



**Federal Register Preamble
and Regulations for
State Implementation
and
Advance Notice of
Proposed Rulemaking -
Ambient Monitoring
Requirements for
Significant Lead
Point Sources**

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

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Title 40--Protection of Environment
CHAPTER I--ENVIRONMENTAL PROTECTION AGENCY
PART 51--PREPARATION, ADOPTION, AND SUBMITTAL
OF IMPLEMENTATION PLANS
Implementation Plans for Lead National
Ambient Air Quality Standard

AGENCY: Environmental Protection Agency.

ACTION: Final Rulemaking.

SUMMARY: The regulations promulgated 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 (NAAQSs), promulgated 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 amendments address the following topics:

--Definitions of point source and control strategy.

--Control strategy requirements.

--Air quality surveillance.

EFFECTIVE DATE: This rulemaking is effective upon publication; State implementation plans for lead are due by [the date nine months from publication].

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

FOR FURTHER INFORMATION CONTACT: Joseph Sableski, Chief, Plans Guidelines Section, at the above address or at 919-541-5437 (Commercial) or 629-5437 (FTS).

SUPPLEMENTARY INFORMATION

1. BACKGROUND

On December 14, 1977, EPA proposed regulations for the preparation, adoption, and submission of implementation plans to achieve the national ambient air quality standards for lead, which were also proposed on that same date (42 FR 63087). EPA invited comments from interested persons and held a hearing on the proposed NAAQS and State implementation plan (SIP) regulations on February 15 and 16, 1978. EPA received comments on the proposed lead implementation plan requirements from 25 commenters. Of these, there were ten representatives from industry, nine from State and local governmental agencies, four from citizen's organizations and private citizens, and two from other federal agencies.

2. SUMMARY OF COMMENTS AND RESPONSES

The following discussion summarizes most of the comments received on the proposal. There were a few other comments that EPA felt were not significant to warrant discussion in the FEDERAL REGISTER and that did not affect the final regulation. A summary of all the comments received and EPA's response is available for public inspection during normal business hours in EPA's Public Information Reference Unit (PM 215), 401 M Street, S.W., Washington, D.C. 20460, telephone: 202-755-0707.

2.1 POINT SOURCE DEFINITION

There were several comments concerning the definition of a point source. One commenter indicated that the definition of a point source is confusing and differs from that used in the provisions in the Clean Air Act concerning prevention of significant deterioration (PSD). Parts of that comment were directed toward the existing definition of point source in § 51.1(k), which, as the commenter acknowledged, is not the subject of the proposal and will not be discussed here.

Currently, § 51.1(k) defines point sources in terms of emissions per year and location of the source, as well as a listing of individual source categories. Currently, point sources of other pollutants for which NAAQSs exist that are located in urban areas are defined as those that emit pollutants in excess of 100 tons per year; point sources in less urbanized areas are defined as those that emit pollutants in excess of 25 tons per year. In light of the low level of the lead standard in relation to the other standards (e.g., for particulate matter), good reason exists to define point sources for lead at a lower level of emissions than that for the current set of pollutants for which EPA has established NAAQSs. Based on an analysis contained in EPA's "Supplementary Guidelines for Lead Implementation Plans,"¹ EPA is defining a point source of lead as "any stationary source causing emissions in excess of 4.54 metric tons (5 tons) per year of lead or lead compounds measured as elemental lead." This represents a slight change from the proposal, which failed to account for lead compounds.

The significance of the definition of § 51.1(k) is that the emission inventory, which is used to determine the extent of possible

violations of the air quality standard and determine the effectiveness of control strategies, must include a determination of emissions from each point source. All emissions from sources other than point sources may be grouped together as area (or line) sources.

The definition of point source, which was intended to be based on actual emissions, differs from the definition in section 169 of the Clean Air Act (which pertains to prevention of significant deterioration), which is based on potential emissions. The reason for the difference is that for planning purposes, the inventory of existing sources must be based on an actual situation to be used as a baseline upon which one develops a plan. For new source review (including review for prevention of significant deterioration), one must be aware of the emissions that could be emitted from the proposed source as well as actual emissions; hence, the source size criteria for selection of new sources to be reviewed under the recently-promulgated PSD regulations incorporate potential, as well as actual, emissions. The definitions of point source in § 51.1(k) for all pollutants have been revised from the proposal to clarify that the size criteria are based upon actual emissions. This implies the emissions that are emitted after any control is applied.

2.2 CONTROL STRATEGY

A number of persons provided comments concerning the control strategy aspects of the proposed regulations.

One commenter correctly noted a discrepancy between the list of source categories in §§ 51.80 ("Demonstration of attainment") and

51.84 ("Areas around significant point sources"), for which the State must perform an analysis. The lists should have been identical-- § 51.84(a) should have also included lead-acid storage battery manufacturing plants that produce 1200 or more batteries per day. The rulemaking promulgated below incorporates this change. The criterion for production of batteries, which was based on a monthly standard, has been raised to 2000 batteries per day, however, to account for the slightly less stringent quarterly lead ambient standard.

