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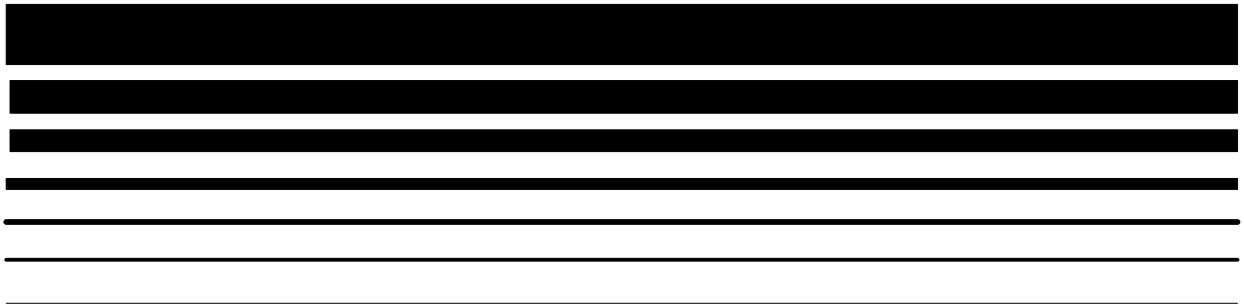
EPA

Second Report to Congress on the Status of the Hazardous Air Pollutant Program under the Clean Air Act

Reference: Clean Air Act of 1990
Section 112(s)



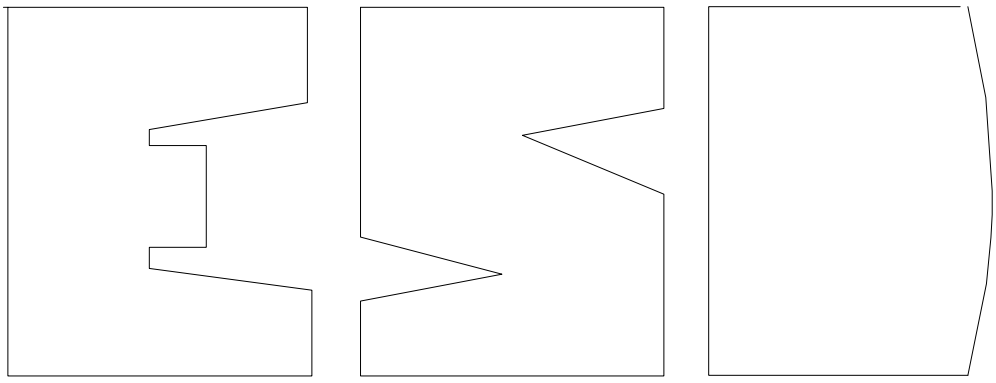


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Table of Contents

Abbreviations for Section 112(d) Standards

Aerospace	Aerospace Industries
Asbestos	Asbestos Processing
Coke Ovens	Coke Ovens: Charging, Top Side, & Door Leaks
Comm Steril	Commercial Sterilization Facilities
Cr Elec	Chromium Electroplating
Degreasers	Halogenated Solvent Cleaners
HON	Hazardous Organic NESHAP (Synthetic Organic Chemical Manufacturing)
Ind Cooling Twrs	Industrial Process Cooling Towers
Mag Tape	Magnetic Tapes (Surface Coating)
Marine Tk Vess	Marine Vessel Loading Operations
Off-Site	Off-Site Waste and Recovery Operations
P&R I	Polymers & Resins Group I
P&R II	Polymers & Resins Group II
P&R IV	Polymers & Resins Group IV
Perc Dry Cl	Perchlorethylene Dry Cleaning
Petro Refineries	Petroleum Refineries - Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Plant Units
Pr & Pub	Printing/Publishing (Surface Coating)
Sec Lead	Secondary Lead Smelting
Stg I Gaso Mkt	Gasoline Distribution (Stage I)
Wood Furn	Wood Furniture (Surface Coating)
Shipbldg	Shipbuilding & Ship Repair (Surface Coating)

I. Executive Summary

In 1990 as Congress reviewed the history of the air toxics program, addressed in the Clean Air Act under section 112, it found that for two decades, efforts to lower these toxic emissions had been stymied by argument, conflict and litigation concerning risk-based analysis and decisions leading to few successful efforts to control exposures to these hazardous pollutants. Between 1970 and 1990 EPA set standards for only seven hazardous air pollutants.

In 1990, Congress replaced this risk-based approach with an approach predicated on the best demonstrated technologies of all sources in a category. It was not because risk considerations were not important that these changes were made (they are still integral elements of the 1990 amendments), but because a reliance on only risk had made rule promulgation nearly impossible. Congress included a risk-based component which calls for assessment of risk remaining after application of performance-based standards and remediation through a risk-based residual risk program.

The 1990 Amendments listed 189 (now 188) air toxics which are believed to cause adverse health or environmental effects, such as cancer, nervous system damage, miscarriages and birth defects. The amendments established a clear method for developing performance-based standards for the sources of those air toxics, and set a detailed ten-year schedule for action. In the debate about "how safe is safe" Congress found a middle ground by providing the Agency with a pragmatic recipe for applying demonstrated controls today and deferring discussion of "safe enough" until basic controls are in place.

These standards are known as Maximum Achievable Control Technology, or MACT standards, and Generally Available Control Technology, or GACT standards. In essence, EPA is required to establish control requirements to assure that all major sources of air toxics achieve the level of control *already being achieved* by the best performing sources in each category. Further, by establishing performance levels, rather than mandating particular control methods, Congress ensured that results would prevail over red tape. Congress provided a 10-year schedule in which to promulgate these MACT standards, with certain standards being promulgated in the first 2 years, 25 per centum in the first 4 years, an additional 25 per centum promulgated not later than the 7th year and the remaining 50 per centum not later than the 10th year.

EPA has been productive in fulfilling the 2 and 4 year MACT statutory requirement in the Clean Air Act. In the five-plus years since 1990, approximately the temporal mid-point of the its initial program, the MACT and GACT standard-setting effort, EPA has essentially built the necessary infrastructure for implementing the air toxics regulations. Further EPA has promulgated standards for all of the 47 source categories in the 2 and 4 year groups, approximately 25 per centum of the 174 source categories listed under this program. The EPA estimates that these major and area source regulations will reduce air toxics emissions by approximately 980,000 tons/Yr. and will achieve co-control of criteria pollutants amounting to approximately 1,810,000

tons/Yr. that perhaps would not have been obtained through other more-conventional regulatory programs.

This initial five-year effort is the starting point for EPA's air toxics management program. This program will continue to achieve emission reductions through the MACT/GACT program through proposal and promulgation of the 7- and 10-year standards, many of which are currently in progress. Further, this program will provide for program evaluation and remediation through the risk-based residual risk program. In addition, this air toxics management program will identify and implement needed future actions through the several investigatory studies being conducted, such as the urban area source studies and strategy development.

The regulatory infrastructure that EPA has built involves a number of programs, including:

- major and area source category listing and scheduling as required by sections 112(c)(1) and (c)(3),

- general provisions, which contain the basic criteria and procedures to implement all National Emission Standards for Hazardous Air Pollutants (NESHAPs) promulgated under the Clean Air Act (CAA),

- an early reductions program under section 112(I)(5), which is a voluntary program that encourages industry to reduce Hazardous Air Pollutant (HAP) emissions prior to promulgation of a standard,

- requirements for control technology determinations for major sources in accordance with section 112(g) and 112(j), and

- approval of state programs and delegation of federal authorities under section 112(l).

The major and area source category listing and scheduling has been completed. As additional information is developed, source categories will be deleted or added. The early reductions program is an ongoing program that EPA has made available to facilities. There are outstanding issues relative to the other programs. These issues are being addressed with the stakeholders involved.

By promulgating MACT and GACT standards in the 2 and 4 year source category groups the EPA has completed the first two major MACT deadlines. MACT or GACT standards have been promulgated for the 47 source categories in these two groups. The estimated total annualized cost for complying with these standards is $672 million.

The first substantive compliance date for the MACT standards already promulgated under the CAA of 1990 has passed for about 10 source categories. The number of source categories reaching this date is increasing, implying additional resource requirements for standard

implementation and enforcement activities.

For area sources in urban areas, the CAA milestone of November 15, 1995, for developing a comprehensive strategy to control emissions of hazardous air pollutants was not met. The EPA is actively engaged in the urban area strategy development and expects to propose the strategy in mid-1998.

To address the requirements of section 112(r), Prevention of Accidental Releases, EPA published a final risk management program rule on June 20,1996 (61FR31668). Along with the final rule, EPA published guidance for development and implementation of a risk management program and model risk management programs and plans that could be used by small and medium businesses to comply with the requirements. EPA is also publishing implementation guidance for States. EPA has, in addition, established an Accident Prevention Subcommittee under its Clean Air Act Advisory Committee to focus on 112(r) issues such as electronic submission of Risk Management Plans and establishment of a national electronic repository of these plans. EPA has established a joint chemical accident investigation program with OSHA, focusing on the root causes of major accidents and reporting to the public and all stakeholders their findings and recommendations. EPA has published two investigation reports with several more near completion, and has published five alerts based on information learned during ongoing investigations. EPA and OSHA have published a status report on the program.

The 1990 Clean Air Act Amendments singled out solid waste combustion for special attention. Congress recognized a high level of public concern about the incineration of municipal, medical, and other solid wastes. Consequently, Section 129 of the Act directs EPA to establish (under Section 111) new source performance standards (NSPS) for new solid waste combustion units and to establish (under Section 111(d)) emission guidelines for existing units. The NSPS and emission guidelines must specify numerical emission limitations for the following pollutants: particulate matter, opacity, sulfur dioxide, hydrogen chloride, nitrogen oxides, carbon monoxide, lead, cadmium, mercury, and dioxins/furans. The four categories of solid waste combustion units specified under section 129 are those combusting municipal solid waste, medical solid waste, industrial and commercial solid waste, and all other solid wastes.

On December 19, 1995, EPA promulgated standards and guidelines for municipal waste combustors (MWC). The standards and guidelines were amended in 1997 to apply to MWC units larger than 250 tons per day combustion capacity. On February 27, 1995, EPA proposed standards and guidelines for medical waste incinerators (MWI). The standards and guidelines for MWI were re-proposed on June 20, 1996. EPA promulgated the final MWI standards on September 15, 1997. On December 28, 1994, EPA published an advance notice of proposed rule making (ANPRM) concerning industrial and commercial waste incinerators and other solid waste incinerators.

In summary, these first five-plus years' efforts by EPA represent an initial commitment to an air toxics management program which is beginning to achieve emission reductions and which has set

the stage for program evaluation and residual risk assessment. The strategy for the air toxics program includes a scientific investigative program to identify and devise creative approaches to resolve current and future air toxics environmental problems, which will help to better define the goals of the air toxics program from both a near-term and longer-term standpoint.

II. Introduction

This status report is in response to the requirements of section 112(s) of the CAA of 1990, in which Congress has requested the Administrator to "prepare and transmit to the Congress a comprehensive report on the measures taken by the Agency and by the States to implement the provisions of this section." "The report shall include, but not be limited to -

> (1) a status report on standard-setting under subsections(d) and (f);
>
> (2) information with respect to compliance with such standards including the costs of compliance experienced by sources in various categories and subcategories;
>
> (3) development and implementation of the national urban air toxics program; and
>
> (4) recommendations of the Chemical Safety and Hazard Investigation Board with respect to the prevention and mitigation of accidental releases."

This report is the second section 112(s) Report to Congress. It is formatted differently from the first section 112(s) Report to Congress, EPA/453/R-93-024, dated August 1993. The first report documented individual standards, studies, and a number of programs called for under section 112. The current report addresses, in Section III, the four topics specifically requested by the 1990 CAA, including the infrastructure needed to carry out these programs. Additionally, the report discusses in Section IV, achievements made in the regulation of Solid Waste Combustion under Section 129.

III. Status Report on Section 112 Activities

This part of the report is a discussion of status of Section 112 activities. It is divided into four subparts each of which addresses one of the specific requests of Section 112(s).

A. Standard Setting under Subsections (d) & (f)

Introduction

This section of the status report on standard setting under subsections (d) and (f) includes the status of several actions to create an infrastructure on which the maximum achievable control technology (MACT) and generally available control technology (GACT) standard setting can be built. These infrastructure actions include notices that have been published in the Federal Register and some proposed or promulgated rules that are essential to the proper interpretation, application, and implementation of subsections (d) and (f).

This section also includes a summary of the MACT/GACT standards that have been promulgated from 1990 through July 1996, the specific HAPs regulated, and the projected impact of these standards on emissions of HAPs and criteria pollutants, principally particulate matter and volatile organic compounds (VOCs), the emissions of which will be reduced through co-control as a direct result of the MACT standards.

As of July 1996 EPA has promulgated standards for all of the standards scheduled for the first 4 years, 47 source categories in all. Emission reductions from these 47 source categories should reduce HAP emissions by approximately 983,000 tons per year and criteria pollutants or their precursors, some of which are HAP emissions, by approximately 1.8 million tons per year. In addition EPA is making significant progress toward proposing and promulgating standards in the 7 and 10 year categories.

Infrastructure for Standard-Setting

In the months after the passage of the CAA of 1990, EPA undertook an extensive effort to build an infrastructure within which the MACT/GACT standards could be developed and implemented. This infrastructure took the form of notices and rules that include an initial listing of major and area source categories, a schedule for promulgation of emission standards, general provisions rules that specify regulations that are common to the air toxics emission regulations, and rules that deal with topics such as early reductions, modifications, state programs, and equivalent emission limit by permit.

