program focuses on treatment and disposal rather than on waste reduction. The Office of Waste Reduction called for in these two bills would be responsible for

- collecting hazardous waste reduction plans and information in a coordinated industry-by-industry sequence,
- administering a matching grant program for innovative state waste reduction programs,
- reviewing proposed EPA regulations to determine their effect on waste reduction, and
- promoting waste reduction practices in other federal agencies and programs.

EPA's Current Waste Minimization Efforts

EPA is currently in the process of implementing its short-term waste minimization program, which includes a waste minimization policy statement that describes how EPA plans to implement its short-term waste minimization strategy. According to EPA officials responsible for waste minimization, EPA does not expect to issue its waste minimization policy statement until at least July 1988. These officials said that EPA's implementation of its short-term strategy is expected to include the following elements: (1) developing an integrated waste minimization training program through grants to the states, (2) establishing a clearinghouse and

technical assistance program, (3) ensuring state capacity for treatment and disposal, (4) providing waste minimization research and technology transfer between states, universities, industry, and EPA, (5) developing a national data base to assess waste minimization progress, and (6) identifying agency-wide waste minimization opportunities.

To implement its short-term strategy, EPA created a waste minimization staff within the Office of Solid Waste in February 1988 to develop RCRA waste minimization efforts. It has also appointed a Special Assistant to the Assistant Administrator for Solid Waste and Emergency Response to oversee an agency-wide approach to waste minimization and to identify EPA-wide waste minimization program opportunities. Both RCRA's waste minimization staff and the Special Assistant for Solid Waste and Emergency Response will coordinate their efforts with the EPA's Office of Research and Development, which will provide expertise for the research and technology transfer segment of EPA's short-term waste minimization implementation strategy.

Thus far, EPA has earmarked $3.2 million in fiscal year 1987 training grant funds that will be made available to about 10 states for waste minimization efforts. EPA has published a brochure on the benefits of waste minimization and a bibliography on published waste minimization studies and related data. EPA is also developing fact sheets to explain how a number of industries can minimize their hazardous waste. In addition, EPA is in the process of determining what type of waste minimization clearinghouse and technical assistance program it should initiate.

EPA is currently developing a national data base to assess waste minimization progress using data being collected from its survey of 10,000 generators and its 1987 biennial report, which were discussed in chapter 2. From its generator survey EPA expects to collect 1986 waste minimization data, such as the type of waste minimization practices implemented and the effect these practices have had on the volume and toxicity of waste generated; the specific hazardous wastes that were eliminated or added; and the quantity of hazardous wastes that were recycled, recovered, or shipped offsite. According to the EPA official responsible for the generator survey, these survey data will be collected and analyzed by June 1989. From its biennial reports, EPA expects to collect 1987 waste minimization data, including information on whether the generators implemented source reduction and recycling programs; the specific practices implemented and how much these practices cost; and the quantity, toxicity, and type of hazardous waste being produced and managed by the generators.

EPA expects that the biennial report data will be collected between mid-to-late 1988 and that it will be fully analyzed sometime in 1989. EPA expects that the 1986 data collected from the generator survey and the 1987 biennial report data will be useful in developing baseline and trendline data on waste minimization progress, which will not be compiled until sometime in 1989.

EPA is also in the process of setting treatment standards for land disposal, which could affect the volume of waste generated. Depending on what these standards are, companies may find it more economical to reduce wastes or to stop using certain chemicals than to treat them. This has occurred already with some wastes for which treatment standards have been issued.

EPA is also expanding its waste minimization initiative to an agency-wide effort. This effort will include both hazardous and nonhazardous wastes as well as reducing contamination in the air, water, land, and groundwater in conjunction with other EPA programs. This effort will include

- collecting data in private sector waste minimization efforts required by Superfund amendments,
- providing technical information to state programs and industry plant managers,
- establishing an executive council to advise EPA's top managers on critical policy and implementation issues, and
- issuing an EPA directive requiring the development of an agency-wide strategy.

EPA officials responsible for waste minimization efforts admit that the comprehensiveness of its waste minimization efforts will depend, to a large degree, on the amount of funding that waste minimization receives. For fiscal year 1988, EPA has been appropriated about $4.5 million for waste minimization efforts. This includes about $4 million for incentive grants to the states to establish and expand state technical assistance programs for waste minimization and for EPA to establish and operate a technical information clearinghouse and about $500,000 for EPA to establish a formal waste minimization program.

EPA Will Need to Establish Specific, Quantifiable Waste Minimization Goals

EPA's short-term strategy, however, does not include plans to establish specific, quantifiable waste minimization goals, or benchmarks, to measure the success of and to identify needed changes in its short-term waste minimization strategy. According to EPA's Deputy Director of the Office of Solid Waste, before EPA considers establishing specific, quantifiable goals for its waste minimization efforts, it needs to collect and evaluate baseline and trendline data on the volume and toxicity of waste generated and on source reduction and recycling efforts. As previously stated, EPA expects that this data evaluation effort will be completed in 1989. We realize that it would be difficult to establish specific, quantifiable waste minimization goals until EPA has baseline and trendline data. Although it may be possible to set interim goals and revise the goals as better data become available, at a minimum, however, once this data collection and evaluation effort is complete, EPA should establish specific, quantifiable waste minimization goals and state these goals in its 1990 waste minimization report to the Congress on the need for a voluntary or mandatory long-term waste minimization program. The establishment of specific, quantifiable waste minimization goals is important so that criteria can be established to objectively judge the overall merits of EPA's long-term waste minimization effort—regardless of whether EPA decides that this long-term effort be voluntary or mandatory.

The establishment of specific, quantifiable goals to measure waste minimization is not a new idea. For example, the June 1986 Environmental Defense Fund report pointed out that the establishment of numerical, or percentage, goals for waste reduction is a very important element in drafting an overall waste reduction action plan. Such goals serve as standards against which the success of a waste reduction program can be measured over time. The study pointed out that Minnesota sets long-range waste reduction targets in terms of specific percentage reductions for a number of waste categories and that Minnesota has established, for these categories, an overall goal of reducing waste generated by 31 percent by the turn of the century. In addition, as previous mentioned, OTA has suggested that EPA could establish an internal 10-percent year-to-year voluntary goal of waste reduction over 5 years. Such a goal would draw attention to waste reduction and provide a simple way to measure waste reduction programs and to justify waste reduction actions.

Conclusions

In August 1976, even before RCRA was passed, EPA recognized that the preferred approach to managing hazardous waste was waste minimization or waste reduction. Despite this preference, direct efforts to foster waste minimization were limited until the Congress mandated in 1984

that EPA study the need for waste minimization. As a result of that mandate and continuing pressure from the Congress, EPA is now implementing a short-term waste minimization strategy—almost 12 years after it recognized that this was the preferred approach to managing hazardous waste. In implementing its current short-term strategy, however, EPA does not plan to establish specific, quantifiable goals to measure its progress in accomplishing waste minimization because it needs to collect and evaluate baseline and trendline data on waste minimization efforts. Since this data collection and evaluation effort is expected to be completed in 1989, we believe specific, quantifiable waste minimization goals should be established as soon as possible, but at a minimum, in 1990, when EPA decides on its long-term waste minimization effort.

In chapter 5 we discuss EPA's overall strategic planning initiative, which calls for the establishment of measurable program goals and the development of strategies for achieving the goals. We believe the long-term waste minimization implementation strategy and the development of specific, quantifiable goals to guide that strategy should be included in EPA's overall strategic planning effort for hazardous waste.

Agency Comments and Our Evaluation

EPA said that in addition to the waste minimization efforts discussed in the report, the agency has taken several important steps to expand its waste minimization focus agency-wide. We have included a discussion of these additional efforts in this chapter. For more details on EPA's comments and our response to them, see appendix IV.

