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**Testimony**

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Committee on Energy and Commerce, House of  
Representatives

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**AIR POLLUTION**

**Progress and Problems in  
Implementing Selected  
Aspects of the Clean Air Act  
Amendments of 1990**

Statement of J. Dexter Peach,  
Assistant Comptroller General,  
Resources, Community, and Economic Development Division



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Mr. Chairman and Members of the Subcommittee:

As we approach the third anniversary of the passage of the Clean Air Act Amendments of 1990 (act), we appreciate the opportunity to discuss several of our reports<sup>1</sup> that address the Environmental Protection Agency's (EPA) efforts to implement the act, as well as follow-up work performed at your request. My testimony today focuses on EPA's continued difficulties in reviewing and approving state implementation plans, or SIPs, and other key provisions of the act designed to control pollution from mobile and stationary sources. Because efforts to develop SIPs and pollution control programs for mobile and stationary sources have been among EPA's top-priority activities, we believe our work in these areas provides a good indication of EPA's overall progress in implementing the act.

To its credit, Mr. Chairman, EPA has issued more proposed and final air quality regulations in a shorter period of time than at any point in its history. As a result, initiatives are under way which--if properly managed, funded, and executed--could lead to significant improvements in air quality. EPA estimates that once these proposed and final regulations are fully implemented, emissions reductions may exceed 47 billion pounds each year, or nearly 85 percent of the annual reductions called for by the 1990 amendments. However, our work suggests that unresolved issues may hinder the implementation of EPA's new initiatives and render these estimates overly optimistic. Specifically, our work shows the following:

- Delays continue in the states' submission and EPA's review and approval of SIPs. Such delays have far-reaching implications because, in addition to serving as legally binding agreements between EPA and the states on the strategies to be employed in achieving national air quality standards, SIPs specify the pollution control measures that both mobile and stationary sources must employ.
- EPA's program for more stringent emissions testing of vehicles may not achieve the emissions reductions envisioned because of uncertainties regarding the diagnosis and repair of failed vehicles and a lack of information on the behavioral response of motorists to perceived higher costs and greater inconvenience. Such factors are important because inadequate repairs can, in some cases, increase vehicle emissions, and cheating by motorists is believed to increase as the cost and the level of inconvenience increases.
- For stationary sources of air pollution, EPA's operating

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<sup>1</sup>Appendix I lists selected GAO products relating to EPA's implementation of the Clean Air Act Amendments of 1990.

permit program is underfunded and will likely miss future deadlines, and the same is true for the agency's air toxics program, thus creating uncertainties about EPA's ability to ensure timely improvements in air quality from stationary source reductions. These problems, too, can have long-term consequences because the operating permit program is intended to significantly enhance the ability of regulators to monitor and enforce stationary sources' compliance, and air toxics have been among the nation's least controlled pollutants.

Before I discuss these concerns in greater detail, I would like to note that we have included, as appendixes II and III to my prepared statement, information on two other issues you asked me to address today--EPA's efforts to ensure that research documents undergo adequate peer review and EPA's adherence to sound federal contracting procedures.

#### BACKGROUND ON MAGNITUDE OF THE TASKS FACING EPA

At this point, I would like to briefly discuss the magnitude of a few of the air pollution problems EPA faces and to recognize the efforts EPA has made to address these problems since the act's passage. EPA's most recent data indicate that more than 85 million Americans, or about one-third of our nation's population, continue to breath unhealthy air, as industrial and mobile sources release millions of tons of pollutants into the atmosphere annually. This is especially true in urban areas, where ozone is generally recognized as our most intractable air pollution problem. As you know, air pollution comes not only from large industrial sources, such as chemical plants and utilities, but also from smaller sources, such as dry cleaners and service stations, and mobile sources include more than just cars. In today's efforts to attain healthful standards in some urban areas, they also include farm and lawn equipment. At this point, Mr. Chairman, let me provide a little perspective on EPA's progress and problems in implementing specific provisions of the act for three high priority areas in which we have completed or ongoing work--SIPs and mobile sources and stationary sources of air pollution.

#### State Implementation Plans

The 1990 amendments to the Clean Air Act place most of the responsibility on authorized state and local agencies to ensure that each area achieves compliance with national air quality standards. The primary mechanism for doing this is the SIP. According to EPA, the act requires state and local agencies to submit over a thousand SIP revisions during the first 4 years of the act's implementation.

In concept, each air quality control area is to monitor its

ambient air to determine whether and by how much it exceeds each of the six air quality standards,<sup>2</sup> assemble an inventory of emission sources, and develop emissions reduction strategies for sources in the air quality control area. While simple in concept, the SIP process, according to an environmental consulting firm, has become "horrendously complicated in application." For example, control requirements in a SIP must take into consideration complex models that estimate the impacts of individual sources on pollution and the anticipated effects of implementing prescribed controls, and must demonstrate that, when implemented, these measures will ensure that the standards are attained by the prescribed deadlines. Additionally, SIPs vary because of differences in levels of attainment and nonattainment in different areas, differences in the relative composition and types of stationary and mobile sources, modeling uncertainties, and a host of other factors. Thus, ensuring that these SIPs contain accurate data is a complex, resource-intensive process.

### Motor Vehicle Emissions

Motor vehicles account for about 90 percent of the carbon monoxide that plagues many cities, as well as about half of the hydrocarbons, and about 30 percent of the nitrogen oxides that combine in sunlight to form ozone, or smog. While today's cars, according to EPA, emit 70 to 90 percent less pollution over their lifetime than their 1970 counterparts, the number of miles driven has skyrocketed--from about 1 trillion miles driven in 1970 to well over 2 trillion today, and estimates are that we will drive 4 trillion miles annually by the year 2000.

EPA has launched a four-pronged attack, as provided under the new act, to reduce vehicle emissions, including (1) the use of cleaner fuels, (2) tighter tailpipe standards for new vehicles, (3) improved transportation alternatives, and (4) better maintenance of in-use vehicles. Our focus today is on the last of these because in-use vehicle emissions are believed to be the largest contributor to mobile source emissions. For example, in its 1991 study on urban ozone problems, the National Research Council said that in-use vehicle emissions are "the most critical problem associated with motor vehicle emissions."

In order to achieve better maintenance of in-use vehicles, beginning in 1995, EPA is requiring enhanced monitoring of motor vehicle emissions for 83 urban areas where serious ozone or carbon monoxide problems exist. For the millions of motorists living in these 83 urban areas, EPA's enhanced monitoring program will mean annual centralized tailpipe emissions testing for 1968

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<sup>2</sup>EPA has established National Ambient Air Quality Standards for ozone, carbon monoxide, particulate matter, sulfur dioxide, nitrogen dioxide, and lead.

and newer vehicles, with 1986 and newer vehicles tested using high-tech equipment that measures tailpipe emissions while the vehicle is driven on a treadmill-like device called a dynamometer. Depending on the age of the vehicle, EPA will also require a purge test of the evaporative canister and a pressure test of the fuel tank and lines. For example, under EPA's model program, 1986 and newer vehicles must have both the purge and pressure tests, while 1983 through 1985 vehicles would only undergo the pressure test. Pre-1983 vehicles would not have purge and pressure tests. However, in order to obtain extra emissions reduction credits from their mobile source populations, state and local agencies may require such testing of earlier model years or greater fleet coverage, such as testing of pre-1986 trucks weighing more than 6,000 pounds. EPA estimates that the enhanced inspection and monitoring program for in-use vehicles, once fully implemented, will eliminate 6.4 billion pounds of pollutants annually, or more than 10 percent of all emissions reductions envisioned under the act.

