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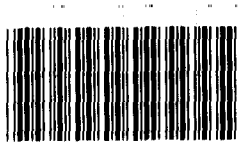
Report to the Chairman, Subcommittee on Oversight and Investigations, Committee on Energy and Commerce, House of Representatives

June 1991

AIR POLLUTION

EPA's Strategy and Resources May Be Inadequate to Control Air Toxics



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Resources, Community, and
Economic Development Division

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The Honorable John D. Dingell
Chairman, Subcommittee on
Oversight and Investigations
Committee on Energy and Commerce
House of Representatives

Dear Mr. Chairman:

This report responds to your request that we examine the Environmental Protection Agency's (EPA) efforts to implement the new toxic air pollution requirements of the Clean Air Act Amendments of 1990. The report discusses EPA's actions to (1) develop a strategic plan for carrying out the new air toxics requirements and (2) obtain sufficient resources to meet its regulatory responsibilities within the time frames set forth in the act.

Unless you publicly release its contents earlier, we plan no further distribution of this report until 30 days from the date of this letter. At that time, we will send copies of the report to appropriate congressional committees; the Administrator, EPA; and other interested parties. We will make copies available to others upon request.

This work was performed under the general direction of Richard L. Hembra, Director, Environmental Protection Issues, who may be reached at (202) 275-6111. Other major contributors to this report are listed in appendix I.

Sincerely yours,

J. Dexter Peach
Assistant Comptroller General

Executive Summary

Purpose

In 1988 industry released over 2.4 billion pounds of toxic chemicals into the nation's air, creating many health problems including birth defects, lung disease, liver damage, and cancer. To date, the Environmental Protection Agency (EPA) has regulated only seven of the hundreds of known toxic air pollutants. The Clean Air Act Amendments of 1990 require EPA to regulate another 189 of the most hazardous and pervasive air toxics within 10 years through a new process provided for in the act.

Concerned about whether this regulatory process will be effectively implemented, the Chairman, Subcommittee on Oversight and Investigations, House Committee on Energy and Commerce, asked GAO to determine whether EPA has (1) developed an adequate plan for implementing the act's air toxics provisions and (2) requested sufficient resources to meet its regulatory responsibilities within the time frames envisioned in the act.

Background

The 1990 amendments provide for a new, two-phased approach to controlling toxic air pollutants. In phase one, EPA is to develop control technology standards—known as maximum achievable control technology, or MACT standards—based on the best pollution control technologies in use. Also in phase one, EPA is to issue these MACT standards for all major sources of 189 air toxics within 10 years, with standards for 25 percent of all source categories by November 1994, for 50 percent by November 1997, and for all sources by November 2000. Major sources are those with the potential to emit 10 or more tons of any one air toxic annually, or 25 or more tons of a combination of air toxics. EPA estimates that about 30,000 facilities in the United States are major sources. Not later than 8 years after issuing its phase one standards, EPA is required—in phase two—to assess the remaining health and environmental risks and, if warranted, impose further controls to reduce emissions to safe levels.

In addition to requiring reductions in toxic emissions, the act also addresses virtually every significant air pollution issue facing the nation, including acid rain, urban air pollution, and emissions from mobile sources. To meet the act's ambitious time frames, EPA will have to develop and issue regulations at an unprecedented rate. In that context, the planning and resource issues facing EPA in implementing the toxic air pollution provisions may be indicative of issues it will encounter in implementing other provisions of the act.

Results in Brief

If properly implemented, the new regulatory process provided for in the act should substantially reduce air toxics emissions. To carry out this process, EPA has developed an air toxics implementation strategy. Part of this strategy calls for early consensus building with state and local agencies, industry, and environmental groups whose cooperation is critical to expediting the issuance of regulations. However, GAO is concerned that EPA's strategy is vague. It does not discuss the actions, activities, tasks, or even the definitions of key terms and concepts necessary to permit meaningful consultations with outside parties. Moreover, it is of limited use to EPA staff as a guide for carrying out the act's air toxics objectives. For example, EPA's strategy does not describe how scientific data needed to make regulatory decisions will be acquired. EPA does not agree that a more detailed strategy is needed because it intends to periodically review its progress and modify its activities accordingly. However, GAO believes the lack of a clear-cut description of how the agency is going to proceed impedes EPA's efforts to gain the early cooperation and confidence of outside parties essential to expediting rulemaking and meeting statutory time frames.

Concerns over the lack of clarity in EPA's strategy are exacerbated by the agency's decision not to request sufficient funding to carry out its responsibilities under the new act. For fiscal years 1991 and 1992, EPA's budget requests were 23 and 16 percent, respectively, of the funds it deemed necessary to implement its air toxics program. As a result, many top priority research projects—which will provide the scientific basis for EPA's standards—were reduced or eliminated. In explanation, EPA officials referred to budget constraints, concern that the agency could not readily accommodate more rapid growth, and plans to offset the current underfunding by larger budgets in future years. However, EPA may not be able to compensate for currently deferred research needed to meet the act's milestones for issuing MACT standards and assessing the remaining health risks because some data take years to acquire, the act's deadlines are short, and implementing many provisions may be more complex than anticipated.

Principal Findings

Air Toxics Strategy Lacks Key Details

EPA officials believe that the regulatory time frames identified in the act are ambitious but achievable. The act requires publication of over 25 rules in the first year and over 55 rules within 2 years, including MACT

standards for sources of at least 40 categories of air toxics. Recognizing that the agency's traditional rulemaking process will not allow it to meet the act's deadlines, EPA's strategy calls for changes in two areas to speed up its rulemaking process. EPA plans to (1) propose better initial regulations by consulting early with industry, environmental groups, and state and local agencies, thereby compressing external review times and (2) streamline its internal regulation development and review process, including accepting less scientific and health support data than in the past before making a decision.

These changes represent a significant departure from past practices. Their success will require cultural changes within the agency as well as a clear description of how the agency plans to meet the act's objectives. While EPA deserves credit for initiating an air toxics strategy before the amendments were passed, the lack of essential details on how air toxics will be regulated may limit the effectiveness of EPA's efforts to reach consensus with external organizations and also hamper EPA staff in attaining the act's air toxics objectives. For example, EPA's strategy does not describe how the agency is to acquire the scientific data needed to make critical phase two decisions on whether, for public health reasons, controls over and above MACT standards are needed. Collecting these data will take from 3 to 5 years and require three times the resources currently devoted to such research. Similarly, grouping sources into categories for regulatory purposes is a critical task largely unaddressed in EPA's strategy. Some environmental officials have expressed concern that EPA may group sources into MACT categories so small that there will be little difference between the best and worst sources within a category. As a result, requiring all sources in a category to adopt pollution controls at least as stringent as those of the best-performing sources in the same category may not significantly reduce overall emissions.

Major Air Toxics Objectives Underfunded

Even the best, most detailed strategy will likely fail without enough resources. Although EPA increased fiscal year 1991 air toxics funding requests by 32 percent over fiscal year 1990, the agency did not request enough resources to carry out the act's air toxics provisions. For example, EPA's requests for air toxics research funds represented only 11 percent of the over $25 million that the agency's air toxics research staff needed to develop emission standards in 1991. Similarly, EPA's air program office sought only 30 percent of the over $49 million it needed to plan, administer, and implement the air toxics program in 1991. EPA officials explained that, by focusing all available resources on near-term objectives, using existing research, and seeking large future budget

increases, the agency could meet the 1994 mandate that MACT standards be developed for at least 25 percent of all source categories. The impact of this approach on longer term mandates would depend on the size of future budget increases. However, EPA did not request enough resources to carry out the act's air toxics objectives in fiscal year 1992. EPA's 1992 budget request represented only 11 percent of the amount needed for research and 24 percent of the amount needed for other air toxics program activities. In addition, EPA recently estimated the cost to fully implement the act's air toxics provisions at nearly $100 million by 1994—more than three times the agency's 1992 budget request.

