EPA-450/2-89-019

SO_2 Guideline Appendices

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APPENDIX A

SO_2 GUIDELINE REFERENCES

REFERENCES FOR SECTION 2.1

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

APR 21 1983

OFFICE OF
AIR, NOISE, AND RADIATION

MEMORANDUM

SUBJECT: Section 107 Designation Policy Summary

Sheldon Meyers

FROM: Sheldon Meyers, Director
Office of Air Quality Planning and Standards (ANR-443)

TO: Director, Air and Waste Management Division
Regions II-IV, VI-VIII, X

Director, Air Management Division
Regions I, V, IX

On February 3, 1983, the Agency published a Federal Register notice regarding the status of all areas designated nonattainment under Part D of the Clean Air Act. This notice indicated that for a significant number of nonattainment areas States are anticipated to be able to demonstrate attainment of the primary national ambient air quality standards. Accordingly, for those areas, States have been encouraged to update their Section 107 designations. In addition, a number of nonattainment areas were identified in the February 3, 1983, notice as "unlikely to attain standards." The Federal Register also stated that the basic existing policy will generally be continued for redesignation. This memorandum summarizes and clarifies existing policy for reviewing designations and provides new guidance on processing these actions.

Policy For Reviewing 107 Designations

1. Data: In general, all available information relative to the attainment status of the area should be reviewed. These data should include the most recent eight (8) consecutive quarters of quality assured, representative ambient air quality data plus evidence of an implemented control strategy that EPA had fully approved. Supplemental information, including air quality modeling emissions data, etc., should be used to determine if the monitoring data accurately characterize the worst case air quality in the area. Also, the following items can be considered in special situations.

An attainment designation can be made using only the most recent four (4) quarters of ambient data if an acceptable state of the art modeling analysis (such as city-specific EKMA for ozone) is provided showing that the basic SIP strategy is sound and that actual, enforceable emission reductions are responsible for the recent air quality improvement.

For nonattainment designations which were originally based solely on modeling, redesignation to attainment is possible even if less than four (4) quarters of ambient data are available provided that a reference modeling analysis considering the sources' legal emission limits shows attainment of the standards. Information must also be presented showing that the sources causing the problem are in compliance with the enforceable SIP measures.

Although the current ozone standard implies the need for three years of data for attainment designations, two years of data with no exceedances is an acceptable surrogate. As discussed previously, this should be accompanied by evidence of an implemented control strategy that EPA had fully approved.

2. Projected Future Violations: Projections of future violations can provide the basis for continuing nonattainment designations. This concept is particularly important because of the current economic downturn. Information submitted to support attainment redesignations must adequately and accurately reflect anticipated operating rates. Areas should remain nonattainment where such projections reveal air quality violations.

3. Modeling: In most SO_2 cases, monitoring data alone will not be sufficient for areas dominated by point sources. A small number of ambient monitors usually is not representative of the air quality for the entire area. Dispersion modeling employing the legally enforceable SO_2 SIP limits will generally be necessary to evaluate comprehensively the sources' impacts as well as to identify the areas of highest concentrations. If either the modeling or monitoring indicates that SO_2 air quality standards are being violated, the area should remain nonattainment.

4. Boundaries: Current policies on appropriate boundaries for designation of nonattainment areas by EPA remain in effect, i.e., generally political boundaries such as city or county for TSP and SO_2, county as a minimum for rural ozone, entire urbanized area and fringe areas of development for urban ozone, and urban core area for CO. When States redesignate, EPA will continue to accept reasonable boundaries which are supported by appropriate data, such as specific new monitoring and/or modeling data or evidence of improvement due to control strategy implementation. Nonattainment areas for ozone should include the significant VOC sources.

5. Dispersion Techniques: Areas which are projected to attain the TSP or SO_2 standards because of the use of unauthorized dispersion techniques should continue to be designated as nonattainment.

Policy for Processing 107 Redesignations

1. SIP Review Actions: Section 107 designations have generally been classified as minor actions, with only a few of the more significant ones being processed as moderate. In the future, redesignations of Tier II nonattainment areas should be classified as major actions so that they can receive a comprehensive review to help ensure regional consistency. Redesignation of Tier I nonattainment areas should continue to be handled as minor or moderate actions, as appropriate.

2. "Unclassifiable" Areas: Since EPA and the States have had nearly five years to resolve discrepancies for nonattainment designations, it is now inappropriate to redesignate any area from nonattainment to unclassifiable. There has been ample time since the first designations were made in 1978 to thoroughly study each nonattainment area. Sufficient data should now exist to either make a redesignation to attainment or to keep the nonattainment designation.

If you have any questions, please contact Tom Helms at (FTS) 629-5525.

cc: Regional Administrator, Regions I-X
Chief, Air Programs Branch, Regions I-X

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

23 DEC 1983

MEMORANDUM

Subject: Section 107 Questions and Answers

From: G. T. Helms, Chief
Control Programs Operations Branch (MD-15)

To: Air Branch Chief
Regions I-X

The April 21, 1983 memo from Sheldon Meyers on Section 107 Redesignation Policy has generally resulted in more consistent redesignation packages. However, a number of questions have developed since then and it seems worthwhile now to share with everyone the responses that have been developed. These questions have arisen in a number of areas.

1. Is air quality data alone sufficient for a redesignation from nonattainment to attainment?

Answer: No. Valid air quality data showing no NAAQS violations must be supplemented with a demonstration that the approved SIP control strategy which provides for attainment has been implemented. The April 21 memo describes the requirements in detail. In most cases the submittal will include the most recent eight quarters of data showing attainment and evidence of an implemented control strategy that EPA had approved. This demonstration need not necessarily be quantitative. Rather, it need simply confirm that the control strategy approved in the SIP to address the problem has indeed been implemented. Where only the most recent four quarters of data showing attainment are available, a state-of-the-art modeling analysis must be provided which quantifies that the SIP strategy is sound and that actual enforceable emission reductions are responsible for the air quality improvements.

2. Are the same requirements discussed in answer number 1 applicable to secondary TSP redesignations?

Answer: Yes. As for primary standards, some reason has to be shown for the improvement in air quality. This can consist of an implemented control strategy, some other Federally enforceable statewide regulations, or a well-documented explanation that the circumstances which resulted in the initial designation have changed or were incorrect. The integrity of the designation process should be preserved, for both primary and secondary pollutants. Further, it should be noted that States are not penalized by remaining secondary nonattainment. Therefore, a control strategy or other demonstration needs to be included with these redesignation requests.

3. Can a control strategy that has not been approved by EPA as part of the SIP be used to support a redesignation?

Answer: In general, no. However, an exception will be made if the physical circumstances and long-term economic factors are such that the implemented measures have the same weight as a SIP: for example, the permanent closing of the major emitting sources, road paving to eliminate fugitive emissions, or other irreversible measures. Submittals including such changes, even though not formally approved as SIP revisions, have the practical impact of an EPA approved strategy and can be the basis for approval of the redesignation.

4. Are the same criteria required to reduce the size of a nonattainment area as are required for redesignating the entire area?

Answer: In general, yes. However, if a sound case can be made that the State "overdesignated" initially -- that is, designated a larger area than EPA required -- then the area can be reduced. The remaining nonattainment area must be compatible with EPA boundary requirements (see April 21, 1983 memo) and it must be convincingly demonstrated that the area going from nonattainment to attainment should not have been designated nonattainment. Other than this specific kind of exception, however, boundary changes require the same analysis as any nonattainment to attainment redesignation. When a portion of a nonattainment area is redesignated attainment, it would help the public if a statement was included in the notice which explains that a nonattainment portion remains.

5. What criteria are used in redesignating from unclassifiable to attainment for TSP and SO_2?

Answer: Redesignations from unclassifiable to attainment generally require the most recent eight consecutive quarters of air quality data demonstrating attainment. No control strategy demonstration is required since there would have been no SIP requirement for an unclassifiable area. The SO_2 redesignations will generally continue to require dispersion modeling.

6. What is required for reclassifications from unclassifiable to attainment for ozone, carbon monoxide, and nitrogen oxides?

Answer: Redesignations from unclassifiable to attainment do not involve any regulatory change. If a State wishes to make such a redesignation, it should be sent forward as a brief explanatory Federal Register notice documenting the information. However, the formal table containing the designation status is not changed since the attainment and unclassifiable designations are combined for these pollutants.

7. Is there, or has there ever been, a 50 km policy for ozone nonattainment areas?

Answer: No, this was only discussed as an option some years ago but it never achieved the status of Agency policy.

These questions and answers highlight some of the significant issues that have come up since the April 21, 1983 memo. Please call Bill Beal or John Calcagni (FTS 629-5665) if you have further comments or questions on Section 107 issues.

cc: B. Bauman
D. White
R. Campbell
S. Meiburg
J. Ulfelder

EPA-450/2-78-027R

Guideline On Air Quality Models (Revised)

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

July 1986

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

SEP 03 1981

Mr. Ralph C. Pickard
Technical Secretary
Indiana Air Pollution Control Board
P. O. Box 1964
Indianapolis, Indiana 46206

Dear Mr. Pickard:

This is in response to your letter of July 9, 1981 to Mr. Valdas V. Adamkus regarding the use of ambient monitoring data in making Section 107 area designations. I am also providing comments on the use of modeling in setting of source emission limits.