#### Pollution From Stationary Sources

Stationary sources, such as electric utilities, oil refineries, factories, and other industrial and commercial facilities, account for nearly half of the nation's air pollution, including about 96 percent of the sulfur dioxide and 62 percent of the particulate matter emitted into the air annually. EPA estimates that there are about 35,000 major stationary sources of air pollution. Ensuring that major sources achieve and maintain compliance is especially important because of their ability to release large quantities of pollutants if uncontrolled. One major source can release more pollution into the air in 1 day than many other sources can in 1 year. For example, the sulfur dioxide emissions from one electric utility can reach 75,000 tons annually, or more than 200 tons per day.

Historically, there have been some difficulties in ensuring compliance at major stationary sources, including the expenditure of considerable time and effort simply to ascertain exactly what standards, emissions limits, and control measures applied to some sources. The new title V permit program is intended to cure these problems by requiring, for the first time ever, that all of the requirements that an individual source must comply with be placed in a single document, known as an operating permit. Scheduled to be phased in over 3 years, the title V permit program is believed to be among EPA's most ambitious efforts to regulate air quality from major stationary sources. Permits for the 35,000 major sources are to be issued no later than November 1997. The universe of stationary sources, including nonmajors, that will eventually need permits is estimated at over 350,000.

Toxic air pollutants--such as arsenic, cyanide, chloroform,

and formaldehyde--from stationary sources constitute the largest single category of chemical releases into the environment, approaching 2.4 billion pounds annually. Since World War II, over 60,000 chemicals have come into everyday use worldwide, with annual production of chemicals increasing 15-fold over the same period. With less than 1,000 of these chemicals evaluated for toxicity by federal agencies, and only 7 regulated by EPA through 1990, the Congress charged EPA with establishing technology-based standards for 189 of the most prevalent and hazardous air toxics.

EPA has had some success in getting companies to voluntarily agree to reduce their air toxics emissions. For example, nine major petrochemical manufacturers have agreed to substitute different chemicals or change their manufacturing processes at 40 plants in 14 states, with estimates that these actions, when fully implemented, will reduce emissions by 83 percent from pre-1990 levels. Similarly, under EPA's 33/50 voluntary program, nearly 1,000 companies have pledged to reduce their emissions of 17 high-priority toxic chemicals by 347 million pounds. Still, much remains to be done. For example, according to EPA, initial technology-based air toxics controls have yet to be established for more than 75 percent of the listed source categories, after which EPA must assess the remaining health and environmental risks to determine whether further controls are needed to reduce toxic emissions to safe levels. Now let me turn to some of the issues that we believe render EPA's emissions reduction estimates overly optimistic.

#### SIPS CONTINUE TO CHALLENGE EPA AND THE STATES

Significant problems continue to plague the preparation, review, and approval of SIPs. Despite efforts by the Congress and EPA to address numerous long-standing problems with SIPs, delays continue. Some states have submitted their SIPs after the deadlines established by the 1990 amendments, while others have failed to submit them altogether. Also, EPA is taking longer to review and approve SIPs than the amendments allow. In some cases, SIPs have remained in the system for months without management intervention to identify and address the causes for the delays. Unless improvements are made, delays will likely worsen over the next several years as the number of SIPs that the states are required to submit increases. For example, the act required states to submit over 1,000 individual SIP revisions by November 15, 1992, for 17 major categories, such as inspection and maintenance (I&M) programs, ozone and carbon monoxide emissions inventories, and oxygenated fuels programs, among others. According to EPA's analysis of its SIP submission data, nearly 40 percent of the submissions were not received on time.

Additionally, EPA managers anticipate that a number of the SIP submissions will be incomplete and have to be returned to the states for additional information. In some cases, delays in states' SIP submissions and incomplete SIPs can have long-term ramifications. According to EPA officials, delays in the approval of the November 1992 SIPs will likely slow the fulfillment of future SIP requirements (such as plans due November 15, 1993, for reducing ozone by 15 percent) that build upon them and could ultimately affect the attainment of the national air quality standards.

Furthermore, a significant number of SIP submissions are not technically or administratively complete and do not specify how the state or local agency plans to achieve national air quality standards. The act allows EPA to grant conditional approval for some SIPs. Referred to as committal SIPs, they only include commitments from the states to meet these requirements within specified times. For example, some SIP submissions do not contain enforceable state regulations or other specific requirements of the amendments, but they do contain commitments from states to adopt these measures within 12 months. In these instances, EPA grants conditional approval and the submissions become committal SIPs until the states satisfy the commitments or 12 months elapse. EPA allowed states to submit committal SIPs for 6 of the 17 categories of SIPs due November 15, 1992. This represented over 20 percent of the SIPs due, according to EPA. In summary, while the use of committal SIPs may be effective under certain circumstances, their use effectively delays the imposition of required sanctions and potentially delays the implementation of pollution control measures. Because of concerns with the agency's use of committal SIPs, one environmental group has recently filed suit challenging this practice.<sup>3</sup>

Delays in states' submissions are only part of the problem with SIPs. Although EPA has instituted several reform measures, such as delegating more decision-making authority to its regions and developing clearer processing guidelines, EPA continues to have problems processing SIPs within the mandated time frames. For example, the 730 ozone SIPs being reviewed by EPA on December 31, 1992 had been at the agency an average of 650 days, or nearly 2 years, which is nearly double EPA's 12-month goal for SIP processing. Also, approximately 50 percent of the ozone SIPs that had been approved by EPA took longer than 12 months to process. Delays in approving SIPs expose EPA to potential lawsuits for failure to approve or disapprove the SIPs within 1

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<sup>3</sup>The Natural Resources Defense Council filed suit against EPA in September 1993, alleging that EPA is improperly using committal SIPs to extend statutory deadlines; no court decision had been reached as of Oct. 20, 1993.



year after determining that the submissions are complete.

EPA agrees that effective oversight is important to ensure that SIPs are processed expeditiously and has initiated a number of actions to improve its oversight of the SIP process, including improving the SIP information system and implementing a program of regional reviews. Thus far, however, these initiatives have not provided the information needed to accurately monitor the progress of SIP reviews and identify problems delaying SIP processing. As we noted in a prior report, our review of data for 126 SIPs--representing over 1,300 SIP revisions--disclosed that the SIP information system contained incomplete information for 65 percent of the submissions. In preparing for this hearing, we asked EPA to provide us with updated information from its SIP information system on how many of the SIPs that were originally due November 1992 had been submitted and approved as of September 15, 1993. However, the data in the system were so incomplete that EPA could not satisfy our request. According to EPA managers, the information can only be obtained by asking each regional office to provide it.

There may be hope on the horizon. While the act reaffirmed SIPs as the primary means for demonstrating how and when states will achieve air quality standards, it also established a new operating permit program to, among other things, supplement the SIP process. While not a panacea for all of the problems that have historically plagued SIPs, the permit program offers a good opportunity for improving the efficiency and effectiveness of the SIP process by moving details on the emission limits, control measures, and reporting and monitoring procedures for individual facilities from the SIP into individual permits. The Acting Assistant Administrator for Air and Radiation has acknowledged the potential for operating permits to improve the effectiveness of SIPs, and has asked EPA to work with the states on how best to revise their SIPs to take advantage of the permit program. He cautioned, however, that since permits can only implement requirements contained in the SIPs, to the extent that SIPs contain regulations that are vague, unenforceable, or insufficient to achieve compliance with the national air quality standards, the permits will not be effective.