According to EPA memorandums, such underfunding is shortsighted, will create significant difficulties in meeting longer term MACT deadlines, will postpone phase two residual risk decisions for years, and may render EPA unable to substantiate its proposed standards. EPA's decision not to request sufficient resources is also contrary to expectations contained in the 1991 Senate Appropriations Committee hearing report, which noted that EPA's air programs should request a supplemental appropriation—equal to three times EPA's 1991 budget request—to adequately implement the act. However, EPA has decided not to request a supplemental appropriation for fiscal year 1991, and its revised budget estimate for fiscal year 1992 is insufficient to carry out its responsibilities under the act.

Recommendations

To help ensure successful implementation of air toxics mandates in the Clean Air Act Amendments of 1990, GAO recommends that the Administrator, EPA, (1) revise EPA's strategy for the timely accomplishment of the act's air toxics objectives to include all actions, activities, and tasks mandated or reasonably believed to be necessary to carry out the air toxics objectives of the act and (2) submit appropriation requests to the Congress for the funds necessary to fully implement the air toxics provisions within the act's mandated time frames. To facilitate decision-making, especially during periods of fiscal austerity, the Administrator should present the Congress with several scenarios depicting EPA's envisioned progress at various funding levels.

Agency Comments

GAO discussed the information in this report with EPA officials who generally agreed with the facts but disagreed that a more detailed strategy is needed. Their comments are included where appropriate. However, at the Chairman's request, GAO did not obtain written agency comments on this report.

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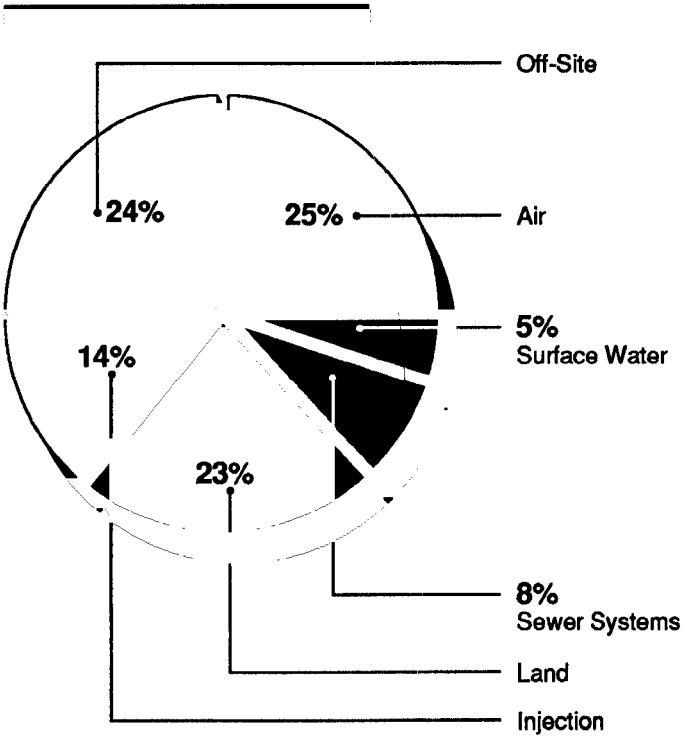
Abbreviations

API	American Petroleum Institute
ARRC	Air and Radiation Research Committee
CMA	Chemical Manufacturers Association
EDF	Environmental Defense Fund
EPA	Environmental Protection Agency
GAO	General Accounting Office
MACT	maximum achievable control technology
NRDC	Natural Resources Defense Council
OAQPS	Office of Air Quality Planning and Standards
OAR	Office of Air and Radiation
OMB	Office of Management and Budget
ORD	Office of Research and Development
STAPPA/ ALAPCO	State and Territorial Air Pollution Program Administrators/ Association of Local Air Pollution Control Officials

Introduction

Toxic air pollution is one of the most significant environmental problems in the United States today. In 1988 industry released more than 2.4 billion pounds of toxic chemicals into the nation's air, estimated to cause up to 3,000 cases of fatal cancer yearly as well as birth defects, lung disease, nervous system disorders, liver damage, and other health problems, according to the Environmental Protection Agency (EPA). Industry data [1] show that more toxic chemicals are released into the nation's air than to land or water. (See fig. 1.1.)

Figure 1.1: Relative Contribution of Airborne Toxics to Total Environmental Releases, 1987



Note: Due to rounding, figures do not total 100 percent.
Source: INFORM's Special Report on U.S. Toxics Release Data, 1990.

As shown in figure 1.1, toxic air pollutants—such as arsenic, cyanide, chloroform, and formaldehyde—comprise the largest single category of chemical releases into the environment. To date, EPA has regulated only seven of the hundreds of airborne toxic pollutants known to exist in our environment. Concerned about the magnitude of the air toxics problem,

[1]Data reported to EPA under the Toxic Release Inventory provisions of the Superfund Amendments and Reauthorization Act of 1986 and analyzed by INFORM, a nonprofit research and education organization that reports on actions for protecting natural resources and public health.

in November 1990 the Congress gave EPA much greater authority to control the most prevalent and hazardous air toxics. This authority was embodied in title III of the Clean Air Act Amendments of 1990.[2]

Dimensions of the Air Toxics Problem

Toxic air pollution arises from the production of a variety of goods and services, ranging from tennis shoes to electric power. Sources include chemical plants, steel mills, utilities, refineries, textile and furniture manufacturers, pulp and paper mills, dry cleaners, and automobiles, among others. The actual number of U.S. facilities emitting air toxics is unknown, but EPA estimates that up to 30,000 facilities in the United States are major sources of airborne toxics; other estimates are over 100,000.

Since World War II over 60,000 chemicals have come into everyday use worldwide, with annual chemical production increasing 15-fold in the last 40 years. According to EPA, about 15,000 airborne chemicals totaling billions of pounds annually are suspected of causing harm to human health or the environment.

However, fewer than 1,000 of these chemicals have been evaluated for toxicity by federal agencies, largely because of a lack of resources. Furthermore, most toxicity studies have focused only on these chemicals' cancer-causing potential. As a result, little is known about other health problems associated with industrially emitted airborne chemicals. Thus, scientists are uncertain of the extent to which health and environmental problems are caused or aggravated by these airborne chemicals. Nonetheless, industry, environmental groups, and EPA managers recognize that more airborne toxics should be controlled than the seven that EPA has regulated to date.

New Act Expands EPA Controls Over Toxic Air Pollutants

Under section 112 of the Clean Air Act, as amended in 1977, EPA was required to establish emissions standards for toxic air pollutants sufficient to provide an "ample margin of safety to protect public health." However, difficulties arose in implementing this health-based approach because many believed there was no safe level of exposure to carcinogens. Thus, evaluating and setting standards under former section 112 of the act was controversial and time-consuming, with regulatory

[2]Other provisions of the 1990 act dealt with nonattainment areas (areas not attaining the National Ambient Air Quality Standards), mobile sources of pollution, acid rain, operating permits, federal enforcement, stratospheric ozone protection, and research.

promulgations occurring primarily as the result of costly litigation. After years of debate, disagreement, and adverse court interpretations, no meaningful solution was found within the statutory framework of former section 112, according to EPA air toxics officials.

Title III of the Clean Air Act Amendments of 1990 deleted former section 112 and replaced it with a new section 112 that requires EPA to control 189 of the most prevalent and hazardous toxic air pollutants through a two-phased regulatory process.[3] The new act calls for EPA, in phase one, to develop standards for the pollution controls to be used at all major air toxics sources within 10 years. These standards are to be based on the best pollution control technologies used at existing sources.

