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Report to the Chairman, Subcommittee on Clean Air, Wetlands, Private Property, and Nuclear Safety, Committee on Environment and Public Works, U.S. Senate

May 2000

AIR POLLUTION

Emission Sources Regulated by Multiple Clean Air Act Provisions

GAO

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United States General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

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May 31, 2000

The Honorable James M. Inhofe
Chairman, Subcommittee on Clean Air, Wetlands,
Private Property, and Nuclear Safety
Committee on Environment and Public Works
United States Senate

Dear Mr. Chairman:

Each year industrial operations emit nearly 100 million tons of pollutants into the nation's air. These pollutants can make breathing difficult, form urban smog, impair visibility and can, in some situations, cause cancer or other serious health effects. To address these problems, the Clean Air Act Amendments of 1990[1] authorized a number of regulatory programs targeted at specific pollutants and/or specific sources of pollution. Large industrial facilities such as petroleum refineries, chemical production plants, and electric power plants release multiple pollutants with a variety of health and environmental effects, and some facilities have hundreds of emission points. Consequently, the facilities may be subject to multiple pollutant-specific and/or source-specific programs. Each regulation under these statutory programs may have its own emission control requirements as well as monitoring, recordkeeping, and reporting requirements.

Against this backdrop and with reauthorization of the Clean Air Act pending, you asked us to provide (1) examples of emission sources subject to regulation under more than one program authorized by the act and (2) information on the status of the Environmental Protection Agency's (EPA) efforts to facilitate compliance for such sources.

Results in Brief

The large industrial complexes operated by the petrochemical and refinery, chemical manufacturing, and electric power industries are prime examples of sources that are regulated under multiple programs of the act. For example, emissions of nitrogen oxide from electric power plants are

[1] 42 U.S.C. 7401-7626. Unless otherwise stated in this report, "the act" refers to the Clean Air Act Amendments of 1990.

controlled under six programs, including those for controlling acid rain, ground-level ozone, and fine particles and for improving visibility. In addition, petrochemical refineries are regulated under five different titles of the act. Similarly, individual chemical plants could be regulated by as many as seven different statutorily authorized programs. Specifically, emissions are controlled under programs for reducing ozone (e. g., through control of volatile organic compounds) and under one or more programs for limiting emissions of toxic air pollutants (those known or suspected of causing cancer or other serious health effects). Additional state and local regulatory requirements can also apply to the same industrial emission sources.

EPA has embarked on a number of initiatives to reduce the regulatory workload and facilitate compliance for such facilities. These include two industry-specific efforts and several other generic approaches, such as establishing total plant-wide emission limits, that are intended to introduce more flexibility in the overall regulatory rulemaking and permitting processes. Two of EPA's industry-specific efforts are the Consolidated Air Rule and a dialogue with utilities about an integrated strategy for reducing emissions of multiple pollutants. The proposed Consolidated Air Rule is intended to incorporate all federal air regulations that affect the synthetic organic chemical manufacturing industry into a single set of regulations. This proposed rule, currently pending approval by the Office of Management and Budget, would reduce the regulatory burden and make compliance easier by having one set of emission controls and monitoring, recordkeeping, and reporting requirements. The utility dialogue began in 1995 when EPA initiated the Clean Air Power Initiative to discuss with utilities an integrated strategy for reducing air pollution. According to EPA and industry officials, efforts on this initiative were suspended in 1996 because of disagreement within the industry as well as with EPA over the appropriate level for proposed sulfur dioxide and nitrogen oxide reductions. However, additional dialogue about an integrated approach for utilities took place in 1998 and 1999.

Background

The Clean Air Act is a lengthy and complex statute that addresses emissions of air pollutants from both mobile sources (such as automobiles and trucks) and stationary sources (such as commercial and industrial facilities, factories, and powerplants). The 11 titles of the Clean Air Act address different aspects of the nation's challenging and complicated air pollution problems. The 1990 amendments established new programs and made major changes in how industrial sources of air pollution are

controlled.[2] Among the specific problems addressed by individual titles of the act are ground level ozone, particulate matter, acid rain, toxic air pollution, stratospheric ozone depletion, and visibility impairment. The titles of the 1990 amendments most applicable to large industrial facilities are:

- Title I authorizes EPA to set national ambient air quality standards to protect human health and requires states and EPA to implement programs to meet the standards.
- Title II contains provisions for controlling air pollution from mobile sources, including requirements for reformulated and oxygenated fuels that impact the operation of petroleum refineries.
- Title III establishes a new regulatory program to reduce the emissions of hazardous air pollutants (toxic air pollutants). The statute requires EPA to promulgate emission standards, called maximum achievable control technology standards, which affected sources must meet.
- Title IV creates the acid deposition program to reduce the adverse effects of acid rain by reducing emissions of sulfur dioxide and nitrogen oxides.
- Title V establishes a national operating permit program, intended to consolidate all air pollution control requirements into a single, comprehensive permit that covers all aspects of a source's air pollution activities.