#### QUESTIONS EXIST REGARDING EPA'S ENHANCED VEHICLE EMISSIONS TESTING PROGRAM

EPA's July 1992 proposed I&M regulation calls for the more seriously polluted areas of the nation to perform annual centralized high-tech emissions testing using computer-controlled emissions analyzers to measure vehicle emissions under a 240-second simulated driving cycle. While questions were raised during the public comment period as to the cost-effectiveness of EPA's proposal, this provision remained basically unchanged in EPA's November 1992 final rule because the agency had not found

an alternative test that met or exceeded the performance of its high-tech test.<sup>4</sup> EPA said it would continue to evaluate other tests and pointed out that its regulation established a performance standard, as opposed to design standards, so that states could configure their in-use vehicle emissions testing systems in any manner they choose, as long as the state system meets or exceeds the performance of EPA's model program.

In our September 1992 report, we explained that--although this program was expected to have more than a \$1 billion impact on the inspection and repair industries--there still appeared to be significant unresolved issues. Most notable among these were uncertainties regarding the diagnosis and repair of failed vehicles, a lack of information on the behavioral responses of motorists to perceived higher costs and greater inconvenience, and some inconsistencies in early high-tech test results. For example, we reported that vehicles may be more difficult to diagnose and repair because of the inability of repair shops to afford high-tech testing equipment, a lack of adequately trained mechanics in emission system diagnostics for newer high-tech vehicles, and difficulty in diagnosing and repairing marginal failures. We also noted that the collective impact of these factors had the potential to frustrate motorists if they were required to make repeated trips to have their cars tested, repaired, and retested; that is, if they were subjected to what is generally known as the "ping pong effect." Such factors are important because inadequate repairs can, in some cases, increase vehicle emissions, and motorists' cheating is believed to increase as the level of frustration also increases.

In responding to our report, EPA explained that the agency (1) is pursuing the viability of cheaper repair-grade high-tech testing equipment for repair shops, (2) has formed a task force with the automotive service industry, automakers, educators, consumer groups, and regulators to begin a major initiative to improve automotive service education and, in turn, the quality of maintenance that cars receive; and (3) has recommended that states set higher tolerance levels during the first cycle of high-tech testing to reduce failure rates and give technicians time to adapt to the new systems, thus partially mitigating the inconvenience and frustration for motorists. Additionally, in May 1993, the agency published a study of an alternative test procedure to the high-tech test, but concluded that this alternative test would not meet the performance standard.

Although these responses appear reasonable, questions continue to surround key aspects of EPA's enhanced I&M program.

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<sup>4</sup>EPA's proposed and final I&M regulations require state and local agencies to meet or exceed a performance standard based on EPA's high-tech model program for areas with enhanced testing.

For example, in August 1993 the California Air Resources Board reported that EPA's May 1993 study of the alternative test allowed sampling problems that biased EPA's conclusions in favor of the EPA's high-tech test and against the alternative test. The California Air Resources Board's report takes issue with, among other things, the number of vehicles that were tested and subsequently excluded from EPA's analysis. For example, after testing 1,405 vehicles against the agency's high-tech test, EPA excluded the data on 199 vehicles, or 14 percent, from its analysis because of unexplained quality control problems. In testing these same 1,405 vehicles against the alternative test, EPA excluded only 20, or less than 2 percent, from its analysis. In the Board's opinion, EPA excluded vehicles that could have significantly changed EPA's conclusions. The Board also pointed out that, in a real-world I&M program, excluding vehicles for quality control problems impacts a test's cost effectiveness, since these vehicles must either be re-tested properly or given a waiver. In addition, the report pointed out that EPA's "statistical arguments are flawed, resulting in erroneous conclusions." Because of the recency of these claims, we have not yet had an opportunity to fully evaluate their validity.

In our previous report we discussed Resources For the Future's (RFF) views on EPA's high-tech testing program. RFF is an independent nonprofit research and policy analysis institute that has spent considerable time evaluating EPA's enhanced I&M program. The predominant issue, according to an RFF senior fellow, is that EPA has not satisfactorily demonstrated its high-tech testing program in any real-world setting and that great uncertainty still surrounds the program's cost and effectiveness. He said that RFF believes that certain aspects of EPA's enhanced I&M program appear quite promising, such as the provisions calling for purge and pressure tests. However, RFF's marginal cost analysis of each component of EPA's high-tech testing program found that the marginal cost of adding purge and pressure tests was about \$1,000 per ton of emissions removed, whereas the marginal cost of adding the high-tech tailpipe emissions test was about \$12,000 per ton. In his opinion, EPA's previous I&M program estimates have proven to be overly optimistic, and past assumptions, when tested in a real-world setting, have sometimes not been borne out. For example, he said that one study of repairs made to marginal emitters--defined as noncomplying but not grossly emitting vehicles--found that more than half of the repaired vehicles had higher emissions after the repairs than if they had been left alone. In summary, RFF's opinion remains the same as stated in its August 1992 report: EPA's enhanced I&M program could benefit from further research on technology, costs, and motorists' behavioral responses, which would be "more prudent than committing the entire nation to a \$5 billion per year program while major information gaps remain."

Another uncertainty involves the relative effectiveness of decentralized I&M programs and centralized I&M programs. Decentralized programs, also known as test-and-repair programs, allow privately owned garages and service stations to conduct emissions tests and to perform any needed vehicle repairs on-site, while centralized programs require that emissions tests be performed by state employees or their contractor and that any necessary repairs be performed elsewhere. EPA believes that decentralized programs are consistently less effective than centralized, or test-only, programs because of inherent conflicts of interest, and EPA has acted on this belief in its most recent I&M regulations. At issue is EPA's decision to reduce the emission reduction credits for decentralized programs by 50 percent.<sup>5</sup> We reviewed the data and studies upon which EPA based its 50-percent-reduction decision and generally found that while this information provides qualitative support that test-and-repair programs have in the past been less effective, it does not provide quantifiable support for a 50-percent reduction. Recent testimony by the RAND Corporation before the California Senate Transportation Committee similarly indicates that questions continue regarding the effectiveness of centralized and decentralized programs. For example, in its August 23, 1993, testimony RAND said:

Based on effectiveness in reducing emissions, we find no empirical evidence to require the separation of test and repair. Our research also indicates that a well safeguarded decentralized system, with rigorous state supervision, can be highly effective

While state and local agencies choosing to implement decentralized I&M programs may petition EPA for less severe reductions in their emissions reduction credits, such claims must meet certain demonstration requirements, which some state and local agencies have stated that they have neither the resources nor time to do. According to these state and local agencies, EPA is strongly encouraging them to adopt centralized I&M programs. We contacted nine states that, since EPA's I&M regulation was issued, have drafted or enacted legislation calling for centralized I&M programs. Of these nine states, six said EPA's 50-percent-reduction decision was the primary or, in some instances, the only factor in their decision to adopt a

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<sup>5</sup>EPA's November 1992 final rule assumes a 50-percent reduction in emissions credits (from the credits for implementing a centralized program) for tailpipe, purge, and selected other emissions tests, and a 75-percent reduction in credits for evaporative canister, PCV, and air system checks. This decision has generally been referred to as the 50-percent-reduction decision, primarily because this is the amount that tailpipe emissions credits will be reduced.

centralized, or test-only, program, and three said it was a contributing factor in their move to a centralized program. Mr. Chairman, as noted in our 1992 report, this unresolved issue and others have the potential to undermine public confidence, reduce motorists' acceptance of enhanced I&M programs, and potentially impact envisioned emissions reductions. Appendix IV provides additional information on EPA's I&M program which you asked us to address today, as well as a discussion of related legal issues.