Not later than 8 years after establishing phase one standards, EPA must—in phase two—assess the remaining health and environmental risks and, if warranted, impose further controls to reduce emissions to safe levels. In implementing the two-phased process, EPA hopes to obtain significant early reductions in the emissions of many suspected air toxics, while research into their health and environmental risks continues.

Phase One

In phase one, the act calls for major sources of air toxics to install control equipment or change manufacturing processes sufficiently to reduce toxic emissions to levels at least as stringent as the levels already achieved by the best-performing facilities in a category or subcategory.[4] Demonstrated technology will be EPA's primary consideration in establishing phase one standards—known as maximum achievable control technology or MACT standards. Phase one calls for EPA to develop regulations requiring the installation of control technologies that are already being used by industry, without the extensive health-based scientific data needed to develop and support pollution control regulations under former section 112. EPA's stated goal for phase one is a 75 percent reduction in air toxics emissions.

[3]The act also provides for EPA to add or delete air toxics from this list of 189 if data on a pollutant's health and environmental effects are sufficient to warrant such action.

[4]A source category is a grouping of facilities, for regulatory purposes, that generally employ similar manufacturing processes or produce similar products. Such groups are often identified by Standard Industrial Classification codes.

In implementing phase one MACT standards, EPA will classify major air toxics sources—for regulatory purposes—into groups known as categories and subcategories. For each group, the act calls for EPA to require the maximum degree of reduction achievable taking into consideration cost, energy, health, environmental, and other factors. All new sources in a group must achieve reductions at least as stringent as those achieved in practice at the best-performing similar source classified by EPA as being in the same group. Existing sources must also meet certain minimum levels of reduction, although the standards for existing sources may be less stringent than those for new sources. MACT standards must be established for 40 source categories and subcategories by November 1992, for 25 percent of all source categories and subcategories by November 1994, for 50 percent of all source categories and subcategories by November 1997, and for all source categories and subcategories by November 2000.

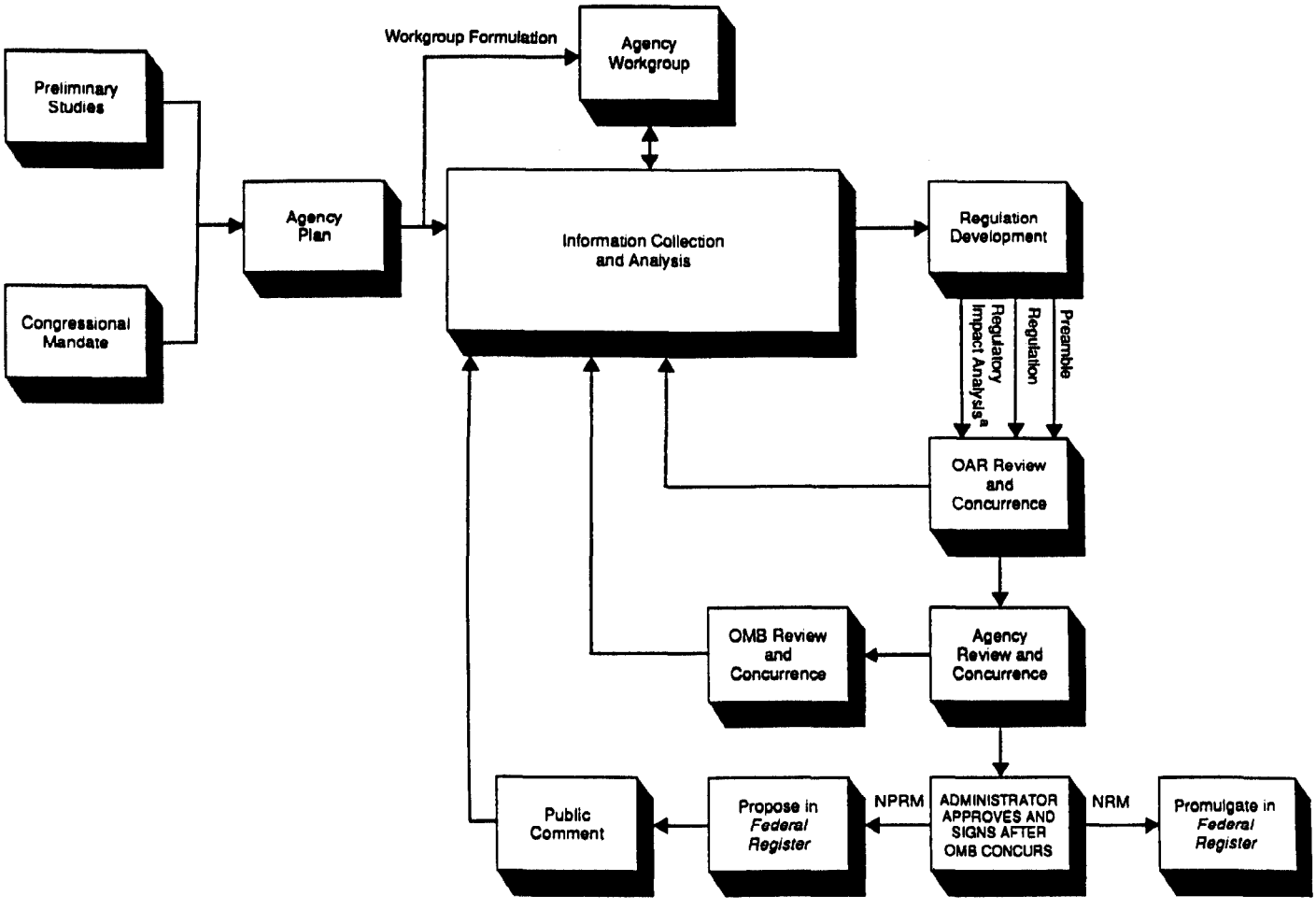
Phase Two

Not later than 8 years after promulgating MACT standards, EPA must, in phase two, assess the remaining health and environmental risks from toxic air pollutants and, if warranted, impose further controls to reduce emissions to safe levels. Substantial additional health and ecological studies as well as risk assessment and risk reduction research will be required to understand the cancer and other health effects on humans and the impacts on the environment so that appropriate residual risk decisions can be made in phase two. However, because of the previous difficulty in implementing the health-based standards, the act also calls for the National Academy of Sciences, the Surgeon General, EPA, and others to examine the risk assessment methodology EPA has historically employed and recommend changes by November 1996. Although methodology changes are anticipated, the act requires that phase two controls ensure that the risk of cancer is less than one in one million for the most exposed individual.

Changes Underway in the Regulatory Development Process

EPA has traditionally followed a standard process for developing and issuing regulations, as illustrated in figure 1.2.

Figure 1.2: Overview of the Regulatory Development Process



Note: NPRM = notice of proposed rulemaking; NRM = notice of rulemaking; OAR = Office of Air and Radiation; OMB = Office of Management and Budget.

Source: GAO illustration based on EPA data.

Promulgation of EPA air regulations has historically been guided by agency policy, the Clean Air Act, and the Administrative Procedure Act, which governs questions of notice, publication, participation, and adoption of federal rules and regulations. Key stages in the process include internal agency review and concurrence, consideration of public comments, and Office of Management and Budget (OMB) review and concurrence. This process has been slow, according to EPA, with some

regulations taking up to 9 years or more from the start of development to promulgation.

EPA's traditional rulemaking process will need to be streamlined if EPA is to meet the new act's mandate of issuing more than 25 rules in the first year and over 55 rules within two years. As a result, EPA plans to modify its internal regulatory review process to provide for (1) early and frequent informal consultations with interested parties, (2) formal negotiated rulemakings to resolve more complex issues collectively with interested parties having divergent views, and (3) use of air pollution advisory committees. The advisory committees will include representatives from industry, labor, agriculture, environmental and citizen groups, state and local governments, and academia. Internally, EPA hopes to reduce regulation development time by establishing an internal steering committee to resolve issues early and by eliminating duplicative reviews. EPA staff said that, as of March 1991, a specific goal for the amount of time that could be saved had not been set, but they estimated that issuing major rules and regulations under this scenario could take from 6 months to 5 years.