EPA has promulgated a series of regulations to implement these requirements. Because the act is structured to address different aspects of the nation's air pollution problems, some sources are regulated by more than one statutorily required program.

To comply with air quality regulations, affected industrial sources of pollution have made changes to their processes, deployed new pollution control technology, and upgraded old equipment. These measures have been successful in reducing emissions and improving the nation's air quality. For example, from 1970 to 1998, carbon monoxide emissions dropped 31 percent, sulfur dioxide emissions 37 percent, and lead emissions 98 percent. Emissions of toxic air pollution are expected to decrease by more than 1.5 million tons a year. Although changes in the

[2] We recently reported on the implementation of requirements added by the amendments. See *Air Pollution: Status of Implementation and Issues of the Clean Air Act Amendments of 1990* (GAO/RCED-00-72, Apr. 17, 2000).

economy and other factors can affect emission trends, according to EPA air pollution levels would be much higher without the act.

Examples of Sources Subject to Multiple 1990 Amendments Regulatory Programs

Industrial emission sources such as petroleum refineries, chemical manufacturing facilities, and electric power plants are regulated under multiple provisions of the act and numerous federal air regulations. Each regulation has its own emission control requirements as well as monitoring, recordkeeping, and reporting requirements. Although the regulations were developed for different purposes and under different titles of the act, they may impose the same or similar requirements on industrial emission sources.

Regulations Affecting the Petrochemical and Refinery Industry

Petrochemical and refinery facilities are regulated under five titles of the 1990 amendments and a multitude of EPA regulations designed to implement the legislative provisions. In addition to the large number of existing air regulations, the industry is faced with planning and implementing measures to comply with a host of new and expected requirements beginning in the year 2000.

Tier II Gasoline Sulfur – In December 1999, EPA announced a final regulation to provide new Tier II motor vehicle emission and gasoline sulfur standards. The Tier II national gasoline sulfur standard is set at 30 parts per million, beginning in 2004 with full compliance by 2007. Some smaller refiners will be given an additional 1 to 3 years to comply.

Regional Haze – In July 1999, EPA published a final regulation requiring states to establish goals for improving visibility in 156 national parks and wilderness areas. States must develop strategies and plans for reducing emissions of particle matter and other air pollutants that contribute to poor visibility in these areas.

Off-Road and On-Road Diesel Fuel – In May 1999, EPA announced plans to propose a rulemaking to establish new national standards to further reduce the sulfur content of diesel fuel used by these vehicles. EPA has revised its schedule and now plans to issue the proposal in 2001.

Gasoline Air Toxics – As required by the Clean Air Act, EPA will consider regulatory action to control mobile source toxic emissions, including at a minimum emissions of benzene and formaldehyde. Under terms of a court-

ordered settlement, EPA will complete this rulemaking by December 29, 2000.

Refinery Maximum Achievable Control Technology II – In September 1998, EPA proposed National Emission Standards for Hazardous Air Pollutants from Petroleum Refinery Vents. The regulation is expected to be finalized by September 2000.

Section 126 Petitions –The act gives a state the authority to petition EPA to set emission limits for specific sources of pollution in other states that contribute to its ozone nonattainment problems. In January 2000, EPA took final action on the petitions filed by the states of Connecticut, Massachusetts, New York, and Pennsylvania. This action will require 392 facilities, including refineries and petrochemical plants, to reduce nitrogen oxide emissions.

Urban Air Toxics Strategy – In July 1999, EPA released its Integrated Urban Air Toxics Strategy for reducing air emissions and health risks from toxic air pollution in urban areas. EPA identified 33 toxic air pollutants as posing the highest risks and targeted 13 new smaller industrial and commercial sources, including gasoline distribution and oil and natural gas production facilities, for new national standards.