#### UNCERTAINTIES REMAIN IN EFFORTS TO CONTROL POLLUTION FROM STATIONARY SOURCE

EPA's ability to ensure timely improvements in air quality from two of its high priority stationary source programs--operating permits and air toxics--is in doubt. Regarding operating permits, EPA has until November 15, 1994, to review and approve (or reject) about 120 state and local agencies' proposed title V operating permit programs, and much work remains to be done. At this time, neither we nor EPA are in a position to state unequivocally that the agency will meet or miss this key deadline. However, as we noted in our February 1993 report, there are significant difficulties that make the timely realization of this goal unlikely. For example, in order for EPA to meet its deadline, the agency was relying on some state and local agencies to submit their proposed permit programs prior to the November 15, 1993 deadline. However, our most recent information indicates that not only will no state or local agency submit its proposal early, but about half will not meet the November 15, 1993, deadline.

Equally important, however, is whether EPA will have sufficient resources to carry out its permit program responsibilities. As we reported in February 1993, the Office of Management and Budget (OMB) cut EPA's fiscal year 1992 budget request for permit activities from 88 to 60 staff-years, or nearly one-third less than EPA needed. EPA received 68 staff for permit activities in fiscal 1993, and indications are that fiscal 1994 staffing may be less than needed. For example, EPA received only 70 staff in 1994--about 20 percent fewer than included in its 1992 budget request to OMB.

In our opinion, these resource shortfalls may jeopardize EPA's ability to adequately oversee the genesis and evolution of the nation's first comprehensive permit program for air pollution sources. Adequate oversight by EPA is especially important, as more state and local agencies report being pressured by political and economic interests to keep permit fees as low as possible. For example, the act provides for state and local agencies to collect a presumptive minimum fee of \$25 per ton of emissions to implement their title V permit programs; yet the most recent information indicates that some state agencies intend to collect less than \$10 per ton, while others have reduced their fees to

the \$25 presumptive minimum. For example, North Carolina established a Clean Air Act Advisory Council to, among other things, determine the cost of the state's title V permit program and establish the amount of the state's permit fees. After 9 months of study and numerous meetings, this body concluded that the annual cost of North Carolina's permit program would be \$12 million, or \$36 per ton--yet our most recent information indicates that North Carolina plans only to collect the \$25 presumptive minimum. The state official we contacted said there was a lot of pressure not to exceed the anticipated prevailing rate that competing states are expected to charge.

Funding shortfalls have also continued to plague EPA's air toxics program. EPA requested only about half of the funds needed to implement the act's air toxics provisions in fiscal year 1992. While internal agency budget documents indicated that EPA's Office of Air and Radiation (OAR) and EPA's Office of Research and Development would collectively need in excess of \$157 million to carry out their title III air toxics program and research responsibilities in fiscal year 1992, EPA requested less than \$81 million. The agency's own documents pointed 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.

As a result of not requesting sufficient funding to carry out its air toxics responsibilities for stationary sources, EPA is nearly a year behind schedule on its first major air toxics deadline. While section 112(e) of the act required EPA to establish final Maximum Achievable Control Technology (MACT) standards for 40 source categories of toxic air pollutants by November 15, 1992, EPA issued its first MACT standard for one of the 40 source categories--dry cleaners--in September 1993, and the agency's most recent estimated date for issuing its next final MACT standards for some of the remaining source categories is February 1994--about 15 months behind schedule. Issuance of MACT standards is not the only title III deadline that EPA has missed. For example, according to the Congressional Research Service's February 1993 report, in the program's first 2 years, EPA missed 13 of 15 air toxics deadlines. In our opinion, resources to control air toxics may still be a concern. For example, OAR--although behind schedule--requested fewer air toxics resources for fiscal year 1994 than internal agency budget documents said were needed for fiscal year 1992. The total air toxics resources that OAR requested for fiscal year 1994, including salaries and expenses for headquarters and regional staff, air monitoring and enforcement activities, contracts, and grants to state and local agencies, were about \$74 million; yet

OAR alone needed \$81.3 million for air toxics activities in fiscal year 1992. Thus, while EPA has succeeded in getting some stationary sources to voluntarily reduce their air toxics emissions, delays and underfunding of such a major agency initiative remain causes for concern.

### CONCLUSIONS

In conclusion, Mr. Chairman, implementing the Clean Air Act is an ambitious undertaking requiring the commitment of significant resources at the Federal, state, and local levels. Since the act's passage, EPA has accomplished much by issuing over 150 proposed and final rules and guidance documents. But as we have discussed this morning, some of the delays and problems encountered in the programs that we have reviewed suggest that the potential public health and environmental benefits envisioned when the act was passed may not be fully realized. SIPs--the key mechanism for planning and implementing measures to control air pollution, as well as the foundation upon which the federal-state partnership is built--are not being submitted, reviewed, or approved in a timely manner, and these delays may worsen as the number of SIPs that states must submit increases. Similarly, uncertainties and delays in the vehicle emissions testing program, as well as the operating permit and air toxics programs, are further indications that resources and priorities continue to be the fundamental issues that EPA needs to address. The administration's recent emphasis on reinventing government only heightens the need for EPA and other agencies with growing legislative mandates, but relatively flat or declining budgets, to communicate to the Congress the impact of funding shortfalls on their ability to respond to such mandates.

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This concludes my prepared statement, Mr. Chairman. We would be pleased to respond to any questions you or other Members of the Subcommittee may have relating to my full statement as well as the appendixes dealing with peer review and contracting practices. Thank you.

RELATED GAO PRODUCTS

Air Pollution: State Planning Requirements Will Continue to Challenge EPA and the States (GAO/RCED-93-113, June 11, 1993).

Comptroller General of the United States, Opinion (B-248220, Mar. 5, 1993). (Concerns various legal issues raised by the Environmental Protection Agency's (EPA) November 5, 1992 inspection and maintenance (I&M) rulemaking.)

Air Pollution: Difficulties in Implementing a National Air Permit Program (GAO/RCED-93-59, Feb. 23, 1993).

Air Pollution: Unresolved Issues May Hamper Success of EPA's Proposed Emissions Program (GAO/RCED-92-288, Sept. 25, 1992).

Air Pollution: EPA's Strategy and Resources May Be Inadequate to Control Air Toxics (GAO/RCED-91-143, June 26, 1991).

Observations on the Environmental Protection Agency's Budget Request for Fiscal Year 1992 (GAO/T-RCED-91-14 Mar. 7, 1991).

Comptroller General of the United States, Opinion (B-253214, Oct. 21, 1993). (Concerns EPA's use of sanctions, under sections 110(m) and 179 of the act, for I&M programs.)



STATUS OF EPA'S EFFORTS TO ENSURE ADEQUATE PEER REVIEW  
OF SCIENTIFIC RESEARCH AND TECHNICAL PRODUCT

The Administrator established an expert panel in May 1991 to review the role of science at the agency and to evaluate how the agency could ensure that good science is the foundation for its decision-making. The expert panel initially found that the agency's policies and regulations were frequently perceived as lacking strong scientific support for the positions taken. The expert panel reported in March 1992 that EPA's science is of uneven quality and recommended, among other things, that the agency establish a uniform peer review process for all scientific and technical products used to support EPA's guidance and regulations. According to the panel's findings, such a requirement is essential if the agency is to be perceived as a credible, unbiased source of environmental and health information. In response to the panel's recommendations, the Administrator issued a policy statement in January 1993 calling for uniform peer review of all of EPA's scientifically based products that support the agency's decisions.