I am in agreement with your position that, when available, adequate ambient monitoring data should be given preference over modeling results in designating areas as attainment/nonattainment under Section 107 of the Clean Air Act (CAA). EPA has always held this position and has promoted this approach in the guidance we have issued on the subject. A model letter prepared by my staff in October 1977 that was sent by the Regional Administrators of EPA to the various State governors or environmental agency heads emphasized the use of monitoring data for designation purposes.

A follow-up memorandum issued on January 12, 1978 from my staff to the EPA Regional Offices responded to various questions regarding Part D plan requirements. It contained the following response to the question of whether preference should be given to either monitored ambient data or dispersion modeling results in designating areas under Section 107. "If there is a conflict between adequate monitoring data and modeling results, monitored values should be used. However, if the monitoring data are inadequate, the modeling results should be used."

It is the desire of the Agency to base Section 107 designations on the best possible data that are reasonably obtainable. In most cases, especially for isolated point sources, it is difficult for a few ambient monitors to adequately reflect the true air quality conditions surrounding the source, especially the areas of maximum impact or hotspots. In many such situations, dispersion modeling would be an alternative to the total reliance upon a limited monitoring network.

With regard to the referenced Indiana designations, there is not, in an administrative sense, a significant difference between unclassified and attainment. However, as I understand it, there exists in these counties a more significant issue; that is, setting of new emission limitations for power plants.

The use of diffusion modeling is now the accepted way of establishing emission limits for individual sources such as power plants. Most air pollution control agencies have accepted modeling as the only practical alternative of establishing emission limits for large sources such as power plants. The courts have also recognized the validity of using modeling in setting emission limits even where monitoring data are also available. Recent data indicate that a number of models are proving to be reasonable predictors of ambient impact. One recent study has shown that the EPA reference model for rural power plants, CRSTER, appears to have no inherent bias; it neither over- nor underestimates air quality levels routinely.

It is EPA's belief that, in most cases, the use of models is the most effective and efficient way to properly represent the impact of varying meteorology. To properly evaluate a prospective emission limit solely by the use of monitoring, a very extensive and costly air quality and meteorological monitoring network would have to be established. This network may have to be operated for a long time to ensure that the various meteorological conditions were actually experienced during each of the various operating regimes. I do not believe the situation surrounding the Indiana power plant emission limit changes argues for an exception to the use for modeling contained in current EPA guidance.

I trust this response adequately explains EPA's considerations in both the Section 107 area designation process and the requirement for modeling when setting new emission limits.

Sincerely yours,

Walter C. Barber
Director
Office of Air Quality Planning
and Standards

Enclosure

cc: Mr. Harry D. Williams

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

SEP 16 1982

OFFICE OF
AIR, NOISE, AND RADIATION

MEMORANDUM

SUBJECT: Milwaukee SO_2 Nonattainment Designation

FROM: Sheldon Meyers, Director
Office of Air Quality Planning and Standards (ANR-443)

TO: David Kee, Director
Air Management Division, Region V

Thank you for your August 9, 1982, memorandum to Assistant Administrator Bennett regarding Wisconsin's request for a redesignation to attainment of the sulfur dioxide (SO_2) standard for the Milwaukee area.

You asked four (4) separate questions in your memo. Those questions are repeated in full below along with my responses.

Q) In nonattainment areas with no emission limits, what is required to support a redesignation to attainment? (It does not appear to be sufficient to accept eight quarters of data showing no violations, even if the monitors were located in the expected high concentration areas.)

A) The fact that no Federally enforceable emission limits are in place does not affect the criteria applied in determining the area's attainment status. In general, Section 107 designation changes should utilize all available data, including both monitoring and modeling data. Whatever is available should certainly be used. Monitoring data should be used only within the limits of being representative for a specific geographic area. The object of any designation should be to make the best decision based upon the maximum amount of available information.

Q) What is the role of modeling in redesignations?

A) The need for dispersion modeling for Section 107 designation purposes is especially important when dealing with areas dominated by point sources of SO_2. In these cases, a small number of ambient air quality monitors will not be able to tell the whole story. Modeling is essential to evaluate comprehensively and thoroughly the sources' impacts as well as identify the areas of highest concentrations. It must be included in a redesignation analysis where feasible.

For all other areas, if modeling already exists, it should be considered. However, dispersion modeling is generally not required to be performed strictly for the purposes of Section 107 redesignation requests for such areas.

Q) Is a redesignation to attainment acceptable if there are eight quarters of monitored data showing no violations but there is modeling that predicts violations? (Note, this is not to say that the modeling contradicts the monitoring since the modeling shows attainment at the monitor locations, but nonattainment at other, nonmonitored locations.)

A) There is no answer that fits all possible situations. However, where valid dispersion modeling has been performed, such modeling results should set the designation status. When the appropriateness of the model is of some concern Regional Offices must exercise judgment after considering such things as how many monitors are in the network; is complex terrain (terrain greater than stack height) involved; what model is being used; is it a guideline model, if not, has it been demonstrated to be appropriate; does the model tend to over- or under-predict for the situation at hand?

Again, it should be emphasized that the objective is to make the best determination possible using all relevant information as to what the attainment status of an area really is.

Q) Mr. Barber's letter says that adequate monitored data are necessary. How is "adequate" defined? (We suggest that a determination of adequate monitoring data involve reference modeling. That is, monitors must be located in the areas of expected high concentrations, based on a reference modeling analysis.)

A) Your suggestion is what ideally should be required. However, monitors are seldom sited at the locations shown by later dispersion modeling to be those of maximum impact.

Again, the responsibility lies with the Regional Office to make the necessary judgments as to whether or not the existing monitor locations are sufficient both in number and spatial arrangement to allow them to be representative of the air quality for the area. Some judgment as to whether the potential problem is of a localized or more general areawide nature should be made. This judgment will influence whether modeling or monitoring should be given preference in the particular situation in question. How much information is needed before such a judgment can be made is subject to the complexity of the situation.

I would like to add the following comments regarding the particular situation in Milwaukee, Wisconsin, as described in the background portion of your August 9, 1982, memo.

In a situation where an area was originally designated nonattainment based on measured violations but subsequently has air quality measurements less than the ambient air quality standard, common sense would recognize the need for a study of the situation, including modeling. It could not reasonably be expected that violations would disappear by themselves. If a source has voluntarily made some emission reduction changes that eliminate violations, these changes need to be embodied into regulation and then be made part of the approved State Implementation Plan (SIP) control strategy. The approval of such emission limits as part of a SIP must be based on an adequate demonstration that ambient air quality standards will be protected. Such a demonstration must include a dispersion modeling analysis under worst case conditions.

If you have any other questions, please let me know.

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

FEB 0 ~ 1985

OFFICE OF
GENERAL COUNS

MEMORANDUM

SUBJECT: Redesignations That Would Change the SIP

FROM: Darryl D. Tyler, Director
Control Programs Development Division

Darryl

Peter H. Wyckoff, Assistant General Counsel
Air and Radiation Division

Peter H. Wyckoff

TO: Air Division Directors, Regions I-X

Our staffs recently discovered, in reviewing a Federal Register package that embodied a redesignation from nonattainment to attainment, that the redesignation would have relaxed the relevant SIP, because the SIP specified one set of control requirements for "nonattainment" areas and a less stringent set for "attainment" areas. The package, however, treated the redesignation merely as a redesignation and not also as a SIP relaxation.

We therefore ask you in the future (1) to examine each redesignation to determine whether it would have a substantive effect on the stringency of the relevant SIP and (2) to state your conclusion in the Action Memorandum for the Federal Register package. If the redesignation would have such an effect, you should treat it as a SIP revision and draft the package in accordance with the relevant Agency guidance, including guidance on SIP relaxations and attainment demonstrations. Please forewarn your state counterparts that EPA will be treating redesignations that would affect SIP stringency as SIP revisions. Thank you.

cc: Air Branch Chiefs, Regions I-X
Regional Counsel, Regions I-X

Bill Beal
Gerry Emison
Tom Helms
Betsy Horne
Joan La Rock
Bill Pedersen
John Topping
John Ulfelder

REFERENCES FOR SECTION 2.2

PN-123-80-12-19-001

DEC 1 9 1980

Honorable Jennings Randolph
Chairman, Committee on Environment
and Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

Thank you for your letter of October 23, 1980 expressing your continued interest in the Agency's definition of "ambient air." During the time since David Hawkins, my Assistant Administrator for Air, Noise, and Radiation, met with you last February, the definition has been extensively reviewed and debated.

After reviewing the issues and alternatives, I have determined that no change from the existing policy is necessary. We are retaining the policy that the exemption from ambient air is available only for the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers. EPA will continue to review individual situations on a case-by-case basis to ensure that the public is adequately protected and that there is no attempt by sources to circumvent the requirement of Section 123 of the Clean Air Act.