Residual Risk –The act requires EPA to assess the residual risk posed to public health and environment after implementing technology-based Maximum Achievable Control Technology standards for major industrial sources, including refineries and petrochemical plants, that emit toxic air pollutants. After this assessment, EPA may promulgate additional regulations and require additional emission reductions for these sources.

In addition to the potential difficulty of complying with multiple regulations, efforts to comply with one program by controlling emissions of a pollutant from a single facility can have the unintended effect of increasing emissions of other pollutants from elsewhere in the same facility. For example, EPA regulations issued under the authority of title II of the act require the petroleum industry to reduce sulfur levels in gasoline to help produce cleaner fuels for motor vehicles. Producing these cleaner fuels, however, requires changes in the refining process that may potentially increase emissions of volatile organic compounds, including such hazardous air pollutants as benzene and formaldehyde.

EPA officials told us that while they expect most refineries to work to avoid net emissions increases through pollution prevention or other means, increases could occur at some of them. However, agency officials said that the overall effect on toxic emissions will be beneficial—even in virtually all the counties where the refineries are located—in light of the larger reductions in toxic emissions from vehicles using low sulfur gasoline. According to EPA officials, this case illustrates how separate sets of act requirements can serve different, but equally important purposes. The low-sulfur gasoline requirements (title II) will help to improve air quality nationwide. On the other hand, stationary source controls on an individual facility's emissions reduce local air quality problems.

Regulations Affecting the Chemical Manufacturing Industry

The chemical manufacturing industry is regulated under multiple provisions of the act and EPA regulations. Individual emission sources may be subject to four or five different regulatory programs. At any given facility, all or part of the following may apply: (1) meeting requirements for new source construction permitting, (2) reducing emissions of hazardous air pollutants, (3) meeting new source performance standards, and (4) complying with visibility protection requirements.

According to industry officials, the act's regulatory process is an especially complex system that has overlaid a multitude of new requirements on top of existing ones, and it is not always clear which emission reduction requirements are applicable to a specific source. For example, some pollutants known as volatile organic compounds (VOCs), emissions of which are subject to regulation under title I , are also considered to be hazardous air pollutants, which are regulated under title III.[3] The same facility thus may be subject to meeting regulatory requirements associated with each title. According to industry officials, in some cases EPA has recognized the title III requirement (under which the source must meet emission levels associated with maximum achievable control technology standards) as the most stringent, and so the VOC emission control requirements are considered to be satisfied through compliance with the technology standards. According to an industry official, however, EPA has, in some situations, required that facilities report or demonstrate compliance with both emission-reduction requirements. EPA officials said that while facilities are subject to both requirements, they have allowed

[3] Volatile organic compounds are precursors to the formation of ozone, a criteria pollutant.

some facilities to consolidate their monitoring, recordkeeping, and reporting requirements.

Regulations Affecting the Electric Power Industry

The electric power industry is also subject to multiple provisions of the act and its associated regulations. Electric power generating facilities may be subject to more than a dozen federal air regulations and initiatives that have different objectives, timeframes, and compliance requirements. For example, emissions of nitrogen oxides from power plants are subject to regulation under several title I programs, including: the national ambient air quality standards program, both as a criteria pollutant and as a precursor to ground-level ozone, another criteria pollutant;[4] the new source review program for minimizing air pollution from large new stationary sources; and the visibility improvement program. Nitrogen oxide emissions are also controlled under the title IV acid deposition program, which is targeted at specific electric utility plants. Programs for controlling emissions from electric generating facilities (including emissions of nitrogen oxides, sulfur dioxide, and particulates) all of which can affect specific power plants are listed below.

Permitting Requirements:

- Title V Operating Permits – Consolidate all of the air pollution control requirements into a single, comprehensive operating permit that covers all aspects of a source's year-to-year air pollution activities.
- Prevention of Significant Deterioration and New Source Review Permits – Case by case reviews for major new or modified sources. These permits are required to ensure that large new emissions do not cause significant health or environmental threats and that new pollution sources are well controlled.

Acid Deposition Requirements:

- Continuous Emissions Monitors – Measures pollutants released by power plants sources under the acid rain program through 24-hour monitoring.

[4] The six criteria pollutants are ozone, carbon monoxide, particulate matter, sulfur dioxide, nitrogen dioxide, and lead. They are called criteria pollutants because the agency set permissible levels for them on the basis of "criteria" or information on the effects on public health or welfare that may be expected from the presence of such pollutants.