EPA Needs to Develop Measurable RCRA Goals and a Strategy for Achieving the Goals

As discussed in this report, EPA has experienced problems or delays in identifying wastes needing to be controlled, developing regulations, obtaining compliance, and encouraging waste minimization. Our work indicates that an underlying cause has been shifting approaches and priorities and a lack of focus and direction. EPA has efforts under way to improve its performance, but we believe that more focus, direction, accountability, and stability is possible, particularly in priority areas, through the establishment of (1) long-range measurable RCRA goals, (2) an implementation strategy, or family of strategies, identifying the steps and resources necessary to achieve the goals, (3) measurement of progress in achieving the goals, and (4) coordination and communication of the strategy, and progress in achieving goals, with the Congress and the public.

EPA's agency-wide strategic planning initiative, which was launched by the Administrator in June 1985, could provide a framework for goal setting and planning. This initiative requires problem assessment, development of long-range measurable goals, analysis of alternative ways to achieve goals, and development of a way to measure or track annual progress toward achieving the goals. Work has begun in the hazardous waste area under this initiative but appears to be stalled at the problem assessment stage.

Importance of Goals and Strategic Planning

Goal setting and strategic planning is a first key step of any major undertaking. Furthermore, goals should be measurable and stated in terms of desired results. Goals for major programs are often multiyear or long range. A strategy to achieve the goals should contain the tasks to be performed and appropriate milestones, organizational responsibilities, required resources, and a way to track or measure progress annually.

The benefits of having goals and a strategy for achieving the goals are many. They provide focus and direction and are a benchmark for measuring performance. They also trigger a reassessment if progress in achieving goals is not satisfactory. If coordinated within the agency, they inform everyone of their organizational responsibilities. If communicated outside the agency, the goals and strategy provide a sense of agency direction, priorities, and timing for expected results. Goals and a strategy can also provide the Congress with a sense of what can be achieved with the level of resources committed and a way to hold EPA accountable for achieving stated goals.

With respect to providing focus and direction, in previous chapters we outlined problems or delays EPA experienced in identifying wastes needing control, developing applicable regulations, enforcing compliance with regulations, and encouraging waste minimization. Our work in these areas convinces us that goal setting, strategic planning, and measurement of performance against established goals could have lessened these problems by focusing agency attention early on problem areas and signaling the need to realign the programs. They may also have alleviated EPA's shifting of priorities as it reacted to internal and external pressures—particularly if the public and the Congress had been included in the goal setting and performance measurement process.

With respect to communicating goals and performance against goals, we see the potential for significantly strengthening EPA's relationship with the Congress. As discussed in chapter 2, in enacting the 1984 RCRA amendments, the Congress indicated its frustration in getting EPA to properly and expeditiously implement RCRA mandates.

We believe that if EPA had developed, in consultation with the Congress, a comprehensive RCRA implementation strategy that adopted measurable goals and deadlines to which EPA could be held accountable by the Congress, prescriptive legislated mandates may not have been necessary. For example, had EPA been more aggressive in establishing and pursuing a waste minimization strategy and setting goals after it identified waste minimization as the preferred waste management practice in 1976, the Congress may not have felt it necessary to require EPA to study and report on this area in 1984 amendments or now be considering legislation to improve EPA's performance in promoting waste minimization.

Goal Setting and Measuring Progress

An overall objective of RCRA is to protect the public health or the environment from threats posed by hazardous wastes. Ideally, RCRA program goals in achieving this objective should be based on measures of public health or environmental quality. Examples include numerical reductions in cancer risk, chemical contaminants in body tissue, concentrations of contaminants in groundwater, or discharge of contaminants into the environment from hazardous waste production, treatment, storage, or disposal operations. Measuring changes in the environment and establishing direct links to program activities can be difficult, however, because of data limitations and the existence of numerous influences other than EPA activities. Nevertheless, indicators are available today that allow the measurement of program performance such as the extent

of compliance with regulatory requirements and volumes of wastes produced. According to an EPA planning process discussed later, a goal is an explicit measurable outcome that is to be accomplished over a specific period of time. EPA's strategic planning and management system, instituted in 1984, provides a vehicle for articulating goals and priorities and holding program and regional offices accountable through measures of performance reported quarterly.

As discussed in prior chapters, and later in this chapter, however, EPA has either not adopted measurable goals or is not using the best available ones to measure progress in the hazardous waste identification, compliance, and waste minimization areas. For example, in the waste identification area, EPA does not yet have any measurable goals or timetable for when it will complete ongoing efforts to develop a strategy for identifying wastes or when the waste identification efforts will be complete. Similarly, EPA has not established any measurable goals for how much waste minimization is desirable or possible through its waste minimization efforts.

In the compliance area EPA set a goal of 90-percent compliance by 1989. However, it subsequently defined compliance with the goal to include enforcement actions taken rather than actual compliance and limited the scope of compliance to include only land disposal facilities. EPA has also not established annual targets or reported on progress in achieving actual compliance rates. Instead, it tracks and holds enforcement officials accountable for such activities as the number of inspections conducted or number of violators addressed with enforcement actions. While these measures may be appropriate for holding managers accountable for meeting annual inspection or enforcement commitments, they do not reveal much about how well EPA has progressed in meeting longer-range goals, such as a 90-percent actual compliance rate, that may be more useful in terms of measuring the results of inspections and enforcement efforts.

We are currently reviewing both EPA's agency-wide progress in developing environmental measures and what more needs to be done to link these measures to program activities and then use them as indications of program effectiveness. We are conducting this work as part of an overall review of EPA's management processes. While still tentative,[1] our work

[1] A draft report entitled Environmental Protection Agency: Protecting Human Health and the Environment Through Improved Management (GAO/RCED-88-101) is currently under final review by GAO.

in this area to date indicates that, among other things, a need exists to set agency-wide priorities or goals and other performance indicators in measurable terms.

RCRA Requires EPA to Measure and Report on Its Performance

RCRA requires the EPA Administrator to report annually to the Congress on RCRA activities and to include among other things (1) a statement on the specific detailed objectives to be achieved for the activities or tasks in support of the objectives and (2) measures of the effectiveness in meeting the objectives. These requirements are similar to the planning components discussed earlier that we believe are important although development of measurable goals is not explicitly required.

However, EPA's compliance with this reporting requirement has been sporadic. Since 1980 EPA has issued only two reports, one in 1986 covering fiscal years 1980 through 1985 and one in 1987 covering the fourth quarter of fiscal year 1986 and fiscal year 1987. The reports include a summary of the tasks accomplished during the periods covered and those tasks that are currently ongoing. We do not believe, however, the reports provide a measure of effectiveness in meeting objectives. They lacked specific, measurable goals; an identification of the tasks necessary to achieve the goals; and a measure of performance against established goals. Even where goals already existed, such as the 90-percent compliance goal, the reports did not mention them or progress in achieving them.

Parts of a Plan or Strategy Already Exist

EPA has developed or is developing plans, or strategy documents, for various parts of the RCRA program. We discussed in chapter 2, for example, EPA's plans to develop a strategy for identifying additional wastes needing to be regulated. We discussed in chapter 3 EPA's RCRA Enforcement/Compliance strategy and in chapter 4 EPA's short-term strategy for encouraging waste minimization. EPA has also developed program-wide strategy, or planning, documents for RCRA, such as a draft document entitled "Hazardous Waste Implementation Strategy."

Each of the documents we have reviewed, including the 1986 and 1987 reports to the Congress, however, lacked one or more of the following components we believe important: (1) specific measurable goals and appropriate milestones for achieving the goals, (2) specific tasks to be accomplished to meet the goals, (3) required resources, (4) organizational responsibilities, (5) a system for measuring and reporting performance in accomplishing tasks and meeting goals, and (6) coordination

of the strategy with and communication of it to the Congress and the public. The inclusion of these components in various EPA documents is summarized in table 5.1, and, except for the annual reports that have been discussed previously, are discussed below.