I hope that this has been responsive to your needs.

Sincerely yours,

/s/ Douglas M. Costle

Douglas M. Costle

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

27 JUL 1987

MEMORANDUM

SUBJECT: Ambient Air Issue from New Jersey Department of Environmental Protection (DEP)

FROM: G.T. Helms, Chief
Control Programs Operations Branch

TO: William S. Baker, Chief
Air Branch, Region II

In response to your request, we have reviewed your position with respect to a determination of ambient air applicability in the vicinity of the proposed EF Kenilworth, Inc. (EFKI) cogeneration unit in Union County, New Jersey. As we understand it, EFKI will build and operate the plant on property leased (long-term lease) from Schering Corporation. As we see it the EFKI operator will be completely separate from the Schering operation and except for the land owned and operated by a different Company. The fact that EFKI has entered into a contract to supply electricity/steam to Schering is not really relevant to the ambient air issue.

We agree with your position that all property outside of the property leased and controlled by EFKI would be considered ambient air. The word "controlled" is emphasized since nothing is said in either your memorandums or New Jersey's letter to Region II about what, if any, fence or other physical barrier would be installed to prevent public access to the EFKI leased property. If such physical barrier is not erected, then all land including the leased site would have to be considered as ambient air.

If you have any questions, please contact Sharon Reinders, at 629-5255.

cc: D. Tyler
J. Tikvart
D. Wilson
G. McCutchen

MAR 18 1983

Mr. Harry H. Hovey, Jr. P.E.
Director, Division of Air
New York State Dept. of
Environmental Conservation
50 Wolf Road
Albany, New York 12233

Dear Mr. Hovey:

In response to your letter of January 11, please be advised that there has been no major change in EPA policy with regard to ambient air and the associated requirements of a SIP demonstration. We have defined "ambient air" at 40 CFR §50.1(e) to include "that portion of the atmosphere, external to buildings, to which the general public has access." Our general policy is that the only exemption to compliance with the provisions of ambient air is for the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers.

The national ambient air quality standards are designed to protect the public health and welfare and apply to all ambient air which does include the rooftops and balconies of buildings accessible by the public. While EPA has the responsibility to develop the air quality standards, the States have the initial responsibility to implement them. In effect, the States have the prime responsibility to protect public health and welfare.

While EPA considers ambient air to include elevated building receptor sites, it is not practical to analyze the air quality at every such existing location. Therefore, both EPA and the States must exercise their best technical judgment as to when such sites must be evaluated so as to protect public health and welfare. Thus, we do not expect States, in most circumstances, to evaluate the impact on elevated building receptors. However, if the State has reason to believe that such an evaluation is necessary to protect public health and welfare, then it is incumbent upon the State to conduct such an analysis.

I appreciate your interest in this issue and am willing to discuss it further if you desire.

Sincerely yours,

Kathleen M. Bennett
Assistant Administrator
for Air, Noise, and Radiation

cc: R. Campbell
J. Schafer

ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460
OFFICE OF THE GENERAL COUNSEL

Date: September 27, 1972

Reply to Attn of: Michael A. James, Attorney
Air Quality and Radiation Division

Subject: Attainment of National Standards in Open Air Parking Lots

To: Conrad Simon, Chief
Air Programs Branch
Region II

MEMORANDUM OF LAW

FACTS

Your memorandum of September 1, 1972 raises the issue of the air pollution impact of a proposed sports complex to be constructed in the Hackensack Meadowlands in New Jersey. You state that the analysis of available data indicates that the national one-hour standard for carbon monoxide may be exceeded in the parking lot of the complex each time it is used for a major event.

QUESTION

Is the atmosphere above an open-air parking lot which is part of a sports complex "ambient air" under the Clean Air Act and EPA regulations?

ANSWER

Yes. Under the definition of "ambient air" in EPA regulations, national ambient air quality standards would apply to that portion of the atmosphere since it is external to buildings and the general public has access to it.

DISCUSSION

1. EPA has prescribed the applicability of the national primary and secondary ambient air quality standards by defining the term "ambient air." Section 40 CFR 50.1(e) of EPA regulations defines "ambient air" to mean "that portion of the atmosphere, external to buildings, to which the general public has access." There is no question that the

air which is the subject of your inquiry is a portion of the atmosphere external to buildings. A somewhat more difficult question is who the general public is and whether it can be said to have access to this facility.

2. The dictionary defines "public" to mean "the people as a whole", and notes that the term may contemplate "a group of people distinguished by common interests or characteristics" (Webster's Third New International Dictionary (1966)). Since §50.1(e) attaches the modifier "general", it indicates that the broader definition was intended by the regulation. The term "access" is defined as meaning "Permission, liberty, or ability to enter...." (Webster's Third New International Dictionary (1966)). While the parking lot in question may be fenced and/or guarded so as to prevent the entrance of the general public during all times except those immediately preceding, during, and immediately following athletic events, it is clear that the general public may readily enter the lot on foot or by vehicle during the period of highest pollution levels. The essential character of this complex is public, and it is difficult to imagine that the entrance of members of the community at large would be restricted on "game days", whether persons who seek entry do so to purchase tickets, watch crowds, or pick pockets. This situation may be contrasted with that of private property outdoors where only persons having some special relationship with the property owner, or his agents or lessees, are able to gain entrance to the property, while the general public's entrance is physically barred in some way.

3. Having concluded that the air above the parking lot is ambient air, we see no basis for excluding it from coverage by the State's implementation plan. There seems to be no logical difference between making the implementation plan applicable to the parking lot and making it apply to congested downtown areas where carbon monoxide concentrations due to heavy traffic are also a problem. As your memorandum suggests, even if the atmosphere above the parking lot were not "ambient air" it would be necessary for the State's implementation plan to consider the impact of emissions at the facility upon the atmosphere beyond the lot's fence line.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: MAY 16 1985

SUBJECT: Ambient Air

FROM: Michael Koerber for
Regional Meteorologists, Regions I-X

TO: Joseph Tikvart, Chief (MD-14)
Source Receptor Analysis Branch

At the recent Regional Meteorologists' meeting in Dallas, we identified inconsistencies among the Regional Offices on what areas are to be considered as ambient air for regulatory purposes. The existing inconsistency on ambient air is due to both the lack of clear National guidance and the allowed Regional Office discretion. A standardized approach is necessary both to satisfy the consistency requirements of Section 301 of the Clean Air Act and in order for those responsible for Regional modeling activities to provide effective and efficient review of and guidance on modeling analyses. Accordingly, the Regional Meteorologists have decided to address the problem at the working level through the use of a consistent modeling approach.

40 CFR Part 50.1(e) defines ambient air as "... that portion of the atmosphere, external to buildings, to which the general public has access." A letter dated December 19, 1980, from Douglas Costle to Senator Jennings Randolph, clarified this definition by stating that the exemption from ambient air is available only for the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers." The codified definition plus the 1980 clarification essentially constitute the National policy on ambient air.

The Regional Meteorologists propose that for modeling purposes the air everywhere outside of contiguous plant property to which public access is precluded by a fence or other effective physical barrier should be considered in locating receptors. Specifically, for stationary source modeling, receptors should be placed anywhere outside inaccessible plant property. For example, receptors should be included over bodies of water, over unfenced plant property, on buildings, over roadways, and over property owned by other sources. For mobile source modeling (i.e., CO modeling), receptors should continue to be sited in accordance with Volume 9 of the "Guidelines for Air Quality Maintenance Planning".

Unless you disagree with our position, we will require new actions with modeling analyses submitted to EPA after January 1, 1986, to conform to this modeling policy. Please note that all 10 Regional Meteorologists have reviewed and concur with this memo.

cc: Regional Meteorologists, Regions I-X

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

3 ... 1987

MEMORANDUM

SUBJECT: Ambient Air

FROM: G. T. Helms, Chief
Control Programs Operations Branch (MD-15)

TO: Steve Rothblatt, Chief
Air Branch, Region V

My staff and I have discussed the five ambient air cases which you submitted for our review on January 16, 1987. The following comments are our interpretation of the ambient air policy . However, this memorandum is not a discussion of the technical issues involved in the placement of receptors for modeling.

Our comments on each of the cases follow:

Case 1 (Dakota County, MN): This case involves two noncontiguous pieces of fenced property owned by the same source, divided by a public road. We agree that the road is clearly ambient air and that both fenced pieces of plant property are not.

Case 2 (Warrick County, IN): This case involves two large sources on both sides of the Ohio River. We agree that receptors should be located over the river since this is a public waterway, not controlled by the sources. We also agree that the river does indeed form a sufficient natural boundary/barrier and that fencing is not necessary, since the policy requires a fence or other physical barrier. However, some conditions must be met. The riverbank must be clearly posted and regularly patrolled by plant security. It must be very clear that the area is not public. Any areas where there is any question--i.e., grassy areas, etc.--should be fenced and marked, even if there is only a very remote possibility that the public would attempt to use this property.

However, we also feel that current policy requires that receptors should be placed in ALCOA and SIGECO property for modeling the contribution of each source's emissions to the other's ambient air. Thus, ALCOA's property--regardless of whether it is fenced--is still "ambient air" in relation to SIGECO's emissions and vice-versa.

