

**IMPLEMENTATION PLANS  
FOR THE  
LEAD NATIONAL AMBIENT  
AIR QUALITY STANDARD**

**NOTICE OF PROPOSED RULEMAKING  
[40 CFR PART 51]  
[FRL 821-5]**

**DECEMBER 14, 1977**

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Air and Waste Management  
Office of Air Quality Planning and Standards  
Research Triangle Park, North Carolina 27711**

ENVIRONMENTAL PROTECTION AGENCY

[40 CFR Part 51]

[FRL 821-5]

IMPLEMENTATION PLANS FOR LEAD NATIONAL AMBIENT

AIR QUALITY STANDARD

Notice of Proposed Rulemaking

AGENCY: Environmental Protection Agency.

ACTION: Proposed rulemaking.

SUMMARY: The regulations proposed below, together with the current requirements of 40 CFR Part 51, set forth the requirements for States to follow in developing, adopting and submitting acceptable implementation plans for the lead national ambient air quality standards (NAAQS) proposed elsewhere in this FEDERAL REGISTER. The implementation plans are required under Section 110 of the Clean Air Act.

Amendments to the existing regulations for implementation plans are necessary because lead differs from other pollutants for which the existing regulations were designed. The proposed amendments to 40 CFR Part 51 address the following topics:

- Definitions of point sources and control strategy.
- Control strategy requirements.
- Air quality surveillance.

This preamble also discusses other issues concerning the development of lead implementation plans, including reporting requirements, emergency episode plans, and new source review.

DATES: Comments must be received on or before: February 17, 1978.

Comments submitted in triplicate will facilitate internal distribution and public availability.

ADDRESSES: Persons may submit written comments on this proposal to:

U.S. Environmental Protection Agency  
Office of Air Quality Planning and Standards  
Control Programs Development Division (MD 15)  
Research Triangle Park, NC 27711  
Attention: Mr. Joseph Sableski.

EPA will make all comments received on or before February 17, 1978, available for public inspection during normal business hours at:

EPA Public Information Reference Unit  
401 M Street, S.W., Room 2922  
Washington, D.C. 20460.

FOR FURTHER INFORMATION CONTACT:

Mr. John Silvasi  
U.S. Environmental Protection Agency  
Office of Air Quality Planning and Standards  
Control Programs Development Division (MD 15)  
Research Triangle Park, NC 27711  
Telephone: Commercial--919-541-5437; FTS--629-5437.

SUPPLEMENTARY INFORMATION:

## 1. STATUTORY REQUIREMENTS

### 1.1 STATUTORY REQUIREMENTS AND SCHEDULE FOR ACTION

Under section 110 of the Clean Air Act, States must adopt and submit plans to EPA within nine months after the promulgation of a primary or secondary national ambient air quality standard. On the present schedule, EPA will promulgate the lead standard in June 1978. States must therefore submit their SIPs by March 1979. EPA

must approve or disapprove the plan within four months after the date required for submission of the plan. If a State fails to submit a plan that complies with section 110, EPA must promulgate a plan for that State within six months after the date required for submission of the plan.

## 1.2 REQUIREMENTS FOR CONTENT OF THE PLAN

Section 110 of the Clean Air Act requires that a SIP provide for the attainment of primary ambient air quality standards within three years after the date on which EPA approves (or promulgates) the plan, and maintenance thereafter. EPA can grant an extension of the attainment date of up to two years under certain conditions. In addition, EPA cannot approve a plan unless it contains a number of other provisions; these are detailed in Section 110 of the Act.

It is important to note that the Act requires a plan for each criteria pollutant (i.e., one that the Administrator designates under Section 108 and for which he establishes criteria and a standard under Section 109 of the Clean Air Act). Therefore, the plan for lead will be a separate plan, not a revision to an existing plan. Many portions of the existing plans, however, such as those portions covering legal authority, compliance schedules and source surveillance, may be applicable to the implementation of the lead standard. The lead plan may incorporate those portions of existing plans by reference.

### 1.3 EXTENSIONS

Under section 110 of the Clean Air Act, the EPA Administrator may extend up to two years the three-year period for attainment of a primary standard.

The two-year extension to attain primary standards can be granted only upon application from the Governor of a State. Detailed requirements for the extension appear in Section 110 of the Act and Subpart C (Extensions) of 40 CFR 51.

### 2. EXISTING REGULATORY REQUIREMENTS AND NEED FOR REVISION

Regulations for the preparation, adoption, and submission of State implementation plans under Section 110 of the Clean Air Act, as amended, were published November 25, 1971 (36 FR 22369), codified as 40 CFR Part 51 and have been modified from time to time since then. The regulations represent an exercise of the agency's authority under Section 301 of the Act to prescribe regulations as necessary to carry out the functions assigned to EPA under the Act. The regulations incorporate the basic requirements outlined in Section 110 of the Act, discussed above in Section 1. When EPA first published these regulations, there were only six criteria pollutants: particulate matter, sulfur oxides, carbon monoxide, hydrocarbons, photochemical oxidants, and nitrogen dioxide.

Elsewhere in this FEDERAL REGISTER, EPA is proposing a national ambient air quality standard for lead. EPA proposes to revise 40 CFR 51 to prescribe the minimum requirements that plans must meet for EPA approval. Portions of 40 CFR 51 that are not revised are still applicable to the lead plans as appropriate.

In addition, EPA will eventually promulgate requirements that count for the Clean Air Act Amendments of 1977. The new requirements that may affect lead implementation plans will cover the following topics:

- Transportation-related provisions.
- Accounting for stack heights.
- Prevention of significant deterioration.
- Permit requirements.
- Indirect source review.
- Interstate pollution abatement.
- Consultation with governmental entities at the local and Federal level.
- Permit fees.
- Composition of State air pollution boards.
- Provisions for public notification of dangers of air pollution.
- Protection of visibility in certain areas.
- Energy or economic emergency authority.