- Phase I and II Sulfur Dioxide and Nitrogen Oxide Control – Reduce the annual emission of sulfur dioxide by 10 million tons from the 1980 levels by the year 2010 and reduce nitrogen oxides by 2 million tons.

New Source Performance Standards – Sets minimum control requirements for new sources nationwide.

Ozone National Ambient Air Quality Standards Implementation:

- Nitrogen Oxide Reasonable Available Control Technology – Equipment, process, or actions that are reasonably available for controlling or reducing nitrogen oxide emissions.
- Northeast Ozone Transport Commission – Memorandum of understanding developed by the Commission and rules adopted by 11 northeastern states and the District of Columbia to achieve regionwide reductions in nitrogen oxide emissions in 1999 and further reductions in 2003.
- Nitrogen Oxide State Implementation Plan Call – A requirement set by EPA for a state to submit a revised plan for controlling nitrogen oxide emissions.
- Section 126 Petitions – A section of the act that gives states the authority to petition EPA to set emission limits on pollutants in other states that contribute to the petitioning state's ozone nonattainment problems.
- Ozone Attainment Plans – States must submit control plans to attain the ozone national ambient air quality standards.

Sulfur Dioxide National Ambient Air Quality Standards Implementation – Establishes policies and procedures for states and industry control of sulfur dioxide emissions.

Particulate Matter National Ambient Air Quality Standards Implementation:

- New Fine Particle Standards — States must meet the standards by regulating emissions of fine air borne particles that are smaller than 2.5 microns and gaseous precursors to those particles.

Visibility Protection:

Regional Haze/Best Available Retrofit Technology Limits — States must develop long-term strategies to achieve reasonable progress towards

natural background visibility protection for local visibility problems (1980 EPA rules) and regional haze (1999 EPA rules). States must require Best Available Retrofit Technology for certain sources' (including utility boilers built between 1962 and 1977) contribution to visibility impairment, taking into account the availability of control technologies, compliance costs, energy impact of compliance, existing control equipment being used, and the improvement in visibility anticipated.

According to industry officials, some of the above programs affect the same emission sources and can make it difficult for the industry to accurately determine the applicability of each of the requirements and to develop effective emission control strategies.

EPA Efforts to Address Sources Affected by Multiple 1990 Amendments Requirements

Recognizing that individual facilities are regulated under multiple programs, EPA has undertaken initiatives to reduce the regulatory workload and facilitate compliance for such facilities. These include two industry-specific efforts—the Consolidated Air Rule and the Clean Air Power Initiative and several crosscutting initiatives to introduce more flexibility and stakeholder involvement in rulemaking and permitting processes.

Consolidated Air Rule

EPA selected the synthetic organic chemicals manufacturing industry for its pilot study of the feasibility of consolidating and streamlining all federal air quality requirements for an industry into a single set of regulations. The resulting rule, which incorporates all of the applicable requirements for 16 different federal air regulations that apply to the synthetic organic chemicals manufacturing industry, is referred to as the Consolidated Air Rule .[5] Participation in the consolidated rule by synthetic organic chemistry manufacturing industry facilities will be voluntary; facilities may choose to continue being regulated under the 16 regulations or the consolidated rule. EPA's objectives are to (1) reduce the regulatory burden, (2) facilitate implementation and compliance, and (3) ensure continued environmental protection and enforceability of the regulations. Proposed by EPA in October 1998, the Consolidated Air Rule is currently being reviewed by the Office of Management and Budget.

[5] The synthetic organic chemical manufacturing industry is involved in refinery processes and agricultural, pharmaceutical, and specialty chemical production.

The synthetic organic chemical manufacturing industry was selected for the pilot because of the large number of federal air regulations that apply to the industry's facilities and the similarity in many of the requirements in the existing regulations. The industry is subject to air quality standards that are mandated by the act for both criteria and toxic air pollutants. According to chemical industry representatives, some requirements for controlling or reducing emissions, monitoring, keeping records, and reporting under the 16 existing regulations are duplicative, overlapping, unclear, or inconsistent.