Case 3 (Wayne County, MI): This case involves the air over the Detroit River, the Rouge River and the Short-cut Canal. We agree that the air over all three of these is ambient air, since none of the companies owns them or controls public access to them. Note, however, that one source's property--regardless of whether it is fenced--is the "ambient air" relative to another source's emissions.

Case 4 (Cuyahoga County, OH): This case involves LTV Steel's iron and steel mill located on both sides of the Cuyahoga River.

We do not feel that LTV Steel "controls" the river traffic in that area sufficiently to exclude the public from the river, whether it be recreational or industrial traffic. The fact that there is little or no recreational traffic in that area is not sufficient to say that all river traffic there is LTV traffic. The public also includes other industrial users of the river that are not associated with LTV.

It is difficult to tell from the map whether the railroad line is a through line or not. If the railroad yard serves only the plant then it would not be ambient air but the railroad entrance to the plant would have to be clearly marked and patrolled. However, if the line is a through line then that would be ambient air. We would need additional information to make a final determination.

The unfenced river boundaries should meet the same criteria as in Case 2 above.

Case 5 (involves the placement of receptors on another source's fenced-property): As mentioned above in Case 2, we feel that present policy does require that receptors be placed over another source's property to measure the contribution of the outside source to its neighbor's ambient air. To reiterate, Plant A's property is considered "ambient air" in relation to Plant B's emissions.

I hope that these comments are helpful to you and your staff. This memorandum was also reviewed by the Office of General Counsel.

cc: S. Schneeberg
P. Wyckoff
R. Rhoads
D. Stonefield
Air Branch Chiefs, Region I-X

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

22 JAN 1986

William F. O'Keefe, Vice President
American Petroleum Institute
1220 L Street Northwest
Washington, D. C. 20005

Dear Mr. O'Keefe:

Mr. Elkins has asked me to respond to your letter of December 18, 1985, in which you perceive a change in our policy with regard to the location of receptors for air quality dispersion modeling.

Let me assure you there is no change in our long-standing national policy with regard to the definition of ambient air. That policy is based on 40 CFR Part 50.1 (e) which defines ambient air as ". . . that portion of the atmosphere, external to buildings, to which the general public has access." A letter dated December 19, 1980, from Douglas Costle to Senator Jennings Randolph, reaffirmed and clarified this definition by stating the exemption from ambient air is available only for the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers. A copy of Mr. Costle's letter is enclosed. The codified definition plus the 1980 clarification essentially constitute the national policy on ambient air.

The Regional Meteorologists' memorandum to which you refer does not imply any change in this national policy and simply harmonizes modeling procedures with our long-standing policy. It is intended to ensure consistent Regional implementation of that policy and to dispel any questions about pollutant concentrations at locations where the general public has access.

Thus, since the Regional Meteorologists' memorandum does not imply any change in our policy, I do not believe there is any need for policy review at this time.

Sincerely,

Gerald A. Emison
Director
Office of Air Quality Planning
and Standards

Enclosure

cc: W. Quanstrom
C. Elkins

PN 110-87-04-30-1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

30 APR 1987

MEMORANDUM

SUBJECT: Ambient Air

FROM: G. T. Helms, Chief
Controlled Programs Operations Branch (MD-15)

TO: Bruce Miller, Chief
Air Programs Branch, Region IV

My staff and I have discussed the five situations involving the definition of ambient air that you sent on December 18, 1986. The following comments represent our interpretation of the ambient air policy. However, this memorandum is not a discussion of the technical issues involved in the placement of receptors for modeling. Our comments on each scenario follow:

Scenario One: We agree with you that the road and the unfenced property are ambient air and could be locations for the controlling receptor.

Scenario Two: We agree with your determination in this case also.

Scenario Three: We agree with you that the road is ambient air. However, Area B is not ambient air; it is land owned or controlled by the company and to which public access is precluded by a fence or other physical boundary.

Scenario Four: We do not think that any of the barriers mentioned here are sufficient to preclude public access so as to allow the source to dispense with a fence. An example of an unfenced boundary that would qualify is a property line along a river that is clearly posted and regularly patrolled by security guards. Any area, such as grassy areas that might even remotely be used by the public, would have to be fenced even in this situation. We would not think that a drainage ditch would meet these criteria.

Scenario Five: Both fenced pieces of plant property, even though noncontiguous, would not be considered ambient air (see Scenario Three). The road, of course, would be ambient air. Again, ownership and/or control of the property and public access are the keys to ambient air determination.

I hope that these comments are helpful to you and your staff. This memorandum was also reviewed by the Office of General Counsel. Please call me if you have any comments.

cc: S. Schneeberg
P. Wyckoff
R. Rhoads
D. Stonefield
Air Branch Chiefs, Regions I-X

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE 26 MAY 1983

SUBJECT Definition of Ambient Air for Lead

FROM Darryl D. Tyler, Director
Control Programs Development Division (MD-15)

TO Allyn Davis, Director
Air & Waste Management Division, Region VI

This is in response to your memorandum of May 23, 1983, to Sheldon Meyers. In that memorandum, you indicated that the Texas Air Control Board (TACB) believes that an ambient lead monitor in El Paso is not located in the ambient air, and therefore the data from that monitor should not be used to develop a control strategy for lead.

The monitor is located at the International Boundary Water Commission's (IBWC) property, about 1000 feet from the edge of the property of ASARCO's primary lead smelter. TACB believes that the monitor is not in the ambient air because public exposure at the IBWC property would at most be only daily for a period of not more than eight hours, and therefore no one person is expected to be at the IBWC site continuously for a full three months, the exposure time inherent in the lead standard.

TACB's logic runs counter to EPA's policy on ambient air. In 40 CFR 50.1(e), ambient air includes "that portion of the atmosphere, external to buildings, to which the general public has access." That definition does not account for any time limitation or averaging time. Regardless of whether any member of the public is expected to remain at a particular place for a specific period of time, ambient air is defined in terms of public access, not frequency of access, length of stay, age of the person or other limitations. The only exemption in EPA policy to compliance with the provisions of ambient air is for the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers. Since ASARCO does not own the site of the IBWC monitor, it clearly falls within our definition of ambient air.

Furthermore, any monitor can give only an estimate of the actual maximum concentration of a pollutant in the vicinity of the monitor. There may actually be higher concentrations of lead in the area between ASARCO's boundary and the IBWC monitor, such as on the highway that runs between the ASARCO smelter property and the IBWC property. The general public may have more frequent or longer access to this location than to the IBWC property itself. Therefore, the fact that the general public may not be expected to remain at the IBWC site itself continuously for three months is no reason to disallow the use of the monitor's data for developing a control strategy.

Please feel free to call me or G. T. Helms in this Division if you have any further questions on this matter.

cc: J. Calcagni
J. Divita
K. Greer
T. Helms
J. Silvasi
D. Stonefield
J. Ulfelder

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: DEC 1 8 1986

SUBJECT: EPA Definition of Ambient Air

FROM: Bruce P. Miller, Chief Bruce P. Miller
Air Programs Branch
Air, Pesticides & Toxics Management Division

TO: Tom Helms, Chief
Control Programs Operation Branch (MD-15)

SUMMARY

The North Carolina Division of Environmental Management has asked for a clarification of ambient air in regards to a certain source located in North Carolina. The Regional Meteorologist's memorandum dated May 16, 1985, provides that for modeling purposes receptors are located everywhere outside of the contiguous property of a plant to which the public is precluded due to a fence or other effective physical barriers. Attached are a number of scenarios for the source where we request a response on whether the receptors at certain locations are considered ambient air and whether the calculated modeling result at these receptors are to be considered in establishing an emission limit if one or more of these receptors is controlling. The Region IV opinion for each scenario is provided.

Most of the scenarios we believe are dealt with adequately in the May 16, 1985 memorandum, however, there is a major concern on our part about how to interpret the modeling results in scenario numbers three, four and five.

Please provide us with a written response by January 27, 1987. Please contact me or Mr. Lewis Nagler of my staff at FTS 257-2864 if you require additional information.

Enclosure (1)

cc: Joseph Tikvart (MD-14)
RTP, NC

NORTH CAROLINA AMBIENT AIR SCENARIOS

Scenario One

The plant property is divided by a public road. The portion of the property on which a point source is located (Area A) is completely fenced. The property on the other side of the road (Area B) is unfenced.

The Region IV position is that the road and the unfenced property are ambient air and if air quality modeling locates the controlling receptor in Area B, the emission limit will be determined based on the calculated concentration at that receptor.

Scenario Two

This scenario is the same as scenario one except that Area B is fenced except for the property along the public road.

The Region IV position is identical to that provided in scenario one.

Scenario Three

This scenario is the same as scenario one except that all of Area B is fenced.

The Region IV position is that the road is ambient air and that Area B should have receptors located there for modeling purposes. We also believe that since Area B is not contiguous to that property that is needed for plant operation, even though fenced, Area B is ambient air. We further believe that if a receptor located in Area B is found to contain the controlling receptor for establishing the source emission rate then that receptor value must be used.