### 3. DISCUSSION OF PROPOSED REVISIONS

Portions of this section and the proposed rulemaking refer to a document entitled "Supplementary Guidelines for Lead Implementation Plans," which is now in draft form. Information on availability of that draft appears in Section 4.3 of this preamble, below.

#### DEFINITIONS

##### .1 Definition of Lead Point Sources

A point source is a facility that emits a significant quantity of air pollutant emissions. EPA is proposing that a point source of lead be defined as a source that emits five tons per year of lead or lead compound, without regard to the area in which it is located. Factors

influencing the proposed point source definition include the air quality impact of such sources, and the number of sources that would be affected. A discussion of the determination of this definition appears in EPA's draft "Supplementary Guidelines for Lead Implementation Plans."<sup>1</sup>

### 3.1.2 Definition of Control Strategy

The proposal below would amend the definition of "control strategy" (§ 51.1(n)) to include regulation of fuels and fuel additives in the list of measures that could be considered control strategies.

Section 211(c)(4)(C) of the Clean Air Act authorizes States to regulate or prohibit the use of a fuel or fuel additive for motor vehicles through the State implementation plan. EPA can approve a State plan that contains such a regulation only if EPA "finds that the State control or prohibition is necessary to achieve the national primary or secondary ambient air quality standard which the plan implements." Lead in the form of tetramethyl lead or tetraethyl lead is widely used as an additive to gasolines to increase octaine rating.

On September 28, 1976, EPA promulgated regulations that control the amount of lead in gasolines (41 FR 42675 as 40 CFR 80.20). These regulations require oil refiners to meet a lead in gasoline concentration of 0.8 grams per gallon by January 1, 1978, and 0.5 grams per gallon by October 1, 1979.

Also, the Clean Air Act Amendments of 1977 amended Section 211 of the Act to provide less stringent lead-in-gasoline limitations for small refineries.

In most urban areas without point sources of lead, the federal program for the reduction of lead in gasoline should sufficiently reduce lead emissions to the national standard for lead. There may be a few places, however, where the automobile emissions are so great that the federal program will not ensure the attainment of the standard. In those cases, States may wish to impose their own standards on the concentration of lead in gasoline under Section 211 of the Clean Air Act. EPA is proposing to list this as a possible measure in the definition of control strategy under § 51.1(n).

### 3.2 PRIORITY CLASSIFICATION SYSTEM

Section 51.3 currently defines a system for placing each air quality control region (AQCR) into priority classes based on the magnitude of its air pollution problem for several pollutants. This section will not apply to lead, since this proposal sets forth another means of setting priorities in the development of the control strategy.

### 3.3 REPORTING REQUIREMENTS

The requirements for quarterly air quality reporting specified in § 51.7(a) will apply to lead as well as the other criteria pollutants.

EPA plans to modify the requirements of § 51.7 for periodic emission reporting in 1978 and will address the reporting of lead emissions at that time. The following discussion outlines EPA's current thinking on this topic.



Currently § 51.7(b) requires that changes to the emission inventory be submitted in accordance with the requirements of the National Emission Data System (NEDS).<sup>2</sup> Data from many point sources of lead are already in the NEDS system because the lead sources are also sources of particulate matter.

To minimize lead emission data collection and reporting requirements, EPA will use existing NEDS data together with emission factors from EPA's Hazardous and Trace Emissions System (HATREMS)<sup>2</sup> to calculate and store lead emissions data. The data from NEDS will be adequate to calculate emissions for most lead sources; HATREMS will also have the capability to store additional data for other sources that are not currently in NEDS (such as tetraethyl lead manufacturing) and to add new sources as necessary. Therefore, the lead emission reporting requirements will be based on the use of both NEDS and HATREMS. The regulation would require reporting on only point sources (i.e., those greater than five tons per year).

For the initial data submission, the States will be required (under a new Subpart E to 40 CFR Part 51 proposed below) to submit to the EPA Regional Office: (1) NEDS and HATREMS point source forms for all sources emitting five or more tons of lead per year and (2) an updated NEDS area source form and a HATREMS form for each county which must report. This submission should ensure a complete initial emission inventory.

#### 3.4 CONTROL STRATEGY

A control strategy in an implementation plan is a set of measures developed to change the amount, timing, or distribution of emissions.

An implementation plan must demonstrate that the control strategy is adequate to attain the standard within three years after EPA approval and maintain the standard thereafter. (States can receive an extension of up to two years to attain a primary standard, however.)

The regulations that EPA is proposing below pertaining to lead control strategies would appear as a separate new Subpart E.

#### 3.4.1 Requirements for Air Quality Maintenance Analyses and Plans

Review of new and modified stationary sources of lead under 40 CFR 51.18 should be adequate to ensure maintenance of the national standard for lead in most areas. The regulations (40 CFR Part 51, Subpart D) requiring a detailed emissions projection analysis for the other criteria pollutants in selected areas were designed to require evaluation of the air quality impact of the growth of area sources that are not covered by the new source review provisions under § 51.18. The only area sources for lead are nonpoint process sources (those less than five tons per year), stationary fuel combustion sources, and mobile sources.

Non-point process sources will not likely jeopardize the maintenance of the lead standard. Using lead consumption as an indicator of production - and hence source emission activity - between 1971 and 1975 there was a net decrease in lead consumption of 9.4 percent for all lead products industries. Most categories had decreases in consumption. The only categories with increases were weights and ballast production (12.8 percent) and storage battery components manufacturing (2.8 percent).<sup>3</sup>

The stationary fuel combustion sources emit only minor quantities of lead.

Mobile sources, particularly automobiles, emit significant quantities of lead as a category, but EPA regulations for reduction of lead in gasoline have not yet been fully implemented. After the maximum reduction of lead in gasoline, growth in mobile sources will not jeopardize the proposed lead standard.

§ 51.12(h) requires States to provide for a system for acquiring information concerning growth in emissions. States must assess all areas at least every five years to determine if the State needs to revise the plan for any areas. The information-gathering mechanism and the periodic reassessments will uncover growth in sources too small to be reviewed under § 51.18.