Table 5.1: Comparison of Various EPA/RCRA Planning Documents With GAO Criteria

GAO criteria	Compliance, monitoring, and enforcement strategy	Waste minimization strategy	Draft hazardous waste implementation strategy	Annual reports to Congress on hazardous waste	Draft national corrective action strategy	National permits strategy[a]
Specific measurable goals/ milestones	YES	NO	NO	NO	NO	YES
Tasks to be accomplished	YES	YES	YES	NO	YES	YES
Resources required	NO	NO	NO	NO	NO	NO
Organizational responsibilities	YES	NO	NO	NO	YES	YES
Performance reporting/ measuring system	NO	NO	NO	NO	NO	YES
Coordination/ communication with the Congress and the public	YES[b]	YES	NO	YES	NO	YES

[a]Our comparison of this strategy against GAO criteria relates to EPA's objective of the timely issuance of permits and does not include the strategy's objective of issuing quality permits.

[b]The goal for the compliance, monitoring, and enforcement strategy was communicated to the Congress but not initially to the states who are primarily responsible for enforcement actions.

RCRA Compliance, Monitoring, and Enforcement Strategy

As discussed in chapter 3, EPA developed this strategy in response to a requirement included in EPA's fiscal year 1985 appropriation. This strategy is noteworthy because it sets a measurable goal of 90-percent compliance with important regulatory requirements and sets a target date of 1989 to achieve the goal. The strategy also stipulates the tasks to be accomplished and the organizational responsibilities and was communicated to the Congress and the public. We pointed out in our September 1985 report on the strategy, however, that EPA had not identified in the strategy the resources required to achieve the goals or communicated the strategy to the states who are primarily responsible for implementing the enforcement program. Subsequent to our report, EPA did communicate the strategy to the states but as previously noted, it does not hold its regions and the states accountable for making progress in achieving actual compliance rates.

Waste Minimization Strategy

As discussed in chapter 4, in response to a 1984 RCRA amendment requirement, EPA reported to the Congress in October 1986 on its short-term strategy to encourage generators of hazardous waste to reduce the volume and toxicity of the hazardous waste they produce. The short-term strategy lays out the tasks EPA believes should be accomplished, and this strategy has been communicated to the Congress and the public. The strategy, however, lacks specific measurable goals and milestones for accomplishing tasks or goals, required resources, organizational responsibilities, and a system for measuring and reporting performance. As noted in chapter 4, EPA believes it needs to develop baseline and trendline data on waste minimization before it can set goals. Such data should be available in 1989.

Draft Hazardous Waste Implementation Strategy

Faced with numerous deadlines and other requirements contained in the 1984 RCRA amendments, EPA's Office of Solid Waste decided that an overall, clear-cut strategy was essential to the success of the hazardous waste program. To develop the overall strategy the office established a task force, made up of seven work groups, to evaluate various aspects of the RCRA program with a view toward improving efficiency and effectiveness in the short term (2 to 4 years) and where the program should go in the long term (5 to 10 years). This is the type of effort we believe is necessary, but the resulting strategy too lacks important components. The strategy outlined a number of problems with (1) the RCRA regulations that had been promulgated, (2) priority setting, (3) public education, (4) analytical techniques used to identify wastes and other purposes, and (5) data management systems. The strategy also outlined short-term and long-term tasks to be accomplished to correct the problems identified. It did not, however, set specific measurable goals, identify required resources, assign organizational responsibilities, or establish a system for measuring and reporting performance. Nor was it ever finalized and communicated to the Congress or the public.

Draft National RCRA Corrective Action Strategy

As discussed in chapter 2, EPA is implementing a RCRA-required corrective action program aimed at cleaning up contamination at RCRA treatment, storage, and disposal facilities. In October 1986 EPA issued a draft corrective action strategy. The strategy contains the tasks to be accomplished and organizational responsibilities but lacks specific measurable goals and milestones, required resources, and performance measurement and reporting. Because it has never been finalized, we classified it as not communicated to the Congress and the public.

As also discussed in chapter 2, our December 1987 report on corrective action noted that about 2,500 RCRA treatment, storage, and disposal facilities will require corrective action. It would seem that the complexity and size of this effort make goal setting, resource planning, performance measurement and reporting, and communication with the Congress and the public all that more important.

National Permits Strategy

EPA's national permits strategy for issuing permits to treatment, storage, and disposal facilities was issued in August 1984. The document stated that a strategy is needed to meet the objective of issuing timely and high quality permits. To meet the objective of issuing timely permits, the strategy established specific measurable multiyear goals that stipulate annual increments and milestones when the permit process will be complete for land disposal facilities, incinerators, and storage and treatment facilities.[2] The strategy also outlined the tasks to be accomplished to meet this goal and related organizational responsibilities. Issued as a widely available EPA publication, the strategy established a performance reporting system to apprise EPA managers of progress made in achieving the goal. The strategy does not, however, lay out the resources required to issue timely permits. Thus, it is difficult to assess whether EPA is funding the effort each year at the levels required to meet the goals. It should be noted, however, that almost 4 years after the strategy was developed, EPA still plans to meet the modified time frame goals for taking final permit action and is continuously monitoring its performance in doing so. The strategy does not, however, contain measurable goals and a performance reporting system for meeting its other objective of producing high quality permits. As discussed in chapter 2, our work indicates problems may exist in this area.

[2]These milestones were modified somewhat by the Congress and adopted as legislative requirements in the 1984 RCRA amendments.

Strategic Planning Initiative Provides a Framework for Developing RCRA Goals and Implementation Strategies

As previously mentioned, EPA's Administrator launched the agency-wide strategic planning initiative in June 1985. The initiative called for (1) assessment of environmental problems, (2) establishment of explicit goals, which are defined as outcomes to be accomplished over a specific time frame, (3) identification of the major regulatory, enforcement, policy, research monitoring, grants, and legislative activities necessary to achieve the goals, and (4) development of indicators or measures for each goal to be tracked annually showing progress in achieving the goal. The strategies are intended to outline EPA's management agenda for the next 5 to 10 years. They are to be revised periodically and will serve as the basis for budget requests and annual operating guidance.

Hazardous waste was selected as one of the areas in which the first strategic plans would be developed. The product produced, however, does not go much beyond the first step of assessing the environmental problems. According to responsible officials of the Office of Management Systems and Evaluation and the Office of Program Management and Technology, the effort to date has focused on defining how hazardous waste is managed and understanding the various impacts of changing waste management practices. They said that it has led to important insights and a tool to evaluate future hazardous waste policy decisions but agreed the effort had not progressed past the first step.

The report prepared on the effort was issued in June 1987 and indicates several purposes are to be served by the report. These purposes include (1) providing an overview of the hazardous waste system, (2) serving as a vehicle for discussion of possible impacts of various regulatory efforts, and (3) addressing the question of whether there is a disposal capacity problem in a very preliminary way. The report does not, however, establish explicit measurable goals or, in our view, meet the other objectives of the strategic planning initiative. According to program officials responsible for the initiative, work continues on the effort but is mainly directed at refining and computerizing the information already gathered. The officials were noncommittal about whether the effort would go on to establish goals and meet the other objectives of the strategic planning initiative. We believe the effort should go on to the next step and complete the process.

We recognize, however, that data-gathering problems will have to be addressed after goals are established. As discussed in chapter 2, EPA has had problems in implementing a biennial reporting process designed to measure the amount of wastes being generated, treated, stored, and disposed of. In chapters 2 and 3 we discussed problems EPA has experienced

in developing and implementing a hazardous waste data management system designed to collect data on inspections, enforcement, compliance, permit status, and other EPA activities. Chapter 4 includes a discussion of EPA's ongoing efforts to collect and evaluate baseline and trend data in waste minimization and other waste management practices. The ability to measure progress against goals will depend on how successful EPA is in resolving these data collection and management problems. As discussed in previous chapters, EPA plans on making improvements in each of these areas to resolve the problems and collect better, more reliable data. Except for the waste minimization goals as discussed in chapter 4, the establishment of goals should not wait, however, until these data collection improvements are made. Rather, the goals should dictate what data are needed to measure progress. The improvements to data collection activities then need to be made in light of the established goals.

Conclusions

EPA has experienced problems and delays in identifying the wastes that need to be controlled, developing applicable regulations, enforcing compliance, and promoting waste minimization and other more desirable waste management practices. Concerned about EPA's limited progress, the Congress enacted prescriptive RCRA amendments in 1984 with numerous deadlines, some with hammer provisions. While the deadlines and hammer provisions appear to have helped spur EPA action, EPA's performance in meeting the deadlines has been mixed. In addition, EPA views the prescriptive nature of the amendments as limiting its flexibility to respond to other important priorities.