As of the current time there continue to be issues concerning some of these rules, principally state programs (Section 112(l)). These issues are being actively addressed with the stakeholders. The status of the most significant notices and rules is summarized below. Additional details about each notice or rule are provided in the Appendix of this report.

Source Category Listing under Section 112(c)(1) - The Section 112(c)(1) list of source categories was published in the Federal Register on July 16, 1992 (57FR31576). The "list", along with the Section 112(e) schedule for standards, establishes a blueprint for the Agency to regulate stationary sources of air toxics through the year 2000. The list, in and of itself, is not a regulation and has no requirements to achieve emission limitations.

Section 112 defines “major source” as any facility having the potential to emit at least 10 tons per year of one HAP or 25 tons per year of two or more HAPs. An “area source” is any facility which does not qualify as a major source.

Section 112(c)(1)requires the Administrator to list all categories and subcategories of major and area sources which emit one or more of the HAPs listed in Section 112(b). Section 112(c)(3) also requires the Administrator to list each category or subcategory of area sources which “the Administrator finds presents a threat of adverse effects to human health or the environment ... warranting regulation” under this section. This finding consists of a quantitative and/or qualitative assessment of the emissions, sources, environmental and health risks, and cost of control associated with the category. The initial list contained 174 categories, of which 166 were major and 8 were area. Major source categories are subject to MACT emission standards, whereas listed area source categories are subject to either GACT or MACT standards.

Section 112(c)(1) requires the Agency to periodically amend the list in response to public comment or new information, and no less often than every eight years. Section 112(c)(5) provides that new source categories and subcategories may be added at any time according to the same criteria for listing applicable under sections 112(c)(1) or 112(c)(3). Section 112 also permits removal of any of these categories from the list if a showing is made that no source in the category poses a significant cancer risk nor exceeds levels adequate to protect public health or the environment, or upon a determination that there are no longer major sources in a listed major source category. Several changes have been made to the list since the July 1992 publication such that the current list contains 175 categories. The most recent list has been published in a Federal Register notice (61FR28197, dated June 4, 1996, & 61FR37542, dated July 18, 1996). Table A-1 in Appendix contains a list of the current 175 source categories.

Schedule for Standards for Sources Listed Pursuant to Section 112(c)(1) - The Section 112(e) schedule for standards promulgation was published on December 3, 1993 (58FR63941). The "schedule" establishes a timetable for issuing emission standards for the initially listed source categories. The schedule is organized such that the categories are grouped

into four separate time frames having promulgation deadlines of 2, 4, 7 and 10 years following enactment of the Clean Air Act Amendments of 1990. In determining priorities for establishing these deadlines, the EPA has considered three criteria: (1) adverse effects of HAPs on public health and the environment, (2) quantity and location of emissions of HAPs, and (3) efficiency of grouping categories according to pollutants emitted, or the processes or technologies used. The third criterion allowed the Agency to optimize regulatory efficiency by considering similarities among source categories, including emission characteristics and control technologies. Other considerations for scheduling than the three criteria cited above included the time and resources required for development of emissions standards and the amount of available information about a source category at the time the 1990 Amendments were passed(58FR63941).

Since the December 1993 publication, the schedule has remained relatively unchanged apart from the associated effects of making changes to the source category list. In the case of adding a new source category to the list (subsequent to the initial listing), Section 112 requires that it be scheduled for regulation by November 15, 2000, or 2 years after the listing action, whichever is later.

General Provisions - The final general provisions were published in the Federal Register on March 16, 1994 (59FR12408). The general provisions contain the basic criteria and procedures to implement all NESHAPs promulgated under the Act as amended November 15, 1990. The provisions include administrative procedures and general requirements, for owners and operators of sources, related to compliance activities. Among other requirements, the general provisions establish basic time frames for compliance, record keeping and reporting, and general technical requirements for monitoring and testing.

Owners or operators who are subject to a subpart promulgated for a specific source category under sections 112(d), 112(f), or 112(h) of the Act are also subject to the requirements of the General Provisions.

Currently this part of the regulatory infrastructure is under litigation. On May 16, 1994, six litigants filed petitions for review of the General Provisions. Arguments for the litigation were heard on April 20, 1995. The U.S. Court of Appeals for the D.C. District issued a decision on July 21, 1995, that upheld EPA's position on two issues challenged by the petitioners: (1) EPA's requirement that all hazardous air pollutants be aggregated within a plant site, instead of only those emissions from equipment in similar industrial source categories; and (2) EPA's requirement that "fugitive emissions" be included in a source's aggregate emissions to determine whether the source is major. However, the court granted a petition for review with respect to the challenge raised on EPA's requirement that emissions control and limitation on a source's potential to emit must be federally enforceable. EPA is currently working towards a resolution on this issue. In addition, the agency and the litigants have agreed to work out differences on numerous other issues. Upon a resolution of these outstanding issues the general provisions will be revised to reflect the outcome. A proposed rule-making for the general provisions that deals with these

changes is anticipated in late-1997.

Early Reductions - Section 112(I)(5) provides for a compliance extension from the provisions of Section 112(d) requirements under specified conditions. On December 29,1992 (57FR61970), EPA promulgated 40 CFR 63, Subpart D to implement this part of the Clean Air Act. This regulation implements Section 112(I)(5) by establishing a voluntary program under Section 112 which allows sources to establish alternative emission limitations in their Title V permit if reductions are achieved prior to proposal of an otherwise applicable section 112(d) standard.

The early reductions program is an ongoing program that EPA has made available to facilities. Full implementation of this program has shifted to EPA's Regional offices. About twenty-seven permit applications have been received, representing HAP reductions of over 6,800 tons per year. About six permits have been issued to date; however, there is still opportunity for permits to be issued before standards are proposed.

Requirements for Control Technology Determinations for Major Sources in Accordance with Section 112(g) and 112(j) - On May 20, 1994, EPA promulgated regulations (59FR26429) that implement Section 112(j) provisions, "Equivalent Emission Limitations by Permit", also known as the "hammer provisions" or "Case-by-Case MACT". Under these provisions, if EPA fails to promulgate a MACT standard for a source category, then each major source in that source category must apply for a case-by-case MACT determination 18 months after the deadline listed in the source category schedule. This is, in effect, a backstop measure to ensure that major sources comply with an equivalent MACT standard.

On May 10, 1996, EPA promulgated an amendment (61FR21370) to this rule that delays the section 112(j) permit application deadline for all 4-year source categories listed in the regulatory schedule by 180 days until November 15, 1996. This action was needed to alleviate unnecessary paperwork for both major source owners or operators and permitting agencies.

The section 112(j) final rule is under litigation and proposed changes are likely to appear in the Federal Register by the end of 1997.

On April 1, 1994, EPA proposed guidance (59FR15504) for MACT determinations for modified sources under Section 112(g). EPA delayed issuing the final 112(g)regulations to work out a number of complex issues, including defining construction and reconstruction of major sources, and developing the best way to integrate the program with existing state programs.

EPA's final rule was promulgated on December 27, 1996 (61FR68384). Simpler and narrower in scope than the April 1994 proposal, the final 112(g) rule requires MACT controls only for new facilities that are major sources of toxic air pollutants, and for new or reconstructed major-

emitting production units at existing facilities. This transitional program, in which states determine MACT requirements on a case-by-case basis, applies only to sources for which national MACT standards have not yet been issued by EPA.

Approval of State Programs and Delegation of Federal Authorities under Section 112(l) - The requirements of Section 112(l), State Programs, have been implemented through a formal rule making (58FR62262, dated November 26, 1993). The rule includes a broad range of input from State and local agencies and from industry and environmental groups through the Clean Air Act Advisory Committee. Guidance was established under 40 CFR Part 63 Subpart E that allows State and local agencies to, on a voluntary basis, receive approval for delegation of authority to implement and enforce air toxics standards established by EPA under Section 112 or State rules and programs that differ from, but are equivalent to, Federal air toxics standards under Section 112.

The benefits are that the rule will allow States to maintain existing rules/programs while ensuring attainment of the health and environmental goals of the Federal rules. It can eliminate dual regulation wherever State rules or programs are at least as stringent as Federal rules. This will reduce regulatory agency and industry costs and time involved in permitting and enforcement. It also provides State and local agencies the opportunity to preserve and build upon existing State programs.

This rule has been revised (61FR36295, dated July 10, 1996) in response to a request from State and local agencies to revisit specific portions of the subpart E rule. The amendments have been made to clarify regulatory text, reduce administrative burden and provide more flexibility to States using this rulemaking. Additional rule revisions are anticipated.

Emission Standard Setting under Section 112(d)

The 1990 CAA greatly expanded the number of industries that will be affected by national air toxic emission controls; the emission reductions from these controls are just beginning to be realized for some industries. Large industrial complexes (major sources) such as chemical plants, oil refineries, marine tank vessel loading, aerospace manufacturers, steel mills, and a number of surface coating operations are some of the industries being controlled for toxic air pollution. Where warranted, smaller sources (area sources) of toxic air pollution such as dry cleaning operations, solvent cleaning, commercial sterilizers, secondary lead smelters, and chromium electroplating are also affected. Within the next 10 years, the air toxic program is estimated to reduce emissions of toxic air pollutants by well over 1.5 million tons per year.

Regulation of air toxic emissions through the Section 112(d) process, called MACT regulations, is beginning to achieve significant emission reductions of hazardous air pollutants. In addition, there will be significant co-control of criteria pollutants. As Figure III-1 shows, as of July, 1996,

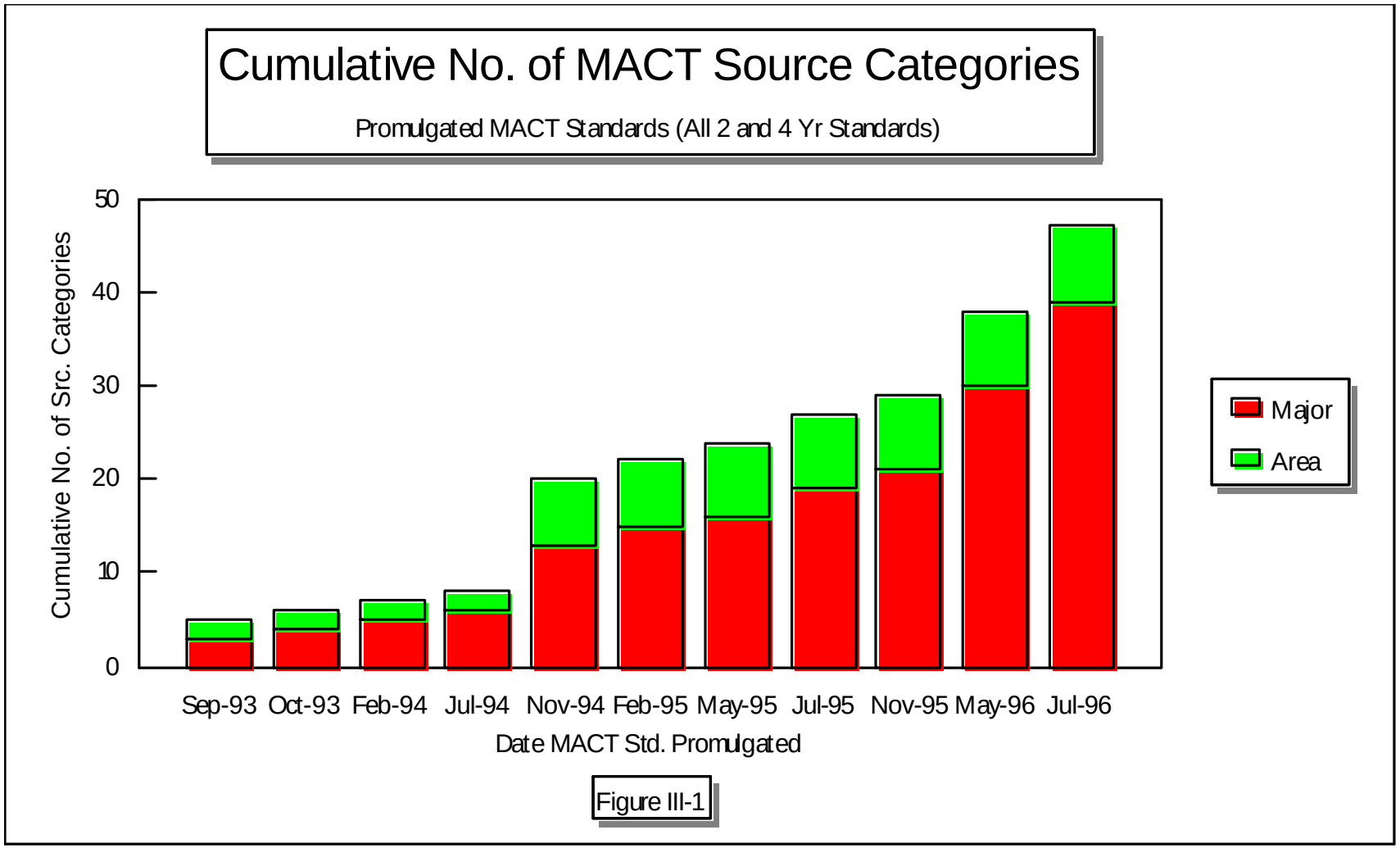
Cumulative No. of MACT Source Categories
Promulgated MACT Standards (All 2 and 4 Yr Standards)
Cumulative No. of Src. Categories
0
10
20
30
40
50
Sep-93
Oct-93
Feb-94
Jul-94
Nov-94
Feb-95
May-95
Jul-95
Nov-95
May-96
Jul-96
Date MACT Std. Promulgated
Major
Area

Figure III-1

forty-seven source categories have been subjected to standards under Section 112. With some exceptions, sources must comply with the MACT regulations within 3 years of the effective date of the regulation. Figure III-2 shows that the estimated emission reductions from these 47 source categories to be 983,000 tons/Yr.. of HAPs and about 1,810,000 tons/Yr.. of the criteria pollutant, particulate matter, and VOCs, an ozone precursor.