The proposed regulations would allow EPA to require an analysis period beyond the statutory attainment date in those few areas where growth might jeopardize the national lead standard.

### 3.4.2 Lead Emission Inventory

EPA will assist the States in developing their initial lead emissions inventory by generating inventories based on data in NEDS and HATREMS described above under the reporting requirements. States will have to determine the degree of reliability of this data, however, and obtain additional data as warranted. The EPA-generated inventory can be supplemented by the State through the calculation of emissions using a State particulate matter inventory and the emission factors in "Control Techniques for Lead Air Emissions."<sup>4</sup> Where the State desires more accurate emission data from a particular source, the State should measure the lead emissions directly. EPA's recommended technique for measuring lead emissions appears in Appendix A of "Supplementary Guidelines for Lead Implementation Plans."<sup>1</sup>

In projecting emissions to 1982--the year by which the lead standard must be attained (unless extended)--States will have to account for the effect of the federal program for the phase-down of lead in gasoline. EPA's "Supplementary Guidelines for Lead Implementation Plans"<sup>1</sup> provide a technique for projecting mobile source lead emissions. Detailed procedures for projecting emissions for other source categories appears in EPA's "Guidelines for Air Quality Maintenance Planning and Analysis."<sup>5</sup>

### 3.4.3 Lead Air Quality Analysis and Control Strategy Development

The regulations proposed below are based on the following three-part approach:

First, the State would determine whether EPA's lead-in-gasoline limitation is sufficient to provide for attainment of the standard in areas in which high lead air concentrations have been measured, and that are affected primarily by mobile source lead emissions. This analysis would be restricted to those urbanized areas whose lead air concentrations exceeded  $4.0 \mu\text{g}/\text{m}^3$ , monthly mean, measured since January 1, 1974. EPA derived this criterion from an analysis of the effects of three federal programs on reducing lead emissions: the program for the reduction of lead in gasoline under 40 CFR 80.20, the requirements (40 CFR 80.21 and 80.22) that prohibit the use of leaded gasoline in vehicles equipped with catalytic converters, and the requirements that set a lower limit on motor vehicle gasoline mileage under the Energy Policy and Conservation Act of 1975. EPA's analysis indicated that the effects of these programs are such that any area with 1976 lead concentrations that are caused predominantly by mobile sources and that are not in excess of  $5.5 \mu\text{g}/\text{m}^3$ , monthly mean, will attain a standard of  $1.5 \mu\text{g}/\text{m}^3$  maximum monthly mean, by 1982, assuming no other changes in emissions. EPA's analysis appears as Appendix D to EPA's "Supplementary Guidelines for Lead Implementation Plans."<sup>1</sup> The criterion of  $4.0 \mu\text{g}/\text{m}^3$  incorporates a safety factor applied to the results of the analysis. EPA estimates that about seven urbanized areas would be covered under this criterion. Table 3 presents the list of these seven areas.

In the SIP analysis, the State would use a screening technique in the form of a modified rollback model<sup>6</sup> to determine when the federal programs for the reduction of lead in gasoline, for the use of no-lead gasoline in catalyst equipped cars, and for minimizing gasoline consumption will result in attainment of the standard. If the analysis shows that the standard will not be attained until after the statutory attainment dates, the plan would have to contain whatever measures are needed to attain the standard by the attainment dates.

Second, the State would then model the following point sources of lead regardless of measured air quality concentrations in their vicinities: primary lead smelters, secondary lead smelters, primary copper smelters, lead gasoline additive plants, lead-acid storage battery manufacturing plants that produce 1200 or more batteries per day, and all other sources that emit 25 or more tons per year of lead. The State would have to use a dispersion model to estimate the impact of these sources on lead air concentrations. The State would develop and evaluate control strategies that would cover such sources if necessary.

These four source categories were selected based upon an analysis of their air quality impact. That analysis indicated that due to their fugitive emissions in the case of the smelters and the magnitude of their stack emissions in the case of lead gasoline additive plants and battery manufacturing plants, these source categories presented the potential for the greatest localized stationary source impacts.

Third, for each area in the vicinity of an air quality monitor that has recorded lead concentrations in excess of the lead national standard, the State would have to analyze the problem using modified rollback.

In so doing, the State would investigate sources of lead emissions other than ones covered in the first two parts above. Other sources include mobile-sources, smaller lead point sources, or categories of lead sources such as facilities that burn waste crankcase oil that contains lead.

The above strategy is in EPA's judgment adequate to quantify lead air problems for purposes of developing attainment strategies. It does not require the most sophisticated techniques for quantifying lead air quality problems, because State resources are at this time severely limited. If EPA required the most advanced techniques, few States would be able to submit acceptable analyses in a timely manner. A State that desires more detail in its analysis, however, should attempt more sophisticated analyses, such as modeling mobile and non-major sources using dispersion models and the generation of a lead emission inventory based upon measured emissions.

There may be source categories other than those specified in the second part of the above approach that have the potential for causing violations of the national standard for lead. EPA has identified gray iron foundries as one such source category, but this identification is based on limited data concerning the amount of fugitive emissions from the facilities. EPA does not feel that the degree of confidence in this identification justifies a requirement for States to analyze all gray iron foundries, of which over 1000 exist. And because fugitive emissions may vary from facility to facility depending on factors other than production rate, it is difficult to arrive at a cutoff below which no such foundry need be analyzed. The State

would, however, have to analyze those foundries located in areas that have measured lead concentrations in excess of the proposed standard. Because of the potential problems from foundries and other sources not covered by that approach, States are encouraged to consider analysis of these sources to the extent that time and resources permit.