We believe a more active approach is possible on EPA's part and more focus, direction, stability, and accountability could be brought to the RCRA program through development of measurable RCRA goals and an implementation strategy designed to achieve the goals. While parts of such a strategy already exist, they lack one or more of the following important components: (1) specific measurable goals, (2) specific tasks to be accomplished and appropriate milestones, (3) required resources, (4) organizational responsibilities, (5) a system for measuring performance in accomplishing goals, or (6) communication and coordination of the strategy and performance in implementing the strategy with the Congress and the public. We believe a strategy containing these components would not only assist EPA in managing its ongoing waste identification, compliance, waste minimization, and other efforts, but it would also serve to strengthen EPA's relationship with the Congress and the public. In short it would be a statement about what results can be expected given current and projected funding levels. The strategy does

not have to be all inclusive or under one cover. It could be a family of planning or strategy documents much like what currently exists. The important point is that each one contain measurable goals and the other components listed above. If the goals and time frames for achieving the goals are unacceptable, the Congress would have the opportunity to adjust funding levels or make other changes.

EPA has in place a strategic planning initiative that could form the necessary framework for developing the goals and a strategy. Work under this initiative in the hazardous waste area, however, has not progressed to the goal-setting stage; and EPA officials responsible for the effort could not tell us when, or if, it would. EPA needs to make a commitment to complete this process. We recognize that new or improved data collection activities would be required to support measurement of progress in achieving the goals. EPA is currently planning improvements to its internal and external data collection and analysis efforts. The design of these data collection activities should be an integral part of the overall strategy's development.

Recommendation to the Administrator, EPA

We recommend, to give a greater sense of direction to the RCRA program, that the Administrator, EPA, in consultation with the Congress, engage in strategic planning for priority efforts. This planning effort should include a strategy that identifies specific measurable goals, the tasks necessary to accomplish the goals, milestones, required resources, organizational responsibilities, and periodic reporting on progress in achieving the stated goals. An integral part of this strategy should include development of the data necessary to formulate and measure progress in attaining such goals. The priority efforts that make up this strategy should, at a minimum, include identifying and regulating hazardous wastes, ensuring facilities' regulatory compliance, and encouraging waste minimization.

Matters for Consideration by the Congress

As the Congress considers RCRA's reauthorization, it will likely confront the question of whether additional statutory deadlines and hammer provisions are necessary or desirable. While it appears that statutory deadlines have had some success in directing EPA's actions, the experience has been mixed, and EPA believes such deadlines may limit flexibility to address other important areas. For this reason, we believe a preferable alternative is for EPA to be more active in managing RCRA by establishing measurable goals and implementation strategies.

Although we have addressed our recommendation to the Administrator, EPA, the Congress may also wish to amend RCRA to require EPA to undertake, in consultation with the Congress, such a planning and management effort. The objective would be to establish measurable goals for priority areas and a long-term strategy to achieve the goals. The Congress may also wish to expand RCRA's annual reporting requirement to include a report on EPA's progress in attaining the established goals.

Agency Comments and Our Evaluation

EPA stated that strategic planning and the establishment of measurable goals is essential to the effective management and implementation of RCRA. According to the agency, it has set priorities to ensure the most environmental protection possible, given the resources under which EPA must operate. EPA said that our report does not mention several planning processes that set measurable goals and provide for both short- and long-term strategies. It cited as examples the agency operating guidance, the RCRA implementation plan, the strategic planning and management system, and the multiyear strategies.

We recognize that EPA has a number of other planning processes that involve RCRA that were not discussed in the chapter. In the chapter, and particularly in table 5.1, we limited the discussion to the various planning documents that pertained to the specific issues discussed in the report—waste identification, controlling hazardous waste, ensuring regulatory compliance, and waste minimization. During our review, we did, however, evaluate each of the planning documents mentioned in EPA's comments. For the most part, these planning documents contain annual rather than multiyear objectives and do not contain specific measurable goals or the resources necessary to accomplish the more general goals stated in the documents.

As discussed in this chapter, we believe the agency-wide strategic planning initiative launched in June 1985 by the EPA Administrator could provide a framework for the goal setting and planning that we are recommending. However, as we pointed out, this initiative in the hazardous waste area has not progressed to include the goal-setting or progress-monitoring stages. If EPA were to complete the strategic planning initiative in the hazardous waste area and include the components called for in our recommendation, we believe EPA would bring a greater sense of focus and direction to the RCRA program. For more detail on EPA's comments and our responses to them, see appendix IV.

GAO Reports on RCRA Hazardous Waste Issues

Hazardous Waste: Many Enforcement Actions Do Not Meet EPA Standards (GAO/RCED-88-140, June 8, 1988).

Hazardous Waste: Future Availability of and Need for Treatment Capacity Are Uncertain (GAO/RCED-88-95, Apr. 11, 1988).

Hazardous Waste: Groundwater Conditions at Many Land Disposal Facilities Remain Uncertain (GAO/RCED-88-29, Feb. 18, 1988).

Environmental Funding: DOE Needs to Better Identify Funds for Hazardous Waste Compliance (GAO/RCED-88-62, Dec. 16, 1987).

Hazardous Waste: Corrective Action Cleanups Will Take Years to Complete (GAO/RCED-88-48, Dec. 9, 1987).

Hazardous Waste: Facility Inspections Are Not Thorough and Complete (GAO/RCED-88-20, Nov. 17, 1987).

Hazardous Waste: Tinker Air Force Base's Improvement Efforts (GAO/NSIAD-88-4, Oct. 29, 1987).

Hazardous Waste: Controls Over Injection Well Disposal Operations (GAO/RCED-87-170, Aug. 28, 1987).

Hazardous Waste: Siting of Storage Facility at Kelly Air Force Base, Texas (GAO/NSIAD-87-200BR, July 31, 1987).

Hazardous Waste: Information on EPA's Proposal to Delete Chemicals From Groundwater Monitoring (GAO/RCED-87-132FS, May 19, 1987).

Hazardous Waste: DOD Installations in Guam Having Difficulty Complying With Regulations (GAO/NSIAD-87-87, Apr. 22, 1987).

Hazardous Waste: Uncertainties of Existing Data (GAO/PEMD-87-11BR, Feb. 18, 1987).

Hazardous Waste: Enforcement of Certification Requirements for Land Disposal Facilities (GAO/RCED-87-60BR, Jan. 27, 1987).

Hazardous Waste: EPA Has Made Limited Progress in Determining the Wastes to Be Regulated (GAO/RCED-87-27, Dec. 23, 1986).

Nuclear Waste: Unresolved Issues Concerning Hanford's Waste Management Practices (GAO/RCED-87-30, Nov. 4, 1986).

Nuclear Energy: Environmental Issues at DOE's Nuclear Defense Facilities (GAO/RCED-86-192, Sept. 8, 1986).

Hazardous Waste: DOD's Efforts to Improve Management of Generation, Storage, and Disposal (GAO/NSIAD-86-60, May 19, 1986).

Hazardous Waste: Federal Civil Agencies Slow to Comply With Regulatory Requirements (GAO/RCED-86-76, May 6, 1986).

Hazardous Waste: Environmental Safeguards Jeopardized When Facilities Cease Operating (GAO/RCED-86-77, Feb. 11, 1986).

Hazardous Waste: Federal Agency Hazardous Waste Disposal at Kettleman Hills, California (GAO/RCED-86-50, Dec. 26, 1985).

Assessment of EPA's Hazardous Waste Enforcement Strategy (GAO/RCED-85-166, Sept. 5, 1985).

Hazardous Waste Management at Tinker Air Force Base—Problems Noted, Improvements Needed (GAO/NSIAD-85-91, July 19, 1985).

Illegal Disposal of Hazardous Waste: Difficult to Detect or Deter (GAO/RCED-85-2, Feb. 22, 1985).