One source category (asbestos processing area source category) has been delisted (60FR61550, dated November 30, 1995). The asbestos processing area source category was delisted because the Agency believes that no source in the category emits asbestos in quantities that pose an individual risk greater than one in one million and that a previous determination that asbestos emissions from these plants pose a threat of adverse health effects is no longer supportable.

The MACT standards that will produce the emission reductions from the 47 source categories mentioned above are shown in Figures III-3 and III-4. Figure III-3 shows emission reductions projected for the ten 2- and 4- year MACT standards that are each estimated to reduce emissions by more than 5000 tons per year.

The ten MACT standards shown in Figure III-3 will produce the bulk of the emission reductions, the emission reductions ranging from 7,000 to 506,000 tons per year. The ten MACT standards shown in Figure III-4 are each estimated to reduce emissions by less than 5,000 tons per year of hazardous air pollutants such as chromium, lead, arsenic, coke oven emissions, 1,3-butadiene, ethylene oxide, and benzene each of which may have significant health impacts depending on exposure to them. Not shown in these two figures are emission reductions of dioxins, furans, mercury, cadmium, and lead from the section 129 regulation on municipal waste combustors.

The specific pollutants whose emissions will be reduced are shown in more detail in Figure III-5. Figure III-5 indicates that each standard controls one or more HAPs as shown in the columns that contain an “x”. Some of these HAPs are of particular interest to the special studies discussed in the next section.

Emission Standard-Setting under Section (f)

Section 112(f) requires EPA to investigate and report to Congress on four topics concerning the risk to public health remaining, or likely to remain, from sources subject to regulation under this section after the application of standards under subsection (d). This report to Congress was due on November 15, 1996. In accordance with Section 112(f)(1)(D) this report is to contain recommendations as to legislation regarding such remaining risk.

Section 112(f)(2)(A) requires that, “if Congress does not act on any recommendation submitted under paragraph (1), the Administrator shall, within 8 years after promulgation of standards for each category or subcategory of sources pursuant to subsection (d), promulgate standards for such category or subcategory ...” .

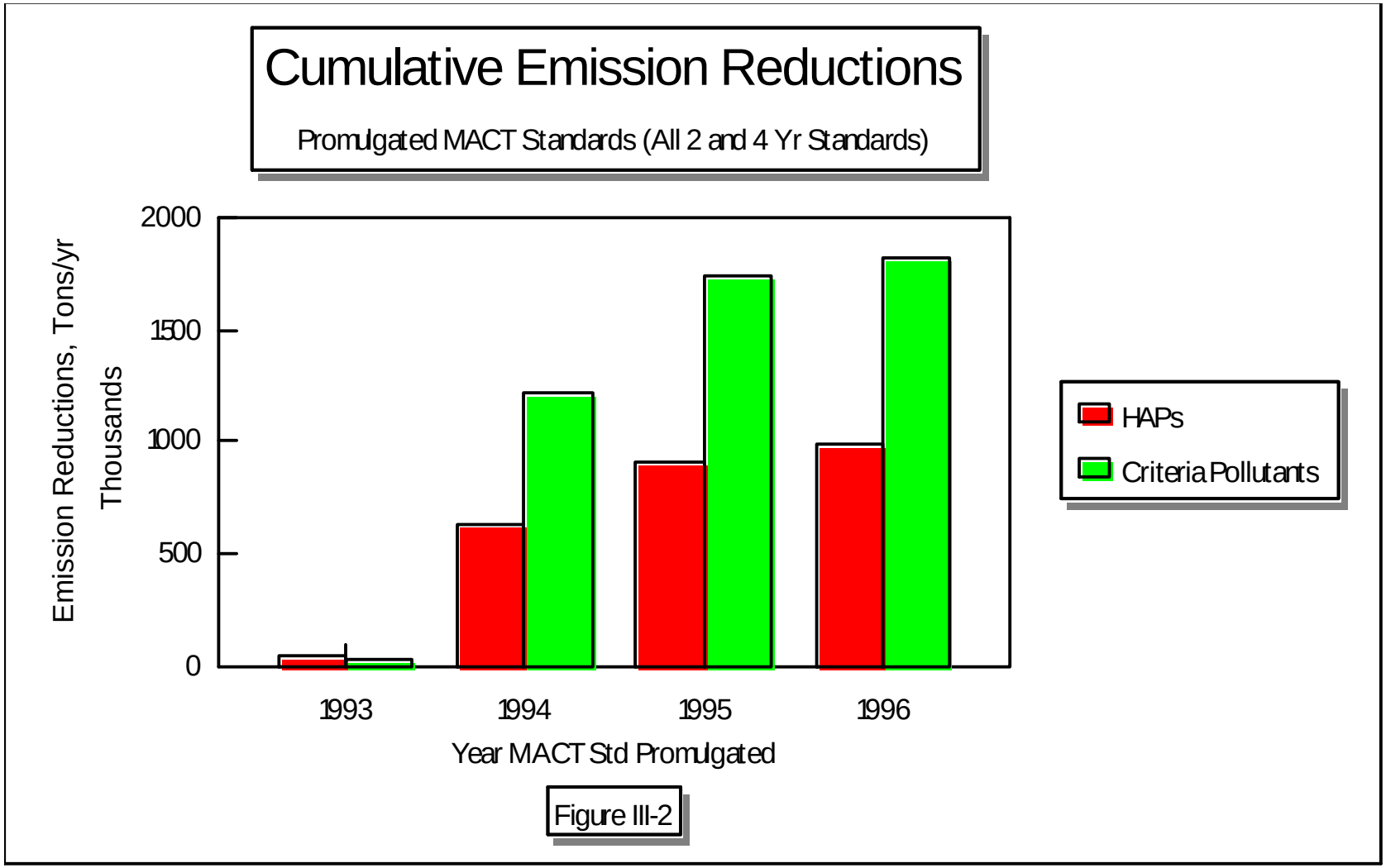
Cumulative Emission Reductions
Promulgated MACT Standards (All 2 and 4 Yr Standards)
Emission Reductions, Tons/yr
Thousands
2000
1500
1000
500
0
1993
1994
1995
1996
Year MACT Std Promulgated
HAPs
Criteria Pollutants

Figure III-2

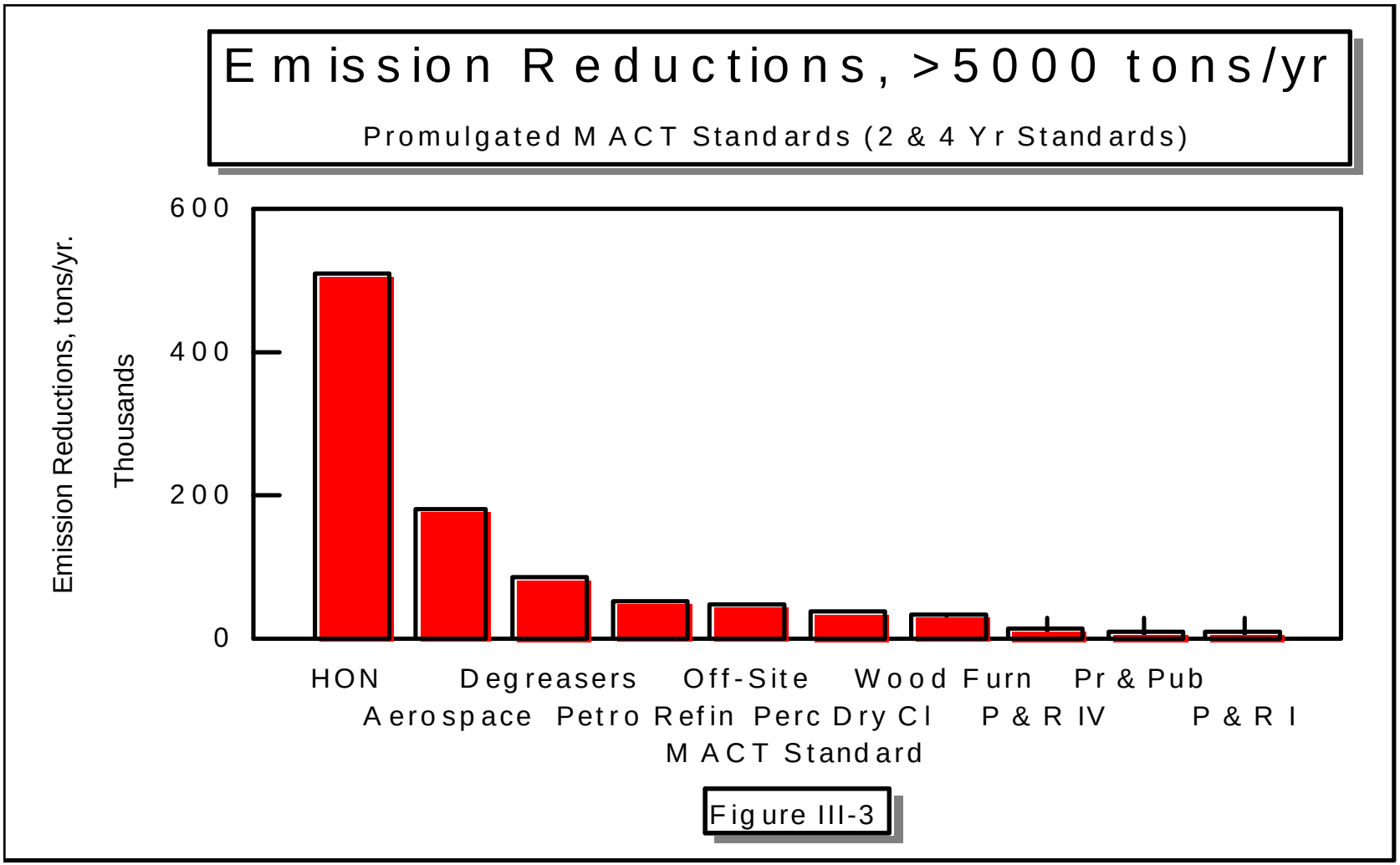
Emission Reductions, >5000 tons/yr
Promulgated MACT Standards (2 & 4 Yr Standards)
Emission Reductions, tons/yr.
Thousands
600
400
200
0
HON
Aerospace
Degreasers
Petro Refin
Off-Site
Perc Dry Cl
Wood Furn
P & R IV
Pr & Pub
P & R I
MACT Standard

Figure III-3

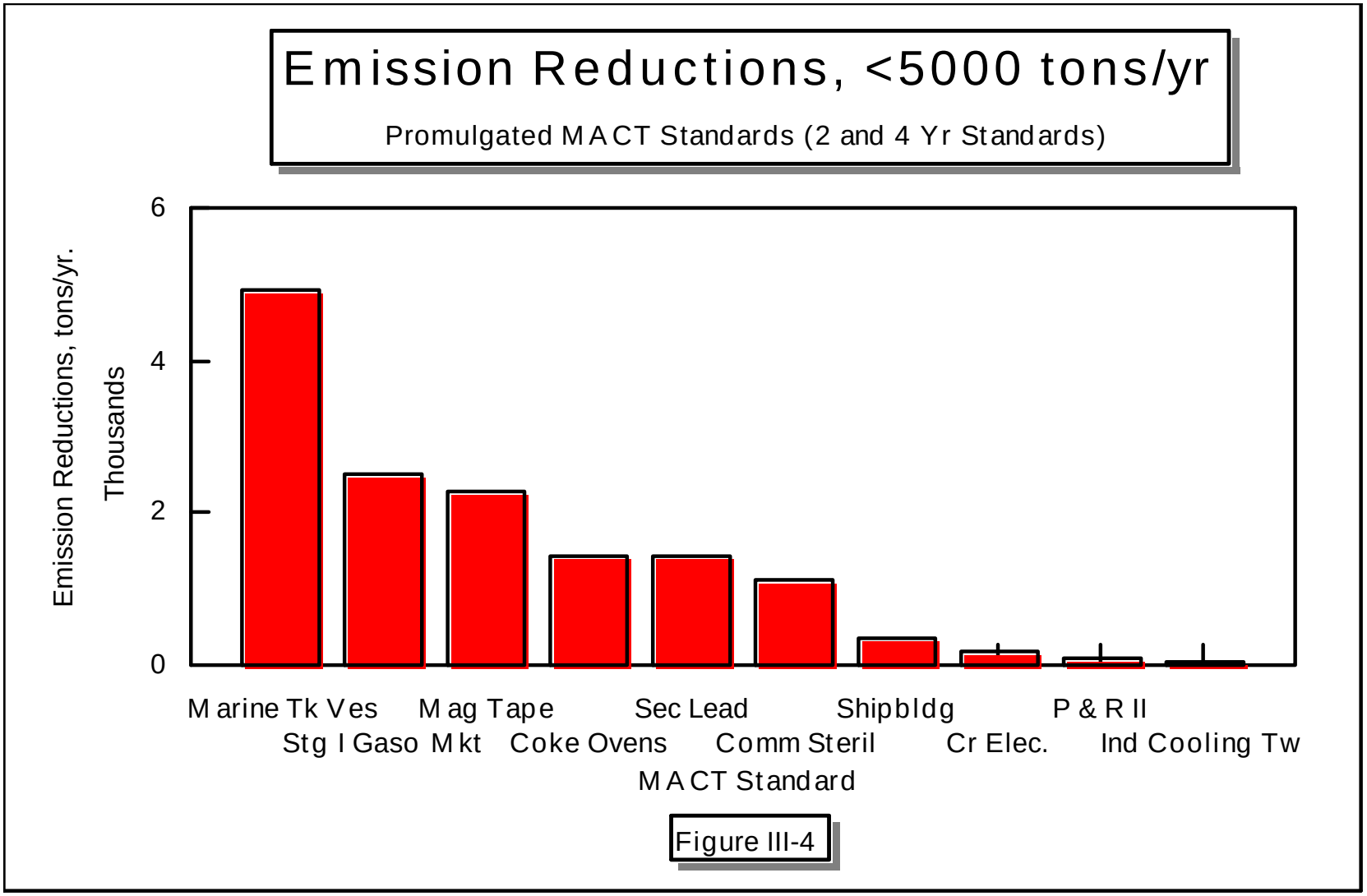
Emission Reductions, <5000 tons/yr
Promulgated MACT Standards (2 and 4 Yr Standards)
Emission Reductions, tons/yr.
Thousands
6
4
2
0
Marine Tk Ves
Stg I Gaso
Mag Tape
Mkt
Coke Ovens
Sec Lead
Comm Steril
Shipbldg
Cr Elec.
P & R II
Ind Cooling Tw
MACT Standard