EPA officials said that consolidating requirements into one set of regulations would benefit the industry and governmental enforcement agencies by improving compliance and enforceability and also reducing resource needs. EPA contends that the consolidated regulations are intended to (1) provide clear guidance on the specific requirements that have been consolidated into the new regulation; (2) provide consistent requirements for similar and identical facilities; (3) reorganize requirements to be more consistent with facilities' operating processes; (4) lessen the costs of monitoring, recordkeeping, and reporting; and (5) eliminate differences among the regulatory requirements. EPA intends that facilities that elect to use the Consolidated Air Rule will incur no net costs (greater than current compliance costs) and expects that the reduced compliance burden may actually result in less cost for some facilities. Furthermore, the consolidated rule is expected to facilitate the implementation of and compliance with the act by making the requirements easier to understand and also incorporating compliance approaches that are easier to meet.

The Consolidated Air Rule is intended to maintain the current levels of health and environmental protection benefits currently afforded by the 16 existing regulations and also ensure the same or greater degree of emission control as the existing regulations do. However, the level of human health and environmental protection may be greater, in some instances, because the rule will require some facilities (that choose the consolidated rule to meet more stringent emission reductions or requirements. For example:

- The consolidated rule will require upgraded fittings for certain storage tanks.
- Some of the older, separate regulations have standards that permit leakage concentrations up to 10,000 parts per million per valve, but under the consolidated rule, all participating facilities will have to meet

more stringent standards that permit leakage concentrations of only 500 parts per million per valve.

Because of the potential for reducing monitoring, reporting, and other regulatory requirements, some facilities are expected to elect to comply with the consolidated rule despite the more stringent requirements. However, according to EPA officials, some of the synthetic organic chemical manufacturing facilities may decline to participate because the consolidated rule will require them to achieve larger emission reductions than they currently have to achieve. EPA officials acknowledge that progress towards implementing the program has been slower than expected because of difficulties in identifying a workable approach and the unanticipated amount of work necessary to consolidate 16 regulations.

Clean Air Power Initiative

EPA's and the electric power industry's concerns about the costs to control multiple pollutants under several provisions of the 1990 amendments prompted EPA to initiate the Clean Air Power Initiative. In consultation with the electric power industry, EPA developed an integrated regulatory strategy for sulfur dioxide and nitrogen oxides emitted from power plants. The purpose of this collaborative effort was to seek new approaches to pollution control that would improve public health and the environment, cost less, rely on market mechanisms, and reduce the number and complexity of current and expected requirements. EPA began the Clean Air Power Initiative in 1995 by meeting with interested stakeholders to discuss more cost-effective alternatives to pollution control and developing a model that could analyze the costs and emissions implications of different reduction scenarios for sulfur dioxide and nitrogen oxides.

The lack of complete support among the electric power industry ended the initial program effort in late 1996 without agreement, according to EPA officials. Although EPA believed that the best time to discuss integrated multipollutant reduction strategies was prior to issuing new requirements, some stakeholders believed that it would be premature or inappropriate to discuss strategies for achieving reductions not yet in proposed or final regulatory requirements, according to an EPA official. According to officials at Edison Electric Institute,[6] the initiative ended because (1) there was substantial disagreement over the science underlying EPA's proposed new controls for sulfur dioxide and nitrogen oxides and (2) EPA could not provide the industry any regulatory certainty without the act being amended, which neither industry nor EPA wanted to pursue.

In late 1998 and throughout 1999, EPA staff participated in the Edison Electric Institute Air Quality Integration Dialogue at which EPA and industry staff explored an integrated approach for controlling pollution from the electric power industry. The dialogue had broad industry participation as well as EPA staff participation. The White House Climate Change Task Force also attended these meetings. The dialogue was intended to promote a free exchange of ideas and analysis at a staff level concerning new or potentially upcoming regulatory actions to address air emissions of sulfur dioxide, nitrogen oxides, carbon dioxide, and mercury. At one dialogue meeting, EPA presented the results of a study that it had recently completed on hypothetical options for controlling the four pollutants. EPA's analysis showed that having advanced knowledge of potential requirements for all four pollutants could allow industry to pursue different and less costly compliance strategies than they would if the pollutants were addressed one by one.

EPA continues to believe that over the next several years it will be necessary for the power industry to achieve large reductions of sulfur dioxide and nitrogen oxides. According to agency officials, there continues to be considerable interest by EPA and the industry in developing an integrated approach to address cost-effective strategies for implementing multiple air regulations. EPA has had a number of follow up discussions and expects to continue interactions with industry representatives on this topic.