EPA's Roles and Responsibilities in Implementing the New Act

Two EPA offices are primarily responsible for planning and overseeing implementation of the air toxics provisions of the act: the Office of Research and Development (ORD), which provides the scientific and technical basis for EPA's regulatory, enforcement, and standard-setting decisions; and the Office of Air and Radiation (OAR), charged with developing regulations and overseeing their implementation and enforcement by EPA regions, states, and local agencies.

ORD is responsible for providing high quality scientific research data and technical information on (1) the cancer and non-cancer health effects of air toxics as well as their ecological effects; (2) the origin and fate of air toxics, and the environmental processes associated with exposures to them; (3) the capability, effectiveness, and cost of control strategies, techniques, and devices for reducing air toxics emissions; (4) the accuracy, reliability, and usefulness of measurement methods for monitoring compliance with air toxics permit conditions;[5] and (5) the risk assessment and risk reduction evaluations necessary to make informed risk

[5]Permits translate federal, state, and local rules and regulations into specific requirements tailored to an individual facility's operations. The specific provisions within the permit that limit a facility's emissions are known as permit conditions.

- Maryland Department of the Environment, Air Management Administration, Baltimore, Maryland;
- Texas Air Control Board, Austin, Texas;
- State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials (STAPPA/ALAPCO), Washington, D.C.;
- Chemical Manufacturers Association (CMA), Washington, D.C.;
- American Petroleum Institute (API), Washington, D.C.;
- Natural Resources Defense Council (NRDC), Washington, D.C.; and
- Environmental Defense Fund (EDF), Washington, D.C.

We judgmentally selected these state air pollution control agencies, associations, and groups to obtain differing perspectives and because EPA identified officials from these groups as among the most knowledgeable individuals in the nation on air toxics matters. We coordinated selection of these groups with EPA. We selected associations representing industries believed to be among those most affected by the new air toxics regulations. For example, we chose the American Petroleum Institute because an October 1989 study predicted that the annualized cost of air toxics controls within the petroleum sector will range from $3.2 to $13 billion. We selected the Chemical Manufacturers Association because EPA believes the chemical manufacturing industry is the nation's largest emitter of toxic air pollutants.

To address our first objective, we discussed key aspects of EPA's strategic plan and related documents for implementing title III with officials identified as knowledgeable in air toxics matters in EPA headquarters and selected EPA field offices, and with appropriate officials in the groups identified above. Discussions included (1) the likelihood that the objectives of the act will be accomplished effectively and in a timely manner and (2) whether EPA's strategy and associated documents are logical, applicable, and reasonably complete plans for accomplishing both short- and long-range objectives. We particularly emphasized EPA's Air and Radiation Research Committee, a joint undertaking comprising representatives of EPA's air program office (OAR)—responsible for administering the act—and EPA's research office (ORD)—responsible for providing the scientific basis for EPA's regulatory activities. According to EPA officials, this committee is in the best position to understand the short- and long-range data needs for implementing and defending EPA's standard-setting, monitoring, compliance, and enforcement activities.

To address our second objective—the adequacy of EPA's resource requests—we obtained historical information on expenditures for air

EPA's Strategy May Not Be Successful in Achieving Air Toxics Objectives

EPA recognizes that the Clean Air Act Amendments of 1990 offer a rare opportunity to make major gains in the control of toxic air pollutants and, anticipating the act's passage, initiated planning activities early to help meet envisioned tight time frames. In January 1991 EPA issued a revised implementation strategy that provides a general description of the act's air toxics provisions, summarizes the time frames for achieving selected requirements, and recognizes that some implementation issues remain unresolved.

However, EPA's strategy does not discuss the actions, activities, tasks, or even the definitions of key terms and concepts necessary to ensure the agency's success in achieving the act's air toxics objectives. As a result, the agency may not capitalize on its opportunity to make major gains because it has not developed a clear, comprehensive strategy for implementing the act's air toxics provisions. For example, EPA's strategy does not describe how the agency plans to acquire the scientific data to make phase two residual risk decisions on whether controls over and above the MACT standards may be needed for public health reasons.

Because of the large increase in the number of regulations to be developed—hundreds in the air toxics area alone—EPA's strategy also calls for changes in the way the agency makes regulatory decisions, with new emphasis on plans to involve external organizations early in the standard-setting process through consultation and consensus building. Whether these changes will be successful hinges, in large part, on the extent to which those responsible for implementing the standards and those responsible for complying with the standards understand and have been involved in establishing them. According to some officials, a clear and comprehensive strategy—a "roadmap" of where EPA is going and how it intends to get there—is essential to this process. However, EPA's strategy does not provide such guidance, as it lacks details and leaves key questions unaddressed.

New Initiatives May Not Facilitate Meeting Time Frames

The success of EPA's strategy in reducing the time to issue regulations depends, in part, on the agency's ongoing changes in two key areas: (1) its ability to get early, meaningful involvement of external organizations and (2) its attempts to streamline in-house review and approval processes, partly by relying on less data before promulgating standards. For example, one EPA initiative involves early consultation and consensus building with external organizations whose cooperation will be critical to meeting the time frames for issuing MACT standards and other regulations required in the act. EPA is soliciting opinions concurrently

from 3 to 5 years of research. EPA, NRDC, and the STAPPA/ALAPCO Executive Director generally agreed that EPA will have to base its phase one MACT decisions on less research. However, opinions vary as to how much research will be required to make phase two residual risk decisions, and EPA staff said much depends on future studies of EPA's risk assessment methodology by the National Academy of Sciences and others. These studies must recommend changes by November 1996. According to National Academy of Sciences officials, EPA's risk assessment methodology could be improved, but they were uncertain of their future study's impact on regulatory and scientific data needs.