There is a concern on our part that the May 16, 1985 memorandum could be interpreted to allow the Air Quality Management officials to discard the calculated concentrations within Area B. We believe a clarification of the ambient air policy on this point is needed.

Scenario Four

Area A is fenced except for the property along the public road.

The Region IV position is that Area A is ambient air unless the source can demonstrate that the public is precluded to entry by an effective physical barrier. However, since a physical barrier other than a fence is subject to various interpretation, we are seeking advise on what we can accept as meeting that requirement. For instance, a drainage ditch alongside a road with no shoulder for parking or the use of "NO PARKING" signs could be considered an effective barrier. As you can see, the concept can be quite subjective and we require additional guidance in this area.

For this actual situation, would you concur or non concur that no parking signs in association with no shoulder to park upon constitute a physical barrier? The Region IV position is that this situation does not constitute an effective physical barrier, but the addition of a drainage ditch would constitute an effective barrier.

Scenario Five (Hypothetical)

The entire plant is fenced. As a result of the county or state's power of eminent domain, a road is built through the property. Does the area that is no longer contiguous to the plant operation area lose its exemption from the ambient air definition even if the source fences off the area taken by the road?

The Region IV position is that the area should be grandfathered in that situation.

FN 105-84-06-11-014

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

JUN 11 1984

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Applicability of PSD Increments to Building Rooftops

FROM: Joseph A. Cannon
Assistant Administrator
for Air and Radiation

TO: Charles R. Jeter
Regional Administrator, Region IV

The following is in response to your letter of November 10, 1983, concerning issues which you felt required review for national consistency relating to a new source review for an Alabama Power facility in downtown Birmingham, Alabama.

On September 29, 1983, your office informed the State of Alabama that a new source's compliance with the PSD increments must be measured on the tops of buildings, as well as at ground level. Since then we have discussed the question extensively among ourselves and with representatives of the State of Alabama and the company. For the reasons that follow, I do not believe we are in a position to definitively assert that PSD increments apply to rooftops without further information as to the consequences for the PSD system as a whole. Accordingly, I recommend that we inform Alabama that we do not now require that compliance with PSD increments be measured at the tops of buildings. A State may, of course, adopt such an approach if it so desires.

Between 1970 and 1983, it appears to have been general EPA practice to determine compliance with both NAAQS and PSD increments at ground level, not at roof level. On March 18, 1983, however, Kathleen Bennett, in a letter to the State of New York, determined that the "national ambient air quality standards are designed to protect the public health and welfare and apply to all ambient air which does include the rooftops and balconies of buildings accessible by the public."

I believe this conclusion was correct. Apartment balconies, rooftop restaurants, and the like present a potential for human exposure that the primary ambient air quality standards should be interpreted to address.

Given this conclusion, one could argue, based on the text of the relevant regulations and the Clean Air Act, that the PSD increments apply wherever the NAAQS apply, and that both must apply throughout the "ambient air." However, the PSD system, unlike the NAAQS system, does not aim at achieving one single goal. Rather it represents a balance struck first by Congress between a given level of protection against degradation and a given potential for economic growth. It appears that the calculations on which that balancing judgment was based all assumed that PSD increments would be measured at ground level.

A number of state officials who are now administering PSD have argued to me that by measuring PSD increments on rooftops as well as at ground level, EPA would make the PSD system appreciably more stringent than Congress contemplated. Although major urban areas are all Class II areas, this approach, it is argued, could result in constraints on growth comparable to those that apply in Class I areas - national parks and wilderness areas. Such an outcome would not, it is argued, be consistent with Congressional intent.

In these circumstances, I think that preserving the status quo is particularly advisable because:

- It is likely that Alabama did not contemplate adopting a "rooftops" approach to PSD when it took over the PSD program. That expectation, though not decisive, does provide some reason not to change the situation without formal rulemaking.

- The consequences of an erroneous decision to consider increment consumption on rooftops will be more severe than those of an erroneous decision not to consider them. The adoption of such an approach will present at least a procedural, and, probably a substantive obstacle to development in urban areas, while in its absence air quality will still be protected by the NAAQS, by the PSD increments applied at ground level, and by the other aspects of PSD review such as Best Available Control Technology.

Therefore, I have concluded that since the State of Alabama has authority under an approved implementation plan for administering the PSD program within Alabama, it is their responsibility to apply this principle of maintaining the status quo to this case, taking all the relevant facts into account.

Please advise the State of Alabama of the Agency's position on these points as our response to the issues which they raised in meetings with both of us.

cc: A. Alm
P. Angell
T. Devine
G. Emison
W. Pedersen
P. Wyckoff
S. Meiburg

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

APR 7 1987

MEMORANDUM

SUBJECT: Wyoming--Definition of Ambient Air

FROM: Darryl D. Tyler, Director Darryl
Control Programs Development Division (MD-15)

TO: Irwin Dickstein, Director
Air and Toxics Division, Region VIII

This memorandum confirms and clarifies our recent conversation on Wyoming's proposed change to their definition of ambient air. After our conversation, my staff further reviewed the proposal and your office's assessment of it. While we agree with the final position you take--viz., opposition to the change--my staff believes that several other points should be made in comments to Wyoming.

1. In Christine Phillips' memorandum of March 20, 1987, two reasons are given to oppose the revision. While we agree with the thrust of the first reason (ineffectiveness of exterior fencing to exclude public access because of the public highway and towns in the enclosed area), there may be a problem in boldly stating the second reason. We have never either flatly stated that land acquisition in general is acceptable or unacceptable under section 123 of the Clean Air Act. As the memorandum points out, the December 19, 1980, letter from Douglas Costle to the Honorable Jennings Randolph indicates that we will review individual situations on a case-by-case basis. Therefore, I believe we should not automatically categorize land acquisition as proposed in Wyoming as a dispersion technique prohibited by section 123, although further analysis may in fact lead us to that conclusion. In at least two instances, we have tolerated land acquisition to "contain" modeled violations of national ambient air quality standards. We have, however, avoided formulating criteria for acceptability of land acquisition, although such criteria (such as size of area and relevance to operation) were at one time considered.

REFERENCES FOR SECTION 3.1

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/4-87-007
May 1987

Air

EPA

Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)

SCHEDULE D.6—PERMANENT WAIVER FROM INTERIM CONTROLS TEST—Continued

[Smelter identification]

	Line	1984	1985	1986	1987	1988	1989	1990	Total
6 Current salvage value	17	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
7 Net present value	18	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

SCHEDULE D.7—HORIZON VALUE OF CASH FLOWS

[Smelter identification]

	Line	Final forecast years		Horizon years					Total
		1989	1990	1991	1992	1993	1994	1995	
A. Depreciation-free horizon value:									
1. Net cash flow projections	01	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2. Depreciation tax savings:									
a. Depreciation and amortization	02	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. Marginal tax rate	03	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Tax savings	04	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
3. Depreciation-free net cash flows:									
a. Nominal dollar values	05	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. 1980 dollar values	06	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Average	07	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
4 Horizon factor	08	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
5 Depreciation-free horizon value	09	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
B. Depreciation tax savings over the horizon period:									
1 Depreciation and amortization	10	XXXX	XXXX	....	....	....	....	....	XXXX
2 Marginal tax rate	11	XXXX	XXXX	....	....	....	....	....	XXXX
3 Tax savings	12	XXXX	XXXX	....	....	....	....	....	XXXX
4 Discount factors	13	XXXX	XXXX	....	....	....	....	....	XXXX
5 Present value of tax savings	14	XXXX	XXXX	....	....	....	....	....	XXXX
6 Total present value of tax savings	15	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
C Horizon Value	16	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

AUTHORITY: Secs. 110, 301(a), 313, and 319 of the Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

SOURCE: 44 FR 27571, May 10, 1979, unless otherwise noted.

Subpart A—General Provisions

§ 58.1 Definitions.

As used in this part, all terms not defined herein have the meaning given them in the Act:

(a) "Act" means the Clean Air Act as amended (42 U.S.C. 7401, et seq.).

(b) "SLAMS" means State or Local Air Monitoring Station(s). The SLAMS make up the ambient air quality monitoring network which is required by § 58.20 to be provided for in the State's implementation plan. This definition places no restrictions on the use of the physical structure or facility housing the SLAMS. Any combination of SLAMS and any other monitors (Special Purpose, NAMS, PSD) may occupy the same facility or structure without affecting the respective definitions of those monitoring station.

(c) "NAMS" means National Air Monitoring Station(s). Collectively the NAMS are a subset of the SLAMS ambient air quality monitoring network.

(d) "PSD station" means any station operated for the purpose of establishing the effect on air quality of the emissions from a proposed source for purposes of prevention of significant deterioration as required by § 51.24(n) of Part 51 of this chapter.

(e) "SO_2" means sulfur dioxide.

(f) "NO_2" means nitrogen dioxide.

(g) "CO" means carbon monoxide.

(h) "O_3" means ozone.

(i) "Plan" means an implementation plan, approved or promulgated pursuant to section 110 of the Clean Air Act.