[6] Edison Electric Institute is the association of U. S. shareholder-owned electric companies, international affiliates, and industry associates worldwide.

Other Initiatives to Address Multiple Regulation Issues

In addition to the Consolidated Air Rule and Clean Air Power Initiative, EPA has developed other regulatory approaches to provide industry more flexibility to achieve the necessary reductions in air pollution, while still providing accountability for the results. For example, in implementing air quality standards, EPA guidance for state programs allows facilities to average the emissions from multiple emission points and to use trading programs in order to provide more flexibility in how and where an industrial facility chooses to reduce its air emissions. Also, based on the results of the acid rain emission trading program and the Northeast Ozone Transport Commission's nitrogen oxide emissions allowance trading program, EPA has recently developed a model trading program to assist states in achieving regional nitrogen oxide emissions reductions.[7] In some cases, EPA has worked with states to set plant-wide limits that control total emissions that are allowed to be released from an individual plant, but allows the plant flexibility in choosing how and where to reduce emissions.

Since 1990, EPA has increased stakeholders' involvement, including affected industries, in developing regulatory requirements and establishing implementation strategies. According to EPA, this involvement has resulted in better-coordinated programs and requirements. EPA cited its development of integrated strategies for implementing the ozone and particulate matter national air quality standards and the regional haze program as examples of increased stakeholder involvement. EPA has also worked with individual industries to eliminate duplicating or overlapping regulatory requirements. For example, EPA has worked with industry organizations—such as the those for the aerospace and shipbuilding industries—to set equivalent emission limits for VOCs and toxic air pollutants and with the pharmaceutical industry to ensure that storage tank provisions in the toxic air pollutant standard are equivalent to similar provisions in the new source performance standard.

[7] For a discussion of the acid rain program, see *Acid Rain: Emissions Trends and Effects in the Eastern United States* (GAO/RCED-00-47, Mar. 9, 2000)

Furthermore, EPA and various stakeholders began, in 1993, to identify opportunities for developing "cleaner, cheaper, smarter" environmental protection strategies that would consider the unique circumstances of different industries. EPA, along with states, environmental and public interest groups, worked with six industries—petroleum refining, printing, iron and steel, computer and electronics, metal finishing, and auto manufacturing—to find better ways to manage environmental responsibilities. With the completion of the Common Sense Initiative — one of EPA's efforts to "reinvent" environmental regulation—EPA is applying the lessons learned in new sector work.[8]

According to EPA, the title V operating permit program was designed to make it easier for industry sources to understand and comply with emission control requirements of the 1990 amendments. The program allows facilities to consolidate all of the air pollution control requirements of the act into a single document called an operating permit. EPA has helped facilitate the issuance of permits in California and Oklahoma that cover the regulatory requirements of the act, such as air toxic emission standards, new source performance standards, and state implementation plans. According to EPA, these streamlined permits result in reduced compliance costs associated with monitoring, record keeping, and reporting for industries.

Agency Comments

We provided EPA with a draft of this report for review and comment. EPA commented that the report (1) correctly points out that industries such as utilities and petroleum refiners must comply with emission reduction requirements under more than one Clean Air Act program and (2) notes the agency's efforts to explore ways to consolidate or coordinate multiple requirements with a variety of industry sectors.

However, EPA said that our report's focus on two industry-specific initiatives does not give a full picture of other ways in which EPA is working closely with industries that are affected by multiple regulatory requirements. According to EPA, the agency has helped industries

[8] We have reported on EPA's efforts to provide more flexibility and "reinvent" environmental regulation; for example, *Environmental Protection: Challenges Facing EPA's Efforts to Reinvent Environmental Regulation* (GAO/RCED-97-155, July 2, 1997) and *Environmental Protection: EPA's and States' Efforts to Focus State Enforcement Programs on Results* (GAO/RCED-98-113, May 27, 1998).

impacted by the multiple regulatory requirements by (1) providing increased flexibility in meeting regulatory requirements, (2) involving stakeholders in developing integrated strategies and new rules, and (3) conducting other industry-specific initiatives. For example, EPA cited its efforts to develop integrated strategies for implementing the ozone and particulate matter national air quality standards and the regional haze program as examples of increased stakeholder involvement. We emphasized industry-specific efforts because specific industries were the focus of our objectives. However, we agree that other EPA efforts can help address compliance issues faced by industries with facilities that emit pollutants regulated by multiple Clean Air Act provisions. Accordingly, we have incorporated additional details in the report on EPA's efforts to increase flexibility and stakeholder involvement.