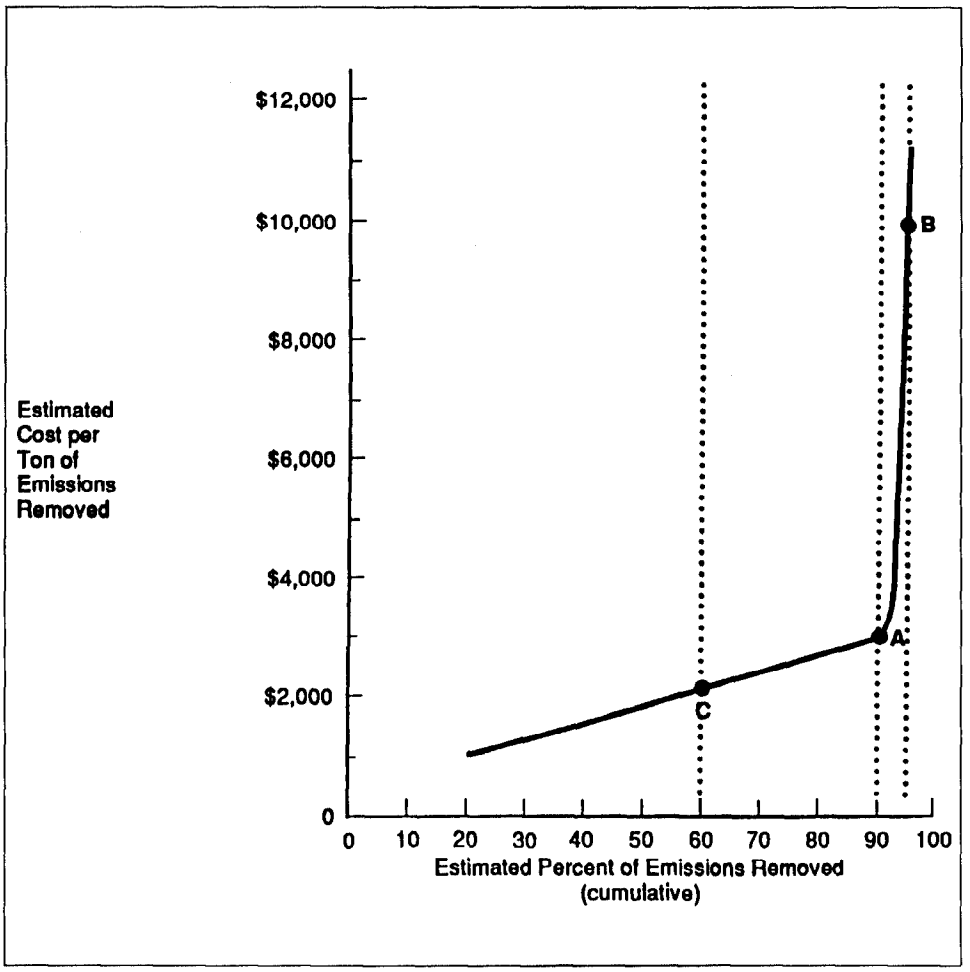
In view of EPA's ambitious agenda—issuing hundreds of air toxic regulations over the next ten years and then assessing residual health and environmental risks—several officials we contacted said it is essential that EPA fully develop an air toxics strategy to serve as a roadmap to help ensure success. According to some officials of environmental and state and local agencies, to be effective EPA's implementation strategy should include details on data needs, identify essential activities, and fully explain key terms and concepts to (1) allow outside groups to independently assess EPA's approach, (2) identify areas where changes may be needed, and (3) serve as a tool to gauge EPA's progress toward meeting air toxics goals.

Cost and Energy Implications Not Defined

The act directs EPA to consider cost and energy factors in establishing MACT standards, but allows EPA to decide the extent to which cost and energy considerations may affect the amount of reductions required. However, EPA's strategy does not address how the agency will approach cost and energy determinations, which may adversely impact EPA's efforts to hold meaningful consultations with industry and environmental groups and could also hamper EPA staff in implementing the act's objectives.

These determinations are important because industry must bear the cost of installing and operating control devices, as well as the cost of other emission reduction efforts, such as changing the raw materials used or the manufacturing process itself. Also, control devices and other changes can have substantial impacts on the type and amount of energy used. For example, thermal treatment devices may require large amounts of natural gas to achieve the high temperatures needed to destroy toxic emissions. Decisions on the controls required may have far-reaching implications for national energy usage.

Figure 2.1: Example of Marginal Cost-Benefit Approach



Source: GAO illustration based on data provided by the Chemical Manufacturers Association.

In the opinion of these officials, the best point at which to balance costs versus environmental benefits is point "A" in figure 2.1, indicating the point at which pollution control costs increase greatly with little additional reduction achieved. For example, in figure 2.1, increasing the estimated pollution control costs by $800—from $2,200 to $3,000—early in the process results in about 30 percent more reductions (for a total emissions reduction of 90 percent), while attempts to remove emissions above 90 percent will more than triple the estimated cost—from $3,000 to about $10,000 per ton—but only reduce emissions by about 5 percent more. Some EPA officials liked this approach, but said the agency currently lacks the data to create such a graph and were unsure of this approach's impact on phase two residual risk decisions.

Use of Generic Measurement Methods May Result in Ineffective Permits

One approach EPA hopes will accelerate setting MACT standards is to use generic measurement methods for as many as 149 of the 189 air toxics specified in the act. EPA currently lacks validated measurement methods for these specific toxic air pollutants. Under this approach, compliance with air toxics permits would not be based on measuring the specific toxic air pollutant identified in the act, but instead would be based on (1) measuring emissions of a generic class of compounds, such as aldehydes, rather than measuring specifically for a single air toxic, such as formaldehyde, or (2) measuring for a surrogate substance, by monitoring the emission levels of all volatile organic compounds, for example, and then applying a formula to estimate the amount of the regulated toxic substance included in these emissions.

However, the EPA research group responsible for developing and approving measurement methods has questioned the effectiveness of this approach. In an internal report, the group notes that generic classes of compounds will contain regulated substances with widely differing toxicities, as well as some unregulated substances.

Moreover, although this approach has already been used on a limited basis, it has not been tested in court cases involving disputes between regulators and the regulated industry on noncompliance matters, according to EPA officials. EPA officials, representatives of environmental groups, and state and local air quality officials have expressed some concern that this approach may result in air toxic permits that could be difficult to enforce in court if the affected industry decides to contest a noncompliance decision based on these generic measurement methods.

EPA officials hope that industry will accept compliance determinations based on generic measurements because the agency cannot meet the act's tight time frames if EPA's research group must develop validated individual methods for the 149 air toxics presently lacking them. Research officials have few options, they say, because they are able to validate new methods at the rate of only three per year with current and anticipated fiscal year 1992 resources. EPA's 1989 strategic plan only has one sentence dealing with the feasibility of the generic approach, and its 1991 revised strategy omits any discussion of the agency's planned use of generic measurement methods altogether. Agency officials told us EPA still plans to use generic measurement methods in implementing the air toxics provisions of the act. According to NRDC's Chief of Air Pollution, EPA's failure to address such critical issues in its implementation strategy may adversely impact the agency's

EPA estimate of over 750 is over three times the Senate's estimate in October 1990—just weeks prior to the amendments' passage—that there could be as many as 250 categories and subcategories.

In addition, NRDC's Chief of Air Pollution and the Executive Director of STAPPA/ALAPCO are concerned that EPA may use other criteria, not listed in the new act, to overly restrict the size of categories and subcategories. For example, the NRDC Chief cited the EPA Administrator's statements to the Council of Economic Advisors that EPA would make maximum use of subcategories in establishing MACT standards. The NRDC Chief was concerned that subcategories would be based on additional considerations not in the act, such as facility location, process differences, or exposure potential. Again, EPA's strategy does not explain the agency's basis or rationale for the proliferation of subcategories. NRDC's Chief of Air Pollution said such omissions from EPA's strategy may adversely impact EPA's efforts to hold meaningful consultations with industry and environmental groups.

EPA plans to meet the one-year deadline for publishing a listing of categories and subcategories by November 15, 1991. OAQPS officials believe that many of these groups may be included in one broad MACT standard covering a large portion of the chemical industry. They also pointed out that, even if these groups are small, the act also provides EPA with the discretionary authority to require better controls than are used within a particular group. However, environmental officials said that requiring better controls than are currently used within a particular group will be more difficult for EPA to justify and defend. Thus, they have reservations about EPA's ability to realistically require stricter controls on a widespread basis.

Conclusions

If properly implemented, the two-phased approach should substantially reduce toxic air emissions. EPA recognizes that the implementation time frames specified in the new act will stretch its capabilities and, accordingly, plans to streamline its regulatory development and review process, including accepting less voluminous health and scientific support for air toxics decisions. This will be a significant departure from EPA's past practices, and could require a cultural change within the agency.

However, EPA's strategic plan for implementing the air toxics provisions of the act lacks sufficient details on the data needed and the actions, activities, tasks, and definitions of key terms and concepts necessary to ensure the agency's success in achieving the act's air toxics objectives.