Several commenters indicated that the requirements in §§ 51.83 ("Certain urbanized areas") and 51.85 ("Other areas") appeared identical and therefore one of the sections was redundant. The difference between the two sections lies in the required geographical scope of the analysis. Section 51.83 requires that the plan contain an analysis of each urbanized area that has a measured lead air concentration that is in excess of $4.0 \mu\text{g}/\text{m}^3$ quarterly mean (monthly mean in the proposal). The distinguishing provision is that the analysis must cover at least the entire urbanized area. Section 51.85, on the other hand, requires that for any area (urbanized or not) with a recorded lead concentration that does not meet the national standard of $1.5 \mu\text{g}/\text{m}^3$ quarterly mean (monthly mean in the proposal), the plan must contain an analysis of at least the area in the vicinity of the monitor that has recorded the concentration. Therefore, the analysis may be restricted to an evaluation of only those sources within a relatively small radius from the monitor.

Several commenters suggested that the control strategy requirements ensure that the burden for solving the lead air problem be equitably distributed between mobile and stationary sources. The commenters realized that either kind of control is expensive and difficult to implement. In response, EPA maintains that the allocation of the burden of control in the SIP is the primary responsibility of the States,

and therefore EPA will avoid setting criteria in 40 CFR 51 that favor control of one source category over another. EPA acknowledges that measures that are expensive and difficult to implement may have to be adopted in order to demonstrate attainment of the lead standard.

Two commenters indicated that the regulations did not provide a satisfactory treatment to problems related to background concentration. They claimed that a facility in an area of high background concentrations may be unduly penalized in efforts to attain the standard. EPA acknowledges that this problem may exist. In most cases, however, the high background air concentrations are generally due to other sources in the vicinity. It is the primary responsibility of the State to allocate the burden of emission control to the various sources causing the problem. Sources will have an opportunity to comment on the plan at the public hearing that is required before the plan is submitted to EPA.

One commenter suggested that EPA recommend analysis of fugitive dust and on-premise soil before a State initiates a program of prolonged monitoring in the vicinity of gray iron foundries. As mentioned in the preamble to the proposed regulations, EPA identified gray iron foundries as having the potential for causing violations of the national standard for lead, but this identification was based on limited data concerning the amount of fugitive emissions from the facilities. Although 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 approximately 1500 exist), EPA encourages States to consider analysis of these sources to the extent that time and resources permit.

The commenter's suggestion concerning the analysis of fugitive dust and on-premise soil before undertaking extensive monitoring and analysis appears to offer the potential for conserving scarce resources in that States may want to restrict their monitoring and analysis efforts to those plants with relatively high lead levels in dust and soil.

The same commenter also indicated that secondary lead smelters and similar sources probably cannot be modeled because of fugitive dust and low stacks. EPA recognizes the difficulty in quantifying fugitive dust and fugitive emissions and recognizes that low stacks will generally cause higher concentrations closer to the stack than will higher stacks. The Clean Air Act requires that an approved plan must demonstrate attainment of the standard, however. EPA has, based upon preliminary analyses, determined that secondary lead smelters and other sources listed in § 51.84 have the potential for causing violations of the lead standard. EPA also believes that attainment of the lead standard around such sources can best be demonstrated by the use of an atmospheric dispersion model. In many cases, States will not have the time or resources to perform detailed studies to quantify the fugitive dust and fugitive emissions from individual facilities and may have to rely on factors that were based on limited studies of other facilities or best estimates. In complying with § 51.84, for cases where no ambient lead data were collected in the vicinity of the source and where a State must thus estimate the air quality impact of the sources, the State will have to decide for itself what level of control is warranted by the confidence in the data upon which the analysis is based.

In another comment concerning modeling, one commenter from a State agency claimed that the models used for assessing the monthly impact of point sources are not accessible to most air pollution control agencies. In the initial analysis of the impact of the proposed standard on point sources, it is true that EPA used the Oak Ridge National Laboratory Model, "Atmospheric Transport and Dispersion Model" (ATM),² which is probably not available to most agencies. That analysis was revised subsequently, and another model was used, however. Also, EPA is recommending the use of other models, specifically those models for particulate matter described in EPA's "Guideline on Air Quality Models,"³ for modeling point sources for SIP development. These models are generally available.

The same commenter indicated that only ambient monitoring or upwind-downwind sampling can give a reliable assessment of the impact of sources with a large fugitive emission component. EPA acknowledges that monitoring studies generally give a more reliable estimate of the air quality impact of sources that emit fugitive emissions because no estimate need be made of the fugitive emissions, which are difficult to measure directly. Such studies cannot be done for many areas within the time and resource constraints facing the States, however, and therefore EPA's regulations require the use of modeling around such point sources. States will have to make estimates of the fugitive emissions based on whatever information may exist. EPA is, however, in another part of this FEDERAL REGISTER giving advance notice of proposed rulemaking to require the installation of ambient monitors in the vicinity of three categories of point sources that have major fugitive emissions--primary

and secondary lead smelters and primary copper smelters. Presumably, after these monitors have been in place for a few years, the data yielded will provide more accurate information concerning the nature and magnitude of the lead problem from these sources. After those data become available, EPA may require States to revise their implementation plans. Furthermore, EPA intends to develop fugitive lead emission factors that are more accurate than those that currently exist.

One commenter recommended that the regulations place the proof of compliance with emission regulations on the stationary source. The commenter claimed that local enforcement agencies do not have the funds for continuous monitoring. In response, EPA has found that there are no techniques for continuous monitoring of lead emissions. The State will be required under existing regulations (40 CFR 51.19) to carry out a source surveillance program, which generally consists of visual inspection of the installation of control equipment and testing of stack emissions.