Figure III-4

Figure III-5
Major Pollutants Controlled by Promulgated MACT Standards (All 2 and 4 Years Standards)

MACT or Sec. 129 Standard			Dioxin, Furans	Chromium	Metals (Pb, Hg, Cd, As) & Compounds	Coke Oven Emiss, POM Naphthalene	TCE Perc 111-TCA Carbon Tet. Chloroform Methylene Chloride Methyl Chloride	Benzene Toluene Xylenes Ethyl-Benzene Styrene	Hexane	Epichloro-hydrin Chloroprene	1,3-Butadiene	Ethylene Oxide	MEK MIBK	Ethylene Glycol Glycol Ethers	Methanol Formaldehyde Acetaldehyde	Acrylonitrile	HCl	Dioxane
Perc Dry Cleaning							x											
Coke Ovens						x												
HON			Many HAPs are controlled.															
Ind Cooling Twrs				x														
Comm Sterilizers												x						
Chromium Elec.				x														
Magnetic Tape								x					x					
Stage I Gaso Mkt								x										
Degreasers							x											
P & R II										x								
Secondary Lead					x						x							
Petro Refineries								x										
Aerospace				x		x	x						x					
Marine Tank Vess								x	x									
Wood Furniture								x					x	x	x			
Asbestos (Delist)																		
Shipbuilding								x					x	x				
Off-Site Waste						x	x	x					x		x			
Printing & Pub								x					x	x	x			
Poly & Resins IV								x			x			x	x	x		x
Poly & Resins I							x	x	x	x	x					x	x	

Because the report to Congress required by Section 112(f)(1) is in progress and because Congress must have an opportunity to act or not act on any recommendation of the report, there have been no emission standards set under subsection (f).

B. Compliance and Cost of Compliance of Standards set under Subsections (d) & (f)

Compliance Requirements of Subsection (d) Standards

The provisions relating to the Schedule for Compliance in Section 112(I) are somewhat complex and address a number of different situations, including the early reductions program, special coke oven provisions, and provisions relating to new and existing sources. In general, sources for which a MACT standard has been promulgated must be in compliance by the date specified in the respective standard. Generally this compliance period may be as long as 3 years after the standard was promulgated.

Table III-1 shows the promulgation dates and, for existing sources, the first substantive compliance date for the MACT standards currently in place. Figure III-6 shows that the first substantive compliance date has already begun to occur for several MACT standards, indicating that sources will need to come into compliance in the near future, with the concurrent increasing importance of compliance and enforcement management on the part of federal, state, and local agencies.

Cost of Compliance for Subsection (d) Standards

EPA estimates that the annualized cost of compliance with the MACT standards for the 47 source categories for the 2 and 4 year MACT standards is about $670 million per year. The promulgated MACT standards for which EPA estimates an annualized cost of more than $10 million per year each are shown in Figure III-7. The most significant of these rules in terms of total annualized cost of compliance as well as total emission reductions is the Synthetic Organic Chemical Manufacturing MACT standard (also called the Hazardous Organic NESHAP, or HON), estimated to have annualized costs of about $230 million per year. The Coke Ovens, Marine Tank Vessel Loading, and Petroleum Refinery standards were estimated to have annualized costs in the $80 million per year range.

Table III-1: First Substantive Compliance Date - Promulgated MACT Standards (All 2 & 4 Yr. Stds.)		
MACT Standard	Effective Date of MACT Standard	Existing Sources: First Substantive Compliance Date
Dry Cleaners	Sep 22, 1993	Dec 20, 1993
Coke Ovens	Oct 27, 1993	Nov 15, 1993
HON	Apr 22, 1994	Oct 24, 1994
Ind. Cooling Towers	Sep 8, 1994	Mar 8, 1996
Degreasers	Dec 2, 1994	Dec 2, 1997
Comm. Sterilizers	Dec 6, 1994	Dec 6, 1997
Stage I Gasoline	Dec 14, 1994	Dec 15, 1997
Magnetic Tape	Dec 15, 1994	Dec 15, 1996
Chromium Electroplating	Jan 25, 1995	Jan 25, 1996
Polymer & Resins II	Mar 8, 1995	Mar 8, 1998
Secondary Lead	Jun 23, 1995	Jun 23, 1997
Petro. Refineries	Aug 18, 1995	Aug 18, 1998
Aerospace	Sep 1, 1995	Sep 1, 1998
Marine Tank Vessels	Sep 19, 1995	Sep 19, 1999
Wood Furniture	Dec 7, 1995	Nov 21, 1997
Shipbuilding	Dec 15, 1995	Dec 15, 1997
Off-Site Waste	Jul 1, 1996	Jul 1, 1999
Printing & Publishing	May 30, 1996	May 30, 1999
Polymer & Resins IV	Sep 12, 1996	Sep 12, 1999
Polymer & Resins I	Sep 5, 1996	Sep 5, 1999

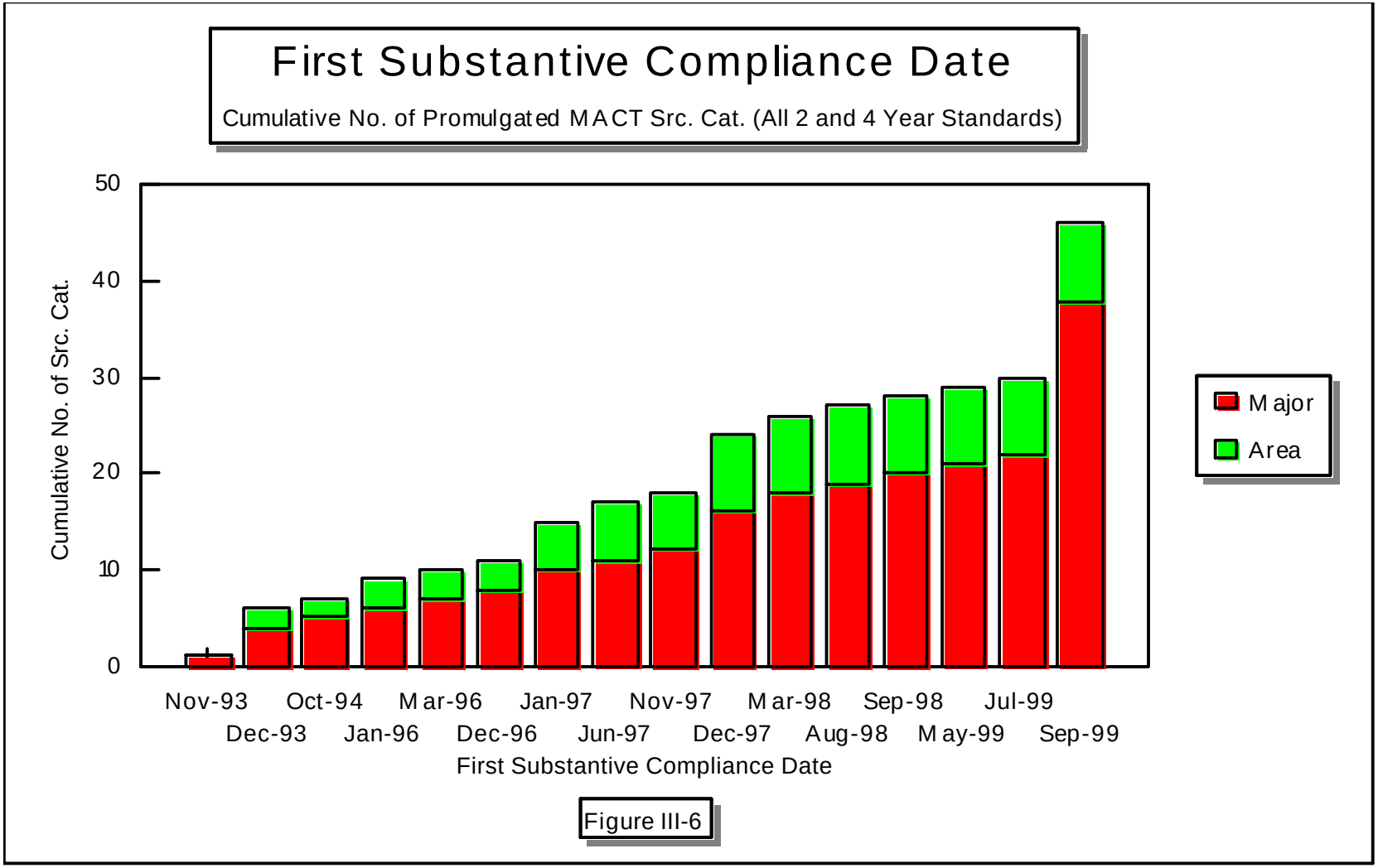
First Substantive Compliance Date
Cumulative No. of Promulgated MACT Src. Cat. (All 2 and 4 Year Standards)
Cumulative No. of Src. Cat.
50
40
30
20
10
0
Major
Area
Nov-93
Dec-93
Oct-94
Jan-96
Mar-96
Dec-96
Jan-97
Jun-97
Nov-97
Dec-97
Mar-98
Aug-98
Sep-98
May-99
Jul-99
Sep-99
First Substantive Compliance Date

Figure III-6

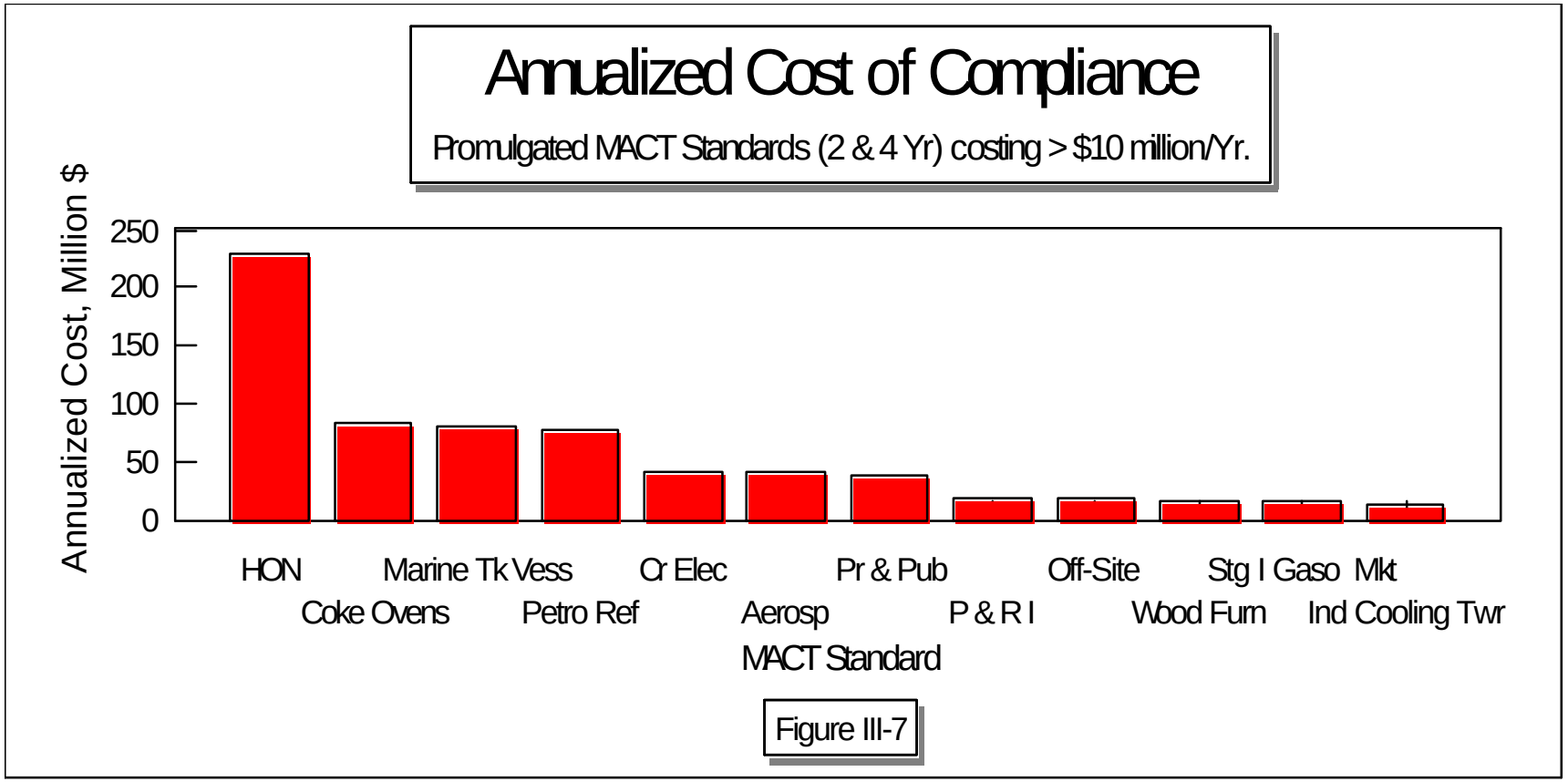
Annualized Cost of Compliance
Promulgated MACT Standards (2 & 4 Yr) costing > $10 million/Yr.
Annualized Cost, Million $
250
200
150
100
50
0
HON
Coke Ovens
Marine Tk Vess
Petro Ref
Cr Elec
Aerosp
Pr & Pub
P & R I
Off-Site
Wood Furn
Stg I Gaso
Ind Cooling Twr
Mkt
MACT Standard

Figure III-7

C. Development and Implementation of the National Urban Air Toxics Program

Background

Sections 112(c)(3) and 112(k) of the CAA of 1990 require the Administrator, not later than November 15, 1995, to

> 1 - conduct a program of research with respect to sources of hazardous air pollutants in urban areas and report the preliminary results of such research not later than November 15, 1993,
>
> 2 - prepare and transmit to the Congress a comprehensive strategy to control emissions of hazardous air pollutants from area sources in urban areas, and
>
> 3 - encourage and support area wide strategies developed by State or local air pollution control agencies that are intended to reduce risks from emissions by area sources within a particular urban area.