Insufficient Resources May Prevent Attainment of Air Toxics Objectives

The lack of clarity in EPA's strategy is compounded by the agency's decision not to request sufficient funding to carry out its responsibilities under the new act. Although EPA's fiscal year 1991 air toxics funding request was nearly one-third more than the agency received in 1990, it was still less than one-fourth of the amount needed to fully implement the act's air toxics provisions. EPA's requests for air toxics resources for fiscal years 1991 and 1992 were 23 and 16 percent, respectively, of the funds that EPA internal budget documents indicate are needed to fully implement the act. In explanation, EPA officials referred to budget constraints and concern that more rapid growth could result in inefficient use of resources. However, representatives of environmental groups and state and local air pollution control agencies are concerned that such underfunding may adversely affect public health and the environment by delaying (1) the issuance of longer term MACT standards, and (2) the collection of essential scientific data. The Executive Director of STAPPA/ALAPCO is concerned that such underfunding could delay phase two assessments of health and environmental risks up to 20 years.

EPA Not Requesting Sufficient Funding to Implement Air Toxics Objectives

EPA has not requested sufficient resources to carry out the air toxics provisions of the act within the act's mandated time frames. In fiscal year 1991 EPA sought less than $3 million, or 11 percent, of the approximately $25 million ORD needed for the air toxics research that provides the scientific basis for developing standards. Similarly, EPA requested less than $15 million, or 30 percent, of the approximately $49 million OAR needed to plan, administer, and implement air toxics program activities. EPA's estimates of the funds needed reflect EPA air program and research managers' best estimates of the amount required to fully implement title III as described in the President's proposal, including salaries and expenses, contracts, and grants. According to one EPA budget briefing document, the above estimates "have been scrubbed by both ORD and OAR" to ensure that the work is needed, the estimated cost is reasonable, and any duplication of effort has been precluded.

EPA officials have acknowledged a shortfall in resources for both fiscal years 1991 and 1992, but told us that they planned to focus all available resources on near-term objectives of the act and that they believed the agency, by utilizing existing research, could meet the 1994 mandate that MACT standards be developed for at least 25 percent of all source categories. They said that while first-year underfunding may delay some milestones, they believed these delays could be partially offset by large future increases. An EPA estimate in January 1991 showed that the

accommodated greatly expanding program responsibilities throughout the 1980s, yet—if inflation is taken into account—OAR's fiscal year 1991 budget was $8 million less than the agency used in its air program in 1980. The memorandum also points out that the amount of air toxics resources requested for 1992 is sufficient to meet the act's mandate that EPA issue regulations for 25 percent of the source categories by November 1994, but is not sufficient to cover the remaining 75 percent within the act's 7- and 10-year time frames.

EPA is postponing research work on long-term requirements and some mandated studies of emerging air toxics issues due to funding shortages. EPA's Air and Radiation Research Committee, a joint planning committee comprised of EPA managers in the best position to understand EPA's short- and long-range data needs, estimated that $76 million was needed to carry out the air toxics research required by the act in fiscal year 1992. However, according to one of the committee co-chairs, $38 million—half that amount—would enable the agency to carry out the high priority projects necessary to support EPA's near-term MACT standards. For example, one long-term high priority research project to study the effects of air toxics on people and ecosystems is not included in the fiscal year 1992 funding request. According to an ORD budget planning document, "The absence of this work would lead to a complete loss of understanding of air toxic effects on ecosystems and a loss of understanding of indirect routes of exposure of air toxics to human populations."

Another Air and Radiation Research Committee memorandum points out that underfunding means that EPA will have to use crude, highly uncertain methods of risk assessment, with the likely result that EPA's regulations will be challenged. An accompanying memorandum, jointly issued by EPA's air toxics program and research offices, explained that $20.5 million in research funding is critical for supporting air toxics regulatory activities in fiscal year 1991. Any reductions below this amount, according to the memorandum, would likely cause serious problems. For example, at this funding level no research would be performed on the effects of exposure from toxic air pollutants on the reproductive and cardiovascular systems or on the liver and kidneys. Despite these objections from its internal offices, EPA headquarters requested only $2.8 million in fiscal 1991 and $8.6 million in fiscal 1992—less than half of the critical amounts needed—for fiscal year 1991 and 1992 air toxics research activities. Headquarters officials told us the lower amounts had been requested because they did not believe OMB would approve higher

state or local agency believed the eventual MACT standards would be.[7] In the Executive Director's view, state and local agencies may make different control decisions based upon the differing skill levels and experiences of an agency's regulators and their familiarity with the industries being controlled, as well as their differing responses to political and economic considerations. Because MACT interpretations by these 107 agencies would probably vary widely, the Executive Director considered this the worst scenario for all parties concerned. For example, he said that under this scenario (1) state and local agencies would be forced to devote substantial resources to establishing individual permit standards that could be overturned by EPA at some future point; (2) industry could spend millions of dollars installing controls and changing production processes that might later have to be abandoned, retrofitted, or redone if EPA's standards were more stringent; or (3) industry may unnecessarily spend considerable sums of money adding controls and changing manufacturing processes, only to learn subsequently that EPA's standards were not as stringent as the state or local agency's interim standards.

Underfunding Could Adversely Impact Long-Term Health Assessments

Several EPA and other officials believe the agency will also have difficulty assessing the health and environmental risks that remain after MACT standards have been adopted and determining whether further controls are needed, primarily because EPA is not funding the research activities necessary to make these decisions. Internal EPA memorandums state that such underfunding is shortsighted, will postpone for years EPA's ability to make phase two residual risk decisions, and may render the agency unable to substantiate proposed standards or survive litigation. As a July 1990 EPA memorandum states, the agency will have to use highly uncertain assessments of risk that are likely to lead to challenges or inappropriate regulation. Moreover, STAPPA/ALAPCO's Executive Director predicted that EPA's underfunding would delay residual risk assessments from 5 to 20 years beyond the act's deadlines. More importantly, such underfunding may significantly affect public health, since EPA scientists expect 25 to 40 percent of sources to present significant risks of serious disease even after MACT standards are in place.

According to EPA officials, funding requests take into consideration the amount they anticipate OMB will approve during a tight budget period. Furthermore, they believe that seeking more rapid growth could result

[7]New section 112(j) of the act requires sources to apply to state and local agencies for permits requiring MACT controls within 18 months of EPA's missing a phase one MACT deadline.

Recommendation

To reasonably ensure successful implementation of air toxics mandates in the Clean Air Act Amendments of 1990, GAO recommends that the Administrator, EPA, submit appropriation requests to the Congress for the funds necessary to fully implement the air toxics provisions within the act's mandated time frames. To facilitate decision-making, the Administrator should present the Congress with several scenarios depicting EPA's envisioned progress at various funding levels.

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management decisions. ORD also provides education, technical assistance, and information and technology transfer to state and local agencies, industry, and others.

The Office of Air and Radiation is responsible for planning, administering, and implementing the air quality objectives, programs, and requirements of the Clean Air Act, as amended. Regarding the air toxics provisions of the act, OAR is responsible for (1) developing and issuing phase one and phase two air toxics standards, (2) overseeing their implementation by EPA regions and state and local agencies, and (3) ensuring that the regulated community achieves and maintains compliance. OAR's Office of Air Quality Planning and Standards (OAQPS) performs most standard-setting activities associated with toxic air pollutants, administers related grant funds, and oversees compliance and enforcement activities of EPA regions and state and local agencies.

Objectives, Scope, and Methodology

Concerned that EPA may not have adequately planned and budgeted for implementing the new toxic air pollution requirements of the 1990 amendments, the Chairman, Subcommittee on Oversight and Investigations, House Committee on Energy and Commerce, asked us to determine whether EPA

- has developed an adequate strategy for implementing the air toxics provisions of the act and
- has requested sufficient resources to meet its regulatory responsibilities within the time frames set forth in the act.