For stationary sources whose particulate matter emissions are not normally well controlled and for stationary sources that generate a substantial amount of large particles, a State may wish to account for deposition or atmospheric fallout of large particles. States may use the methods found in Chapter 5 of "Meteorology and Atomic Energy 1968." The pertinent pages of that document are found in Appendix C of the "Supplementary Guidelines for Lead Implementation Plans."<sup>1</sup>

### 3.5 PREVENTION OF AIR POLLUTION EMERGENCY EPISODES

Because there is no evidence that exposure to short-term (hourly) peak lead levels in the ambient air could cause adverse health effects in any segment of the general population at levels that are ever likely to be experienced, an "emergency episode" for lead will remain undefined unless contradictory evidence is uncovered. For this reason, EPA does not intend to require States to adopt specific procedures to prevent emergency episodes as part of their lead implementation plans.

### 3.6 LEAD AIR MONITORING REQUIREMENTS

EPA is currently revising the air quality monitoring requirements to incorporate the recommendations of EPA's Standing Air Monitoring Work Group. These new requirements will cover all criteria pollutants--



those for which EPA has published a criteria document and promulgated a national ambient air quality standard. So that persons interested in the requirements that pertain to lead implementation plans can review the lead monitoring proposal, however, EPA is proposing and will promulgate the lead monitoring requirements with the remainder of the lead regulations. These requirements will eventually be incorporated into the air quality monitoring requirements that will apply to all the criteria pollutants.

The regulations proposed below would require ambient monitoring for lead in urban areas. Lead emissions come predominately from mobile sources. EPA estimates that emissions from this category account for approximately 90 percent of total national emissions. Furthermore, most of these emissions occur in urban areas; hence the requirement for urban area monitoring.

A limited ambient monitoring program will be sufficient on a national basis to determine whether the limitation on lead in gasoline is resulting in the attainment and maintenance of the lead NAAQS. Thus, only relatively few monitors, compared to the number required for particulate matter, are needed in the major urban areas across the country on a permanent basis to develop an air quality trend data base.

### 3.6.1 Urban Area Monitoring

Permanent lead monitoring will be required only in the following areas:

- Any urbanized area with a population greater than 500,000, or
- Any urbanized area with lead concentrations equal to or in excess of  $1.5 \mu\text{g}/\text{m}^3$ , maximum 30-day arithmetic mean, measured since January 1, 1974.

These criteria were selected to ensure that any area with the potential for exceeding the lead NAAQS, or that has already exceeded the NAAQS, would have to monitor ambient lead levels. An urbanized area with a population greater than 500,000 would be expected to have sufficient traffic density to pose a potential threat to the NAAQS.

Lists of areas that meet the above criteria are presented in Tables 1 and 2 below.

EPA recommends that States also monitor in smaller urban areas on an intermittent basis to determine their status with respect to the NAAQS. Such monitoring would be considered "Special Purpose Monitoring," in keeping with the terminology of the Standing Air Monitoring Work Group (SAMWG). States would have discretion in identifying the additional areas where monitoring will be conducted, selecting appropriate monitoring sites, and scheduling the time period over which the sampling will be conducted. EPA suggests several specified monitoring options: sampling during the course of every other year for five years until a trend is established, then sampling every third year, and sampling every year but over a 6 month time interval during the year. Each of these schemes would allow a State to use one monitor for at least two locations. If violations of NAAQS are found, permanent sites could be established. EPA recommends that urbanized areas greater than 100,000 in population be included in this supplemental monitoring program.

At least two monitors will be required as a minimum for urban area monitoring. The permanent sites established would be considered "National Air Quality Trend Stations" (NAQTS), in keeping with the terminology of the SAMWG. The minimum sampling frequency would be one sample every six days. Each EPA Regional Administrator would have the authority to specify more than two monitors, however, if he found that two monitors are insufficient to determine if the lead NAAQS were being attained and maintained. These additional monitors would be considered State and Local Air Monitoring Stations (SLAMS) in keeping with the terminology of the SAMWG.

The analysis of the 24-hour samples could be performed for either individual samples or composites of the samples collected over a calendar month. The sample analysis will use the Federal reference method, which EPA is proposing in 40 CFR Part 50 along with the NAAQS, or equivalent methods. The proposed reference method consists of the collection of the ambient sample using a high volume air sampler (hi-vol), with analysis for lead by atomic absorption.

Two types of monitoring sites will be needed as a minimum for urban area ambient lead monitoring--a roadway site and a neighborhood site. The objective of both site types is to measure in areas where people are being exposed to maximum lead concentrations in the ambient air. Both site types are needed to determine exposure of receptors to lead concentrations arising primarily from automotive sources and to determine the effect on air quality of the federal program for the reduction of lead in gasoline.

The roadway site would be located near residences that are in the vicinity of a major roadway (arterial, freeway, interstate, etc.) passing through a residential community or downtown center city area.

The neighborhood site would be located in an area of high density traffic and population, but not necessarily adjacent to major roadways. The preferred location for this site type would be at or near play areas or schools because of the seriousness of lead exposure for small children.

EPA's "Supplementary Guidelines for Lead Implementation Plans"<sup>1</sup> would specify the siting requirements for each of the site types.

Since the lead ambient air sampling method is the same as that for particulate matter, a State may designate existing particulate matter sites as lead monitoring sites if the stations meet the siting criteria of EPA's "Supplementary Guidelines for Lead Implementation Plans."<sup>1</sup>

### 3.6.2 Point Source Monitoring

The regulations would not require ambient monitoring around a lead source to determine whether the lead NAAQS is being achieved, but EPA encourages States to perform such monitoring, especially if the lead emissions are fugitive. A State may require point source owners and operators to monitor in the vicinity of their sources.

EPA also encourages States to monitor in locations where people with high blood lead levels work, reside, or play.

### 3.6.3 Other Monitoring

The proposed regulations would also provide for EPA to require monitors in areas outside the areas described in Section 3.6.1, above.

### 3.7 REVIEW OF NEW SOURCES AND MODIFICATIONS

#### 3.7.1 New Stationary Sources

EPA is not proposing modifications to the new source review requirements in the action below. Since this portion of the lead implementation plan requirements is part of a much larger issue, EPA believes that the new source review provisions for lead plans should be handled in a forthcoming separate action concerning new source review.