The strategy to control emissions of hazardous air pollutants from area sources in urban areas shall identify not less than 30 hazardous air pollutants which, as the result of emissions from area sources, present the greatest threat to public health in the largest number of urban areas. The Administrator shall assure that sources accounting for 90 per centum or more of the aggregate emissions of each of the 30 identified hazardous air pollutants are subject to standards pursuant to subsection 112(d).

In addition the strategy shall achieve a reduction in the incidence of cancer attributable to exposure to hazardous air pollutants emitted by stationary sources of not less than 75 per centum.

Status

As a matter of general principle, the EPA has adopted an interim strategy of considering major and area source emissions that contribute to the urban air toxics problem as a part of the process of developing MACT standards under Section 112(d). The EPA has listed, through its section 112(c)(1) source category listing process, eight area source categories. These source categories relate to perchlorethylene dry cleaning (2 area source categories), ethylene oxide commercial sterilization facilities (1 area source category), chromium electroplating facilities (3 area source categories), secondary lead (1 area source category) and halogenated solvent cleaners (1 area source category). Many of the facilities comprising these source categories are in urban areas. MACT or GACT regulations have been promulgated for all eight source categories, resulting in improved air quality in many urban areas. (Please see also section III-A of this report, Status Report on Standard Setting under Subsections (d)and (f)).

In addition to these regulations, EPA has promulgated MACT regulations on 39 major source categories. Emissions from some of these major source categories that are near but not in urban areas may reduce exposure and risk in urban areas through short range transport.

As required under section 112(k)(2) a report on health effects from HAPs in urban areas was completed: *EPA's Urban Area Source Research Program - A Status Report on Preliminary Research*, EPA/600/R-95/027, March 1995. The findings of this status report are (1) there is a great deal of data on emissions, exposures and health effects on a few HAPs, but little or none on many others, (2) as a consequence of these data limitations, risk estimates in urban environments will be very uncertain, (3) research to overcome or address these data limitations will likely be both expensive and time-consuming, and (4) data for several chemicals, however, appear sufficient to assess risks and to develop control strategies as warranted. The report indicates that it is not currently possible to identify the 30 or more "worst" HAPs; rather, the report identifies those HAPs with sufficient data to begin a risk assessment of either the cancer or non-cancer effects due to exposure to that chemical.

The November 15, 1995 milestone for developing a comprehensive strategy to control emissions of hazardous air pollutants from area sources in urban areas has not been met. On October 9, 1996, in accord with section 113(g) of the Clean Air Act, EPA published a notice of a proposed partial consent decree (61FR52941), which was lodged with the United States District Court for the District of Columbia by EPA on September 27, 1996 to address two lawsuits filed by the Sierra Club. The EPA is actively engaged in the urban strategy development, including developing an approach for identifying the 30 or more "worst" HAPs, and expects to propose the strategy in mid-1998.

D. Prevention and Mitigation of Accidental Releases

Introduction

In amending Section 112 with the Clean Air Act Amendments of 1990, Congress added subsection r. The objective of subsection r, Prevention of Accidental Releases, is to prevent the accidental release and to minimize the consequences of any such release of specific toxic substances listed pursuant to paragraph (3) or any other extremely hazardous substance. The intent of subsection r is to prevent accidental releases of specific toxic compounds to the air and mitigate the consequences of such releases by focusing prevention measures on chemicals that pose the greatest risk to the public and to the environment.

Sections 112(r)(3) and 112(r)(7)

Section 112(r)(3) mandates that EPA promulgate a list of regulated substances, with threshold quantities. This list defines the stationary sources that will be subject to accident prevention regulations mandated by section 112(r)(7). EPA promulgated its list of substances on January 31,

1994 (59FR4478). On April 15, 1996, EPA proposed amendments to these provisions (61FR16598), concerning removing Division 1.1 explosives from the list and other issues. Final action on these amendments is anticipated by December 1997. On May 22, 1997, EPA proposed additional amendments to the final rule to modify the listing of hydrochloric acid solutions; on August 25, 1997, EPA finalized the amendments to modify the listing of hydrochloric acid solutions to remove hydrochloric acid solutions with concentrations of less than 37% (it had been 30%) hydrogen chloride. Hydrochloric acid solutions with concentrations of 37% or greater remain on the list.

Section 112(r)(7) mandates that EPA promulgate regulations and develop guidance to prevent accidental releases. Stationary sources covered by these regulations must develop and implement a risk management program that includes a hazard assessment, a prevention program, and an emergency response program. The risk management program must be summarized in a risk management plan (RMP) that must be registered with EPA and submitted to State and local authorities. The RMP will be available to the public.

On October 20, 1993, EPA published a Notice of Proposed Rule making (NPRM) for the section 112(r)(7) regulations (58FR54190). Following the publication of the proposed rule, EPA held four public hearings and received approximately 770 written comments. As a result of these comments, EPA issued a supplemental notice of proposed rule making (SNPRM) on March 13, 1995 (60FR13526). The SNPRM sought comments on six specific issues: tiering (setting different requirements for sources that pose different levels of hazard); worst-case releases and other hazard assessment issues; accident information reporting; public participation; inherently safer approaches; and implementation and integration of section 112(r) with State programs, particularly State air permitting programs. EPA held a public hearing on March 31, 1995, in Washington, DC, and received more than 280 written comments.

On June 20, 1996, EPA published the final risk management program rule (61FR31668). Along with the final rule, EPA published an RMP Offsite Consequence Analysis Guidance to assist all businesses, especially small and medium sized enterprises, with the hazard assessment portion of the risk management program rule (61FR31733). In addition, EPA published a Model Risk Management Program and Plan for Ammonia Refrigeration Systems. This model program and plan provides specific guidance to help owners and operators of ammonia refrigeration processes comply with the risk management program and plan requirements. Additional industry-specific model programs and plans, as well as general compliance guidance and implementation guidance for States, are planned for publication in FY98.

In September 1996, EPA established an Accident Prevention Subcommittee to the Agency Clean Air Act Advisory Committee. The Subcommittee is a 12-member advisory group specifically focussed on CAA Section 112(r) issues. In turn, the Accident Prevention Subcommittee created the Electronic Submission Workgroup to make recommendations to EPA on how RMPs should be submitted, and how RMPs should be made available to all stakeholders. In June, the Electronic Submission Workgroup completed its work with a Final Recommendation Report.

The report recommends that RMPs be submitted electronically (using a PC-based software program, named RMP*Submit™) and will be made electronically available to States and local communities, and to all members of the public (using an Internet-based system named RMP*Info™). Small businesses without access to computers can get an "electronic waiver" to submit their RMP in paper. The Accident Prevention Subcommittee has also established an RMP Implementation Workgroup to provide stakeholder advice on a variety of topics (e.g., implementation guidance for States, Local Emergency Planning Committees (LEPCs) and industry; training; audit protocol; outreach; emergency planning; and model RMP guidances).

Section 112(r)(6), Chemical Safety and Hazard Investigation Board

The President's FY 92-95 budgets requested funding for the Board. President Clinton nominated or indicated an intent to nominate five individuals. The Congress, in the 1995 budget process, reduced the funding for the Board to a level ($500,000) which made it impossible to create an independent agency. During this time frame, the President determined that in light of this opposition and in the interests of streamlining and reinventing government, the administration would not request FY 96 funding for the Board.

The Occupational Safety and Health Administration (OSHA) and EPA have current authorities to investigate accidents. Funding for EPA and OSHA in FY 96 and 97 ensured that significant accidents are fully and appropriately investigated.

The OSHA and EPA have developed a Memoranda of Understanding (MOU), signed in December 1996, to conduct joint investigations of chemical accidents and to issue public reports, with their conclusions concerning the root causes of the accidents and recommendations for preventing similar accidents. The MOU establishes policy and general procedures for cooperation and coordination between the two agencies, in order to ensure the most effective possible investigation of major chemical accidents, and to limit duplication of effort. Specific procedures for chemical accident investigation will be detailed in a joint Accident Investigation Protocol which is currently under development.

The program has undertaken several investigations, with two reports published and several more near completion. Both agencies have disseminated special alerts or hazard information bulletins promptly, with information learned during investigations, to notify industry, State and local governments, emergency responders, and others of potential hazards and preventive actions. EPA and OSHA have issued a report concerning the activities of this joint accident investigation program.

The Congress, in the 1998 budget process, provided funding for the Board and the President has signed the bill approving the appropriation.

Section 112(r)(10), Presidential Review

This paragraph requires the President to conduct a review of various federal agency authorities for release prevention, mitigation and response; clarification and coordination of federal agency responsibilities to ensure effective and efficient implementation; identification of deficiencies in authority of resources; and recommendations for changes.

Responsibility for undertaking this review was delegated by the President to EPA. The EPA Chemical Emergency Preparedness and Prevention Office (CEPPO), in coordination with the other (then) fourteen member agencies of the National Response Team (NRT), conducted the review and prepared a report entitled "A Review of Federal Authorities for Hazardous Materials Accident Safety - Report to Congress under Section 112(r)(10)" in December, 1993.

The Review noted the need for improved coordination among all levels of government in contingency planning and among federal agencies for the development of prevention programs and regulations. As a result, the Executive Branch, through the NRT, has instituted a Prevention Committee and begun improving its coordination efforts with State and local governments for contingency planning. As a result of this effort, the NRT developed the Integrated Contingency Plan (ICP) Guidance. This guidance (also known as the "one-plan" guidance) provides a way to consolidate multiple plans, which a facility may have prepared to comply with various regulations, into one functional emergency response plan. Five agencies (EPA, Coast Guard, OSHA, DOT and the Minerals Management Service) signed the one-plan guidance. The NRT and the agencies responsible for reviewing and approving federal response plans to which the ICP option applies agree that integrated response plans prepared in the format provided in this guidance will be acceptable and be the federally preferred method of response planning.

IV. Status Report on Section 129, Solid Waste Combustion, Activities

This part of the report is a discussion of status of section 129 activities. It is divided into 2 subparts each of which addresses one of the specific requests of section 129.

A. Standard Setting under Subsection (a)

Introduction

The 1990 Clean Air Act Amendments singled out solid waste combustion for special attention. Congress recognized a high level of public concern about the incineration of municipal, medical, and other solid wastes. Consequently, Section 129 of the Act directs EPA to establish (under Section 111) new source performance standards (NSPS) for new solid waste combustion units and to establish (under Section 111(d)) emission guidelines for existing units. The NSPS and emission guidelines must specify numerical emission limitations for the following pollutants: particulate matter, opacity, sulfur dioxide, hydrogen chloride, nitrogen oxides, carbon monoxide, lead, cadmium, mercury, and dioxins/furans. The four categories of solid waste combustion units specified under section 129 are those combusting municipal solid waste, medical solid waste, industrial and commercial solid waste, and all other solid wastes.

Emission Standard - Municipal Waste Combustors

On December 19, 1995 (60FR65387), EPA promulgated standards and guidelines for municipal waste combustors (MWC). The standards and guidelines were amended in 1997 to apply to MWC units larger than 250 tons per day combustion capacity. The standards apply to new MWC units which commenced construction after September 20, 1994. The guidelines apply to existing MWC units constructed prior to September 20, 1994. The standards and guidelines are based on MACT.

There are an estimated 164 operating MWC units subject to the MWC regulations in the United States, providing a total U.S. municipal waste combustion capacity of about 95,000 tons per day. Approximately 16 percent of municipal waste generated in the U.S. is combusted. Under the promulgated standards and guidelines, nationwide emission reductions are estimated to be about 45,000 tons/year of HAPs and about 55,000 tons/year of criteria pollutants over current conditions. This represents greater than 99 percent control of dioxin emissions, a pollutant of concern.