To accomplish these objectives, and in accordance with agreements with the Chairman's office, we performed work at the following EPA offices:

- the Office of Air and Radiation (OAR), Washington, D.C.;
- the Office of Air Quality Planning and Standards (OAQPS), Durham, N.C.;
- the Office of Research and Development (ORD), in Washington, D.C, and at the ORD Air Research laboratories, Research Triangle Park, N.C.; and
- Air and Radiation Research Committee (ARRC), Research Triangle Park and Durham, N.C.

To obtain a range of opinions regarding the critical components of a good air toxics implementation strategy and the resources needed to implement it, we discussed EPA's air toxics strategy and resources with the following state air pollution control agencies and organizations, and environmental and industry groups:

toxics activities dating back to 1980, OAR's and ORD's fiscal year 1991 and 1992 internal budget requests to the Administrator, multi-year plans for both offices, and officials' best estimates of resources needed to accomplish the critical aspects of title III for fiscal years 1991-95 and beyond. Where possible, we obtained resource estimates and requests for both staff and funds. We also reviewed internal agency documents discussing the extent to which these activities may be underfunded, along with potential impacts of such underfunding. We did not independently verify cost and other data provided by the agency.

We reviewed EPA's Federal Managers' Financial Integrity Act reports to the Congress and the President for fiscal years 1989 and 1990. We noted no previously reported weaknesses in the agency's management controls relating to air toxics issues. During our review we also sought the views of EPA officials responsible for overseeing the design and implementation of EPA's strategic plan and acquiring the resources to carry out the air toxics provisions of title III. Their views are incorporated into the report where appropriate. However, as requested by the Chairman's office, we did not obtain official agency comments on a draft of this report.

Except as noted above, our work was performed in accordance with generally accepted government auditing standards. Our work was performed from June 1990 to April 1991.

from industry, environmental groups, state and local governments, labor, and others early in the standard-setting process in an attempt to obtain meaningful input on upcoming decisions and build consensus among all affected and interested parties. In so doing, EPA managers hope to expedite the issuance of regulations and preclude protracted litigation.

Representatives of several external organizations we contacted, such as the Chemical Manufacturers Association and NRDC, said such consensus building could work, and cited EPA's successful regulatory negotiations on equipment leaks from chemical plants as an example. This negotiation process took 15 months, but has been cited as a success story by both industry and environmental groups, which believe a viable compromise was reached between control costs and risks. These representatives also pointed out that EPA's consultations with outside parties will be more successful if EPA has a clear-cut, comprehensive strategy. However, most representatives said that EPA's vague strategy was little help to them in understanding how EPA plans to accomplish the act's objectives. As noted by NRDC's air toxics chief, the more definitive EPA's strategy is, the more effective and productive EPA's outreach efforts will be.

EPA is also planning to streamline its internal regulatory approval process to reduce the time it takes to prepare a proposed air toxics standard for promulgation. According to EPA officials, in the past, staff were expected to resolve all problems before sending a proposed regulation to EPA management for review. These officials said this process was often slow because it required obtaining substantial amounts of information to resolve conflicts and support proposed standards. The new process, they said, will be a significant departure from prior practices, requiring almost a cultural change within EPA because, if problems cannot be readily resolved at lower levels, they are to be quickly elevated to higher management for resolution. Some EPA staff told us they were skeptical about this effort, since such streamlining efforts had met with limited success in the past.

As part of its regulatory streamlining initiative, EPA officials said decisions will have to be based on less scientific information and technical data than before. In the past, EPA managers wanted as much information as possible on the health and environmental effects of toxic air pollutants to ensure they set standards at the appropriate level. Consequently, according to ORD officials, assessing the health and environmental effects of individual toxic substances generally required

Nonetheless, EPA's strategy does not discuss how the agency plans to deal with these factors. EPA officials cited insufficient cost and energy data and difficulties with OMB's historical practice of limiting proposed regulations that exceed predetermined cost limits as reasons they had not addressed these factors in their strategy. Further complicating EPA's efforts to develop a strategy for considering cost and energy factors in its MACT requirements are the differing opinions of industry and environmental groups as to the approach EPA should take.

Opinions Vary on Approach to Cost Issue

Industry, environmentalists, and regulators have differing opinions on how EPA should consider cost in its MACT standards. We found there are generally three approaches to addressing the cost issue: (1) a cost-benefit approach, whereby emission standards are set at the point at which control costs escalate exponentially in relation to emissions reductions achieved; (2) an "affordability approach," whereby industry would be required to use the best controls available irrespective of costs as long as most of the affected facilities can afford to do so without going out of business; and (3) a set cost approach, whereby regulators are held to a cost ceiling for each ton of emissions removed.

Some industry representatives told us they would prefer a marginal cost-benefit approach. Under this approach, EPA would publish, along with its promulgated rules, a graph such as the one shown in figure 2.1 depicting the optimum point beyond which the costs of obtaining additional emissions reductions escalates disproportionately to the amount of emissions reductions achieved.

NRDC's Chief of Air Pollution said his organization and other environmental groups would prefer that EPA require industry to install any controls needed to protect public health and the environment, as long as most of the companies in the affected industry group could afford to do so without being forced out of business. In their opinion, sources should control their toxic emissions to the best of their financial ability, a concept known as the affordability approach to controlling air toxics. This concept is represented by point "B" in figure 2.1, depicting the point at which facilities would control their emissions to the maximum extent possible. Both the Executive Director of STAPPA/ALAPCO and NRDC's Chief of Air Pollution are concerned, however, that cost and energy considerations may unduly weaken air toxic controls under the new act. Because EPA's strategic plan does not address cost and energy matters, these officials must turn to other indicators for gauging EPA's intentions. As such, the Executive Director of STAPPA/ALAPCO cites an OAR fact sheet that briefly states EPA's overall policy for implementing the new act. According to this document, EPA's overall policy is to "achieve and maintain a healthy environment, while supporting strong and sustainable economic growth and sound energy policy."

The Executive Director's concern is that the present economic slowdown and higher energy costs may result in MACT standards well below point "B" on the graph. In his opinion, EPA should require the most stringent controls that it can pragmatically require while it has the opportunity and the authority, as it will be many years before EPA has the data to make reliable residual risk assessments.

NRDC's Chief of Air Pollution is concerned that air toxics regulatory decisions will be too heavily influenced by OMB, because of OMB's past practice of rejecting or extensively delaying regulations proposed by EPA that exceeded OMB's predetermined limit on control costs (about $2,200 per ton of emissions removed), irrespective of the pollutants' adverse health effects. OMB's approach is best represented by point "C" in figure 2.1. According to this NRDC official, such arbitrary cost ceilings limit the effectiveness of EPA's regulations, and are inappropriate for some acutely hazardous air pollutants, such as chromium and dioxin.

efforts to hold meaningful consultations with industry and environmental groups, and could also hamper EPA staff in implementing the act's objectives.

Extensive Use of Categories and Subcategories May Preclude Significant Reductions

Under the 1990 amendments, EPA must divide major air toxics sources into categories and subcategories and publish a list of these groups by November 15, 1991. The act then requires EPA to develop MACT standards for each group. Standards may distinguish among class, type, and size of sources within a group. For a new source, standards must be set at a level which would achieve emissions reductions at least as stringent as the level of reductions achieved in practice by the best-performing similar source within the same group. For existing sources, while standards may be less stringent than those for new sources, they also must be set at certain minimum levels.[6]

How EPA defines these groups could significantly affect the amount of reductions achieved, and has prompted concern in some quarters. For example, the Executive Director of STAPPA/ALAPCO and NRDC's Chief of Air Pollution are concerned that EPA may define these groups too narrowly, thereby resulting in small groups of homogeneous companies, all with similar air toxics controls already in place. Thus, when the best-performing companies in each group are identified, their performance will not differ significantly from that of the worst-performing companies. As a result, these officials are concerned that the resulting standards will only validate the status quo and not result in any meaningful reductions in toxic emissions.