In the FEDERAL REGISTER of December 21, 1976 (41 FR 55558), EPA gave advance notice of a proposed revision to 40 CFR 51.18 concerning new source review. The notice indicated that EPA was considering the establishment of a system for reviewing new sources where the complexity of the review would depend on the size of the proposed source. The proposed regulations for new source review would establish two size criteria for new and modified lead sources. Below the lower limit, (emission of five tons per year) no new source review would be needed. Between the lower and higher limit (emissions of 25 tons per year), a review of the source for conformance with emission limitations would be needed, but no air quality analysis would be needed. Above the higher limit, an air quality analysis would be needed.

Lead point sources that are smaller than major lead sources (i.e., less than 25 tons per year) would not be subject to public comment requirements.

## 7.2 Indirect Sources

The Clean Air Act Amendments of 1977 prohibit EPA from requiring State Implementation Plans to contain a new source review program for direct sources. Therefore, the proposed regulations would not require States to review new indirect sources.

## 7.3 Significant Deterioration

In the regulations proposed below, EPA has not proposed a definition of what is meant by significant deterioration with regard to lead.

Under the Clean Air Act Amendments of 1977, however, EPA must promulgate regulations for the prevention of significant deterioration of any pollutant for which EPA promulgates a new national ambient air quality standard. EPA must promulgate these regulations within two years after promulgation of the standard.

## 7.4 SOURCE SURVEILLANCE

EPA does not propose any changes to the regulations on source surveillance to account for the new lead standard; therefore, States must follow the same requirements set forth therein for lead as for other criteria pollutants.

The requirements for continuous monitoring of emissions will not be applied at this time to lead SIPs, however, because there are no in-stack lead monitors that measure both particulate and vaporous lead simultaneously. If such a monitor becomes available, EPA will then determine whether to require continuous in-stack lead monitors.

### 3.9 MISCELLANEOUS

In addition to the revisions discussed above, the proposal below contains several minor revisions that are necessary to differentiate certain regulations that apply only to lead from regulations that apply to other criteria pollutants.

## 4. ADDITIONAL GUIDANCE

### 4.1 SUPPLEMENTARY GUIDELINES

EPA has prepared a draft guideline, "Supplementary Guidelines for Lead Implementation Plans,"<sup>1</sup> that will cover aspects of the SIP development process not covered in the revisions to the SIP requirements. The items covered in the guideline are--

- air quality data reporting details,
- emissions data reporting details,
- determining and accounting for background concentrations,
- projecting automotive lead emissions,
- new source review techniques,
- methods for stack testing,
- determination of lead point source definition, and
- a discussion of deposition of particles and gases.

Comments on this draft are invited as part of this rulemaking. Information on how to obtain copies is given in Section 4.3 below.

The document, "Control Techniques for Lead Air Emissions,"<sup>4</sup> also contains technical information that States can use in developing their analyses and control strategies. Included in the document is information about--

- processes that produce lead emissions,
- techniques applicable for control of lead emissions from both stationary and mobile sources and their costs,
- lead emission factors,
- effect of TSP controls on lead emissions, and
- particle size distribution of lead emissions from most source categories (this information may be needed to operate dispersion models that account for particle deposition).

#### 4.2 EXAMPLE LEAD CONTROL STRATEGY

To assist the States in developing implementation plans for the proposed lead air quality standard, EPA is developing an example lead control strategy. The example is scheduled for completion in March 1978 and will be made available through the OAQPS Guideline Series.

#### 4.3 AVAILABILITY OF REFERENCES

EPA will make the "Supplementary Guidelines for Lead Implementation Plans" available to the State and local air pollution control agencies through the EPA Regional Offices. A list of these offices and appropriate persons to contact are presented below.



Ms. Ruth Seidman, Librarian  
EPA - Region I  
John F. Kennedy Federal Bldg.  
Room 2302  
Boston, MA 02203

Ms. Dee Crawford, Librarian  
EPA - Region VI  
First International Bldg.  
1201 Elm St.  
Dallas, TX 75201

Mr. H. Luger, Librarian  
EPA - Region II  
Federal Office Bldg.  
26 Federal Plaza  
New York, NY 10007

Ms. Connie McKenzie, Librarian  
EPA - Region VII  
1735 Baltimore Avenue  
Kansas City, MO 64108

Ms. Wiley, Librarian  
EPA - Region III  
Curtis Bldg.  
Sixth & Walnut Streets  
Philadelphia, PA 19106

Ms. Dianne Grah, Librarian  
EPA - Region VIII  
1860 Lincoln Street  
Denver, CO 80203

Ms. Barbara Fields  
Air & Hazardous Materials Div.  
EPA - Region IV  
345 Courtland, N.E.  
Atlanta, GA 30308

Ms. Jean Circiello, Librarian  
EPA - Region IX  
215 Fremont Street  
San Francisco, CA 94105

Ms. Lou W. Tilley, Librarian  
EPA - Region V  
230 S. Dearborn Street  
Chicago, IL 60604

Ms. Arvella J. Weir, Librarian  
EPA - Region X  
1200 Sixth Avenue  
Seattle, WA 98101

A copy of most reference material cited herein is available for public inspection at these Regional Offices. A copy of all reference material cited herein is available for public inspection at the EPA Public Information Reference Unit, the address of which is at the beginning of this preamble. In addition, there will be a number of additional copies of the draft "Supplementary Guidelines for Lead Implementation Plans" available for distribution to members of the general public. Persons who desire a copy may write or call--

U.S. Environmental Protection Agency  
Public Information Center (PM 215)  
401 M Street, SW  
Washington, DC 20460  
Telephone: 202-755-0707

## 5. ENVIRONMENTAL AND ECONOMIC IMPACT

EPA has conducted studies of the environmental and economic impacts of implementing a national ambient air quality standard for lead. Copies of EPA's draft environmental and economic impact studies may be obtained from:

Mr. Joseph Padgett, Director  
Strategies and Air Standards Division  
U.S. Environmental Protection Agency  
Research Triangle Park, NC 27711  
Telephone: 919-541-5204

### 5.1 ENVIRONMENTAL IMPACT

The principal environmental impact of setting and implementing the lead standard will be the reduction of airborne levels of lead and reversal over time of the present trend of accumulation of lead in natural eco-systems, principally soil and sediments. Reduction of lead emissions will also result in reduction of emissions of particulate matter and other metals at sources requiring control.