Emission Standard - Medical Waste Incinerators

On February 27, 1995, EPA proposed standards and emission guidelines for medical waste incinerators (MWI). The standards and guidelines were re-proposed on June 20, 1996. EPA

promulgated the final MWI standards on September 15, 1997. The standards apply to units which commence construction after June 20, 1996. The guidelines apply to MWI's constructed prior to June 20, 1996. These standards and guidelines are based on MACT.

There are an estimated 2,400 operating MWI units in the United States and 10 to 70 new MWI units projected to be installed over the next 5 years. Under the final standards and guidelines, nationwide emission reductions are estimated to be about 5,600 tons/year of HAPs and about 1,500 tons/year of criteria pollutants.

Emission Standard Development - Industrial and Commercial Waste Incinerators

On December 28, 1994, EPA published an advance notice of proposed rule making (ANPRM) which announced EPA's intent to propose and promulgate NSPS and emission guidelines for industrial and commercial waste incinerators (ICWI's). The ANPRM requested information and data concerning the operation, location, emissions, and emission controls for ICWI's.

Emission Standard Development - Other Solid Waste Incinerators (OSWI)

The EPA listed categories of OSWI's and a regulatory schedule for issuing standards under section 129 on November 2, 1993. Promulgation for the NSPS and emission guidelines is scheduled for November 15, 2000.

The ANPRM published on December 28, 1994 also announced EPA's intent to propose and promulgate NSPS and emission guidelines for other solid waste incinerators (OSWI's). The ANPRM requested information and data concerning the operation, location, emissions, and emission controls for OSWI's.

B. Operator Training and Certification Programs under Subsection (d)

Introduction

Section 129(d) of the Clean Air Act requires the EPA to develop and promote a model State program for the training and certification of solid waste incineration unit operators and high-capacity fossil fuel-fired plant operators. Section 129(d) mandates that, beginning 3 years after the date on which standards and guidelines are promulgated under section 129(a) for any category of solid waste incineration units, it shall be unlawful to operate any unit in the category unless each person with control over processes affecting emissions from such unit has satisfactorily completed a training program meeting the requirements established under subsection 129(d).

Operator Training and Certification Programs

In August 1993, EPA submitted to all State air pollution control agencies the model State training programs that EPA developed for operators of MWC's and MWI's . The model State training

program developed by EPA for operators of high-capacity fossil fuel-fired plants was submitted to all State air pollution control agencies in November 1994. To ensure the availability of at least one appropriate national certification program for these solid waste incineration units, EPA requested the American Society of Mechanical Engineers (ASME) to develop and manage a nationwide certification program for MWC operators. As a result, the ASME developed an ASME certification program for MWC's. At the request of EPA, the ASME is now in the process of developing a nationwide certification program for high-capacity fossil fuel-fired plant operators.

Appendix

Detailed Information on MACT Infrastructure Rules and Prevention of Accidental Releases

and

Scheduled Promulgation Dates & Federal Register Citations
for Categories of Sources of HAPs

Section 112(c)(1)
List of Source Categories

Statutory Requirements: By November 15, 1991, publish list of categories of major and area sources for which MACT or GACT standards will be established according to a schedule published under section 112(e).

Draft Notice Published: June 21, 1991 (56FR28548)

Final Notice Published: July 16, 1992 (57FR31576)
June 4, 1996 (61FR28197) Amendment
July 18, 1996 (61FR37542) Corrections

Project Status:

The Section 112(c) list of source categories was published in the Federal Register on July 16, 1992. The "list," along with the corresponding 112(e) schedule for standards promulgation, establishes the Agency's program to regulate stationary sources of air toxics through the year 2000. The list, in and of itself, has no regulatory requirement for installing emission controls and, as such, has no environmental, economic, or energy impacts.

Section 112(c) required the Agency by November 1991 to publish "a list of all categories and subcategories of major sources and area sources" which emit one or more of the listed HAP. “Major source” is defined in Section 112 as “any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants.” Section 112 also defines an area source as any stationary source that is not a major source, and requires that the Agency make a finding of a threat of adverse effects warranting regulation before listing any categories of area sources. Pursuant to Section 112(d), major source categories are subject to MACT emission standards, whereas listed area source categories are subject to either GACT or MACT standards. MACT standards for a major source category only apply to the major sources within the category.

Categories have been listed as categories of major sources when there was reasonable certainty that at least one stationary source in the category is a major source, per the 10/25 ton per year (tpy) threshold mentioned above, or when sources in the category are commonly located on the premises of major sources. In this latter regard, some categories may be listed as categories of major sources even though no sources in the category exceed the 10/25 tpy threshold. For example, most industrial process cooling towers (IPCTs) emit considerably less than 1 tpy of HAP individually. However, since they are commonly located on the premises of large chemical manufacturing complexes which have the potential to emit major source quantities of HAP, IPCTs are a category of major sources.

A detailed finding of a threat of adverse effects warranting regulation must be made before a category of area sources may be listed. This finding consists of a quantitative and qualitative assessment of the emissions, sources, health risks, and cost of control associated with the category.

Once major and area source categories are listed, Section 112 permits removal of any of these categories from the list if a showing is made that no source in the category poses greater than a one in one million cancer risk nor exceeds levels adequate to protect public health or the environment with an ample margin of safety. Additionally, major source categories may be removed from the list upon a determination that there are no longer any major sources in the category. Section 112(c)(5) provides that new source categories and subcategories may be added at any time according to the same criteria for listing applicable under sections 112(c)(1) or 112(c)(3).

Section 112(c)(1) requires the Agency to periodically amend the list in response to public comment or new information, and no less often than once every eight years. Revisions made thus far have included adding and deleting source categories, combining categories for purposes of efficiency, and making other relatively minor changes and corrections. Changes were prompted by Agency review of the previously listed categories and external comment. As a consequence of actions since the initial list was published, the list now contains 175 categories, of which 167 are major and 8 are area. To wit, the original list contained 174 categories (166 major, 8 area) and the Agency has since added eight new categories (7 major, 1 area), deleted six categories (5 major, 1 area), and removed one more that is being covered under another source category (1 major, 0 area). Please see Table A-1 in the Appendix for a list of the current 175 source categories.

Section 112(e)(3)
Schedule for Standards and Review - Published Schedule

Statutory Requirements: The EPA shall schedule the listed source categories from section 112(c)(1) into four different time frames assuring that standards are promulgated for 40 source categories by November 15, 1992, 25 per centum of listed source categories by November 15, 1994, 50 per centum by November 15, 1997, and 100 per centum by November 15, 2000.

Draft Notice Published: September 24, 1992 (57FR44147)

Final Notice Published: December 3, 1993 (58FR63941)
March 4, 1994 (59FR10461) Correction

Project Status:

The Section 112(e) schedule for standards promulgation was published on December 3, 1993 (58FR63941). The "schedule" establishes a timetable for issuing emission standards for the source categories listed pursuant to Section 112(c).

The schedule is organized such that the 174 source categories are grouped into four separate time frames. Section 112 required that by November 1992, EPA schedule 40 source categories for regulation within 2 years after enactment of the 1990 Clean Air Act Amendments (i.e., by November 15, 1992), at least 25 per centum of the categories within 4 years (i.e., by November 15, 1994), 50 per centum within 7 years (i.e., by November 15, 1997), and all initially listed categories within 10 years (i.e., by November 15, 2000). Additionally, two source categories -- coke oven batteries and publicly owned treatment works -- were given specific scheduling requirements by Section 112.

In determining priorities for establishing promulgation deadlines, the EPA considered three criteria: (1) anticipated adverse effects of HAPs on public health and the environment, (2) quantity and location of emissions of HAPs, and (3) efficiency of grouping categories according to pollutants emitted, or the processes or technologies used. The first two criteria were evaluated using the source category ranking system (SCRS), which combined toxicological effects data, emission estimates, and population information to rank source categories. The results of the SCRS were coupled with analyses that addressed ecological concerns to arrive at a final ranking for each category. The third criterion allowed the Agency to optimize regulatory efficiency by considering similarities among source categories, including emission characteristics and control technologies.
Other considerations for scheduling than the three criteria cited above included the time and resources required for development of emissions standards and the amount of available information about a source category at the time the 1990 Amendments were passed(58FR63941).

Sources within each category are subject to emission standards developed pursuant to Section 112(d). In the event that an applicable standard is not promulgated on schedule for a listed category of major sources, the owner or operator of a major source within the category would be subject to emission limitations determined on a case-by-case basis, pursuant to section 112(j).

Since the December 1993 publication, the schedule has remained unchanged apart from the corresponding scheduling adjustments resulting from changes to the source category list. Pursuant to Section 112(e)(5), source categories added subsequent to the initial listing must be scheduled for regulation by November 15, 2000, or 2 years after the listing action, whichever is later.

Please see Table A-1 in the Appendix for a list of the current source categories and their regulatory schedule dates.

Section 112(d)
National Emission Standards for Hazardous Air Pollutants for Source Categories: General Provisions

Statutory Requirements: There is no statutory requirement for the general provisions. The general provisions serve as a broad framework of common requirements for part 63 National Emission Standards for Hazardous Air Pollutants (NESHAP)

Proposal Date: August 11, 1993 (58FR42760)

Promulgation Date: March 16, 1994 (59FR12408)

Project Status:

The General Provisions codified general procedures and criteria to implement emission standards for stationary sources that emit (or have the potential to emit) one or more of the 188 hazardous air pollutants (HAPs) listed in section 112(b) of the Act (Caprolactam was recently delisted.). When a source becomes subject to a 112 standard established for individual source categories in other subparts of part 63, this source must also comply with the requirements of the General Provisions.

Currently this part of the regulatory infrastructure is under litigation. On May 16, 1994, six litigants filed petitions for review of the General Provisions. Arguments for the litigation were heard on April 20, 1995. The D.C. District Court issued a decision on July 21, 1995 that upheld EPA's position on two issues challenged by the petitioners: (1) EPA's requirement that all hazardous air pollutants be aggregated within a plant site, instead of only those emissions from equipment in similar industrial source categories; and (2) EPA's requirement that "fugitive emissions" be included in a source's aggregate emissions to determine whether the source is major. However, the court granted a petition for review with respect to the challenge raised on EPA's requirement that emissions control and limitation on a source's potential to emit must be federally enforceable. EPA is currently working towards a resolution on this issue.

In addition, EPA and the litigants are in confidential negotiations working out differences on other numerous issues within the General Provisions. A proposed rule-making for the General Provisions which deals with negotiated changes is expected in late-1997.

Section 112(I)(5)
Early Reductions

Statutory Requirements:	A voluntary program in which EPA grants section 112(d) compliance extensions to sources that achieve a 90 per cent reduction in hazardous air pollutant emissions (95 per cent for particulate HAPs) prior to proposal of the section 112(d) standard from a base year not earlier than 1987.
Proposal Date:	June 13, 1991 (56FR27338)
Promulgation Date:	December 29, 1992 (57FR61970) Several subsequent amendments

The Early Reductions provision allows an existing source to obtain a 6-year extension of compliance with an emission standard promulgated under section 112(d) of the act if the source has achieved by certain dates an emission reduction of 90 per cent or more of HAPs (95 per cent or more for particulate HAPs) from a base year not earlier than 1987. The reduction must be achieved by the proposal date of an applicable section 112(d) standard, with the following exception. The reduction may be achieved after the standard is proposed (but no later than January 1, 1994) if the source makes an enforceable commitment before the 112(d) standard's proposal date to achieve the reduction.

In lieu of meeting the otherwise applicable 112(d) standard, a source would have written into its Title V permit an alternative emission limitation and other terms and conditions to ensure continued emission reduction for the duration of the extension.

These provisions of the CAA and the proposed rule to implement them have the potential for resulting in substantial emission reductions well before the compliance date for section 112(d) standards. In addition to the environmental benefits, there would be economic benefits for participating sources since they would have more time to develop compliance strategies for section 112(d) standards and choose the most cost effective and economically attractive means to reduce their emissions of hazardous air pollutants. Because any source can enter the program, and the program is available as long as section 112(d) standards are issued, it is impossible to assess with certainty the industries that would take advantage of the provision or determine the impact.

The final rule has been signed and appeared in the Federal Register on December 29, 1992 (57FR61970). There are several subsequent amendments.

The early reductions program is an ongoing program that EPA has made available to facilities. Full implementation of this program has shifted to EPA's Regional offices. About twenty-five permit applications are currently pending, representing HAP reductions of over 6,800

tons per year. About six permits have been issued to date; However, there is still opportunity for permits to be issued before standards are proposed.

Section 112(g)
Construction, Reconstruction, & Modifications

Statutory Requirements: The EPA is required to publish guidance for the implementation of section 112(g) of the CAA, which contains requirements for constructed, reconstructed, and modified major sources of hazardous air pollutants.

Proposal Date: April 1, 1994 (59FR15504)

Promulgation Date: December 27, 1996 (61FR68384)

Background:

Under the Clean Air Act Amendments of 1990, EPA is required to regulate major industrial facilities that emit one or more of 188 listed hazardous air pollutants (air toxics) using maximum achievable control technology (MACT). The section 112(g) provision is designed to ensure that emissions of toxic air pollutants are well controlled if a major source is constructed reconstructed, or modified before EPA issues a MACT or air toxics regulation for that particular category of sources or facilities. In effect, the 112(g) provision is a transitional measure to ensure that facilities adequately protect the public from toxic air pollutants until EPA issues a MACT standard that applies to the facility in question. The statute required EPA by May 1992 to issue implementing guidance for this program, which is implemented by states.