In our opinion, this concern may be well founded. Although the act does not limit EPA's authority to establish appropriate subcategories, it does call for EPA to set categories and subcategories that, to the extent practicable, are consistent with the 63 categories of new source performance standards established under section 111 of the act. Nonetheless, EPA currently plans to establish more than 750 categories and subcategories. EPA officials pointed out that the Congress, in their opinion, was aware at the time of the 1990 amendments' passage that EPA was planning to establish over 400 categories and subcategories. However, the current

[6]For groups with 30 or more sources, standards must be at least as stringent as the average emission limitation achieved by the best-performing 12 percent of sources within the group. However, this calculation excludes any sources that, within 18 months of proposal or 30 months before promulgation of a MACT standard, have achieved the lowest achievable emission rate. For groups of fewer than 30 sources, standards must be at least as stringent as the average emission level achieved by the 5 best-performing sources in the group.

Although EPA's early consensus-building efforts with environmental groups, state and local agencies, and regulated industries are a good first step toward expediting the issuance of air toxics regulations, we are concerned that the lack of specificity in EPA's strategy will dampen the effectiveness of EPA's consultative efforts. For EPA to be successful in carrying out its greatly expanded activities, including changing its rulemaking processes to meet the act's air toxics milestones and mandates, a clear and comprehensive strategy describing where the agency is going and how it intends to get there is essential.

Recommendation

To help ensure successful implementation of the air toxics mandates in the Clean Air Act Amendments of 1990, GAO recommends that the Administrator, EPA, revise EPA's strategy for the timely accomplishment of the act's air toxics objectives to include all actions, activities, and tasks mandated or reasonably believed to be necessary to carry out the air toxics objectives of the act.

agency will have to more than triple its funding of air toxics activities by 1994.

Additionally, EPA officials said these estimates were conservative, in that they were developed in 1990 prior to the amendments' passage, and do not reflect the added costs of implementing the additional requirements subsequently added by the Congress during the amendments' development. According to a February 1991 EPA fact sheet, additional air program resources are needed because many of the act's deadlines are very short and many of the provisions are more complex than anticipated. This fact sheet also points out that the air toxics program alone needs an additional $6.3 million, or 25 percent more funds than the agency requested in fiscal year 1992. Without such funding increases, EPA's fact sheet points out that

> There are requirements in the Act that cannot be fully accomplished within FY 1992 resource levels. The effects of the FY 1992 resource shortfall will be either missed deadlines or products without the full range of technical completeness. The impact of the shortfall on our ability to meet deadlines due after FY 1992 could be significant.

However, as shown in table 3.1, EPA requested $8.6 million, or 11 percent of the amount ORD needed for research, and $16.8 million, or 21 percent of the amount OAR needed for other air toxics program activities in fiscal year 1992.

Table 3.1: Air Toxics Resource Needs and Funding Requests for EPA's Two Principal Offices, Fiscal Years 1991-92

Dollars in Millions

Fiscal Year 1991	**ORD**	**OAR**
Amount needed	$25.4	$49.4
Amount requested	$2.8	$14.6
Amount underfunded	$22.6 (89%)	$34.8 (78%)
Fiscal Year 1992		
Amount needed	$76.0	$81.3
Amount requested	$8.6	$16.8
Amount underfunded	$67.4 (89%)	$64.5 (79%)
Two year total underfunding	**$90.0 (89%)**	**$99.3 (76%)**

Note: Data represent the latest funding information available to us at time of our audit. Figures were confirmed with knowledgeable EPA staff, who said the agency's requests would not exceed the above amounts, but that the actual amounts requested from OMB may be lower.

As an illustration of the insufficient resources available to OAR for administering the new act, as amended, the office's fiscal year 1992 budget submittal to the EPA Administrator points out that OAR has

levels in austere budget times and, as noted previously, in their opinion higher levels could result in inefficient use of resources.

A September 1990 Senate Appropriations Committee hearing report expressed concern that EPA's air budget request for fiscal year 1991 was 75 percent lower than the minimum amount needed to carry out the new act. The Committee recognized that EPA is operating in an era of severe budget constraints but, citing the Administration's "strong commitment to this legislation," informed EPA that it expected the agency to request a supplemental appropriation. However, EPA officials said the agency has decided not to request a supplemental appropriation for fiscal year 1991 but intends to submit a revised budget estimate for fiscal year 1992 that provides for greater funding of the air toxics program. The EPA Administrator, in March 1991 testimony before the Senate Committee on Environment and Public Works, pointed out that the state of the economy and "the very serious deficit cloud that hangs over Federal policy makers" have sharply restricted the growth of federal spending and, in turn, EPA's budget. However, NRDC's Chief of Air Pollution said that EPA needs to request sufficient funding to fully implement the act.

Underfunding Could Delay Implementation of Longer Term MACT Standards

According to officials from EPA and environmental groups, the decision to direct most of EPA's available resources to meeting the 2- and 4-year MACT deadlines (for 25 percent of all source categories) almost guarantees that, without substantial future increases in funding, the MACT standards for the remaining 75 percent of source categories—due in 7 and 10 years—will be delayed. As pointed out in a July 1990 memorandum from the EPA Assistant Administrator for Air and Radiation to the EPA Administrator, their fiscal year 1992 budget request would enable EPA to meet the requirement to "regulate 25 percent of the required source categories within four years, but would stretch out the schedule for the remaining categories." One EPA official characterized this approach as "eating the seed corn," in that it represents a short-term solution to EPA's air toxics budget problems at the expense of long-term program success.

According to the Executive Director of STAPPA/ALAPCO, association members are concerned that EPA may miss some of the MACT standard deadlines. If these deadlines are missed, 107 state and local agencies would have to individually issue air toxics permits on the basis of what each

in inefficient use of resources. For example, they are concerned about their ability to hire, train, house, and effectively use more staff than they have requested. Also, in their opinion, contract funds may be ineffectively used unless sufficient numbers of properly trained staff are available to monitor contractor performance. EPA officials confirmed that their 1991 and 1992 air toxics budget requests were well below the levels that internal budget documents conservatively estimate are needed to fully implement the act. However, they said it was unusual for federal agencies to request additional funding for proposed legislation, as EPA did for fiscal year 1991, before an act's passage. For example, an EPA budget official said that, in fiscal year 1991, OAR received $11.5 million and 32 more staff years than it did in 1990. Program office and research staff we contacted said substantial future increases would be required to carry out the air toxics provisions of the act, even recognizing that many deadlines will be missed. In January 1991 EPA acknowledged that the cost to fully implement the air toxics provisions could reach $100 million by fiscal year 1994.

Conclusions

The best strategic plan—regardless of how detailed, logical, and complete—will likely fail unless sufficient resources are requested and received. Yet EPA has not requested sufficient resources for fiscal years 1991 or 1992. EPA has cited budget constraints and concern that the agency cannot efficiently absorb a faster buildup of resources as reasons for underfunding its air toxics initiatives. Agency officials explain that, by concentrating its available resources, EPA hopes to meet the near-term MACT objectives, and, with much larger budgets in future years, meet the longer term objectives. Internal EPA documents question this approach and warn of difficulties in meeting the longer term objectives of the act.

Neither we nor EPA are in a position to determine unequivocally whether the agency can compensate for its initial limited budgets through large future budget increases. However, in our opinion the Congress expects EPA to submit realistic budget requests enabling the agency to reasonably carry out the Congress' legislative mandates. Realistic budget requests help the Congress debate and set air toxics funding levels appropriately in relation to other national needs, especially during constrained budget periods, whereas unrealistic budget requests hinder this decision-making process. In our opinion, EPA needs to reconsider the long-term impact of not requesting sufficient resources to fully implement the act's air toxics mandates.

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