### 5.2 ECONOMIC AND INFLATION EFFECTS

The Environmental Protection Agency has determined that this document contains a major proposal requiring preparation of an Economic Impact Analysis under Executive Orders 11821 and 11949 and OMB Circular A-107 and certifies that an Economic Impact Analysis has been prepared.

Economic impacts will result primarily from control of lead emissions from primary lead and copper smelters, secondary lead smelters, gray iron foundries, gasoline lead additive manufacturers, and lead-acid storage battery manufacturers.

## 6. REFERENCES

1. Supplementary Guidelines for Lead Implementation Plans. Draft. For information on availability for review, see section 4.3, above.
2. AEROS Users Manual, Vol. II. U.S. Environmental Protection Agency, Office of Air and Waste Management, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711. EPA 450/2-76-029 (OAQPS No. 1.2-039). December 1976.
3. Lead Industry in May 1976. Mineral Industry Surveys. U.S. Department of Interior. Bureau of Mines. Washington, DC, August 5, 1976.
4. Control Techniques for Lead Air Emissions. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC. November 1977.
5. Guidelines for Air Quality Maintenance Planning and Analysis, Volume 7: Projecting County Emission. Second Edition. EPA 450/4-74-008. U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. January 1975.
6. deNevers, N.H., and J.R. Morris. Rollback Modeling--Basic and Modified. Reprint 73-139. Presented at the Air Pollution Control Association Annual Meeting, Chicago, June 1973.

TABLE I

URBANIZED AREAS\* GREATER THAN 500,000 POPULATION  
(1970 Census\*\*)

<u>AQCR#</u>	<u>AREA</u>	<u>AQCR#</u>	<u>AREA</u>
043	New York, N.Y.-Northeastern New Jersey	036	Denver, Colo.
024	Los Angeles-Long Beach, Calif.	030	San Jose, Calif.
067	Chicago, Ill.-Northwestern Indiana	106	New Orleans, La.
045	Philadelphia, Pa.-N.J.	015	Phoenix, Ariz.
123	Detroit, Mich.	193	Portland, Ore.-Wash.
030	San Francisco-Oakland, Calif.	080	Indianapolis, Ind.
119	Boston, Mass.	120	Providence-Pawtucket- Warwick, R.I.-Mass.
047	Washington, D.C.-Md.-Va.	176	Columbus, Ohio
174	Cleveland, Ohio	217	San Antonio, Texas
070	St. Louis, Mo.-Ill.	078	Louisville, Ky.-Ind.
197	Pittsburgh, Pa.	173	Dayton, Ohio
131	Minneapolis-St. Paul, Minn.	215	Fort Worth, Texas
216	Houston, Texas	223	Norfolk-Portsmouth, Va.
115	Baltimore, Md.	018	Memphis, Tenn.-Miss.
215	Dallas, Texas	028	Sacramento, Calif.
239	Milwaukee, Wisc.	050	Ft. Lauderdale - Hollywood, Fla.
229	Seattle-Everett, Wash.	160	Rochester, N.Y.
050	Miami, Fla.	033	San Bernardino-Riverside, Calif.
029	San Diego, Calif.	184	Oklahoma City, Okla.
056	Atlanta, Ga.	004	Birmingham, Ala.
079	Cincinnati, Ohio-Ky.	174	Akron, Ohio
094	Kansas City, Mo.	049	Jacksonville, Fla.
162	Buffalo, N.Y.	042	Springfield-Chicopee- Holyoke, Mass.-Conn.

\*As defined in U.S. Bureau of the Census, "1970 Census Users' Guide;" U.S. Government Printing Office, Washington, D.C., 1970 (p. 82).

\*\*U.S. Bureau of Census, "U.S. Census of Population: 1970; Number of Inhabitants; Final Report PC (1)-A1; United States Summary. U.S. Government Printing Office, Washington, D.C. 1971.

TABLE 2  
 URBANIZED AREAS WITH LEAD AIR CONCENTRATIONS  
 EXCEEDING OR EQUAL TO 1.5  $\mu\text{g}/\text{m}^3$ , MAXIMUM MONTHLY MEAN  
 (1975)

<u>AQCR #</u>	<u>AREA</u>
004	Birmingham, Ala.
003	Gadsden, Ala.
007	Huntsville, Ala.
005	Mobile, Ala.
005	Jackson, Miss.
002	Montgomery, Ala.
009	Fairbanks, Alaska
015	Phoenix, Ariz.
015	Tucson, Ariz.
031	Fresno, Calif.
024	Los Angeles, Calif.
028	Sacramento, Calif.
033	San Bernardino, Calif.
029	Dan Diego, Calif.
030	San Francisco, Calif.
030	San Jose, Calif.
036	Denver, Colo.
043	Bridgeport, Conn.
043	Paterson, N.J.
043	New York City, N.Y.
042	New Haven, Conn.
042	Waterbury, Conn.
042	Springfield, Mass.
045	Wilmington, Del.
045	Trenton, N.J.
045	Philadelphia, Pa.
047	Washington, D.C.
049	Jacksonville, Fla.
052	Tampa-St. Petersburg, Fla.
067	Chicago, Ill.
067	Gary, Ind.
065	Peoria, Ill.
076	Muncie, Ind.
069	Davenport, Ia.
092	Des Moines, Ia.
103	Huntington, Ky.
102	Lexington, Ky.
078	Louisville, Ky.
120	Providence, R.I.
123	Detroit, Mich.