Department of Energy Acting to Control Hazardous Wastes at Its Savannah River Nuclear Facilities (GAO/RCED-85-23, Nov. 21, 1984).

Status of Civilian Federal Agencies' Efforts to Address Hazardous Waste Problems on Their Lands (GAO/RCED-84-188, Sept. 28, 1984).

Inspection, Enforcement, and Permitting Activities at New Jersey and Tennessee Hazardous Waste Facilities (GAO/RCED-84-7, June 22, 1984).

Status of Air Force Efforts to Deal With Groundwater Contamination Problems at McClellan Air Force Base (GAO/NSIAD-84-37, Nov. 29, 1983).

Information on Disposal Practices of Generators of Small Quantities of Hazardous Wastes (GAO/RCED-83-200, Sept. 28, 1983).

Interim Report on Inspection, Enforcement, and Permitting Activities at Hazardous Waste Facilities (GAO/RCED-83-241, Sept. 21, 1983).

Organizations Represented at GAO Conference on RCRA Issues, September 2, 1987, Washington, D.C.

American Petroleum Institute
Association of State and Territorial Solid Waste Management Officials
Chemical Manufacturers Association
Environmental Defense Fund
Environmental Protection Agency, Office of Solid Waste
Hazardous Waste Treatment Council
National Governors' Association
National Resources Defense Council
National Solid Waste Management Association
New York State Department of Environmental Conservation
Office of Technology Assessment
Tufts University Center for Environmental Management

Status of EPA's Action on the 76 Statutory Deadlines in the 1984 RCRA Amendments, as of April 1988

Descriptive title	RCRA section	Statutory deadline	Hammer	Completion date	Estimated completion date
Underground hazardous waste tank standards	3004(w)	3/01/85		6/86	
Small quantity generator (sqg) study	221(c)[a]	4/01/85		10/86	
Federal procurement guidelines—recycled paper	6002(e)	5/08/85		10/06/87	
Listing—chlorinated dioxins/dibenzofurans	3001(e)	5/08/85		1/14/85	
Inventory underground injection wells	701[a]	5/08/85		5/08/85	
Use of private inspectors study	3007(e)	5/08/85			December 1988
Federal procurement guidelines—rubber asphalt	6002(e)	10/01/85			None
Federal procurement guidelines—retread tires	6002(e)	10/01/85			March 1989
Federal procurement guidelines—rerefined oil	6002(e)	10/01/85			October 1988
Listing—halogenated dioxins/dibenzofurans	3001(e)	11/08/85			None
Notification forms—underground tanks	9002(b)	11/08/85		11/86	
Listing (proposed)—used oil	3014(b)	11/08/85		11/29/85	
Hazardous waste export regulations	3017(b)	11/08/85		8/08/86	
Petroleum underground storage tank study	9009(a)	11/08/85		6/86	
Burn & blend—administrative requirements	3004(s)	2/08/86		1/29/86	
Listing—chlorinated aliphatics	3001(e)	2/08/86			July 1989
Listing—other dioxins	3001(e)	2/08/86			July 1989
Listing—dimethyl hydrazine	3001(e)	2/08/86			None
Listing—toluene diisocyanate	3001(e)	2/08/86		10/23/85	
Listing—carbamates	3001(e)	2/08/86		10/24/86	
Listing—bromacil	3001(e)	2/08/86			None
Listing—linuron	3001(e)	2/08/86			None
Listing—organo-bromines (edb)	3001(e)	2/08/86		2/13/86	
Listing—organo-bromines (methyl bromide)	3001(e)	2/08/86			July 1988
Listing—other solvents	3001(e)	2/08/86		2/25/86	
Listing—petroleum refining wastes	3001(e)	2/08/86			November 1988
Listing—chlorinated aromatics	3001(e)	2/08/86			None
Listing—dyes and pigments	3001(e)	2/08/86			None
Listing—inorganic chemical industry wastes	3001(e)	2/08/86			None
Listing—lithium batteries	3001(e)	2/08/86		3/07/84[b]	
Listing—coke byproducts	3001(e)	2/08/86			None
Listing—paint production wastes	3001(e)	2/08/86			None
Listing—coal slurry pipeline effluent	3001(e)	2/08/86			None
Containerized liquids—landfill standards	3004(c)	2/08/86			June 1988
Domestic sewage exclusion report	3018(a)	2/08/86		2/86	
Small quantity generator standards	3001(d)	3/31/86	Yes	3/24/86	
Vulnerable hydrogeology criteria	3004(o)	5/08/86		8/07/86	
Waste minimization study	8002(r)	10/01/86		10/86	
Extend useful life municipal landfills study	8002(s)	10/01/86			November 1988

(continued)

Appendix III
Status of EPA's Action on the 76 Statutory Deadlines in the 1984 RCRA Amendments, as of April 1988

Descriptive title	RCRA section	Statutory deadline	Hammer	Completion date	Estimated completion date
Minimum technological requirements	3004(o)	11/08/86			August 1988
Burn & blend—transportation standards	3003(c)	11/08/86		11/85	
Burn & blend—technical standards	3004(q)	11/08/86			December 1988
Temporary delisting grant expiration	3001(f)	11/08/86	Yes		August 1988
Additional characteristics	3001(h)	11/08/86			December 1988
Land disposal determination—schedule	3004(g)	11/08/86		5/28/86	
Land disposal determination —solvents/dioxins	3004(e)	11/08/86	Yes	11/07/86	
Recycled used oil standards	3014(c)	11/08/86			None
Listing (final)—used oil	3014(b)	11/08/86			None
Petroleum underground tank standards—new	9003(e),(f)	2/08/87			August 1988
Petroleum underground tank standards—existing	9003(c),(f)	2/08/87			August 1988
Financial responsibility requirements—petroleum underground tank	9003(d),(f)	2/08/87			August 1988
Revision of existing toxicity characteristics	3001(g)	3/08/87			December 1988
Uniform manifest & sqg study	221(d)[a]	4/01/87		10/86	
Educational institution study	221(f)[a]	4/01/87			June 1988
Licensing sqg waste transporters study	221(e)[a]	4/01/87		10/86	
Air emission regulations	3004(n)	5/08/87			1989
Leak detection requirements	3004(o)	5/08/87			February 1989
Land disposal determinations—California wastes	3004(d)	7/08/87	Yes	7/08/87	
Domestic sewage regulations	3018(b)	8/08/87			None
Underground tank standards—hazardous waste (new)	9003(f)	8/08/87			August 1988
Wastewater lagoons report	3018(c)	11/08/87		12/87	
Subtitle D criteria study	4010(b)	11/08/87			August 1988
Nonpetroleum underground tank study	9009(b)	11/08/87			July 1988
Exempted underground tank study	9009(d)	11/08/87			August 1988
Variance surface impoundment retrofit	3005(j)	11/08/87		11/08/87	
Subtitle D facility criteria	4010(c)	3/31/88			December 1988
Existing hazardous waste underground tank standards	9003(f)	8/08/88			August 1988
Deep well injection prohibition determinations	3004(f)	8/08/88	Yes		August 1988
Land disposal determinations—first third	3004(g)	8/08/88	Yes		August 1988
Financial responsibility requirements—hazardous waste underground storage tanks	9003(d)	11/08/88			October 1989
Final permits—land disposal units	3005(c)	11/08/88			November 1988
Revision of hazardous waste underground storage tank standards	3004(w)	11/08/88			None
Land disposal determinations—second third	3004(g)	6/08/89	Yes		June 1989
Final permits—incinerators	3005(c)	11/08/89			November 1989
Land disposal determinations—final third	3004(g)	5/08/90	Yes		August 1989
Final permits—storage units	3005(c)	11/08/92			November 1992

[a]This section refers to the Hazardous and Solid Waste Amendments of 1984, rather than RCRA.

[b]Rather than listing lithium batteries as a hazardous waste under RCRA, EPA issued a Federal Register notice on March 7, 1984, which clarified that lithium batteries are hazardous because they meet the reactivity characteristic.