(j) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or his or her authorized representative.

(k) "Regional Administrator" means the Administrator of one of the ten EPA Regional Offices or his or her authorized representative.

(l) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(m) "Local agency" means any local government agency, other than the State agency, which is charged with the responsibility for carrying out a portion of the plan.

(n) "Indian Reservation" means any Federally recognized reservation established by treaty, agreement, executive order, or act of Congress.

(o) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

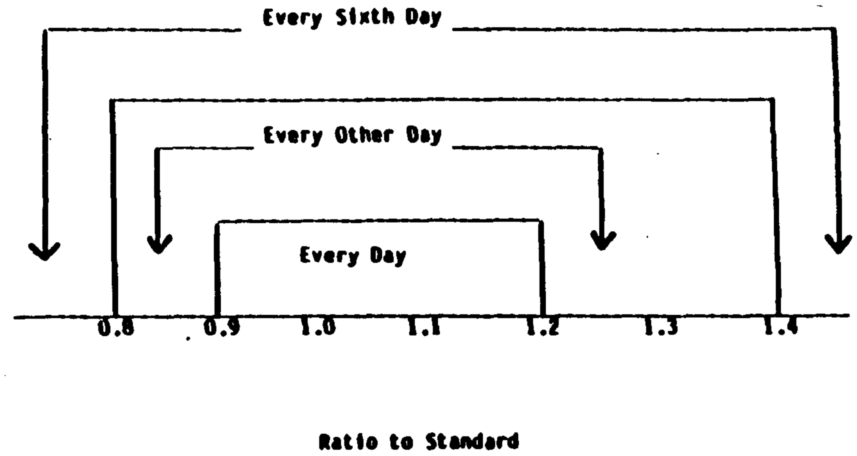
(p) "Storage and Retrieval of Aerometric Data (SAROAD) system" is a computerized system which stores and reports information relating to ambient air quality.

(q) "SAROAD site identification form" is one of the several forms in the SAROAD system. It is the form which provides a complete description of the site (and its surroundings) of an ambient air quality monitoring station.

(r) "Traceable" means that a local standard has been compared and certified, either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM) or a USEPA/NBS-approved Certified Reference Material (CRM).

(s) "Urban area population" means the population defined in the most

level of that monitoring site concentration with respect to the level of the controlling standard. For those areas in which the short term (24-hour) standard is controlling i.e., has the highest ratio, the selective sampling requirements are illustrated in Figure 1. If the operating agency were able to demonstrate, by a combination of historical TSP data and at least one year of PM_{10} data that there were certain periods of the year where conditions preclude violation of the PM_{10} 24-hour standard, the increased sampling frequency for those periods or seasons may be exempted by the Regional Administrator and revert back to once in six days. The minimum sampling schedule for all other sites in the area would be once every six days. For those areas in which the annual standard is the controlling standard, the minimum sampling schedule for all monitors in the area would be once every six days. During the annual review of the SLAMS network, the most recent year of data must be considered to estimate the air quality status for the controlling air quality standard (24-hour or annual). Statistical models such as analysis of concentration frequency distributions as described in "Guideline for the Interpretation of Ozone Air Quality Standards," EPA-450/479-003, U.S. Environmental Protection Agency, Research Triangle Park, N.C., January 1979, should be used. Adjustments to the monitoring schedule must be made on the basis of the annual review. The site having the highest concentration in the most current year must be given first consideration when selecting the site for the more frequent sampling schedule. Other factors such as major change in sources of PM_{10} emissions or in sampling site characteristics could influence the location of the expected maximum concentration site. Also, the use of the most recent three years of data might in some cases, be justified in order to provide a more representative data base from which to estimate current air quality status and to provide stability to the network. This multiyear consideration would reduce the possibility of an anamalous year biasing a site selected for accelerated sampling. If the maximum concentration site based on the most current year is not selected for the more frequent operating schedule, documentation of the justification for selection of an alternate site must be submitted to the Regional Office for approval during the annual review process. It should be noted that minimum data completeness critieria, number of years of data and sampling frequency for judging attainment of the NAAQS are discussed in Appendix K of Part 50.



[44 FR 27571, May 10, 1979, as amended at 52 FR 24739, July 1, 1987]

§ 58.14 Special purpose monitors.

(a) Any ambient air quality monitoring station other than a SLAMS or PSD station from which the State intends to use the data as part of a demonstration of attainment or nonattainment or in computing a design value for control purposes of the National Ambient Air Quality Standards (NAAQS) must meet the requirements for SLAMS described in § 58.22 and, after January 1, 1983, must also meet the requirements for SLAMS as described in § 58.13 and Appendices A and E to this part.

(b) Any ambient air quality monitoring station other than a SLAMS or PSD station from which the State intends to use the data for SIP-related functions other than as described in paragraph (a) of this section is not necessarily required to comply with the requirements for a SLAMS station under paragraph (a) but must be operated in accordance with a monitoring schedule, methodology, quality assurance procedures, and probe or instrument-siting specifications approved by the Regional Administrator.

[46 FR 44164, Sept. 3, 1981]

Subpart C—State and Local Air Monitoring Stations (SLAMS)

§ 58.20 Air quality surveillance: Plan content.

By January 1, 1980, the State shall adopt and submit to the Administrator a revision to the plan which will:

(a) Provide for the establishment of an air quality surveillance system that consists of a network of monitoring stations designated as State and Local Air Monitoring Stations (SLAMS) which measure ambient concentrations of those pollutants for which standards have been established in Part 50 of this chapter.

(b) Provide for meeting the requirements of Appendices A, C, D, and E to this part.

(c) Provide for the operation of at least one SLAMS per pollutant except Pb during any stage of an air pollution episode as defined in the contingency plan.

(d) Provide for the review of the air quality surveillance system on an annual basis to determine if the system meets the monitoring objectives defined in Appendix D to this part. Such review must identify needed modifications to the network such as termination or relocation of unnecessary stations or establishment of new stations which are necessary.

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/4-87-013
June 1987

Air

EPA

On-Site Meteorological Program Guidance for Regulatory Modeling Applications

REFERENCES FOR SECTION 3.2

SCHEDULE D.6—PERMANENT WAIVER FROM INTERIM CONTROLS TEST—Continued

[Smelter identification]

	Line	1984	1985	1986	1987	1988	1989	1990	Total
6 Current salvage value	17	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
7 Net present value	18	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

SCHEDULE D.7—HORIZON VALUE OF CASH FLOWS

[Smelter identification]

	Line	Final forecast years		Horizon years					Total
		1989	1990	1991	1992	1993	1994	1995	
A Depreciation free horizon value.									
1. Net cash flow projections	01	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2. Depreciation tax savings:									
a. Depreciation and amortization	02	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. Marginal tax rate	03	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Tax savings	04	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
3. Depreciation-free net cash flows:									
a. Nominal dollar values	05	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
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c. Average	07	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
4 Horizon factor	08	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
5 Depreciation-free horizon value.	09	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
B Depreciation tax savings over the horizon period:									
1 Depreciation and amortization	10	XXXX	XXXX	....	....	....	....	....	XXXX
2 Marginal tax rate	11	XXXX	XXXX	....	....	....	....	....	XXXX
3 Tax savings	12	XXXX	XXXX	....	....	....	....	....	XXXX
4 Discount factors	13	XXXX	XXXX	....	....	....	....	....	XXXX
5 Present value of tax savings	14	XXXX	XXXX	....	....	....	....	....	XXXX
6 Total present value of tax savings	15	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
C Horizon Value	16	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

AUTHORITY: Secs. 110, 301(a), 313, and 319 of the Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

SOURCE: 44 FR 27571, May 10, 1979, unless otherwise noted.

Subpart A—General Provisions

§ 58.1 Definitions.

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(c) "NAMS" means National Air Monitoring Station(s). Collectively the NAMS are a subset of the SLAMS ambient air quality monitoring network.

(d) "PSD station" means any station operated for the purpose of establishing the effect on air quality of the emissions from a proposed source for purposes of prevention of significant deterioration as required by § 51.24(n) of Part 51 of this chapter.

(e) "SO_2" means sulfur dioxide.

(f) "NO_2" means nitrogen dioxide.

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(i) "Plan" means an implementation plan, approved or promulgated pursuant to section 110 of the Clean Air Act.

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(l) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(m) "Local agency" means any local government agency, other than the State agency, which is charged with the responsibility for carrying out a portion of the plan.

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(o) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

(p) "Storage and Retrieval of Aerometric Data (SAROAD) system" is a computerized system which stores and reports information relating to ambient air quality.

(q) "SAROAD site identification form" is one of the several forms in the SAROAD system. It is the form which provides a complete description of the site (and its surroundings) of an ambient air quality monitoring station.

(r) "Traceable" means that a local standard has been compared and certified, either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM) or a USEPA/NBS-approved Certified Reference Material (CRM).

(s) "Urban area population" means the population defined in the most

NAMS design criteria contained in Appendix D to this part.

§ 58.33 NAMS methodology.

Each NAMS must meet the monitoring methodology requirements of Appendix C to this part applicable to NAMS at the time the station is put into operation as a NAMS.