The agency suggested a number of editorial and technical changes and provided additional information clarifying why industries are subject to multiple regulatory programs and detailing EPA's efforts to help reduce the regulatory burden for these industries. We incorporated these changes and additional information in the report where appropriate. Appendix I contains EPA's written comments.

Scope and Methodology

To obtain information on examples of emission sources subject to regulation under more than one program authorized by the Clean Air Act Amendments of 1990, we interviewed and received information from representatives of selected industrial associations, including the Chemical Manufacturers Association, the Council of Industrial Boiler Owners, the American Forest & Paper Association, the National Petrochemical and Refiners Association, and the Edison Electric Institute. EPA agreed that these associations represented a good cross section of large industrial groups that are regulated under multiple provisions of the act. We asked representatives from the industry groups to provide examples of industrial facilities being regulated under multiple provisions of the act, and the difficulties or challenges associated with them. In some cases, the industry representatives provided examples.

To obtain information on the status of EPA's efforts to reduce the regulatory workload and facilitate compliance for such sources, we held discussions with EPA officials responsible for preparing and implementing many of the regulations affecting large industrial emission sources and for developing initiatives to increase flexibility and industry involvement in the regulatory process. We also asked EPA officials to comment on some of the issues

raised by the industry representatives. We also interviewed industry officials to get their perspective on EPA's efforts to address the problems caused by multiple regulations through pilot projects or initiatives such as the Consolidated Air Regulation and the Clean Air Power Initiative. We focused on these two efforts because they are the agency's only industry-specific efforts to address issues associated with multiple regulations.

We performed our work from September 1999 through May 2000 in accordance with generally accepted government auditing standards.

As arranged with your office, unless you announce its contents earlier, we plan no further distribution of this report until 30 days from the date of this report. At that time, we will send copies of this report to the Honorable Carol M. Browner, Administrator, Environmental Protection Agency, and other interested parties. We will make copies available to others on request.

If you have any questions about this report, please contact me at (202) 512-6111 or William F. McGee at (919) 899-3781. Key contributors to this report were Harry C. Everett; Joseph L. Turlington, James B. Hayward; and DeAndrea Michelle Leach.

Sincerely yours,

David G. Wood

David G. Wood
Associate Director,
Environmental Protection Issues

Comments From the Environmental Protection Agency

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

MAY 16 2000

OFFICE OF
AIR AND RADIATION

Mr. Peter F. Guerrero
Director, Environmental Protection Issues
United States General Accounting Office
Washington, DC 20548

Dear Mr. Guerrero:

Thank you for the opportunity to comment on the draft General Accounting Office (GAO) report entitled, "Air Pollution: Emission Sources Regulated by Multiple Clean Air Act Requirements."

In developing the Clean Air Act (CAA), Congress created several programs targeted at a variety of air pollution problems, recognizing that effective strategies would need to be tailored to each problem. The multiple provisions of the law reflect real-world complexities such as different types of pollutants (e.g., criteria versus toxic pollutants; local versus regional threats), differences in economic and technical feasibility of pollution controls for new and existing sources, the potential for pollution increases when existing plants are modified, and the multiple health and environmental effects from the same pollutant. For example, Congress found that the Act's program for protecting public health against local health threats from sulfur dioxide was not an adequate response to the regional acid rain problem caused by the same pollutant.

GAO correctly points out that industries such as utilities and petroleum refiners must comply with emission reduction requirements under more than one CAA program. This is because these facilities release a variety of pollutants, often in large amounts, that can contribute to a variety of different health and environmental problems. Even individual units within a facility often emit a variety of pollutants. In addition, the complexity of large industrial facilities such as petroleum refineries and chemical plants -- which can have multiple types of processes with literally hundreds, or even thousands, of emission points -- can lead to different requirements for different types of processes or emission points at the same site.

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In carrying out the Act, the Environmental Protection Agency (EPA) has helped industries subject to multiple requirements in a number of ways -- by providing increased flexibility in regulatory requirements, by involving stakeholders in developing integrated strategies and new rules, and by conducting several industry-specific initiatives. Also, the operating permits program, which brings a facility's CAA requirements together in one place, is designed to make it easier for facilities to understand and comply with multiple requirements.