AQCR#AREA

122	Grand Rapids, Mich.
131	Minneapolis, Minn.
094	Kansas City, Mo.
070	St. Louis, Mo.
085	Omaha, Neb.
013	Las Vegas, Nev.
148	Reno, Nev.
158	Utica, N.Y.
167	Charlotte, N.C.
166	Durham, N.C.
165	Winston-Salem, N.C.
176	Columbus, Ohio
184	Oklahoma City, Okla.
193	Portland, Ore.
151	Allentown, Pa.
151	Scranton, Pa.
196	Lancaster, Pa.
244	San Juan, P.R.
200	Columbia, S.C.
202	Greenville, S.C.
055	Chattanooga, Tenn.
207	Knoxville, Tenn.
018	Memphis, Tenn.
214	Corpus Christi, Tex.
215	Dallas, Tex.
153	El Paso, Tex.
216	Houston, Tex.
222	Lynchburg, Va.
223	Norfolk, Va.
229	Seattle, Wash.
234	Charleston, W.Va.

Source: Data from EPA's Environmental Monitoring Support Laboratory,  
Statistical and Technical Analysis Branch

TABLE 3  
 URBANIZED AREAS WITH LEAD AIR CONCENTRATIONS  
 EQUAL TO OR EXCEEDING 4.0  $\mu\text{g}/\text{m}^3$ , MAXIMUM MONTHLY MEAN  
 (1975)

<u>AQCR#</u>	<u>AREA</u>
15	Phoenix, Ariz.
24	Los Angeles, Calif.
29	San Diego, Calif.
67	Chicago, Ill.
115	Baltimore, Md.
197	Pittsburgh, Pa.
218	San Antonio, Tex.

Source: Data from EPA's Environmental Monitoring Support Laboratory,  
 Statistical and Technical Analysis Branch

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Date

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Administrator

It is proposed to amend 40 CFR Part 51 as follows:

1. In section 51.1, paragraph (k) is revised and paragraph (n) is amended by adding subdivision (11) as follows:

§ 51.1 Definitions.

\* \* \* \* \*

(k) "Point source" means the following:

(1) For particulate matter, sulfur oxides, carbon monoxide, hydrocarbons, and nitrogen dioxide--

(i) Any stationary source causing emissions in excess of 90.7 metric tons (100 tons) per year of the pollutant in a region containing an area whose 1970 "urban place" population, as defined by the U.S. Bureau of the Census, was equal to or greater than one million;

(ii) Any stationary source causing emissions in excess of 22.7 metric tons (25 tons) per year of the pollutant in a region containing an area whose 1970 "urban place" population, as defined by the U.S. Bureau of the Census was less than one million; or

(iii) Without regard to amount of emissions, stationary sources such as those listed in Appendix C to this part.

(2) For lead, any stationary source causing emissions in excess of 4.54 metric tons (five tons) per year.

\* \* \* \* \*

(n) \* \* \*

(11) Control or prohibition of a fuel or fuel additive used in motor vehicles.

\* \* \* \* \*



2. Section 51.12, paragraph (e) is amended by adding subdivision (3) as follows:

§ 51.12 Control Strategy: General.

\* \* \* \* \*

(e) \* \* \*

(3) This paragraph covers only plans to attain and maintain the national standards for particulate matter, sulfur oxides, carbon monoxide, photochemical oxidants, hydrocarbons, and nitrogen dioxide.

\* \* \* \* \*

3. Section 51.17 is amended by (1) revising the heading to read "Air quality surveillance: Particulate matter, sulfur oxides, carbon monoxide, photochemical oxidants, hydrocarbons, and nitrogen dioxide," and (2) adding paragraph (d) as follows:

§ 51.17 Air quality surveillance: Particulate matter, sulfur oxides, carbon monoxide, photochemical oxidants, hydrocarbons, and nitrogen dioxide.

\* \* \* \* \*

(d) This section covers only plans to attain and maintain the national standards for particulate matter, sulfur oxides, carbon monoxide, photochemical oxidants, hydrocarbons, and nitrogen dioxide.

4. A new section 51.17b is added as follows:

§ 51.17b Air quality surveillance: Lead.

(a) The plan must provide for the establishment of at least two permanent lead ambient air quality monitors in each urbanized area (as defined by the U.S. Bureau of the Census)--

(1) That has a 1970 population greater than 500,000; or

(2) Where lead air quality levels currently exceed or have exceeded  $1.5 \mu\text{g}/\text{m}^3$  monthly arithmetic mean measured since January 1, 1974.

(b) The monitors must be operated on a minimum sampling frequency of one 24-hour sample every six days.

(c) The sampling network described in the plan must contain at least one roadway type monitoring site and at least one neighborhood site and be sited in accordance with the procedures specified in EPA's "Supplementary Guidelines for Lead Implementation Plans."

(d) The two sites will be part of the "National Air Quality Trends Stations" (NAQTS).

(e) The Regional Administrator may specify more than two monitors if he finds that two monitors are insufficient to adequately determine if the lead standard is being attained and maintained. He may also specify monitors in areas outside the areas covered in paragraph (a) of this section. These additional monitors will be part of the "State and Local Air Monitoring Stations" (SLAMS).

(f) The plan must include a description of the proposed sampling sites.

(g) The following elements of the monitoring system must follow 40 CFR Part 50:

(1) The type of monitor.

(2) The procedures for operating the monitor.

(3) The procedures for analysis of the samples collected from the monitors.

(h) Existing sampling sites being used for sampling particulate matter may be designated as sites for sampling lead if they meet the siting criteria of "Supplementary Guidelines for Lead Implementation Plans".

(i) The plan must provide that all lead air quality samplers will be established and operational as expeditiously as practicable but no later than two years after the date of the Administrator's approval of the plan.

(j) The analysis of the 24-hour samples may be performed for either individual samples or composites of the samples collected over a calendar month.