EPA proposed the 112(g) regulation in April 1994 (59FR15504). EPA delayed issuing the final 112(g) regulation to work out a number of complex issues, including defining construction and reconstruction of major sources, and developing the best way to integrate the program with existing state programs.

Project Status:

EPA's final rule was promulgated on December 27, 1996 (61FR68384). Simpler and narrower in scope than the April 1994 proposal, the final 112(g) rule requires MACT controls only for new facilities that are major sources of toxic air pollutants, and for new or reconstructed major-emitting production units at existing facilities. This transitional program in which states determine MACT requirements on a case-by-case basis, applies only to sources for which national MACT standards have not yet been issued by EPA.

In contrast with the April 1994 proposal, the regulation no longer contains the complex requirements for modifications to existing sources or facilities. An existing facility would only be subject to 112(g) requirements, for example, if it added or rebuilt a large production line or process that emitted toxic air pollutants above the major source threshold (e.g., above 10 tons

annually for any single listed pollutant, or above 25 tons annually for a combination of listed pollutants).

Section 112(j)
Equivalent Emission Limitations by Permit

Statutory Requirements: Beginning 18 months after the Agency has missed a promulgation deadline for a MACT standard, major sources are required to submit Title V permit applications to obtain case-by-case MACT emission limitations on sources within the applicable source category. These emission limits must be at least equivalent to what the Federal MACT standard would have required. Section 112(j) directs EPA to establish specific provisions for States and sources to follow in implementing case-by-case equivalent emission limitations by permit.

Proposal Date: July 13, 1993 (58FR37778)

Promulgation Date: May 20, 1994 (59FR26429)
May 10, 1996 (61FR21370) Amendment

Project Status:

The section 112(j) rule making was promulgated on May 20, 1994 (59FR27429). The rule is published in 40 CFR 63 Subpart B, Sections 63.50-63.56. The Section 112(j) rule, originally due in May 1992 applies to certain major sources of toxic air emissions in States that have approved permit programs. Because EPA has promulgated MACT standards for all 1992 source categories, the earliest that Section 112(j) requirements could take effect is May 1996. The final rule regulates both major source owners and operators and Title V permitting agencies and contains requirements for permit application submittal, content, and review and approval, as well as guidelines for establishing case-by-case MACT emission limitations.

On May 10, 1996, EPA promulgated an amendment to this rule that delays the section 112(j) permit application deadline for all 4-year source categories listed in the regulatory schedule by 180 days until November 15, 1996.

The Section 112(j) final rule is under litigation and proposed changes are likely to appear in the Federal Register by late-1997.

Section 112(l)
State Programs

Statutory Requirements: Section 112(l) requires EPA to develop guidance for the approval of State programs for implementation and enforcement of section 112 rules when such State programs are no less stringent than the Federal program.

Proposal Date: May 19, 1993 (58FR29296)

Promulgation Date: Nov. 26, 1993 (58FR62262)
July 10, 1996 (61FR36295) - Amendment

Background:

Section 112(l) provides flexibility for State and local agencies in meeting Federal requirements for controlling air toxics. Under this authority, guidance was established under 40 CFR part 63 Subpart E that allows State and local agencies to, on a voluntary basis, receive approval for delegation of authority to implement and enforce air toxics standards established by EPA under Section 112 or State rules and programs that differ from Federal air toxics standards under Section 112. State and local agencies may choose to:

- substitute a Federal section 112 air toxics rule with an EPA approved industry-specific State rule that is no less stringent (e.g., an existing or new State rule requiring equivalent or greater emission reductions from the chemical manufacturing industry), or

- substitute Federal section 112 air toxics rules with an EPA approved State air toxics program that is no less stringent than the Federal air toxics rules.

Section 112(l) also establishes the framework for EPA to delegate to States the authority to implement and enforce unchanged Federal air toxic standards. State and local agencies are subject to periodic program reviews and audits by EPA. Based upon the findings, the EPA may withdraw approval.

Benefits:

The rule will allow States to maintain existing rules/programs while ensuring attainment of the health and environmental goals of the Federal rules. It can eliminate dual regulation wherever State rules or programs are at least as stringent as Federal rules. This will reduce regulatory agency and industry costs and time involved in permitting and enforcement. It provides State and local agencies the opportunity to preserve and build upon existing State programs.

Project Status:

The requirements of this section have been implemented through a formal rule making (58FR62262, dated November 26, 1993). The rule includes a broad range of input from State and local agencies and from industry and environmental groups through the Clean Air Act Advisory Committee. This rule has been revised (61FR36295) in response to a request from State and local agencies to revisit specific portions of the 40 CFR part 63 Subpart E rule. The amendments have been made to clarify regulatory text, reduce administrative burden and provide more flexibility to States using this rulemaking. Additional rule revisions are anticipated.

Section 112(r)(3)
List of Regulated Substances and Threshold for Accidental Release Prevention; Requirements for Petition under Section 112(r) of the Clean Air Act as Amended

Statutory Requirements:	The EPA is required to develop a list of at least 100 substances and threshold quantities which, in the case of an accidental release, are known to cause or may reasonably be anticipated to cause death, injury, or serious adverse effects to human health or the environment.
Proposal Date:	January 19, 1993 (58FR5102)
Promulgation Date:	January 31, 1994 (59FR4478)

The statute required EPA to develop by November 1992 a list of at least 100 substances and the threshold quantities. Facilities where a substance is present in more than a threshold quantity must prepare and implement risk management plans under a separate rule (see page A-16 of this report).

Project Status

The final list and thresholds rule was promulgated and published on January 31, 1994. Three parties filed petitions for review of this rule, which had been required by November 1992.

On April 15, 1996, EPA proposed amendments that would implement two settlement agreements (61FR16598). Final action on these amendments is anticipated by December 1997. On June 20, EPA stayed rule provisions affecting processes and substances that would no longer be subject to the rule if the amendments are promulgated. The stay will remain in effect until December 1997 (61FR31730). On May 22, 1997, EPA proposed amendments implementing the third settlement agreement (62FR27992). On August 25, 1997, EPA finalized these amendments, modifying the listing of hydrochloric acid solutions (62FR45130).

Section 112(r)(7)
Accident Prevention Regulation and Risk Management Plans for Accidental Release Provisions under the CAA of 1990

Statutory Requirements: Section 112(r)(7) requires EPA to promulgate regulations that require facilities handling a regulated substance above a threshold quantity to prepare and implement risk management plans. The plans must include a hazard assessment, a prevention program, and an emergency response program to be submitted to State and local planning organizations, the Chemical Safety and Hazard Investigation Board, and to be made available to the public.

Proposed Date: October 20, 1993 (58FR54190)
March 13, 1995 (60FR13526)

Promulgated Date: June 20, 1996 (61FR31668)

Project Status

The Clean Air Act Amendments of 1990 amend section 112 and add a paragraph (r). The intent of section 112(r) is to prevent accidental releases to the air and mitigate the consequences of such releases by focusing prevention measures on chemicals that pose the greatest risk to the public and the environment. Section 112(r)(3) mandates that EPA promulgate a list of regulated substances, with threshold quantities; this list defines the stationary sources that will be subject to accident prevention regulations mandated by section 112(r)(7). EPA promulgated its list of substances on January 31,1994 (59FR4478).

Section 112(r)(7) mandates that EPA by November 1993 promulgate regulations and develop guidance to prevent accidental releases. Stationary sources covered by these regulations must develop and implement a risk management program that includes a hazard assessment, a prevention program, and an emergency response program. The risk management program must be summarized in a risk management plan (RMP) that must be registered with EPA and submitted to State and local authorities. The RMP will be available to the public.

On October 20, 1993, EPA published a Notice of Proposed Rule making (NPRM) for the section 112(r)(7) regulations (58FR54190). Following the publication of the proposed rule, EPA held four public hearings and received approximately 770 written comments. As a result of these comments, EPA issued a supplemental notice of proposed rule making (SNPRM) on March 13, 1995 (60FR13526). The SNPRM sought comments on six specific issues: tiering (setting different requirements for sources that pose different levels of hazard); worst-case releases and other hazard assessment issues; accident information reporting; public participation; inherently

safer approaches; and implementation and integration of section 112(r) with State programs, particularly State air permitting programs. EPA held a public hearing on March 31, 1995, in Washington, DC, and received more than 280 written comments.

On June 20, 1996, EPA published the final risk management program rule (61FR31668). Along with the final rule, EPA published an RMP Offsite Consequence Analysis Guidance to assist all businesses, especially small and medium sized enterprises, with the hazard assessment portion of the risk management program rule(61FR31733). In addition, EPA published a Model Risk Management Program and Plan for Ammonia Refrigeration Systems. This model program and plan provides specific guidance to help owners and operators of ammonia refrigeration processes comply with the risk management program and plan requirements. Additional industry-specific model programs and plans, as well as general compliance guidance and state implementation guidance, are planned for publication in FY98.

In September 1996, EPA established an Accident Prevention Subcommittee to the Clean Air Act Advisory Committee. The Subcommittee, a 12-member advisory group, is specifically focused on 112(r) issues such as electronic submission of RMPs and a national electronic repository of these plans. In June 1997, a Workgroup under the Subcommittee completed its recommendations that RMPs be submitted electronically, that they be made available to all members of the public using an Internet based system, and that small businesses without access to computers may obtain waivers to submit paper copy. The Subcommittee continues its work on examining a variety of issues associated with 112(r).

Section 112(r)(10)
"A Review of Federal Authorities for Hazardous Materials Accident Safety"

Statutory Requirements: Requires the President to conduct a review of various Federal agency authorities for release prevention, mitigation and response; clarification and coordination of federal agency responsibilities to ensure effective and efficient implementation; identification of deficiencies in authority of resources; and recommendations for changes.

Completion Date: December, 1993

Project Status

Responsibility for undertaking this review was delegated by the President to EPA. The EPA Chemical Emergency Preparedness and Prevention Office (CEPPO), in coordination with the other (then) fourteen member agencies of the National Response Team (NRT), conducted the review and prepared a report entitled "A Review of Federal Authorities for Hazardous Materials Accident Safety - Report to Congress under Section 112(r)(10)".

In response to the Congressional mandate to conduct a review by November 1992, the report reviews and describes existing federal authorities for accident release prevention, preparedness, and response. It provides findings with respect to key policy questions and issues. The report concludes that while achieving its statutory goals, the safety system is complex and, as a result, costly. A second phase of research is recommended to focus on the technical implications of the issues and to obtain stakeholder input in developing needed options for change, some of which may be statutory. Because of the complexity and inefficiency of the existing system, the issues identified for further investigation impact, and, in some cases, unnecessarily burden both industry and the regulatory agencies. The issues include: multiple statutory definitions for regulated substances and reportable events; multiple facility contingency planning regulations; and multiple accident data bases and reporting requirements.

In addition, the report noted the need for improved coordination among all levels of government in contingency planning and among federal agencies for the development of prevention programs and regulations. As a result, the Executive Branch, through the National Response Team, has instituted a Prevention Committee and begun improving its coordination efforts with State and local governments for contingency planning.

As a result of this effort, the NRT developed the Integrated Contingency Plan (ICP) Guidance. This guidance (also known as the "one-plan" guidance) provides a way to consolidate multiple plans, which a facility may have prepared to comply with various regulations, into one

functional emergency response plan. Five agencies (EPA, Coast Guard, OSHA, DOT and the Minerals Management Service) signed the one-plan guidance. The NRT and the agencies responsible for reviewing and approving federal response plans to which the ICP option applies agree that integrated response plans prepared in the format provided in this guidance will be acceptable and be the federally preferred method of response planning.