Several comments addressed issues concerning control of lead in gasoline. One commenter indicated that any reduction of the lead content of gasoline or any other similar kinds of programs (presumably meaning control of fuels or the control of lead emissions from individual vehicles) that may be needed in the SIP over and above the current Federal program should be done through Federal rather than local regulation. EPA has already taken steps to control the amount of lead in gasoline through the phasedown of lead in leaded gasoline and the requirement that cars equipped with catalyst mufflers must burn unleaded gasoline. The level of control of lead in leaded gasoline was based on average conditions

concerning lead air quality concentrations. Areas that have unique problems and that will find it impossible to demonstrate attainment of the lead standard through stationary source control or through transportation control measures may have to adopt measures such as requirements for further reduction of lead in gasoline or control of lead emissions from the tailpipe of vehicles. Currently, EPA does not foresee the need for additional mobile source control strategies and does not intend to require further nationally-applicable lead-in-gasoline reductions.

Other comments concerning further reductions of the lead content of gasoline suggested that such reductions be undertaken only after sufficient data is available to indicate that the lead air quality problem is geographically broad enough and only after a finding that such a limitation is necessary to achieve a national ambient air quality standard. The commenters enumerated the problems with instituting further control of the lead content of gasoline. The commenters contended that application of more stringent local limitations of lead in gasoline could seriously disrupt the nation's gasoline distribution system, resulting in severe spot shortages, especially during the summer months when gasoline demand is at its highest.

EPA recognizes this problem and advises the States to consider the comment. Also, under § 211(c)(4)(C) of the Clean Air Act, EPA will not approve State or regional programs for further reductions of lead content of gasoline unless the State demonstrates that no other reasonable measures are available.

Also, two of the commenters recommended that the 40 CFR 51 regulations be modified to reflect the restrictions in § 211(c)(4)(C) of the Act regarding State limitation of the lead content of gasoline. In response, EPA has incorporated the intent of the Act into the definition of "control strategy" as it pertains to restrictions on fuel additives.

Two commenters representing primary lead smelting companies recommended an alternative approach to protecting the health of persons from the ambient lead levels in the vicinity of primary lead smelters. They recommended that sources that cannot control emissions so that the lead standard will be met be allowed to conduct a public health screening and hygiene program aimed at reducing the amount of lead that children in the vicinity of the source take in and ensuring that safe blood lead levels are satisfactorily maintained.

EPA believes that there are legal, technical, and equity problems with the program that render it unacceptable as the sole means of implementation of the national standard for lead.

Concerning the legal problem, such a program assumes that the air quality standard will be violated, and presumably, the plan will not

contain a demonstration that the air quality standard will be attained. Under the Clean Air Act, EPA must disapprove a plan that does not contain a demonstration that the air quality standard will be attained by the mandatory attainment date. The Act provides for the protection of health through the standard setting, planning, and implementation processes; it does not allow for a surrogate procedure whereby public health may be protected even though the ambient standards are not met.

Concerning technical problems, the relationship between emissions from a source and blood lead levels is not quantitatively certain. Even assuming a biological monitoring system were to be established, it is unclear what the source would have to do concerning its operation or emissions if the monitoring program revealed unacceptable blood lead levels. Even if a course of action were clear, the damage would have already been done, while the basic purpose of the standard setting and implementation process envisioned by § 110 of the Act is prevention of public health problems.

Concerning equity, the biological monitoring program would inconvenience the very people that are supposed to benefit from the Act. The Act envisioned that all people have an equal right to healthy air. The commenters who recommended the biological monitoring approach apparently believe that people who happen to live in areas with elevated lead levels should not be accorded equal protection, but should be made to pay extra for their health through presumably continuous participation in a blood

sampling program. If a person did not want to participate, it is doubtful whether he could be forced to, so therefore his health could be placed in jeopardy.

One commenter representing a primary lead smelter warned that enclosure of smelter operations to control fugitive lead emissions may present a severe occupational health hazard to employees who must work within the enclosed space. EPA realizes these potential problems. If a source installs such enclosures, it must of course also meet any applicable regulations set forth by the Occupational Safety and Health Administration as well as control emissions to the extent specified in the applicable implementation plan.

One other commenter expressed concern that there appears to be nothing that can be done in areas where a source is employing best available control technology, yet the standard is still not being met. The Act requires that for approval, an implementation plan must demonstrate that the control strategy contained in the plan is adequate to attain and maintain the NAAQS. EPA realizes, however, that a plan which meets this criterion may, even after full implementation, not actually result in attainment by the attainment date. This would generally indicate that assumptions concerning the amount of emissions and the relationship

between emissions reductions and air concentrations that were made when the plan was developed eventually were proven erroneous. If an approved plan is later found to be inadequate to attain the standard, EPA will require the State to revise the plan. If that plan has already required all measures short of those that would force significant source closures, EPA will at that time decide whether the closure must be effected or whether there are alternatives to this in the discretion given to EPA under the Act in Sections 110 or 113. States should make every effort to develop and submit plans that demonstrate attainment of the standard using the best data available.

Several commenters from State air pollution control agencies indicated that the development of lead SIPs will be difficult within the time frame provided. EPA realizes that the development of the lead plans will be competing in priorities and resources with the development of plan revisions required by Title I, Part D, of the Clean Air Act for nonattainment areas. Where a State needs additional assistance in the development of its lead plan, or where it is unsure as to the priority of development of its lead plan, the State should consult with the appropriate EPA Regional Office.

2.3 AIR QUALITY MONITORING

Several commenters recommended that a minimum number of samples be taken to determine whether the standard is being attained. Also, several persons commented that the sampling should be performed more frequently, such as daily. One person indicated that determination of the attainment status should be done by annual rather than monthly averaging. At least a three month average would be more desirable. Another person indicated that the shorter the averaging period, the more the number of samples should be.