The draft GAO report focuses on two of EPA's industry-specific initiatives. But, it does not give a full picture of the ways in which EPA, working closely with affected industries, reduces potential inefficiencies in cases where multiple CAA requirements may apply. An overview is presented below.

Increased Flexibility for Industry

EPA has used a variety of regulatory approaches that provide industry with flexibility on ways to achieve air pollution reductions, while still providing accountability for the results. Among these are numerical emission limits, multiple compliance options, and averaging and trading programs. By not mandating use of a particular control technology, flexible rules allow a facility to devise compliance strategies that satisfy the purposes and emissions reduction requirements of different air programs, including multiple requirements where they may exist.

A prime example of this flexibility is the expanded use of emissions averaging and trading programs. EPA's acid rain program, which is a market-based, cap-and-trade allowance system, has been highly effective and far less costly than originally predicted. Building on this experience and efforts by the Northeast Ozone Transport Commission to reduce nitrogen oxides (NOx) through a trading program, EPA recently issued a model trading program for states to achieve regional NOx reductions over much of the Eastern United States. EPA has issued broader guidance for states on how facilities can use averaging and trading to achieve criteria pollutant reductions needed to meet air quality standards. In some cases, EPA has worked with states to set plant-wide limits that work as a cap on total amounts of emissions from an individual plant site, but allow the plant flexibility in meeting that overall limit. In numerous air toxics emissions standards, the Agency has provided compliance flexibility through averaging and other means.

Stakeholder Involvement to Promote Program Integration

Since 1990, EPA has increased its efforts to involve stakeholders, including affected industries, throughout the process of developing regulatory requirements and establishing implementation strategies. This involvement results in better coordinated programs and requirements.

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An example was EPA's efforts to develop an integrated strategy for implementing the 1997 national air quality standards for ozone and particulate matter along with the regional haze program. EPA spent over two years working with over 175 representatives from states, tribes, industry, environmental groups, and other Federal agencies seeking advice on innovative, flexible, and cost-effective implementation strategies to integrate ozone, particulate matter and regional haze issues. Based on these interactions and expert advice, EPA has developed strategies that incorporate market-based systems, positive incentive systems, and a mixture of national, regional, and local emission reduction measures.

EPA also has worked with affected industries to coordinate requirements of new rules with other CAA programs. As GAO notes, EPA has coordinated development of several toxics rules with requirements for control of smog-forming volatile organic compounds (VOCs), reducing complexity and avoiding potential duplication. In the case of aerospace and shipbuilding and coating operations, EPA set equivalent limits for VOCs and toxic air pollutants. In the case of pharmaceutical production, EPA's air toxics rule gives the industry flexibility to comply either with new source performance standards for storage tanks, or storage tank requirements in the toxics rule. EPA also worked with the wood furniture manufacturing industry to avoid conflict or duplication between toxics and VOC requirements.

In evaluating the need for future regulatory requirements, the Agency considers current requirements placed on a particular industry by state, local or other federal measures. For example, EPA's regional NOx program builds off current and projected NOx reductions from EPA's acid rain program.

Operating Permit Program

The operating permit program is designed to make it easier for sources to understand and comply with control requirements under the CAA. For each major facility, the Title V permit will consolidate all of its CAA air pollution control requirements into a single document.

In addition, the permitting process can serve as a forum for consolidating multiple applicable requirements into a single set of streamlined permit conditions for a facility, which can reduce compliance costs associated with monitoring, record keeping and reporting. EPA has issued guidance to states (known as "White Paper #2") that outlines ways to do this. EPA has helped facilitate the issuance of permits in California and Oklahoma where national air toxics emissions standards, new source performance standards, and state implementation plan rules were consolidated into one set of permit conditions using this approach. Other states also are using Title V permits in similar ways, and EPA expects that the use of this approach will become more widespread as more permits are issued with successful permit streamlining examples.

3

Industry Sector Initiatives

As GAO notes, EPA also has pursued and is continuing to pursue initiatives that involve exploring ways to consolidate or coordinate multiple requirements with a variety of industry sectors.

Detailed comments on the draft report, including clarifications and corrections, are included in an enclosure to this letter. Thank you again for the opportunity to comment.

Sincerely,

Robert Perciasepe
Assistant Administrator

Enclosure

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