Comments From the Environmental Protection Agency

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

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

MAY 10 1988

OFFICE OF
POLICY, PLANNING AND EVALUATION

Mr. Hugh J. Wessinger
Senior Associate Director
Resources, Community and Economic
Development Division
United States General Accounting Office
Washington, D.C. 20458

Dear Mr. Wessinger:

On March 22, 1988, the General Accounting Office (GAO) sent the Environmental Protection Agency (EPA) the draft report, "New Approach Needed to Manage The Resource Conservation and Recovery Act." As required by Public Law 96-226, the Agency reviewed the report and provides the following response and an enclosure that provides comments referencing specific sections of the report.

Overall the report adequately describes where the Agency has fulfilled the Hazardous and Solid Waste Act (HSWA) amendments and points out where the Agency has been unable to meet specific mandates and respective deadlines. In Chapter 2 the GAO report asserts that the Agency has made limited progress in identifying and controlling hazardous waste, achieving compliance with regulatory controls, and promoting waste minimization. In addition, the report makes a general point that the Agency does not have either a long-term overall strategy or measurable goals that would serve the Agency in achieving its mandated mission under the Resource Conservation and Recovery Act (RCRA).

HSWA Mandates

See comment 1.

While the Agency has not promulgated a large number of hazardous waste listings since 1980, activities are underway that will satisfy the HSWA mandate to improve the toxicity characteristic and bring more hazardous waste into the Subtitle C system. In fact, the Agency has proposed the toxicity characteristic rule which is expected to be finalized by FY 1989. The improved toxicity characteristic will capture any solid waste that leaches constituents above specified levels. The first phase of the new toxicity characteristic will add 38 new organic constituents and will be followed by the second phase adding 40 more. Promulgation of the new toxicity characteristic will capture a large number of the wastes that were mandated to be considered for listing by HSWA. For those wastes not captured by the new toxicity characteristic, the Agency has several rules underway that will list these wastes in a manner consistent with currently listed wastes.

The report reflected the progress of the Agency in fulfilling HSWA mandates for the establishment of regulatory controls and some factors that constrain their development. HSWA established a sweeping array of new regulatory obligations; some were relatively straight-forward and were addressed by the "Codification Rules", while others require substantial technical and policy development (e.g., land disposal restrictions). Within the next two fiscal years the Agency expects to finalize the bulk of the remaining HSWA mandates, and to make several refinements beyond the HSWA requirements. Scheduled activities include completion of the Land Ban, new rules for boilers and furnaces, location standards for facilities sensitive locations, corrective action triggers and goals, air standards for facilities, double liner and leak detection standards, new listings, a revised toxicity characteristic, revised criteria for Municipal solid waste landfills, and emission controls for municipal waste combustors.

See comment 2.

The Agency agrees with GAO and recognizes the need for reliable nationwide data on hazardous waste and solid waste to set priorities and design appropriate regulatory controls. The Agency's strategy for obtaining necessary information relies upon the use of surveys in conjunction with periodic reporting requirements, e.g., Biennial Reports. The Agency has major surveys in progress: Hazardous Waste Generator Survey, Hazardous Waste TSDR Survey, and Subtitle D Industrial Waste Survey.

The first two surveys will establish, as GAO stated, a much needed baseline for the amounts, types and management practices for hazardous wastes. This baseline data used in conjunction with future Biennial Report data will allow the Agency to measure trends in such areas as waste minimization, capacity and changes in management practices. This type of information will have broad application on regulatory development, priority setting and identification of new problems. The third survey will underpin the development of new criteria for industrial waste landfills.

See comment 3.

Enforcement and Compliance Monitoring

Chapter 3 of GAO's report addresses the progress made in RCRA facilities' compliance with regulations. We are concerned with GAO's interpretation of the scope of the RCRA compliance monitoring and enforcement strategy and the omission of significant indicators of RCRA enforcement progress (e.g., violation detection and subsequent enforcement actions taken), focusing instead on EPA's inability to achieve the 90% compliance goal. In a July 24, 1986, memorandum to EPA Regions and the States, Dr. J. Winston Porter, Assistant Administrator for Solid Waste

and Emergency Response (OSWER), communicated the RCRA compliance monitoring and enforcement strategy. In the memorandum, Dr. Porter indicated that the strategy was based on an Agency goal to have 90% of the beginning-of-year significant non-compliance (BOYSNC) universe of land disposal facilities either in full physical compliance or addressed with initial formal enforcement action by 1989.

This OSWER goal differs significantly with the scope of the GAO report. The report stresses EPA's inability to produce accurate compliance statistics for treatment and storage facilities (TSFs). While uncertainty exists over the quality of the TSF data, it should not be used as the basis for evaluation of the 90% goal. We request that all references to TSF data be clarified to indicate that it represents a larger and different universe from that to which the 90% goal was applied.

See comment 4.

The report does not clearly state the full range of efforts the Agency has undertaken in response to the strategy. The assertion that only 50% of all land disposal facilities (LDFs) are in full physical compliance is based on Agency data and is quite accurate. However, it is clearly indicated in the July 24 memorandum that formal enforcement activity will be counted towards achievement of the 90% goal. We provided information to GAO on actions taken in response to violations. This data showed that by the end of FY 1987, 97% of all FY 1985 significant non-compliance (SNC) violations (Class I groundwater monitoring, closure/post closure, and financial responsibility violations), 95% of all FY 1986 violations, and 85% of all FY 1987 violations were addressed with a formal enforcement action or otherwise returned to compliance. The inclusion of this data in the report will provide a more valid and accurate assessment of EPA's enforcement activities.

The report also asserts that EPA is unaware of its progress in achieving compliance at RCRA land disposal facilities. The Office of Waste Programs Enforcement's (OWPE's) Strategic Planning and Management System (SPMS) measures identify those facilities in "significant non-compliance" (i.e., has one or more outstanding Class I violations in the areas of groundwater monitoring, closure/post-closure, and financial responsibility) and tracks their progress towards full physical compliance on a quarterly basis. We were accurately tracking this commitment through manual submissions long before the Hazardous Waste Data Management System (HWDMS) and LDF data was "clean" enough to rely on. As GAO has noted in various reports, SPMS is taken

See comment 5.

very seriously by the Regions. Therefore, having specific measures on compliance contained in SPMS was, and remains, an effective means of communicating our priority for compliance.

The Agency questions the GAO draft report statement, "reliance on compliance rates would be a better measure of performance than currently used indicators." Physical compliance is an ephemeral quality - it can be here today and as easily gone tomorrow with the promulgation of new regulations, stricter guidance, and more stringent enforcement. It is a long-term goal, not an absolute requirement, and it is unrealistic to hold Regional and State agencies responsible for achieving physical compliance within a specified timeframe; especially when the dimensions of the hazardous waste program are still being explored.

Adherence to an arbitrary rate of compliance as the only measure of overall effectiveness can have negative consequences. Regions and State agencies have limitations, not just in time and money, but in the scope of authorities available to them to compel compliance. Rather than inspiring a vigorous campaign to identify violations and take appropriate enforcement action, forced adherence to compliance rate could result in a much less intensive effort to discover and address violations.

See comment 6.

The purpose behind the development of the RCRA compliance monitoring and enforcement strategy was to assess overall compliance, not inhibit it. Our ability to generate statistics, such as compliance notes, is but an outgrowth of an integrated enforcement program that focuses on the three fundamental tenets of any enforcement program: a) identification and inspections of regulated handlers; b) identification and classification of violations, and c) vigorous enforcement action taken against violators. Only by tracking interim program indicators, such as those tracked in our SPMS "output" measures, can our enforcement program be fully evaluated.

While the report touches briefly on how expensive the development, installation, and operation of a groundwater monitoring system is, it needs to recognize the technical complexities of these systems and the resulting compliance implications.

It is important to understand that the "perfection" of a groundwater monitoring system is a technically complex and an interactive process. Many of the parameters being sampled are analyzed to the parts per million and per billion range. This means that seemingly minor variations or omissions in the facility's sampling procedures can significantly impact the results. Therefore, it is common for a facility to move in and out of compliance as it moves up the "learning curve" towards a fully compliant groundwater monitoring system.