ASSURANCE OF UNIFORM PEER REVIEW STILL LACKING

EPA's ongoing efforts to implement the policy statement on peer review have been delayed by concerns raised by the various EPA offices that will have to implement the policy. According to EPA officials, the delay centers on difficulties in agreeing on the specific implementation procedures or steps to be employed in performing peer reviews under a uniform policy. Major unresolved issues concern

- which of the many different kinds of scientific and technical documents, including those developed by contractors, should undergo peer review;
- the lack of resources to fund peer reviews;
- the impact of legal constraints, such as court-ordered deadlines, on peer reviews, including whether such constraints would limit the time available for peer reviews, or, in some instances, whether draft products would undergo peer reviews at all;
- how time constraints may adversely affect the agency's decision-making if peer reviews are required of all scientific and technical products; and
- the lack of readily available mechanisms to hold managers accountable for their decisions about peer reviews.

Our work has noted that, in some instances, information from contractors that has not undergone peer review has been used. For example, in examining one research product that was developed by an EPA contractor in 1989, we found that it was used to support standards and guidance relating to new municipal waste combustors even though it had not undergone peer review. According to EPA officials involved in overseeing the contractor, the agency did not require peer review. According to the EPA Science Advisor, while the January 1993 policy is not specific as to which products to review, contractors' products such as this one are subject to the policy.

Another area of concern involves the uneven controls over products being sent to external peer reviewers. The present controls do not always adequately safeguard the materials from premature release. For example, EPA officials said some external peer reviewers are not paid for their reviews and are thus under no contractual obligation to obtain EPA's approval before releasing the product. Also, documents sent to external peer reviewers are not always stamped as draft products and do not always include a disclaimer that as drafts they do not necessarily represent EPA's views.

EPA has established a work group to explore these and other issues further, build consensus where possible, and develop specific implementing procedures for uniform peer reviews. However, the EPA Science Advisor said that no milestones or deadlines have been established for this group, and it is unclear how long it will take for the group to address the concerns that are hampering agencywide implementation of the peer review policy. An earlier effort to establish such procedures faltered. In the interim, he said, until EPA devises internal controls to ensure that drafts are properly marked with a disclaimer, the potential for documents to be prematurely released remains.

INFORMATION ON EPA'S CONTRACTING PRACTICES

EPA increasingly relies on contractors to perform specialized tasks and functions that are critical to the success of its programs' missions and objectives. In the past decade, as EPA's workload has increased, the dollars expended on contracting have increased significantly. In fiscal year 1979, EPA contracts for services totaled \$130.8 million. As of August 20, 1993, the estimated cost of the 706 active EPA contracts totaled \$13.7 billion. These include 108 active contracts issued by EPA's Office of Air and Radiation, with an estimated cost of \$881 million. (See table III.1 below.) Although there is nothing inherently wrong with relying heavily on contractors, contracting does not alleviate EPA's responsibilities for overseeing their activities in order to protect the government's interest.

Table III.I: Number and Value of Active EPA Contracts, as of August 20, 1993

Sponsoring EPA office	Contracts	Maximum value <sup>a</sup>
Regional offices	44	\$95,628,053
Office of the Administrator	1	1,864,031
Administration and Resources Management	96	1,725,366,932
Prevention, Pesticides, and Toxic Substances	43	242,596,225
Research and Development	164	1,155,299,802
Air and Radiation	108	881,205,154
Water	42	445,714,663
Inspector General	11	46,920,624
Policy, Planning and Evaluation	9	77,652,632
Solid Waste and Emergency Response	181	8,975,635,962
Enforcement	7	27,167,323
Total	706	\$13,675,051,401

<sup>a</sup>The figures express the maximum value of all active contracts and the options they include.

EPA HAS IMPROVED ITS CONTRACTING PRACTICES

EPA's Office of Inspector General, GAO, and others have reported weaknesses in EPA's contract management. These reported recurring improprieties in the performance of EPA contracts have included (1) the improper use of contractors to perform personal services and inherently governmental functions, (2) conflicts of interest, and (3) improper and excessive costs. Because of the spotlight placed on contract management by your Subcommittee, and numerous reports by the Inspector General and us, the Office of Management and Budget (OMB) spearheaded an effort by 12 civilian agencies, including EPA and the Defense Contract Audit Agency, to

identify agency contracting problems and make recommendations to resolve them governmentwide and at each participating agency. This represents a serious attempt to build upon the efforts of agencies, such as EPA, which had already begun to address some of the issues noted.

In early 1992, EPA's Acting Assistant Administrator for Administration and Resources Management testified before the Senate Subcommittee on Oversight and Investigations concerning EPA's management of a contract. During this testimony, the Acting Assistant Administrator expressed EPA's commitment to "resolve these fundamental questions about EPA's current procurement strategy, . . . to conduct a thorough review of it, . . . to determine whether it provides an appropriate balance between program performance, administrative efficiency, and management controls." In early March 1992, EPA's Administrator established the Standing Committee on Contracts Management. On June 30, 1992, the Standing Committee issued its first report, Contracts Management at EPA: Managing Our Mission. The Standing Committee report confirmed many of the findings of previous studies by us and EPA's Office of the Inspector General. The 40 recommendations of the Standing Committee called for nothing less than a total overhaul of EPA's contract program.

As of August 31, 1993, EPA had completed actions on 14 of the 40 recommendations and had actions in progress on 22 others. For four recommendations, there were "open actions" awaiting key decisions from the Committee.

#### PROBLEMS WITH CONTRACT MANAGEMENT STILL EXIST AT EPA

Despite this attention, EPA continues to have contract management problems. Recent work by us and others has found that EPA (1) is neglecting the oversight of contractors' charges, (2) may be directing contractors to perform personal services, and (3) has a backlog of audits. In addition, a division within EPA is under investigation for a conflict of interest in dealing with a contractor.

#### Oversight of Contractors' Charges

In December 1992, GAO testified before this Subcommittee and stated that an important cost control procedure, invoice review, had proven to be problematic. Project managers were not consistently reviewing contract invoices, and contracting officials were not enforcing the requirements for these reviews. In the past few years, EPA has increased its guidance and training on invoice reviews, but many project managers say that they still have not received the training and that contract

invoices are not detailed enough to permit meaningful reviews. Without these reviews, invoices can be overpaid. On one of two contracts we recently reviewed, EPA erroneously paid the contractors monthly for indirect costs<sup>1</sup> because project managers had not properly reviewed the contract invoices, and on one voucher, the contract invoice was not detailed enough to permit meaningful reviews.

On another contract that we reviewed, EPA erroneously paid all five indirect cost elements included in the contract until we brought this matter to EPA's attention. Through the first 6 months of the contract, the contractor used erroneous rates, and EPA overpaid the contractor about \$13,500 on the basis of those improper rates. After we brought this matter to EPA's attention, corrections were made and subsequent monthly invoices were paid correctly on this contract. In addition, the contractor was reminded to use the billing rates included in contract's clause on indirect costs. According to the contracting officer's letter to the contractor, the earlier invoices were not prepared in accordance with EPA's instructions in that major costs for, for example, fringe benefits, overhead, general and administrative expenses, and subcontract administration, were not shown.

#### Personal Services by Contractors

Another problem cited in numerous reviews done by EPA's Office of Inspector General and us is that EPA contractors have been engaged in personal services. The Federal Acquisition Regulation prohibits the use of contractors' personnel for "personal services" except in instances specifically authorized by statute. The regulations define personal services as those that make the "contractor personnel appear, in effect, [as] Government employees." The regulation further states that an employer-employee relationship occurs when, as a result of the contract's terms or manner of administration during performance, "contractor personnel are subject to relatively continuous supervision and control of a Government officer or employee."