Concerning the minimum number of valid samples needed to determine an average, it is general practice to require at least 75 percent of the scheduled samples to be valid. EPA will prepare a guideline on this and other issues concerning the determination of attainment of the standard. Concerning the frequency of sampling, EPA is promulgating a national ambient air quality standard for lead in this FEDERAL REGISTER that is based on a calendar quarter, rather than calendar month as had been proposed. EPA has determined that a sampling schedule of once every six days is adequate to give a representative sample for a quarter.

One commenter indicated that monitoring the inner city area should be given top priority because the vehicle mix in these areas favors older cars that burn leaded gasoline. EPA's response is that if maximum exposures occur in these areas, then monitoring these areas should in fact receive first priority. The determination of acceptability of the sites will be the joint responsibility of the States and the cognizant EPA Regional Office.

One commenter recommended that EPA change the recommendation in the draft "Supplementary Guidelines for Lead Implementation Plans"¹ for locating lead monitors near roadways that are at or below grade level rather than near elevated roadways. The commenter suggested that the guideline require measurements to be representative of emissions and environmental exposure. The commenter indicated that the proposed

guidance would exclude monitoring play areas that are located beneath elevated roadways. EPA agrees with this comment. The purpose behind excluding below grade level monitoring and monitoring near elevated roadways was to ensure adequate exposure at the monitoring site. If significant population exposures consistent with the averaging time of the NAAQS were encountered in these situations, then monitoring in these locations would meet the intent of the guidance. EPA has revised the siting guidance to account for these considerations.

Several comments were directed toward the recommended location of a monitor at a given location. Two persons indicated that the allowance of 5 meters in elevation of lead air monitors is too high and that it should be changed or should allow for numerical adjustment of the data. One person suggested that the monitors be required to be placed closer to roadways because he felt that would be more representative of exposure; another suggested that the monitors are required to be placed too close to the street already in some cases and that the data from the monitors would be unrepresentative. EPA proposed a range of heights for lead monitors from 0 to 5 meters above ground level. The proposed required distance from major roadways for the peak concentration site was 5 to 15 meters. The intent was to sample ambient air to which significant portions of the population are being exposed over the averaging time of the standard. During a typical day, even the most susceptible population group does not spend more than one half of their time in the ambient air below the 2 meter level or within 15 meters of a major roadway. They are indoors or at considerable distances from

roadways for the remainder of their time. Consequently, requiring samplers to be placed below two meters above the ground or closer than 5 meters to a roadway would lead to concentration measurements that would be unrepresentative of lead exposures. Further, some range of heights and distances is necessary due to practicalities involved in finding suitable sites, power availability, protection against vandalism, allowing free pedestrian movement along sidewalks, etc.

One commenter recommended that the criteria for monitoring in the vicinity of roadways not include specific distance restrictions, such as the requirement for placement of monitors between 5 and 15 meters from the traffic lane. The commenter indicated that many areas do not have housing that close to major roadways and therefore the numerical restrictions would be counterproductive to ensuring accurate monitoring of maximum population exposure. EPA's response is that even though housing may not exist that close to roadways in all cases, the public has access to many such areas.

One commenter recommended that the monitoring guidelines require monitoring lead below ground level in public places such as subway stations and underground shopping areas. In response, EPA's monitoring guidance was written for purposes of determining attainment of a standard. Locating monitors in subways to determine exposures would be considered special purpose monitoring and thus could be performed if desired by the State or local agency. EPA however, does not feel that monitors placed in these situations would yield data suitable for developing implementation plans or determining national trends and strategies and thus will

not require it. Furthermore, since no member of the public spends more than perhaps eight hours out of twenty four in such locations, monitoring there would not be representative of population exposure for a standard based upon 24-hour sampling for an entire quarter.

One commenter recommended that the regulations require ambient monitoring in the vicinity of major point sources. Not doing so may allow potentially significant public health impacts that result from fugitive emissions at major point sources to be ignored. As mentioned above, in another part of this FEDERAL REGISTER, EPA is giving advance notice of proposed rulemaking to modify the regulations to require source owners or operators to monitor in the vicinity of primary and secondary lead smelters and primary copper smelters. EPA chose these source categories because they are considered to have the potential for causing the greatest concentrations of air lead in their vicinity and because the nature and magnitude of their fugitive emissions are relatively unknown compared to other source categories. The regulations will continue to vest authority in the Regional Administrators to require monitors in the vicinity of other sources. EPA will prepare guidance concerning the recommended number and siting of monitors in the vicinity of lead point sources.

Another commenter claimed that the regulations do not adequately address the locations where air quality samples will be taken and at what distance from a facility they will be taken. As mentioned above, EPA will develop guidance on the placement of lead monitors in the vicinity of point sources. The guidance for locating monitors elsewhere

is highly specific in that the distances from obstructions and interferences are quantitatively described. It is not possible from a national perspective, however, to develop general regulations that would cover every conceivable situation that could occur without making the regulations unduly complex.

One commenter suggested that the lead monitors should not be required to be permanent until the State has more experience in sampling and monitoring lead. Also, several commenters recommended that EPA require initial monitoring by mobile vans or other procedures to locate the most critical sites. EPA does not intend that the required monitoring stations would remain at one place in perpetuity. EPA does, however, need some stability in monitoring site locations to allow for trends analysis. If a station once established is later found to be unrepresentative, it should be moved to a new location. EPA agrees with the intent of the comments and has always encouraged special purpose monitoring prior to establishing a permanent monitoring station. EPA will not require resource-intensive procedures to locate critical sites, however.