See comment 7.

The RCRA Enforcement Office anticipated this phenomenon more than four years ago when it launched the development of the Technical Enforcement Guidance Document (TEGD). Along with the TEGD, OWPE initiated the Comprehensive Groundwater Monitoring Evaluation (CME) Program. This initiative required that all LDFs receive a CME between FY 1985 and 1987. This goal was achieved. These evaluations looked at well numbers, well construction, well placement, and hydrogeologic studies, and sampling/analysis procedures. Significant resources were devoted to the proper placement and construction of additional wells in the past three years. The Agency is confident that these types of violations are relatively infrequent today, while the complex violations concerning sampling and analysis are becoming predominant.

See comment 7.

Ninety percent compliance with groundwater monitoring regulations may never be achieved given this high level of technical complexity. However, the program has progressed dramatically in achieving groundwater systems capable of detecting contamination and protecting human health and the environment.

Waste Minimization

Chapter 4 of the report addresses waste minimization efforts by the Agency. The Agency has taken several important steps in addition to those mentioned in the report that have been completed or are underway. EPA is expanding its waste minimization initiative from an initial focus on hazardous waste to a multi-media effort spanning hazardous and non-hazardous waste, and reducing release to air, water, land and groundwater in conjunction with other programs. In support of this broader focus the Agency is:

- Developing a multi-media program by collecting data on private sector waste minimization efforts required by Superfund Amendments and Reauthorization Act (SARA), Title III, section 313, and by providing technical information to State programs and industry plant managers;

See comment 8.

- Publishing a federal policy on waste minimization;

- Establishing an executive council to advise the Agency's top managers on critical policy and implementation issues; and

- Issuing a directive from the Administrator to EPA's top managers requiring the development of an Agencywide strategy to cover multi-media issues.

Long-term Strategy

In Chapter 5, GAO indicates a lack of overall strategy and measurable goals. Strategic planning, along with measurable goals, is essential to the effective management and implementation of RCRA. The Agency has set priorities to assure the most environmental protection possible provided the resources under which the Agency must operate. The report does not mention several planning processes that set measurable goals and provide for both short - and long-term strategies. Some examples are:

See comment 9.

- Agency Operating Guidance (AOG): The AOG is developed annually and establishes broad goals across program areas.
- RCRA Implementation Plan (RIP): This annual document is issued about April 1 of each year to coincide with grant negotiations between the Regions and States. The RIP establishes national priorities for the RCRA program and addresses specific activities which support these priorities.
- Strategic Planning and Management System (SPMS): Through SPMS, the Agency and States establish environmental and administrative goals and specific measures to track progress on a quarterly basis.
- Multi-Year Strategies: This process establishes major milestones on a quarterly basis for each operating land disposal facility to assure compliance with statutory deadlines for permitting of these facilities.

We appreciate the opportunity to review and comment on this draft report. We hope that these comments are useful during preparation of the final report. The Agency looks forward to reviewing the final report since it will be an important reference document during reauthorization of the solid and hazardous waste programs.

Sincerely,

Linda J. Fisher

Linda J Fisher
Assistant Administrator

Enclosure

SPECIFIC COMMENTS

Executive Summary

Now para. 1.
See comment 10.

(p.4; para 2) - The second full sentence should be modified to reflect that the 90% Compliance Strategy was designed to assess compliance at land disposal facilities, not treatment/storage and disposal facilities. (See Porter memorandum on "RCRA Compliance Strategy," July 24, 1986.)

Now para. 1.
See comment 11.

(p.4; para 2) - The third full sentence should be modified to eliminate the appearance that the Agency has no knowledge of the compliance status of land disposal facilities. For several years, SPMS measures have allowed us to accurately track the compliance status of land disposal facilities on a quarterly basis.

Now para. 1.
See comment 12.
Now on pp. 78-79.

(p.4; para 2) - The fourth sentence is an incorrect assessment of the RCRA division Director's statements and should be removed. See letter, pages 2 and 3, for a complete discussion.

Now on p. 4; para. 4
See comment 13.

(p.5; para 2) - The first sentence is not an accurate statement. Enforcement data for land disposal facilities is both comprehensive and reliable. Efforts to achieve the same level of reliability for treatment/storage facility data are currently underway.

Chapter 2 - Progress Needed in Identifying, Regulating, and Reporting Hazardous Waste

Now on pp. 26-27.

(p.31-32) - The GAO report cites the former Director of the Office of Solid Waste as indicating that "... her office's lack of resources to comply with all the statutory deadlines was a major reason why some of the statutory deadlines have not been met." She is further cited as indicating that due to the prescriptive nature of HSWA and limited RCRA resources, she "... had to prioritize which statutory deadlines would receive her office's attention and resources." Finally, she is cited as indicating that at the time she took office, she "... planned to develop a proactive management approach in developing a RCRA program in the future that could be more easily implemented."

See comment 14.

This is the only instance in the GAO report in which a former Agency official is cited concerning specific Agency activities. The Agency objects to citing a former Agency official and using that viewpoint as an official Agency rationale for program direction. At a minimum, GAO ought to have interviewed current Agency officials to obtain their position on the issue and provided an official Agency comment. While resource constraints may be one factor which contributes to Agency priority-setting decisions, it is not necessarily the major one.

Other factors such as the complexity of the task, the length and amount of time involved in accomplishing the task and the degree of public involvement serve to complicate Agency priority-setting decisions.

Now on p. 31.
See comments 14 & 15.

(p.37) - It is interesting to note that the former Director's use of the word "proactive", is also used in GAO's recommendation for EPA action: "... we believe EPA needs to demonstrate to the Congress a more proactive approach in setting its own goals and agenda to protect the human health and the environment." This implies that GAO is accepting a former Agency official's view as fact, without presenting the other side.

We recommend deleting the references to the former Director's opinions, since no current Agency officials were asked for their views on these issues.

Chapter 3 - Non-Compliance... is Widespread and Consistent

Now on p. 33.

See comment 16.

(p.39; para 1) - The last sentence states that one of the reasons for widespread non-compliance over the last four years is "EPA's or state's limited enforcement action." While this statement may have been accurate prior to 1985, it is clearly inappropriate given the current statistics on violations addressed with formal enforcement actions. This sentence should be either eliminated or clarified and expanded to reflect the current status. (A similar statement is made in the first paragraph on page 46.)

Now on p. 38. para. 2.

Now on p. 33.

Now on pp. 78-79.
See comment 17.

(p.39; para 2) - The third sentence in this paragraph inaccurately states that "EPA has not monitored its overall progress towards the goal, nor does it have enough accurate data to do so." As discussed on pages 2 and 3 of the letter, the Agency has tracked the status of LDFs who are significant non-compliers through SPMS for the past several years. Also, since HWDMS data was used to produce this report, and the results were reliable enough to cite elsewhere in this chapter, it is obvious that we have reliable LDF data.

Now on pp. 33-34.

See comment 18.

(p.40-41) - Numerous references are made throughout this section to a six-state study that showed high rates of non-compliance. It is not possible to determine from the text when the study was conducted, though we suspect it was 1983-1984. When citing older studies, especially those no longer indicative of Agency progress, please provide careful, accurate citations.

Now on p. 38.
Now on p. 45.
See comment 19.

(p.46-47) - The first paragraph of this section should include a discussion (similar to that found on page 52) of EPA's lack of enforcement authority at Federal facilities.

Now on pp. 38-39.

See comment 20.

(p.46-47) - Again, considerable discussion of the lack of enforcement activity in 1983-84 takes place throughout this report and especially on these pages. However, no where in this report is an effort made to present an accurate, updated picture of enforcement activity today, even though reliable data was provided.

Now on p. 39; para. 4.
See comment 10.

(p.47; para 3) - The 90% Compliance Strategy was designed to address land disposal facilities. See Dr. Porter's memorandum of July 24, 1986.

Now on p. 41.
Now fourth sentence.
See comment 21.

(p.49; para 1) - The third sentence of this paragraph indicates that a mechanism for tracking compliance rates does not exist, when in reality the existing SPMS measures has allowed us to accurately determine the compliance status of land disposal facilities for the last several years.