In early 1993, EPA's Office of Air and Radiation reviewed work assignments that had been issued against one contract. On the basis of this review, two work assignments were canceled

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<sup>1</sup>Indirect costs are for such items as employees' fringe benefits, overhead, and general and administrative expenses. The rates for indirect costs are established and negotiated when contracts are awarded to contractors. These rates are to be used when contractors submit their invoices for work done, and when paying the contractors, EPA is required to verify that the contractors used the negotiated rates.

because the wording of the work assignments appeared to call for personal services. The estimated cost of these two work assignments was \$44,695. When these two work assignments were canceled, EPA had already paid the contractor \$22,760 for work done.

#### Conflict of Interest

During 1993, GAO's Office of Special Investigations (OSI) investigated allegations that less-than-arms-length relationships exist between officials of an EPA division and contractor employees. In April of this year, OSI began a joint investigation with the Procurement Fraud Division of EPA's Office of Inspector General. The focus of this investigation is on possible criminal violations by EPA and contractor employees.

#### Audit Backlog

Audit backlogs increase the vulnerability of EPA's contracting dollars to waste, fraud, and abuse. In December 1990, in testimony before this Subcommittee, we stated that as of October 1990, EPA had almost 2,400 expired contracts, worth nearly \$4.1 billion, that had not been closed out; some of the contracts were completed as many as 19 years earlier. The Federal Acquisition Regulation establishes time frames for closing out contracts (6 months for fixed-price and 36 months for cost-reimbursable contracts), but contracts cannot be closed out before annual indirect cost rates are verified and final audits completed.

Delays of years before completing audits of indirect costs to finalize contracts run counter to good management. Adjustments to indirect cost rates that occur years later can disrupt programs if the adjustments are large or if funds to pay for them are unavailable. Furthermore, until contracts are closed, funds remain obligated. Thus, not closing contracts on time could increase the government's need to borrow and reduce the interest on funds due to the government from any overpayments. The timeliness of many audits is not completely within EPA's direct control, as explained in earlier testimonies. The Defense Contract Audit Agency, which audits most of EPA's contractors, has a large backlog of audits and has not kept up with EPA's requests.

Not much headway has been made in reducing the audit backlog since we last testified on the subject. As of August 20, 1993, EPA had 1,859 expired contracts, costing nearly \$5.7 billion, that had not been closed out. (See table III.2.)

TABLE III.2: Number and Value of Completed EPA Contracts  
Not Closed Out as of August 20, 1993

Last Year of performance	Contractor's Report Is Due		Final Audit Is Due	
	Number	Value	Number	Value
1971	1	\$1,031,035	0	0
1972	1	\$395,018	0	0
1973	0	0	2	\$582,204
1974	0	0	0	0
1975	0	0	3	\$2,694,660
1976	0	0	6	\$2,536,010
1977	1	0	13	\$13,127,342
1978	0	0	19	\$4,685,161
1979	0	0	26	\$10,507,559
1980	3	\$206,333	17	\$19,491,358
1981	2	\$89,010	38	\$47,913,854
1982	4	\$816,152	57	\$42,325,844
1983	7	\$3,742,949	64	\$118,113,030
1984	6	\$3,614,577	87	\$152,937,119
1985	7	\$2,821,738	92	\$120,550,696
1986	14	\$38,380,047	124	\$269,124,123
1987	18	\$15,457,562	135	\$279,525,995
1988	23	\$18,010,136	129	\$200,454,931
1989	32	\$21,900,055	105	\$302,083,427
1990	60	\$488,097,700	159	\$525,605,248
1991	141	\$880,390,363	108	\$344,178,721
1992	180	\$808,511,394	64	\$460,615,506
1993	85	\$442,424,696	26	\$54,052,785
Total	585	\$2,725,888,765	1,274	\$2,971,105,573



ANALYSIS OF EPA'S DECISION TO REDUCE TEST-AND-REPAIR  
NETWORKS' EMISSIONS REDUCTION CREDITS

The 1977 Clean Air Act Amendments required states with nonattainment areas to reduce emissions from motor vehicles by adopting inspection and maintenance (I&M) programs by 1982. In meeting this requirement, some states chose to establish a limited number of large centrally located "test-only" facilities that conducted emissions testing, with any necessary repairs done elsewhere. Other states chose to license many private garage and service station owners to conduct not only the testing but also to do any necessary repairs. This arrangement is commonly referred to as a decentralized, or test-and-repair, network.

Through roadside surveys EPA collected information during the late 1970s that indicated a significant problem with owners tampering with their vehicles. Owners were removing catalysts in hopes of improving their vehicles' performance or ruining their catalysts by using leaded gasoline in cars designed to run on unleaded gasoline. However, as (1) automobile emission control equipment became more difficult to defeat without affecting driveability, (2) leaded gasoline became less available and comparably priced to unleaded gasoline, and (3) I&M programs were established in more areas, the instances of tampering became less prevalent.

In recent years, EPA devoted more attention to the relative effectiveness of decentralized I&M programs as compared to centralized ones in identifying vehicles that do not comply with emissions standards. By the time the Clean Air Act Amendments of 1990 were enacted, EPA believed that it had collected enough data to determine that test-and-repair networks were less effective at identifying noncomplying vehicles than test-only networks were. EPA's decision, reflected in a potential 50-percent discount in emissions reduction credits for test-and-repair programs, is documented in the agency's November 1992 regulation.<sup>2</sup>

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<sup>2</sup>EPA's November 1992 final rule assumes a 50 percent reduction in emissions credits (as compared to the credits for implementing a centralized program) for tailpipe, purge, and selected other emissions control tests, and a 75 percent reduction in credits for evaporative canister, PCV, and air system checks. This decision has generally been referred to as the 50 percent reduction decision, primarily because this is the amount that tailpipe emissions credits will be reduced.

BASIS FOR 50-PERCENT CUT IN THE  
EMISSIONS REDUCTION CREDITS

EPA officials informed us that the following two studies first established that decentralized programs were less effective than centralized programs in identifying vehicles that had been tampered with.

- A 1982 EPA study of pollution control tampering, involving 2,885 vehicles in 10 cities, found that the lowest rate of tampering occurred in the only city that had both an antitampering and a centralized I&M program.
- A 1985 California study of its decentralized program found, from sending 595 vehicles with defective emission controls to test-and-repair sites, that many problems were missed. For example, only 25 percent of vehicles with tampered PCV valves were identified.

Just prior to today's hearing, EPA advised us that it had also used an earlier 1980 study of Portland, Oregon's test-only I&M program to conclude that centralized programs were the most effective network for identifying vehicles that exceed the tailpipe emissions standards. According to one EPA official, the data from the 1980 Portland study was the original basis for the 100-percent tailpipe emissions credits given for test-only I&M programs. Although we have not had an opportunity to review this study in detail, our limited review indicated that the Portland centralized program only identified 55 percent of the vehicles that exceeded the tailpipe emissions standards.

In any event, it is our understanding that EPA used this tailpipe study and the above mentioned tampering studies, as well as data from state audits and its own judgment based on past experience, to conclude that decentralized programs were 50 percent as effective as centralized programs in detecting noncomplying vehicles. EPA believes results from more recent studies conducted since 1990 help confirm its position concerning decentralized test-and-repair programs:

- A 1990 study by New York's Department of Motor Vehicles reviewed the state's decentralized I&M program and found that in 46 percent of the cases, test sites did not identify vehicles set to fail the emissions test.
- A 1993 audit Missouri did of its decentralized I&M program showed that its test sites failed to identify noncomplying vehicles 34 percent of the time.