Table A-1: Categories of Sources of Hazardous Air Pollutants and Regulation Promulgation Schedule by Industry Group

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PRO-MULGATION DATE	FEDERAL REGISTER CITATION[2]
Fuel Combustion	Engine Test Facilities	11/15/00	
	Industrial Boilers[3]	11/15/00	
	Institutional/Commercial Boilers[3]	11/15/00	
	Process Heaters	11/15/00	
	Stationary Internal Combustion Engines[3]	11/15/00	
	Stationary Turbines[3]	11/15/00	
Non-Ferrous Metals Processing	Primary Aluminum Production	11/15/97	
	Primary Copper Smelting	11/15/97	
	Primary Lead Smelting	11/15/97	
	Primary Magnesium Refining	11/15/00	
	Secondary Aluminum Production	11/15/97	
	Secondary Lead Smelting	11/15/94	60FR32587(F)
Ferrous Metals Proces-sing	Coke By-Product Plants	11/15/00	

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PROMULGATION DATE	FEDERAL REGISTER CITATION[2]
Ferrous Metals Processing (contd.)	Coke Ovens: Charging, Top Side and Door Leaks	12/31/92	58FR57898(F) 59FR01922(C)
	Coke Ovens: Pushing, Quenching and Battery Stacks	11/15/00	
	Ferroalloys Production	11/15/97	
	Integrated Iron and Steel Manufacturing	11/15/00	
	Iron Foundries	11/15/00	
	Steel Foundries	11/15/00	
	Steel Pickling - HC1 Process	11/15/97	
Mineral Products Processing	Alumina Processing	11/15/00	
	Asphalt Concrete Manufacturing	11/15/00	
	Asphalt Processing	11/15/00	
	Asphalt Roofing Manufacturing	11/15/00	
	Asphalt/Coal Tar Application - Metal Pipes	11/15/00	
	Chromium Refractories Production	11/15/00	
	Clay Products Manufacturing	11/15/00	
	Lime Manufacturing	11/15/00	

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PRO-MULGATION DATE	FEDERAL REGISTER CITATION[2]
Mineral Products Processing (contd.)	Mineral Wool Production	11/15/97	
	Portland Cement Manufacturing	11/15/97	
	Taconite Iron Ore Processing	11/15/00	
	Wool Fiberglass Manufacturing	11/15/97	
Petroleum & Natural Gas Production & Refining	Oil and Natural Gas Production	11/15/97	
	Petroleum Refineries - Catalytic Cracking (Fluid and other) Units, Catalytic Reforming Units, and Sulfur Plant Units	11/15/97	
	Petroleum Refineries - Other Sources Not Distinctly Listed	11/15/94	60FR43244(F) 60FR49976(C)
Liquids Distribution	Gasoline Distribution (Stage 1)	11/15/94	59FR64303(F)6 60FR07627(C) 60FR32912(C) 60FR43244(A) 60FR56133(a) 60FR62991(S)
	Marine Vessel Loading Operations	11/15/00	60FR48399(F)
	Organic Liquids Distribution (Non-Gasoline)	11/15/00	

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PRO-MULGATION DATE	FEDERAL REGISTER CITATION[2]
Surface Coating Process	Aerospace Industries	11/15/94	60FR45948(F)
	Auto and Light Duty Truck (Surface Coating)	11/15/00	
	Flat Wood Paneling (Surface Coating)	11/15/00	
	Large Appliance (Surface Coating)	11/15/00	
	Magnetic Tapes (Surface Coating)	11/15/94	59FR64580(F)
	Manufacture of Paints, Coatings and Adhesives	11/15/00	
	Metal Can (Surface Coating)	11/15/00	
	Metal Coil (Surface Coating)	11/15/00	
	Metal Furniture (Surface Coating)	11/15/00	
	Miscellaneous Metal Parts and Products (Surface Coating)	11/15/00	
	Paper and Other Webs (Surface Coating)	11/15/00	
	Plastic Parts and Products (Surface Coating)	11/15/00	
	Printing, Coating and Dyeing of Fabrics	11/15/00	
	Printing/Publishing (Surface Coating)	11/15/94	61FR27132(F)
	Shipbuilding and Ship Repair (Surface Coating)	11/15/94	60FR64330(F)

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PRO-MULGATION DATE	FEDERAL REGISTER CITATION[2]
Surface Coating Process (contd.)	Wood Furniture (Surface Coating)	11/15/94	60FR62930(F)
Waste Treatment & Disposal	Hazardous Waste Incineration	11/15/00	
	Municipal Landfills	11/15/00	
	Off-Site Waste and Recovery Operations	11/15/94	61FR34141(F)
	Publicly Owned Treatment Works (POTW) Emissions	11/15/95	
	Sewage Sludge Incineration	11/15/00	
	Site Remediation	11/15/00	
Agricultural Chemicals Production	4-Chloro-2-Methylphenoxyacetic Acid Production	11/15/97	
	2,4-D Salts and Esters Production	11/15/97	
	4,6-Dinitro-o-Cresol Production	11/15/97	
	Butadiene-Furfural Cotrimer (R-11) Production[4]	11/15/00	
	Captafol Production[4]	11/15/97	
	Captan Production[4]	11/15/97	
	Chloroneb Production	11/15/97	

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PROMULGATION DATE	FEDERAL REGISTER CITATION[2]
Agricultural Chemicals Production (contd.)	Chlorothalonil Production[4]	11/15/97	
	Dacthal (tm) Production[4]	11/15/97	
	Sodium Pentachlorophenate Production	11/15/97	
	Tordon (tm) Acid Production[4]	11/15/97	
Fibers Production Processes	Acrylic Fibers/Modacrylic Fibers Production	11/15/97	
	Rayon Production	11/15/00	
	Spandex Production	11/15/00	
Food and Agriculture Processes	Baker's Yeast Manufacturing	11/15/00	
	Cellulose Food Casing Manufacturing	11/15/00	
	Vegetable Oil Production	11/15/00	
Pharmaceutical Production Processes	Pharmaceutical Production[4]	11/15/97	
Polymers & Resins Production	Acetal Resins Production	11/15/97	
	Acrylonitrile-Butadiene-Styrene Production	11/15/94	61FR48208(F)

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PRO-MULGATION DATE	FEDERAL REGISTER CITATION[2]
Polymers & Resins Production (contd.)	Alkyd Resins Production	11/15/00	
	Amino Resins Production	11/15/97	
	Boat Manufacturing	11/15/00	
	Butyl Rubber Production	11/15/94	61FR46906(F)
	Carboxymethylcellulose Production	11/15/00	
	Cellophane Production	11/15/00	
	Cellulose ethers Production	11/15/00	
	Epichlorohydrin Elastomers Production	11/15/00	61FR46906(F)
	Epoxy Resins Production	11/15/94	60FR12670(F)
	Ethylene-Propylene Rubber Production	11/15/94	61FR46906(F)
	Flexible Polyurethane Foam Production	11/15/97	
	Hypalon (tm) Production[4]	11/15/94	61FR46906(F)
	Maleic Anhydride Copolymers Production	11/15/00	
	Methylcellulose Production	11/15/00	
	Methyl Methacrylate-Acrylonitrile-Butadiene-Styrene Production[4]	11/15/94	61FR48208(F)

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PRO-MULGATION DATE	FEDERAL REGISTER CITATION[2]
Polymers & Resins Production (contd.)	Methyl Methacrylate-Butadiene-Styrene Terpolymers Production[4]	11/15/94	61FR48208(F)
	Neoprene Production	11/15/94	61FR46906(F)
	Nitrile Butadiene Rubber Production	11/15/94	61FR46906(F)
	Nitrile Resins Production	11/15/00	61FR48208(F)
	Non-Nylon Polyamides Production	11/15/94	60FR12670(F)
	Nylon 6 Production	11/15/97	
	Phenolic Resins Production	11/15/97	
	Polybutadiene Rubber Production[4]	11/15/94	61FR46906(F)
	Polycarbonates Production[4]	11/15/97	
	Polyester Resins Production	11/15/00	
	Polyether Polyols Production	11/15/97	
	Polyethylene Terephthalate Production	11/15/94	61FR48208(F)
	Polymerized Vinylidene Chloride Production	11/15/00	
	Polymethyl Methacrylate Resins Production	11/15/00	
	Polystyrene Production	11/15/94	61FR48208(F)
	Polysulfide Rubber Production[4]	11/15/94	61FR46906(F)

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PRO-MULGATION DATE	FEDERAL REGISTER CITATION[2]
Polymers & Resins Production (contd.)	Polyvinyl Acetate Emulsions Production	11/15/00	
	Polyvinyl Alcohol Production	11/15/00	
	Polyvinyl Butyral Production	11/15/00	
	Polyvinyl Chloride and Copolymers Production	11/15/00	
	Reinforced Plastic Composites Production	11/15/97	
	Styrene-Acrylonitrile Production	11/15/94	61FR48208(F)
	Styrene Butadiene Rubber and Latex Production[4]	11/15/94	61FR46906(F)
Production of Inorgan-ic Chemicals	Ammonium Sulfate Production - Caprolactam By-Product Plants	11/15/00	
	Antimony Oxides Manufacturing	11/15/00	
	Carbon Black Production	11/15/00	
	Chlorine Production[4]	11/15/97	
	Cyanuric Chloride Production	11/15/97	
	Fume Silica Production	11/15/00	
	Hydrochloric Acid Production	11/15/00	
	Hydrogen Cyanide Production	11/15/97	

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PRO-MULGATION DATE	FEDERAL REGISTER CITATION[2]
Production of Inorganic Chemicals (contd.)	Hydrogen Fluoride Production	11/15/00	
	Phosphate Fertilizers Production	11/15/00	
	Phosphoric Acid Manufacturing	11/15/00	
	Sodium Cyanide Production	11/15/97	
	Uranium Hexafluoride Production	11/15/00	
Production of Organic Chemicals	Ethylene Processes	11/15/00	
	Quaternary Ammonium Compounds Production	11/15/00	
	Synthetic Organic Chemical Manufacturing	11/15/92	59FR19402(F) 59FR29196(A) 59FR48175(C) 59FR53359(S) 59FR53392(a) 59FR54131(S) 59FR54154(a) 60FR05320(S) 60FR18020(A) 60FR18071(a)
Miscellaneous Processes	Aerosol Can-Filling Facilities	11/15/00	

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PRO-MULGATION DATE	FEDERAL REGISTER CITATION[2]
Miscellaneous Proces-ses (contd.)	Benzyltrimethylammonium Chloride Production	11/15/00	
	Carbonyl Sulfide Production	11/15/00	
	Chelating Agents Production	11/15/00	
	Chlorinated Paraffins Production[4]	11/15/00	
	Chromic Acid Anodizing	11/15/94	60FR04948(F) 60FR27598(C) 60FR33122(C)
	Commercial Dry Cleaning (Perchloroethylene) Transfer Machines	11/15/92	58FR49354(F) 58FR66287(A)
	Commercial Sterilization Facilities	11/15/94	59FR62585(F)
	Decorative Chromium Electroplating	11/15/94	60FR04948(F) 60FR27598(C) 60FR33122(C)
	Dry Cleaning (Petroleum Solvent)	11/15/00	
	Ethylidene Norborene Production[4]	11/15/00	
	Explosives Production	11/15/00	
	Flexible Polyurethane Foam Fabrication Operations	11/15/00	
	Friction Products Manufacturing	11/15/00	

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PRO-MULGATION DATE	FEDERAL REGISTER CITATION[2]
Miscellaneous Proces-ses (contd.)	Halogenated Solvent Cleaners	11/15/94	59FR61801(F) 59FR67750(C) 60FR29484(C)
	Hard Chromium Electroplating	11/15/94	60FR04948(F) 60FR27598(C) 60FR33122(C)
	Hydrazine Production	11/15/00	
	Industrial Cleaning (Perchloroethylene) - Dry-to-Dry machines	11/15/92	58FR49354(F) 58FR66287(A)
	Industrial Dry Cleaning (Perchloroethylene) - Transfer Machines	11/15/92	58FR49354(F) 58FR66287(A)
	Industrial Process Cooling Towers	11/15/94	59FR46339(F)
	Leather Tanning and Finishing Operations	11/15/00	
	OBPA/1,3-Diisocyanate Production[4]	11/15/00	
	Paint Stripper Users	11/15/00	
	Photographic Chemicals Production	11/15/00	
	Phthalate Plasticizers Production	11/15/00	
	Plywood/Particle Board Manufacturing	11/15/00	

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PRO-MULGATION DATE	FEDERAL REGISTER CITATION[2]
Miscellaneous Processes (contd.)	Pulp and Paper Production	11/15/97	58FR66078(P) 59FR12567(C) 61FR09383(P)
	Rocket Engine Test Firing	11/15/00	
	Rubber Chemicals Manufacturing	11/15/00	
	Semiconductor Manufacturing	11/15/00	
	Symmetrical Tetrachloropyridine Production[4]	11/15/00	
	Tetrahydrobenzaldehyde Production	11/15/97	
	Tire Production	11/15/00	
Categories of Area Sources[5]	Chromic Acid Anodizing	11/15/94	60FR04948(F) 60FR27598(C) 60FR33122(C)
	Commercial Dry Cleaning (Perchloroethylene) - dry - to - Dry Machines	11/15/92	58FR49354(F) 58FR66287(A)
	Commercial Dry Cleaning (Perchloroethylene) - Transfer Machines	11/15/92	58FR49354(F) 58FR66287(A)
	Commercial Sterilization Facilities	11/15/94	59FR62585(F)
	Decorative Chromium Electroplating	11/15/94	60FR04948(F) 60FR27598(C) 60FR33122(C)

INDUSTRY GROUP	SOURCE CATEGORY[1]	SCHEDULED PRO-MULGATION DATE	FEDERAL REGISTER CITATION[2]
Categories of Area Sources (contd.)	Halogenated Solvent Cleaners	11/15/94	59FR61801(F) 59FR67750(C) 60FR29484(C)
	Hard Chromium Electroplating	11/15/94	60FR04948(F) 60FR27598(C) 60FR33122(C)
	Secondary Lead Smelting	11/15/00	60FR32587(F)

1. Only sources within any category located at a major source shall be subject to emission standards under Section 112 unless a finding is made of a threat of adverse effects to human health or the environment for the area sources in a category. All listed categories are exclusive of any specific operations or processes included under other categories that are listed separately.

2. The markings in the "Scheduled Promulgation Date/FEDERAL REGISTER Citation" columns of Table 1 denote the following:

(A): amendment to a final rulemaking action
(a): proposed amendment to a final rulemaking action
(C): correction (or clarification) published subsequent to a proposed or final rulemaking action
(F): final rulemaking action
(P): proposed rulemaking action
(R): reopening of a proposed action for public comment
(S): announcement of a stay, or partial stay, of the rule requirement

3. Sources defined as electric utility steam generating units under Section 112(a)(8) shall not be subject to emission standards pending the findings of the study required under Section 112(n)(l).

4. Equipment handling specific chemicals for these categories or subsets of these categories are subject to negotiated standard for equipment leaks contained in the Hazardous Organic NESHAP (HON), which was promulgated on April 22, 1994. The HON includes a negotiated standard for equipment leaks from the SOCMI category and 20 non-SOCMI categories (or subsets of these categories). The specific processes affected within the categories are listed in Section XX.X0(c) on page 9318 of the March 6, 1991 Federal Register notice (56FR9315).

5. A finding of threat or adverse effects to human health or the environment was made for each category of area sources listed.