Several commenters recommended that the regulations require more than a minimum of two monitors per area. EPA's response is that the regulations do not preclude placing out more than two monitors. EPA is interested nationally in obtaining only enough data to establish a data trend, determine if the federal programs that result in the reduction of automobile lead emission are causing decreases in lead air

concentrations, and determine the approximate attainment status of areas. Furthermore, the regulations would allow EPA to require additional monitors on a case-by-case basis where EPA believes that two monitors are insufficient to determine whether the national standard is being attained and maintained.

One of the commenters who recommended that the regulations require more than two monitors per area objected to placing responsibility on the EPA Regional Offices to require additional monitors and determine their location. The commenter claimed that this precludes both accountability of the State's actions and public participation. EPA's response is that requiring a limited number of samplers specifically to meet data needs at the national level and leaving the determination of the number and location of the remaining stations in the State network to the State and the Regional Office is consistent with the recommendations of EPA's Standing Air Monitoring Work Group (SAMWG).⁴ In a recent action (43 FR 34892, published August 7, 1978), EPA proposed that the locations of stations (for all pollutants) need not actually be included in the implementation plan, but the plan must contain a monitoring program which includes a monitoring network that is based upon negotiations between the State and the EPA Regional Office. The plan would also have to contain a commitment to annually review the adequacy of the network and to establish new stations and relocate or terminate existing stations as needed in order to keep the network responsive to data needs. EPA feels that if the entire system were part of the SIP, the only way the State could make modifications would be to propose the change, hold a public hearing, and submit the change to EPA as a plan revision. EPA

would then have to propose to approve the revision, entertain public comment, and then finally promulgate its approval. EPA feels that this process is too time-consuming and would defeat the purpose of the annual review, which is to make timely adjustments to the network. Also, EPA feels that the potential benefits from this process would be too few to warrant its implementation. The proposed requirements concerning air quality monitoring, however, would require that the locations of the monitors be available at all times for public inspection. Therefore, when the State revises its SIP in order to implement the forthcoming air quality monitoring requirements, the public can at that time comment on the State system. The public can also comment on changes to the networks at any time by submitting written comment on changes to the State or EPA Regional Office.

One commenter indicated that the low-volume sampler compares favorably in measurement with the high-volume sampler, which is the reference method for collection of the sample, and excludes larger particles that are not respirable and which the commenter feels are not significant from a health standpoint. The commenter implies that EPA should allow the use of the low-volume sampler. Low volume sampling will be allowed if the agency that wishes to use it demonstrates that the method is equivalent to the reference method, using the procedures that EPA is proposing in another portion of this FEDERAL REGISTER.

3.0 OTHER CHANGES FROM PROPOSAL

3.1 AIR QUALITY SURVEILLANCE REQUIREMENTS

EPA has revised the air quality surveillance requirements for lead slightly from the proposal to render them clearer and more consistent

with the general air quality surveillance requirements currently under revision that will apply to all pollutants. These revised general requirements will closely follow and implement the recommendations of EPA's Standing Air Monitoring Work Group.⁴ The significant revisions of the lead requirements from the proposal include the following:

--A change of the date by which the entire monitoring system must be established.

--Deletion of the references to the terms, "National Air Quality Trends Stations" (or "NAQTS") (which are now called "National Air Monitoring Stations") (or "NAMS") and "State and Local Air Monitoring Stations" (or "SLAMS"). These terms have not yet been defined by regulation, so reference to them is meaningless.

--Modification to the requirement that the plan contain a description of the monitoring system.

--Revision of the "Supplementary Guidelines on Lead Implementation Plans" to account for location of monitoring stations in urban street canyons.

As mentioned in the preamble to the proposal, EPA will eventually incorporate the lead monitoring requirements into the air quality monitoring requirements that apply to all pollutants for which NAAQSs exist.

3.2 REPORTING OF DATA BASE

Under the proposal in § 51.86(c), the State would have been required to submit the air quality data collected since 1974 in the format of EPA's Storage and Retrieval of Aerometric Data (SAROAD) system. The final regulation below retains this requirement, but provides the Regional Administrator with the authority to waive the requirement concerning the format of the data.

3.3 LISTS OF URBANIZED AREAS

There were several errors in the two tables of areas in the preamble to the proposal. In Table 2, "Urbanized areas with lead air concentrations exceeding or equal to $1.5 \mu\text{g}/\text{m}^3$, maximum monthly mean (1975)", the Norfolk, Va. AQCR number should have read 223 instead of 233. Table 3, "Urbanized areas with lead air concentrations equal to or exceeding $4.0 \mu\text{g}/\text{m}^3$, maximum monthly mean (1975)" should have read as follows:

"AQCR	URBANIZED AREA
15	Phoenix, Ariz.
24	Los Angeles--Long Beach, Cal.
29	San Diego, Cal.
30	San Francisco--Oakland, Cal.
30	San Jose, Cal.
67	Chicago, Ill.--Northwestern Ind.
215	Dallas, Tex.

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

These corrections, however, are now academic, since the averaging time of the lead standard is now quarterly. Therefore, Tables 2 and 3 are revised to reflect the quarterly average. Table 2 (renumbered Table 1) appears at the end of the preamble. Table 3, revised to reflect the quarterly average, now contains only one area, the Los Angeles--Long Beach, California, urbanized area. The list reflects only the data currently available to EPA, and generally the quarterly averages available are not truly representative due to insufficient data. There are other data available to State and local air pollution control agencies, however, that may indicate that other areas have concentrations in excess of the concentrations specified in the criteria for performing the analysis.