-- A 1993 study California did of its decentralized I&M program found that test sites failed to identify noncomplying vehicles 26 percent of the time.

In arriving at the overall effectiveness rate for these test-and-repair programs, EPA adjusted the initial rates mentioned above to reflect how well these states would do in retesting noncomplying vehicles. EPA assumed that the retest failure rate would be at least as great as the initial failure rate. For example, in the case of Missouri, the state initially identified 66 percent of the noncomplying vehicles and failed to identify 34 percent. To account for retesting, EPA adjusted the 66 percent downward by 34 percent to arrive at an overall effectiveness rate of 44 percent for Missouri. EPA acknowledges that it has no hard data to support its assumption that retest failure rates are comparable to initial failure rates.

In all cases, the states were not able to identify all of the noncomplying vehicles that EPA assumed would be identified under a centralized program. As discussed, EPA believes that decentralized programs are less effective because of an inherent conflict of interest. For example, inspectors may tend to pass a noncomplying vehicle if the motorist is a regular customer or if prior emission control repairs were done at the site. State officials from New York and California have stated that, within their programs, cheating by inspectors occurs as a result of this conflict of interest. However, this information did not quantify the extent of such cheating.

According to EPA, covert audits are required to identify improper tailpipe emissions testing that occurs at I&M programs. EPA began conducting covert audits of I&M programs in 1989 and, to date, EPA and states have covert audit data available for 17 decentralized and 8 centralized programs. While EPA was not able to provide us with complete information on these audits prior to this hearing, the information provided indicates that few vehicles were tested as part of these covert audits. For example, for three centralized programs for which the agency provided information, the audits involved one vehicle in 9 covert audits in Arizona, five vehicles in 5 covert audits in Maryland, and an unknown number of vehicles in 13 covert audits in New Jersey.

These data also indicate that test-only programs do not always identify noncomplying vehicles. For example, EPA and states have found that improper visual testing (e.g., failure to check for a catalyst) and improper emissions testing (e.g., substituting data from a clean vehicle to pass another vehicle) have occurred in centralized programs. In Arizona, Maryland, and New Jersey, inspectors at test-only sites failed to identify

noncomplying vehicles 11 percent, 40 percent, and 69 percent of the time, respectively.<sup>3</sup> According to EPA, even when problems occur with test-only programs, these problems can be more easily rectified, as indicated by a recent audit of Maryland's test-only program, which showed that these visual checks are now being performed properly. Due to time constraints, we were unable to assess the results of this recent Maryland audit.

#### IMPACT THAT EPA'S DECISION HAS ON STATES

A 50 percent discount in emissions reduction credits has significant implications for states with decentralized I&M programs that must decide whether to enhance their existing program or switch to a test-only I&M program. Failure on the part of these states to switch their programs could require, among other things, costly additional controls on stationary sources of air pollution to offset any lost emissions reduction credits envisioned from mobile sources.

To help understand the impact of EPA's decision on states, we (1) used the agency's mobile model to assess the effect on emissions reductions from I&M programs with different levels of effectiveness, and (2) contacted state officials to determine the effect of the discount on their decision to adopt a centralized emissions testing network.

#### Impact on Emissions Reduction Credits, As Indicated by EPA's Mobile Model

To determine the impact of different discount rates on projected reductions in hydrocarbon emissions, we asked EPA to run a mobile model analysis of a state program with characteristics similar to California's decentralized I&M program. We could not use actual data from states because the states have yet to submit specific program information on such things as the vehicle types and model years to be covered under their program. At our request, EPA ran analyses using different effectiveness rates, such as 50-percent and 75-percent effectiveness, for identifying vehicles that exceed the emissions standards.

From this analysis, we found that the differences in the quantity of emissions reduced could be significant. In our test case, the amount of emissions reduced was 86.33 tons of hydrocarbons per day at 75 percent effectiveness, as compared to 65.71 tons of hydrocarbons per day at 50 percent effectiveness--

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<sup>3</sup>These percentages are based on small samples.

or a difference of 20.62 tons of hydrocarbons per day, or more than 7,500 tons annually. One state official said that, if his state could not achieve the needed emissions reductions from its mobile sources, it would need to obtain further emissions reductions from its stationary sources, at an estimated cost of \$10,000 or more per ton. If the test case state in our example had achieved a 75 percent effectiveness rate with its I&M program it would have been about 14 percent closer to its hydrocarbon emissions reduction goal.

#### Impact on States' Decisions to Adopt Centralized Networks

Of 13 states that currently have test-and-repair networks, nine have adopted legislation for test-only networks. Officials from six of these nine states told us that EPA's 50-percent discount for decentralized programs was the primary or, in some instances, the only factor in their decision to adopt a centralized program. Officials from the remaining three states said that the 50-percent discount was a contributing factor in their decision to move to a centralized program. While states choosing to implement decentralized I&M programs may petition EPA for less severe reductions in their emission reduction credits, such claims must meet certain demonstration requirements, which some states said they have neither the resources nor the time to do. From their perspective, EPA is strongly encouraging them to adopt centralized I&M programs. For example, two states were so concerned about the potential impact of switching to a test-only network that they provided for contingencies in their authorizing legislation for the I&M program. One state reserved the right to sue EPA if subsequent data show that its test-only program is not meeting EPA's emission-reduction projections. Another state provided for the option of returning to a test-and-repair network if EPA changes the performance standard requirements to allow test-and-repair programs.

Of the four remaining states that currently have test-and-repair networks, all four are considering adopting legislation for test-only networks. However, officials from these states--including California--could not be as definitive regarding the impact of the 50-percent discount in their deliberations because they have not yet made a final decision.

#### QUESTIONS REGARDING THE SUPPORTING DATA AND RELATED LEGAL ISSUES

In reviewing the data and studies upon which EPA based its decision to cut emissions reduction credits by 50 percent, we generally found that, while this information provides qualitative support for EPA's position that test-and-repair programs have in

the past been less effective, it does not provide quantifiable support for a 50-percent reduction. It is important to note that while we found limitations in the methodology used in the studies cited by EPA as support for the 50-percent reduction, the standard used by the courts to determine the legality of agency rules is the "arbitrary and capricious" standard. This standard involves, among other things, assessing the adequacy of the data used to justify an agency decision. However, this standard also recognizes that the available data often do not settle a regulatory issue and that the agency must then exercise its judgment in moving from the facts and probabilities on the record to a policy conclusion.

With respect to the methodology used by EPA, we found the following limitations in the 1982 survey data (see page 39) that EPA used to establish tampering rates:

- The selection approach was subject to bias because vehicles were selected differently and there was a wide range of participation rates from city to city. Some motorists were volunteers picked in roadside surveys, others were selected at a state Department of Motor Vehicles' parking lot, while still others were chosen at the I&M testing facilities. The percentage of motorists who were willing to participate also varied widely, ranging from less than 1 percent in one location to 44 percent in another location. Because of the approach, EPA was unable to make unbiased estimates of the effectiveness rates of the I&M programs in these cities or to project these results nationwide.
- According to EPA, the 1982 tampering survey data, including the effectiveness rate for successfully identifying PCV tampering, may be biased because of, among other things, the sampling approach used. For instance, because the sample was selected from a group of motorists who knew their vehicles would be inspected for tampering, it is possible that a few owners repaired their vehicles just before presenting them for inspection. This, in turn, would have caused the survey to underestimate the actual rate of tampering in the one city that had both an antitampering program and a centralized I&M program. The study cautions that the tampering rates found in this city should only be used as a guide for comparison purposes.