5. A new subpart E is added as follows:

Subpart E--Control Strategy: Lead

- § 51.80 Demonstration of attainment.
- § 51.81 Emissions data
- § 51.82 Air quality data.
- § 51.83 Certain urbanized areas.
- § 51.84 Areas around significant point sources.
- § 51.85 Other areas.
- § 51.86 Data bases.
- § 51.87 Measures.
- § 51.88 Data availability.

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§ 51.80 Demonstration of attainment.

(a) Each plan must contain a demonstration that the standard will be attained and maintained in the following areas:

(1) Areas in the vicinity of the following point sources of lead:

- Primary lead smelters.
- Secondary lead smelters.
- Primary copper smelters.
- Lead gasoline additive plants.
- Lead-acid storage battery manufacturing plants that produce 1200 or more batteries per day.
- Any other stationary source that emits 25 or more tons per year of lead or lead compounds.

(2) Any other area that has lead air concentrations in excess of the national standard for lead, measured since January 1, 1974.

(b) The plan must demonstrate that the measures, rules, and regulations contained in the plan are adequate to provide for the attainment of the national standard for lead within the time prescribed by the Act and for the maintenance of that standard for a reasonable period thereafter.

(c) The plan must include the following:

(1) A summary of the computation, assumptions, and judgments used to determine the reduction of emissions or reduction of the growth in emissions that will result from the application of the control strategy.

(2) A presentation of emission levels expected to result from application of each measure of the control strategy.

(3) A presentation of the air quality levels expected to result from application of the overall control strategy presented either in tabular form or as an isopleth map showing expected maximum concentrations.

#### § 51.81 Emissions data.

(a) The plan must contain a summary of the baseline lead emission inventory based upon measured emissions or, where measured emissions are not available, documented emission factors. The point source inventory on which the summary is based must contain all sources that emit five or more tons of lead per year. The inventory must be summarized in a form similar to that shown in Appendix-D.

(b) The plan must contain a summary of projected lead emissions for--

(1) at least three years from the date by which EPA must approve or disapprove the plan if no extension under section 110(e) of the Clean Air Act is granted;

(2) at least five years from the date by which EPA must approve or disapprove the plan if an extension is requested under section 110(e) of the Clean Air Act; or

(3) any other longer period if required by the Administrator.

(c) The plan must contain a description of the method used to project emissions.

(d) The plan must contain an identification of the sources of the data used in the projection of emissions.

#### § 51.82 Air quality data.

(a) The plan must contain a summary of all lead air quality data measured since January 1974. The plan must include an evaluation of the data for reliability, suitability for calibrating dispersion models (when such models will be used), and representativeness. Where possible, the air quality data used must be for the same baseline year as for the emission inventory.

(b) If additional lead air quality data are desired to determine lead air concentrations in areas suspected of exceeding the lead national ambient air quality standard, the plan may include data from any previously collected filters from particulate matter high volume samplers. In determining the lead content of the filters for control strategy demonstration purposes, a State may use methods other than the reference method, such as x-ray fluorescence.

(c) The plan must also contain a tabulation of, or isopleth map showing, maximum air quality concentrations based upon projected emissions.

§ 51.83 Certain urbanized areas.

For urbanized areas with measured lead concentrations in excess of  $4.0 \mu\text{g}/\text{m}^3$ , monthly mean measured since January 1, 1974, the plan must employ the modified rollback model for the demonstration of attainment as a minimum, but may use an atmospheric dispersion model if desired.

§ 51.84 Areas around significant point sources.

(a) The plan must contain a calculation of the maximum lead air quality concentrations and the location of those concentrations resulting from the following point sources for the demonstration of attainment:

- Primary lead smelters.
- Secondary lead smelters.
- Primary copper smelters.
- Lead gasoline additive plans.
- Any other stationary source that emits 25 or more tons per year of lead or lead compounds.

(b) In performing this analysis, the State shall use an atmospheric dispersion model.

§ 51.85 Other areas.

For each area in the vicinity of an air quality monitor that has recorded lead concentrations in excess of the lead national standard, the plan must employ the modified rollback model as a minimum, but may use an atmospheric dispersion model if desired for the demonstration of attainment.

§ 51.86 Data bases.

(a) For interstate areas, the analysis from each constituent State must, where practicable, be based upon the same regional emission inventory and air quality baseline.

(b) Each State shall submit to the appropriate Regional Office with the plan, but not as part of the plan, emissions data and information related to emissions as identified by the following:

(1) The National Emission Data System (NEDS) point source coding forms for all lead point sources, and area source coding forms for all lead sources that are not lead point sources.

(2) The Hazardous and Trace Emissions System (HATREMS) point source coding forms for all lead point sources, and area source coding forms for all lead sources that are not lead point sources.

(c) Air quality data.

Each State shall submit to the appropriate Regional Office with the plan, but not as part of the plan, all lead air quality data measured since January 1, 1974, in accordance with the procedures and data forms specified in chapter 3.4.0 of the "AEROS User's Manual" concerning Storage and Retrieval of Aerometric Data (SAROAD).



§ 51.87 Measures.

The lead control strategy must include the following:

- (a) A description of each control measure that is incorporated into the lead plan.
- (b) Copies of or citations to the enforceable laws and regulations to implement the measures adopted in the lead plan.
- (c) A description of the administrative procedures to be used in implementing each selected control measure.
- (d) A description of enforcement methods including, but not limited to, procedures for monitoring compliance with each of the selected control measures, procedures for handling violations, and a designation of agency responsibility for enforcement or implementation.

§ 51.88 Data availability.

(a) The State shall retain all detailed data and calculations used in the preparation of lead analyses and plan, make them available for public inspection, and submit them to the Administrator at his request.

(b) The detailed data and calculations used in the preparation of the lead analyses and control strategies is not considered a part of the lead plan.

(Sections 110 and 301(a) of the Clean Air Act as amended (42 USC 7410, 7601))