§ 58.34 NAMS network completion.

By January 1, 1981, with the exception of Pb, which shall be by July 1, 1982 and PM_{10} samplers, which shall be by 1 year after the effective date of promulgation:

(a) Each NAMS must be in operation, be sited in accordance with the criteria in Appendix E to this part, and be located as described in the station's SAROAD site identification form; and

(b) The quality assurance requirements of Appendix A to this part must be fully implemented for all NAMS.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 52 FR 24740, July 1, 1987]

§ 58.35 NAMS data submittal.

(a) The requirements of this section apply only to those stations designated as NAMS by the network description required by § 58.30.

(b) The State shall report quarterly to the Administrator (through the appropriate Regional Office) all ambient air quality data and information specified by AEROS Users Manual (EPA-450/2-76-029, OAQPS No. 1.2-039) to be coded into the SAROAD Air Quality Data forms. Such air quality data and information must be submitted on either paper forms, punched cards, or magnetic tape in the format of the SAROAD Air Quality Data forms.

(c) The quarterly reporting periods are January 1-March 31, April 1-June 30, July 1-September 30, and October 1-December 31. The quarterly report must:

(1) Be received by the National Aerometric Data Bank within 120 days of the end of each reporting period, after being submitted by the States to the Regional Offices for review;

(2) Contain all data and information gathered during the reporting period.

(d) For TSP, CO, SO_2, O_3, and NO_2, the first quarterly report will be due on or before June 30, 1981, for data collected during the first quarter of 1981. For Pb, the first quarterly report will be due on December 31, 1982, for data collected during the third quarter of 1982. For PM_{10} samplers, the first quarterly report will be due 120 days after the first quarter of operation.

(e) Air quality data submitted in the quarterly report must have been edited and validated so that such data are ready to be entered into the SAROAD data files. Procedures for editing and validating data are described in AEROS Users Manual (EPA-450/2-76-029, OAQPS No. 1.2-039).

(f) This section does not permit a State to exempt those SLAMS which are also designated as NAMS from all or any of the reporting requirements applicable to SLAMS in § 58.26.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 51 FR 9586, Mar. 19, 1986; 52 FR 24740, July 1, 1987]

§ 58.36 System modification.

During the annual SLAMS Network Review specified in § 58.20, any changes to the NAMS network identified by the EPA and/or proposed by the State and agreed to by the EPA will be evaluated. These modifications should address changes invoked by a new census and changes to the network due to changing air quality levels, emission patterns, etc. The State shall be given one year (until the next annual evaluation) to implement the appropriate changes to the NAMS network.

[51 FR 9586, Mar. 19, 1986]

Subpart E—Air Quality Index Reporting

§ 58.40 Index reporting.

(a) The State shall report to the general public on a daily basis through prominent notice an air quality index in accordance with the requirements of Appendix G to this part.

(b) Reporting must commence by January 1, 1981, for all urban areas with a population exceeding 500,000, and by January 1, 1983, for all urban areas with a population exceeding 200,000.

(c) The population of an urban area for purposes of index reporting is the most recent U.S. census population figure as defined in § 58.1 paragraph (s).

[44 FR 27571, May 10, 1979, as amended at 51 FR 9586, Mar. 19, 1986]

Subpart F—Federal Monitoring

§ 58.50 Federal monitoring.

The Administrator may locate and operate an ambient air monitoring station if the State fails to locate, or schedule to be located, during the initial network design process or as a result of the annual review required by § 58.20(d):

(a) A SLAMS at a site which is necessary in the judgment of the Regional Administrator to meet the objectives defined in Appendix D to this part, or

(b) A NAMS at a site which is necessary in the judgment of the Administrator for meeting EPA national data needs.

§ 58.51 Monitoring other pollutants.

The Administrator may promulgate criteria similar to that referenced in Subpart B of this part for monitoring a pollutant for which a National Ambient Air Quality Standard does not exist. Such an action would be taken whenever the Administrator determines that a nationwide monitoring program is necessary to monitor such a pollutant.

Appendix A—Quality Assurance Requirements for State and Local Air Monitoring Stations (SLAMS)

1. General Information.

This Appendix specifies the minimum quality assurance requirements applicable to SLAMS air monitoring data submitted to EPA. States are encouraged to develop and maintain quality assurance programs more extensive than the required minimum.

Quality assurance of air monitoring systems includes two distinct and important interrelated functions. One function is the control of the measurement process through the implementation of policies, procedures, and corrective actions. The other function is the assessment of the quality of the monitoring data (the product of the measurement process). In general, the greater the effort effectiveness of the control of a given monitoring system, the better will be the resulting quality of the monitoring data. The results of data quality assessments indicate whether the control efforts need to be increased.

Documentation of the quality assessments of the monitoring data is important to data users, who can then consider the impact of the data quality in specific applications (see Reference 1). Accordingly, assessments of SLAMS data quality are required to be reported to EPA periodically.

To provide national uniformity in this assessment and reporting of data quality for all SLAMS networks, specific assessment and reporting procedures are prescribed in detail in sections 3, 4, and 5 of this Appendix.

In contrast, the control function encompasses a variety of policies, procedures, specifications, standards, and corrective measures which affect the quality of the resulting data. The selection and extent of the quality control activities—as well as additional quality assessment activities—used by a monitoring agency depend on a number of local factors such as the field and laboratory conditions, the objectives of the monitoring, the level of the data quality needed, the expertise of assigned personnel, the cost of control procedures, pollutant concentration levels, etc. Therefore, the quality assurance requirements, in section 2 of this Appendix, are specified in general terms to allow each State to develop a quality assurance system that is most efficient and effective for its own circumstances.

2. Quality Assurance Requirements

2.1 Each State must develop and implement a quality assurance program consisting of policies, procedures, specifications, standards and documentation necessary to:

(1) Provide data of adequate quality to meet monitoring objectives, and

(2) Minimize loss of air quality data due to malfunctions or out-of-control conditions.

This quality assurance program must be described in detail, suitably documented, and approved by the appropriate Regional Administrator, or his designee. The Quality Assurance Program will be reviewed during the annual system audit described in section 2.4.

2.2 Primary guidance for developing the quality assurance program is contained in References 2 and 3, which also contain many suggested procedures, checks, and control specifications. Section 2.0.9 of Reference 3 describes specific guidance for the de-

velopment of a Quality Assurance Program for SLAMS automated analyzers. Many specific quality control checks and specifications for manual methods are included in the respective reference methods described in Part 50 of this chapter or in the respective equivalent method descriptions available from EPA (see Reference 4). Similarly, quality control procedures related to specifically designated reference and equivalent analyzers are contained in the respective operation and instruction manuals associated with those analyzers. This guidance, and any other pertinent information from appropriate sources, should be used by the States in developing their quality assurance programs.

As a minimum, each quality assurance program must include operational procedures for each of the following activities:

(1) Selection of methods, analyzers, or samplers;

(2) Training;

(3) Installation of equipment;

(4) Selection and control of calibration standards;

(5) Calibration;

(6) Zero/span checks and adjustments of automated analyzers;

(7) Control checks and their frequency;

(8) Control limits for zero, span and other control checks, and respective corrective actions when such limits are surpassed;

(9) Calibration and zero/span checks for multiple range analyzers (see Section 2.6 of Appendix C of this part);

(10) Preventive and remedial maintenance;

(11) Quality control procedures for air pollution episode monitoring;

(12) Recording and validating data;

(13) Data quality assessment (precision and accuracy);

(14) Documentation of quality control information.

2.3 *Pollutant Concentration and Flow Rate Standards.*

2.3.1 Gaseous pollutant concentration standards (permeation devices or cylinders of compressed gas) used to obtain test concentration for CO, SO_2, and NO_2 must be traceable to either a National Bureau of Standards (NBS) Standard Reference Material (SRM) or an NBS/EPA-approved commercially available Certified Reference Material (CRM). CRM's are described in Reference 5, and a list of CRM sources is available from the Quality Assurance Division (MD 77), Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

General guidance and recommended techniques for certifying gaseous working standards against an SRM or CRM are provided in section 2.0.7 of Reference 2. Direct use of a CRM as a working standard is acceptable, but direct use of an NBS SRM as a working standard is discouraged because of the limited supply and expense of SRMs.

2.3.2 Test concentrations for O_3 must be obtained in accordance with the UV photometric calibration procedure specified in Appendix D of Part 50 of this chapter, or by means of a certified ozone transfer standard. Consult References 6 and 7 for guidance on primary and transfer standards for O_3.

2.3.3 Flow rate measurements must be made by a flow measuring instrument that is traceable to an authoritative volume or other standard. Guidance for certifying some types of flowmeters is provided in Reference 2.