3.4 EXAMPLE LEAD CONTROL STRATEGY

The preamble to the proposal indicated that EPA was developing an example lead control strategy to assist the States in developing their lead implementation plans. The preamble indicated that the example was scheduled for completion by March 1978. Because EPA has received an extension for promulgating the national ambient air quality standard for lead, because the example control strategy would be based on the final implementation plan regulations promulgated below, and because of other delays, the example controls strategy will probably not be available until November or December of 1978.

4.0 REFERENCES

1. Supplementary Guidelines for Lead Implementation Plans. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, N.C. 27711. (OAQPS No. 1.2-104).
2. Culkowski, W.M. and M.R. Patterson, A Comprehensive Atmospheric Transport and Diffusion Model. (ORNL/NSR/EATS-17. Oak Ridge National Laboratory, Oak Ridge, Tenn., 1976.
3. Guideline on Air Quality Models. Monitoring and Data Analysis Division, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, N.C. EPA-450/2-78-027 (OAQPS No. 1.2-080), April, 1978.
4. Air Monitoring Strategy for State Implementation Plans. Prepared by the Standing Air Monitoring Work Group. U.S. Environmental Protection Agency, Office of Air and Waste Management, Office of Air Quality Planning and Standards, Research Triangle Park, N.C. 27711. EPA-450/2-77-010. June, 1977.

TABLE 1
 URBANIZED AREAS WITH LEAD AIR CONCENTRATIONS
 EXCEEDING OR EQUAL TO 1.5 $\mu\text{g}/\text{m}^3$, MAXIMUM QUARTERLY MEAN
 (1975)

<u>AQCR#</u>	<u>AREA</u>
004	Birmingham, Ala.
005	Jackson, Miss.
015	Phoenix, Ariz.
031	Fresno, Calif.
024	Los Angeles--Long Beach, Calif.
028	Sacramento, Calif.
024	San Bernardino--Riverside, Calif.
029	San Diego, Calif.
030	San Francisco--Oakland, Calif.
030	San Jose, Calif.
036	Denver, Colo.
043	New York, N.Y.--Northeastern N.J.
042	Waterbury, Conn.
042	Springfield, Chicopee-Holyoke, Mass.--Conn.
045	Wilmington, Del.--N.J.
045	Philadelphia, Pa.--N.J.
047	Washington, D.C.--Md.--Va.
067	Chicago, Ill.--Northwestern Ind.
131	Minneapolis--St. Paul, Minn.
070	St. Louis, Mo.--Ill.
013	Las Vegas, Nev.
148	Reno, Nev.
184	Oklahoma City, Okla.
151	Scranton, Pa.
244	San Juan, P.R.
200	Columbia, S.C.
202	Greenville, S.C.
055	Chattanooga, Tenn.--Ga.
207	Knoxville, Tenn.
018	Memphis, Tenn.--Miss.
215	Dallas, Tex.
153	El Paso, Tex.
216	Houston, Tex.

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

Date

Administrator

The Code of Federal Regulations, Title 40, Chapter I, Part 51, is amended 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 the actual emissions of which are 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 the actual emissions of which are 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 the actual emissions of which are in excess of 4.54 metric tons (five tons) per year of lead or lead compounds measured as elemental lead.

* * * * *

(n) * * *

(11) Control or prohibition of a fuel or fuel additive used in motor vehicles, if such control or prohibition is necessary to achieve

a national primary or secondary air quality standard and is approved by the Administrator under § 211(c)(4)(C) of the Act.

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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) This section covers only plans to attain and maintain the national standards for lead.

MONITORING IN CERTAIN AREAS

(b) The plan must provide for the establishment of a monitoring system that contains at least two permanent lead ambient air quality monitoring stations 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 concentrations currently exceed or have exceeded $1.5 \mu\text{g}/\text{m}^3$ quarterly arithmetic mean measured since January 1, 1974.

(c) The EPA Regional Administrator may specify more than two monitoring stations if he finds that two stations are insufficient to adequately determine if the lead standard is being attained and maintained. He may also specify stations in areas outside the areas covered in paragraph (b) of this section.

(d) The monitoring system 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."

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

(f) 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."

(g) The plan must provide that all lead air quality monitoring stations 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 for the stations specified under paragraph (b) of this section.

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

(i) [Reserved].

REQUIREMENTS APPLICABLE TO ALL MONITORS

(j) The plan must provide for having a description of the system available for public inspection and submission to the Administrator at his request. The description must be available at all times after the date the plan is made available for public inspection. The description must include the following information:

(1) The SAROAD site identification form.

(2) The sampling and analysis method.

(3) The sampling schedule.

(k) The monitoring method used in any station in the monitoring systems required in this section must be a reference or equivalent method for lead as defined in § 50.1 of this chapter.

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.

§ 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 2000 or more batteries per day.

--Any other stationary source that actually emits 25 or more tons per year of lead or lead compounds measured as elemental lead.

(2) Any other area that has lead air concentrations in excess of the national standard concentration 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 computations, 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 appropriate EPA Regional 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. When 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, in addition to the reference method, x-ray fluorescence or any other method approved by the Regional Administrator.

(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 $4.0 \mu\text{g}/\text{m}^3$, quarterly 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 plants.