Additionally, each of the three most recent studies mentioned above (see page 40) used methodologies that limited the projectability of the results:

- While the New York study showed an effectiveness rate of 54 percent, the sample consisted of only 13 vehicles. Assuming

that this was a valid statistical sample, the expected effectiveness rate would have a very high variability, ranging between 27 percent and 80 percent, calculated at a 95-percent confidence level.

- While the Missouri study showed an effectiveness rate of 66 percent, the sample consisted of only 38 vehicles. Again assuming this was a valid statistical sample, the expected effectiveness rate would have a very high variability, ranging between 51 percent and 79 percent, calculated at a 95-percent confidence level.
- In the California study, it is not clear how much of the information reflects improper visual checks of emissions components on vehicles rigged to fail rather than the detection of vehicles exceeding tailpipe emissions standards.

#### Challenges to EPA's Support for the 50-Percent Reduction

As discussed above, there are problems with the data EPA has used to justify setting the credit reductions at 50 percent. Whether or not these problems are viewed as sufficient to overturn the rule depends on the application of the arbitrary and capricious standard. The arbitrary and capricious standard allows an agency "some leeway reasonably to resolve uncertainty." Center for Auto Safety v. Federal Highway Admin., 956 F.2d 309, 316 (D.C. Cir. 1992) (Thomas, J., Ginsburg, J., and Edwards, J.). Even in circumstances where an agency finds itself without the sort of "national data base . . . that might have enabled it to calibrate a finely measured response to the problem," an agency rule will be upheld if the agency has "'examine[d] the relevant data'"—what little there [is]—and 'articulate[d] a satisfactory explanation for its action.'" Id. at 315, 316 (quoting Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co., 463 U.S. 29, 43 (1983)). See also B-248220 (Mar. 5, 1993).

At least one lawsuit has already been brought against the EPA challenging the reduction in credits for decentralized programs as arbitrary and capricious. National Automobile Dealers Association v. Environmental Protection Agency, No. 93-1004 (D.C. Cir. filed Jan. 4, 1993). In a preliminary ruling, the court refused to stay the rule, but the suit has yet to be heard on the merits.

Challenges to EPA's Authority  
to Impose Any Reductions

Even if the EPA can withstand a claim that the 50 percent reduction is arbitrary and capricious, the 50 percent reduction may be challenged on the grounds that there is no legal basis in the statute for the 50 percent reduction in the first place. The issue is whether the I&M rule's reduction in credits for enhanced decentralized systems is within the scope of the Administrator's authority under the Clean Air Act (the act).<sup>4</sup>

The act does not explicitly provide for authority on the part of the Administrator to impose the 50 percent reduction on enhanced decentralized programs. Section 182(c)(3)(B)(i) of the act requires the EPA Administrator to include in its guidance for state enhanced inspection and maintenance programs a performance standard. Section 182(c)(3)(B)(ii) provides that, "Compliance with the performance standard under clause (i) shall be determined using a method to be established by the Administrator."

To implement these provisions, the EPA has established in its I&M rule a performance standard or minimum emissions reduction requirement for state enhanced programs. Inspection/Maintenance Program Requirements, 57 Fed. Reg. 52950, 52955, 52988 (Nov. 5, 1992). The rule also establishes a model program, which includes centralized testing, that EPA believes will achieve the performance standard. *Id.* at 52956, 52988. The rule allows the states to vary any of the design elements (except those required by the act) of the model program provided the overall effectiveness of the state's program is at least as great as the performance standard. *Id.* at 52953.

The rule uses a computer program designed by EPA as the method by which compliance with the performance standard shall be measured. See *Id.* at 52954, 52989. The computer program assigns "credits" to various design elements of I&M programs based on EPA determinations as to the effectiveness of these elements in reducing emissions and predicts emission levels under varying conditions and with varying I&M program elements.

As noted above, the I&M rule reduces the emissions reductions credits that states with decentralized systems receive for various emissions tests. The rule assumes that credits for certain tests performed by a test-and-repair network are 50

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<sup>4</sup>We have not reviewed the Administrator's authority to impose a 50 percent reduction on basic decentralized programs.



percent less than those for a test-only network, and 75 percent less for certain other tests. 57 Fed. Reg. at 52990.

However, the rule also allows for case-by-case equivalency determinations by the EPA. 57 Fed. Reg. at 52974, 52990. Under this provision, states may claim that the tests in their programs should receive smaller reductions in credits if they can demonstrate that the tests will exceed the EPA-determined levels of effectiveness. Id.

In addition, the rule provides for ongoing evaluations of enhanced I&M programs to quantify the emissions reduction benefits of the programs and provides that areas operating test-and-repair networks may, in the future, claim greater effectiveness than the rule prescribes for such networks if a demonstration of greater effectiveness is made to the satisfaction of the Administrator. Id.

Further, the rule states that EPA will update its computer model periodically to reflect the appropriate emission reduction effectiveness of the various program elements described in its model program based on actual performance. Id.

We believe that the Administrator's statutory authority under section 182(c)(3)(B)(i) to establish a performance standard and her duty under section 182(c)(3)(B)(ii) to ensure compliance with it through a method also established by the Administrator provides the EPA discretion to assign the credits it determines to be appropriate, as long as the EPA determinations concerning the credit reductions are not arbitrary and capricious, and as long as the rule provides states their statutory opportunity under section 182(c)(3)(C) to demonstrate that their enhanced decentralized programs are equally effective.

Section 182(c)(3)(C) sets forth various required design elements for state enhanced inspection and maintenance programs, including:

"Operation of the [state enhanced] program on a centralized basis, unless the State demonstrates to the satisfaction of the Administrator that a decentralized program will be equally effective. An electronically connected testing system, a licensing system, or other measures (or any combination thereof) may be considered, in accordance with criteria established by the Administrator, as equally effective for such purposes."

An argument could be made that the Administrator has a duty under section 182(c)(3)(C) to establish criteria by which enhanced decentralized systems will be considered equally

effective as a centralized system, and her failure to do so has denied states the opportunity to demonstrate that their decentralized programs are equally effective. The House Committee on Energy and Commerce Report on this provision states:

"The Administrator must establish criteria under which decentralized systems may be considered equally effective. In accordance with such criteria, decentralized programs with an electronically connected testing system, a licensing system for decentralized inspection stations, or other measures may be considered acceptable if they are determined to be equally effective. The intent of the Committee is that enhanced programs as required under this subsection are to either be centralized, or to include other program elements which taken together allow a decentralized system to be as effective as a centralized system in identifying noncomplying motor vehicles, and causing such vehicles to be repaired."

H.R. Rep. No. 490, Part 1, 101st Cong., 2d Sess. 240. However, in responding to comments on its I&M rule, EPA states:

"[N]either EPA nor the states or other commenters know of any 'other program elements taken together' that will achieve equal effectiveness . . . [T]he docket is conspicuously lacking in ways to make decentralized, test-and-repair equally effective that haven't already been tried and failed."

Although the EPA has been unable to establish the criteria contemplated by section 182(c)(3)(C), we believe that its rule satisfies the act's requirement that states be provided an opportunity to demonstrate that their enhanced decentralized programs are as effective as centralized ones. The rule's case-by-case equivalency provision allows states to claim smaller reductions in credits if they can demonstrate that the tests in their decentralized system will exceed the EPA-determined levels of effectiveness. Moreover, the states are then provided an opportunity under the rule to show that their decentralized systems meet the performance standard. Finally, as discussed above, the EPA rule establishes ongoing evaluations of both its model centralized program and of state decentralized programs in order to allow adjustments to EPA's determinations concerning the effectiveness of these programs based on actual performance.

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