Now on p. 41.

See comment 22.

(p.49; para 1) - The final sentence in this paragraph is not accurate. As Dr. Porter's July 24, 1986 memo clearly shows the strategy was communicated to the States and Regions.

Now on p. 43; para. 4.
Now third line.

See comment 23.

(p.51; para 1) - The following sentence appears in line four of this paragraph: "Even with increased resources, inspections are not thorough and complete." This sentence leads one to the conclusion that inspections were previously poor, and they have not gotten any better even though we have dramatically increased available resources. While it is true that all inspections are not as complete and accurate as they should be, the fact is that, by and large, there has been significant improvement over the last several years. Since GAO does not have an independent baseline prior to 1987 to make its assessment, EPA requests that GAO eliminate the phrase "even with increased resources."

Now on p. 45, para. 2.

See comment 19.
Now on p. 38.

(p.52; para 1) - This section includes a reasonable discussion of the limitations on the Agency resulting from the Department of Justice position regarding EPA's ability to take formal action at Federal facilities. This discussion should be included in the first paragraph of the discussion on pages 46-47 citing reasons for Federal facility non-compliance.

The following are GAO's comments on the Environmental Protection Agency's letter dated May 10, 1988.

GAO Comments

1. EPA concurs that it has not brought many additional hazardous wastes under control since 1980 but states that it intends to do so by improving its toxicity characteristic, and by promulgating rules that will list additional wastes. We recognized both of these efforts in our draft. In chapter 2 we state that EPA is expanding its toxicity characteristic and in appendix III we provide the status of the 1984 amendments that deal with listing additional wastes. We have, however, revised our report to recognize that EPA expects to initially add 38 wastes and another 40 in the future through an improved toxicity characteristic.

EPA's comments were silent, however, on if and when it expects to (1) complete and implement its long-term waste identification strategy, (2) bring large-volume wastes identified as hazardous under control, and (3) identify the type of wastes in over 200,000 industrial landfills and surface impoundments and determine whether controls are needed for them. Until EPA develops and implements its long-term waste identification strategy, we believe EPA will not be able to assure itself and the public that it has brought under regulatory control the wastes that should be identified and controlled.

2. We recognize that EPA has a number of efforts ongoing to meet the 1984 RCRA amendments and so stated in our draft report. The status of EPA's actions in attempting to meet these amendments is presented in appendix III.

3. Throughout the report we discuss EPA's efforts to develop more comprehensive and reliable nationwide data on hazardous waste. In chapter 2 we have clarified that EPA is collecting information on nonhazardous facilities through the use of an industrial waste survey.

4. Chapter 3 has been revised to include the information provided by EPA. However, as we point out in the chapter, we do not agree that EPA should focus on enforcement actions instead of actual compliance as a goal.

5. We have revised chapter 3 to emphasize that while EPA has compliance data available on land disposal facilities, it does not use the information to hold regional and state officials accountable for achieving an actual 90-percent compliance rate.

6. These concerns are now included and addressed in chapter 3. As we state there, we recognize the value of using interim progress measures, but these indicators should not be used as a substitute for the overall enforcement program goal of actual facility compliance. By concentrating on performance measures, EPA may have achieved a high level of enforcement activity. But its actual compliance rates have remained relatively unchanged since the 90-percent goal was established, and officials are not being held accountable for that condition.

Enforcement officials should be held accountable not just for the degree of activity but for the results of their activity as well, which in this case still fall far short of original expectations. As we point out in chapter 5, ideally RCRA program goals should be based on measures of public health or environmental quality; however, if these goals cannot be measured, the best available measures should be used. We believe that actual compliance is a better measure of program effectiveness than the number of inspections or enforcement actions taken.

7. We agree that the groundwater monitoring regulations are highly complex, and we recognize the difficulties in attaining full compliance. As we acknowledge in chapter 3, it may be, as EPA suggests, that the high level of technical complexity may not permit a 90-percent compliance goal to be achieved for groundwater monitoring requirements. However, as pointed out in comment 4, we believe actual compliance rates are a better measure of facility compliance than inspections or enforcement actions. Therefore, if a 90-percent compliance rate cannot be achieved, then the 90-percent rate should be reduced rather than using enforcement actions to count against the goal.

8. We have revised chapter 4 to recognize EPA's agency-wide waste minimization efforts.

9. The EPA comment acknowledges that strategic planning and measurable goals are essential to effective management and RCRA's implementation. The essence of EPA's comment is that it believes it does set program priorities through strategic planning and measurable goals through a number of planning processes that were not mentioned in the report. We recognize that EPA has a number of other planning processes that involve RCRA that were not discussed in chapter 5. In chapter 5, and in particular table 5.1, we limited the various planning documents to those that pertained to the specific issues discussed in this report—waste identification, regulating hazardous waste, ensuring regulatory compliance, and

waste minimization. However, during the course of our review, we evaluated each of the planning documents mentioned in EPA's comments. For the most part, these documents contain annual rather than multiyear objectives and do not contain specific measurable goals and resources necessary to accomplish the general goals enumerated in the documents.

As discussed in chapter 5, the agency-wide strategic planning initiative launched in June 1985 could provide a framework for the goal setting and planning that we are recommending. This initiative requires problem assessment, development of long-range measurable goals, analysis of alternative ways to achieve goals, and development of a way to measure or track annual progress toward achieving the goals. However, in the hazardous waste area, this initiative has not progressed past the problem assessment stage. We believe that if this initiative continues to progress through the remaining stages and includes the components of an overall strategic plan, which we believe are important and which are discussed in chapter 5, EPA could implement the recommendation called for in chapter 5.

10. No change is necessary, as the compliance goal set by the Congress was not restricted to any type of facility. We now point out in chapter 3 that EPA subsequently defined the goal to apply only to land disposal facilities.

11. Chapter 3 has been modified to reflect that EPA has had data available to track the compliance status of land disposal facilities.

12. The text has been changed to correspond with changes in chapter 3. Specifically, we have deleted reference to the RCRA Enforcement Division Director's statement and have substituted a more detailed discussion on compliance rates contained in EPA's comments.

13. We have qualified the sentence to indicate that EPA has been unable to develop comprehensive and reliable data for many elements of the RCRA program. Although the agency may have complete enforcement data for land disposal facilities, it is still missing other types of important information, as discussed in chapter 2.

14. In our draft report, we referred to the former Director of EPA's Office of Solid Waste, and this may have led EPA to interpret that this discussion took place after she left office. This discussion took place while she was still in office, and her viewpoints discussed in the report were based

on her official capacity as Director. We have revised the report to make it clear that the former Director's comments were made by her when she was still the Director of the Office of Solid Waste.

About the time the Director resigned, we briefed the then Acting Director of the Office of Solid Waste—currently the Deputy Director—on the report's contents. We have revised the report to include his comments on the prescriptive nature of the 1984 RCRA amendments.

15. We note that while our report was with EPA for official comments the new Director of the Office of Solid Waste, in a meeting with EPA's Science Advisory Board, said the Office of Solid Waste "needs to be more proactive" in anticipating legislative mandates on solid waste issues. Nevertheless, from a clarity standpoint, we have revised the wording contained in our report slightly. We now use the term "more active" rather than "proactive."

16. Chapter 3 has been changed (in both places mentioned) to note that limited enforcement actions were a problem before 1985.

17. We have eliminated discussion of data quality on this page.

18. We have further clarified that this information is based on our 1983 and 1984 reports that together covered six states.

19. No change necessary. We have an in-depth discussion of federal facilities' compliance in chapter 3.

20. In several sections throughout this chapter, we refer to EPA's efforts to improve compliance after 1983-84. We have added EPA's statistics on the number of violations addressed by enforcement actions.

21. Chapter 3 has been revised to indicate that EPA does track compliance rates for land disposal facilities, but we point out that it does not use this information to hold enforcement officials accountable for achieving an actual compliance goal.

22. We have clarified that the strategy was communicated to the regions and states but not until after we issued our report.

23. This phrase has been eliminated.

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