--Lead-acid storage battery manufacturing plants that produce 2000 or more batteries per day.

--Any other stationary source that actually emits 25 or more tons per year of lead or lead compounds measured as elemental lead.

(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 concentration, 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 regions, 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 EPA Regional Office with the plan, but not as part of the plan, emissions data and information related to point and area source emissions as identified in the "Supplementary Guidelines for Lead Implementation Plans."

(c) Air quality data.

(1) Each State shall submit to the appropriate EPA Regional Office with the plan, but not as part of the plan, all lead air quality data measured since January 1, 1974. This requirement does not apply if the data has already been submitted.

(2) The data must be submitted 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) except where the Regional Administrator waives this requirement.

§ 51.87 Measures.

The lead control strategy must include the following:

(1) A description of each control measure that is incorporated into the lead plan.

(2) Copies of or citations to the enforceable laws and regulations to implement the measures adopted in the lead plan.

(3) A description of the administrative procedures to be used in implementing each selected control measure.

(4) 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 the 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 are not considered a part of the lead plan.

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

ENVIRONMENTAL PROTECTION AGENCY

[40 CFR Part 51]

IMPLEMENTATION PLANS FOR LEAD NATIONAL

AMBIENT AIR QUALITY STANDARD

Proposed Requirements for Ambient Air Quality

Monitoring in the Vicinity of Certain Lead Point Sources

Advance Notice of Proposed Rulemaking

AGENCY: Environmental Protection Agency.

ACTION: Advance notice of proposed rulemaking.

SUMMARY: This is an advance notice of EPA's intent to propose regulations that would require the State implementation plans (SIPs) for attainment and maintenance of the national ambient air quality standard (NAAQS) for lead to provide for the owner or operator of each primary or secondary lead smelter or primary copper smelter to establish a lead air quality monitoring system in the vicinity of the source and report the data to the State. EPA intends to propose this requirement partly in response to a comment received on the proposed lead implementation plan requirements of December 14, 1977 (42 FR 62087), but mainly as the initiation of a procedure for obtaining information concerning the nature, extent, and impact of fugitive lead emissions from the smelters, since very little accurate information is currently available. The intended effect of this requirement would be to obtain sufficient air quality data around the subject sources to determine if they are causing violations of the

lead NAAQS. If violations are recorded, the States and EPA will determine whether additional or alternative control strategies would be adequate to attain and maintain the NAAQS for lead.

DATES: Comments on this advance notice must be received on or before: [the date sixty days after publication]. Comments submitted in duplicate will facilitate internal distribution and public availability.

ADDRESSES: Persons may submit written comments on this advance notice to: U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Control Programs Development Division (MD 15), Research Triangle Park, N.C. 27711, Attention: Mr. Joseph Sableski.

EPA will make all comments received on or before [the date sixty days after publication] 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, N.C. 27711, telephone: Commercial--919-541-5437; FTS--629-5437.

SUPPLEMENTARY INFORMATION:

BACKGROUND

In another part of this FEDERAL REGISTER, EPA promulgated the national ambient air quality standards (NAAQSs) for lead and requirements for the preparation, adoption, and submission of State implementation plans (SIPs) for the attainment and maintenance of those standards. Further information about the standards and the SIPs appears in those notices.

States must now prepare and submit to EPA within nine months SIPs that demonstrate that the NAAQSs will be attained. In doing so, the States will have to quantify the lead emissions from sources and determine the effect of those emissions on the ambient air concentrations. For emissions that originate from stacks or tailpipes, the quantification can be done with a fair degree of accuracy. For emissions that originate from other than a primary exhaust system, such as through a plant's doors, windows, leaks in equipment, and so forth, the quantification is far more difficult. Such emissions are commonly called fugitive emissions. Fugitive emissions are difficult to quantify accurately since they are dependent on a wide range of site-specific parameters, such as the lead content of the raw materials used in the process; number and size of open windows, doors and vents; wind speed and direction; rainfall; and so on--factors other than process throughput or production rates.

Furthermore, there has not been much lead air quality data gathered around sources of these fugitive emissions. Also, there have never been any specific requirements in the regulations that apply to SIPs for requiring such data to be collected around individual sources. Consequently, there is little accurate information concerning the amounts of fugitive emissions and the ambient air lead levels in the vicinity of sources of large amounts of lead emissions. EPA's assessments of the environmental and economic impacts of the lead NAAQSs^{1,2} indicate that several categories of sources that emit predominantly fugitive lead emissions have the potential for the greatest air quality impacts. The categories of concern are primary and secondary lead smelters and primary copper smelters.

NATURE OF PROPOSAL

EPA intends to propose regulations to enable the States and EPA to obtain an air quality data base needed to determine compliance with the NAAQSs around sources in the above-mentioned categories. The regulation would require the subject sources to establish and operate an air quality monitoring system in the vicinity of the sources. If the ambient data reveals that concentrations are not as high as had originally been predicted when the State developed its initial lead SIP, and the source has not yet implemented the control called for in that SIP, the State may wish to revise its SIP to require less stringent control, thereby requiring a lesser burden on the source. Conversely, if the ambient data reveals that concentrations greater than the NAAQS occur after the control strategy in the SIP has been implemented, EPA could require the State to revise the SIP to require additional control of the sources.

The regulations would require that the method for sample collection be the reference method as defined in 40 CFR Part 50; this method is the high-volume sampler. No other collection methods would be allowed for monitoring in the vicinity of point sources, since it appears that other samplers would not sample the same quantity of larger particles that the high-volume sampler would collect. The analysis method could be the reference method or an equivalent method as defined in 40 CFR Part 50. The sources would also have to obtain certain meteorological data to properly locate the samplers.

EPA intends to restrict this requirement only to primary and secondary lead smelters and primary copper smelters because EPA modeling studies² of the six major lead point source categories (the other three being gasoline additive plants, lead-acid battery manufacturing plants,

and gray iron foundries) indicate that these three categories have a potential for an air quality impact that far exceeds that of the sources in the other categories.

EPA would require the States to place the requirement for monitoring directly on the source owners and operators, using the authority of § 114(a)(1)(C) of the Clean Air Act. This section authorizes the Administrator to require any source subject to a requirement of the Act to ". . . install, use, and maintain such monitoring equipment or methods. . . ." The implementation plan would have to require the source owners or operators to periodically report a summary of the data to the States and EPA. The data would then be used to determine whether a future plan revision is indicated.

The amount of ambient point source monitoring needed would vary and depend on the number of emission points at the source, the emission patterns, the topography, and the meteorology. EPA will develop a guidance manual on the number, siting, and operation of monitors around point sources. EPA estimates that the guidance will recommend that a network of about five samplers be placed in the vicinity of each source to which the regulation applies. States would have nine months after the promulgation of this requirement to revise their lead implementation plans to require the monitoring around the selected point sources. The sampling network would then have to be in place within one year after the date required for submission of the plan revision to account for this requirement if sufficient meteorological data were available for use in siting the monitors. If the meteorological data were not available, the source may have to collect a year's worth of data before siting the air quality monitors.

EPA solicits comments on any issues concerning the intended proposed rulemaking and particularly solicits comments on the following topics:

--The need for the requirement for ambient monitoring in the vicinity of the lead point sources mentioned above or alternatives to this requirement that will accomplish the objective of obtaining more accurate data concerning these sources.

--Other sources around which EPA should require ambient monitoring.

--The criteria for the number, operation, and location of the samplers.

--The criteria for the length of period of each sample, sampling frequency, and duration of the existence of the sampling system.

--Procedures for accounting for other sources in the vicinity of the source, including roadways.

--Procedures for accounting for complex topography.

--Procedures for accounting for meteorological conditions and obtaining meteorological data.

--Procedures for accounting for the nature and magnitude of fugitive emissions.

--Procedures for accounting for background concentrations.

--Procedures for accounting for source configuration.

--Procedures for reporting the collected data to the State and EPA.

--The time allowed for revision of the State implementation plan to account for the requirement.

--Time allowed for compliance with the requirement contained in the implementation plan.

--Whether the burden of responsibility should lie with the State agency or with the source.

--The cost to the States or the sources for compliance with these requirements.

EPA intends to propose rulemaking on this matter by December, 1978, and intends to make available for public review at the same time a draft of the detailed guidance on ambient lead monitoring in the vicinity of lead point sources.

FUGITIVE EMISSION FACTORS

Also, EPA intends to develop more accurate emission factors that relate the operation of a source to the amount of fugitive emissions the source generates. These factors will not be available, however, until some time after the States must submit their implementation plans. Therefore, the States will have to rely on available fugitive emission factors to perform their air quality analyses in support of their implementation plans or develop their own factors based on any data that may be available, such as emission factors for total particulate matter and information concerning the lead content of that particulate matter.

Alternatively, States could develop their own emission factors based on field studies. There are several methods for doing this.^{3,4,5}

After EPA develops emission factors for fugitive lead emissions, States could then determine whether their initially developed plans require too much or too little control; they could then make any necessary

adjustments to their implementation plans through revisions of those plans. The initial plan could require that sources phase in their control fairly slowly so that significant resources are not expended by the sources before EPA develops its fugitive emission factors.

REFERENCES

1. National Ambient Air Quality Standard for Lead: Final Draft: Environmental Impact Statement. U.S. Environmental Protection Agency, Office of Air and Waste Management, Office of Air Quality Planning and Standards, Research Triangle Park, N.C. July, 1978.
2. Economic Impact Assessment for the National Ambient Air Quality Standard for Lead and the Economic Implications of a Quarterly Mean Averaging Time for the Lead National Ambient Air Quality Standard. U.S. Environmental Protection Agency, Office of Air and Waste Management, Office of Air Quality Planning and Standards, Research Triangle Park, N.C. June, 1978.
3. Technical Manual for the Measurement of Fugitive Emissions: Upwind-Downwind Sampling Method for Industrial Fugitive Emissions. U.S. Environmental Protection Agency, Industrial and Environmental Research Laboratory, Research Triangle Park, N.C. April, 1976. Publication No. EPA-600/2-76-089a.
4. Technical Manual for the Measurement of Fugitive Emissions: Roof Monitor Sampling Method for Industrial Fugitive Emissions. U.S. Environmental Protection Agency, Industrial and Environmental Research Laboratory, Research Triangle Park, N.C. May, 1976. Publication No. EPA-600/2-76-089b.
5. Technical Manual for Measurement of Fugitive Emissions: Quasi-Stack Sampling Method for Industrial Fugitive Emissions. U.S. Environmental Protection Agency, Industrial and Environmental Research Laboratory, Research Triangle Park, N.C. May, 1976. Publication No. EPA-600/2-76-089c.

(Sections 110, 114(a)(1), and 301(a) of the Clean Air Act as amended (42 USC 7410, 7417, and 7601)).

Date

Administrator