2.4 National Performance and System Audit Programs

Agencies operating SLAMS network stations shall be subject to annual EPA systems audits of their ambient air monitoring program and are required to participate in EPA's National Performance Audit Program. These audits are described in section 1.4.16 of Reference 2 and section 2.0.11 of Reference 2. For instructions, agencies should contact either the appropriate EPA Regional Quality Assurance Coordinator or the Quality Assurance Division (MD-77B), Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

3. *Data Quality Assessment Requirements*

All ambient monitoring methods or analyzers used in SLAMS shall be tested periodically, as described in this section 3, to quantitatively assess the quality of the SLAMS data being routinely produced. Measurement accuracy and precision are estimated for both automated and manual methods. The individual results of these tests for each method or analyzer shall be reported to EPA as specified in section 4. EPA will then calculate quarterly integrated estimates of precision and accuracy applicable to the SLAMS data as described in section 5. Data assessment results should be reported to EPA only for methods and analyzers approved for use in SLAMS monitoring under Appendix C of this Part.

The integrated data quality assessment estimates will be calculated on the basis of "reporting organizations." A reporting organization is defined as a State, subordinate organization within a State, or other organization that is responsible for a set of stations that monitor the same pollutant and for which precision or accuracy assessments can be pooled. States must define one or more reporting organizations for each pollutant such that each monitoring station in the State SLAMS network is included in one, and only one, reporting organization.

Each reporting organization shall be defined such that precision or accuracy among all stations in the organization can be expected to be reasonably homogeneous, as a result of common factors. Common factors that should be considered by States in defining reporting organizations include: (1) operation by a common team of field operators, (2) common calibration facilities, and (3) support by a common laboratory or headquarters. Where there is uncertainty in defining the reporting organizations or in assigning specific sites to reporting organizations, States shall consult with the appropriate EPA Regional Office for guidance. All definitions of reporting organizations shall be subject to final approval by the appropriate EPA Regional Office.

Assessment results shall be reported as specified in section 4. Concentration and flow standards must be as specified in sections 2.3 or 3.4. In addition, working standards and equipment used for accuracy audits must not be the same standards and equipment used for routine calibration. Concentration measurements reported from analyzers or analytical systems (indicated concentrations) should be based on stable readings and must be derived by means of the same calibration curve and data processing system used to obtain the routine air monitoring data (see Reference 1, page 82, and Reference 2, section 2.0.9.1.2(d)). Table A-1 provides a summary of the minimum data quality assessment requirements, which are described in more detail in the following sections.

3.1 Precision of Automated Methods. A one-point precision check must be carried out at least once every two weeks on each automated analyzer used to measure SO_2, NO_2, O_3, and CO. The precision check is made by challenging the analyzer with a precision check gas of known concentration between 0.08 and 0.10 ppm for SO_2, NO_2, and O_3 analyzers, and between 8 and 10 ppm for CO analyzers. To check the precision of SLAMS analyzers operating on ranges higher than 0 to 1.0 ppm SO_2, NO_2, and O_3, or 0 to 100 ppm for CO, use precision check gases of appropriately higher concentration as approved by the appropriate Regional Administrator or his designee. However, the results of precision checks at concentration levels other than those shown above need not be reported to EPA. The standards from which precision check test concentrations are obtained must meet the specifications of section 2.3.

Except for certain CO analyzers described below, analyzers must operate in their normal sampling mode during the precision check, and the test atmosphere must pass through all filters, scrubbers, conditioners and other components used during normal ambient sampling and as much of the ambient air inlet system as is practicable. If permitted by the associated operation or instruction manual, a CO analyzer may be temporarily modified during the precision check to reduce vent or purge flows, or the test atmosphere may enter the analyzer at a point other than the normal sample inlet, *provided that* the analyzer's response is not likely to be altered by these deviations from the normal operational mode. If a precision check is made in conjunction with a zero or span adjustment, it must be made prior to such zero or span adjustments. Randomization of the precision check with respect to time of day, day of week, and routine service and adjustments is encouraged where possible.

Report the actual concentrations of the precision check gas and the corresponding concentrations indicated by the analyzer. The percent differences between these concentrations are used to assess the precision of the monitoring data as described in section 5.1.

3.2 Accuracy of Automated Methods. Each calendar quarter (during which analyzers are operated), audit at least 25 percent of the SLAMS analyzers that monitor for SO_2, NO_2, O_3, or CO such that each analyzer is audited at least once per year. If there are fewer than four analyzers for a pollutant within a reporting organization, randomly reaudit one or more analyzers so that at least one analyzer for that pollutant is audited each calendar quarter. Where possible, EPA strongly encourages more frequent auditing, up to an audit frequency of once per quarter for each SLAMS analyzer.

The audit is made by challenging the analyzer with at least one audit gas of known concentration from each of the following ranges that fall within the measurement range of the analyzer being audited:

Audit level	Concentration range, ppm		
	SO_2, O_3	NO_2	CO
1	0.03-0.08	0.03-0.08	3-8
2	0.15-0.20	0.15-0.20	15-20
3	0.35-0.45	0.35-0.45	35-45
4	0.80-0.90		80-90

NO_2 audit gas for chemiluminescence-type NO_2 analyzers must also contain at least 0.08 ppm NO.

NOTE: NO concentrations substantially higher than 0.08 ppm, as may occur when using some gas phase titration (GPT) techniques, may lead to audit errors in chemiluminescence analyzers due to inevitable minor NO-NO_x channel imbalance. Such errors may be atypical of routine monitoring errors to the extent that such NO concentrations exceed typical ambient NO concentrations at the site. These errors may be minimized by modifying the GPT technique

to lower the NO concentrations remaining in the NO_2 audit gas to levels closer to typical ambient NO concentrations at the site.

To audit SLAMS analyzers operating on ranges higher than 0 to 1.0 ppm for SO_2, NO_2, and O_3 or 0 to 100 ppm for CO, use audit gases of appropriately higher concentration as approved by the appropriate Regional Administrator or his designee. The results of audits at concentration levels other than those shown in the above table need not be reported to EPA.

The standards from which audit gas test concentrations are obtained must meet the specifications of section 2.3. Working or transfer standards and equipment used for auditing must not be the same as the standards and equipment used for calibration and spanning, but may be referenced to the same NBS SRM, CRM, or primary UV photometer. The auditor should not be the operator or analyst who conducts the routine monitoring, calibration, and analysis.

The audit shall be carried out by allowing the analyzer to analyze the audit test atmosphere in its normal sampling mode such that the test atmosphere passes through all filters, scrubbers, conditioners, and other sample inlet components used during normal ambient sampling and as much of the ambient air inlet system as is practicable. The exception given in section 3.1 for certain CO analyzers does not apply for audits.

Report both the audit test concentrations and the corresponding concentration measurements indicated or produced by the analyzer being tested. The percent differences between these concentrations are used to assess the accuracy of the monitoring data as described in section 5.2.

3.3 Precision of Manual Methods. For each network of manual methods, select one or more monitoring sites within the reporting organization for duplicate, collocated sampling as follows: for 1 to 5 sites, select 1 site; for 6 to 20 sites, select 2 sites; and for over 20 sites, select 3 sites. Where possible, additional collocated sampling is encouraged. For particulate matter, a network for measuring PM_{10} shall be separate from a TSP network. Sites having annual mean particulate matter concentrations among the highest 25 percent of the annual mean concentrations for all the sites in the network must be selected or, if such sites are impractical, alternate sites approved by the Regional Administrator may be selected.

In determining the number of collocated sites required, monitoring networks for Pb should be treated independently from networks for particulate matter, even though the separate networks may share one or more common samplers. However, a single pair of samplers collocated at a common-sampler monitoring site that meets the requirements for both a collocated lead site and a collocated particulate matter site may serve as a collocated site for both networks.

The two collocated samplers must be within 4 meters of each other, and particulate matter samplers must be at least 2 meters apart to preclude airflow interference. Calibration, sampling, and analysis must be the same for both collocated samplers and the same as for all other samplers in the network.

For each pair of collocated samplers, designate one sampler as the primary sampler whose samples will be used to report air quality for the site, and designate the other as the duplicate sampler. Each duplicate sampler must be operated concurrently with its associated routine sampler at least once per week. The operation schedule should be selected so that the sampling days are distributed evenly over the year and over the seven days of the week. The every-6-day schedule used by many monitoring agencies is recommended. Report the measurements from both samplers at each collocated sampling site, including measurements falling below the limits specified in 5.3.1. The percent differences in measured concentration ($\mu g/m^3$) between the two collocated samplers are used to calculate precision as described in section 5.3.

3.4 Accuracy of Manual Methods. The accuracy of manual sampling methods is assessed by auditing a portion of the measurement process. For particulate matter methods, the flow rate during sample collection is audited. For SO_2 and NO_2 methods, the analytical measurement is audited. For Pb methods, the flow rate and analytical measurement are audited.

3.4.1 Particulate matter methods. Each calendar quarter, audit the flow rate of at least 25 percent of the samplers such that each sampler is audited at least once per year. If there are fewer than four samplers within a reporting organization, randomly reaudit one or more samplers so that one sampler is audited each calendar quarter. Audit each sampler at its normal operating flow rate, using a flow rate transfer standard as described in section 2.3.3. The flow rate standard used for auditing must not be the same flow rate standard used to calibrate the sampler. However, both the calibration standard and the audit standard may be referenced to the same primary flow rate standard. The flow audit should be scheduled so as to avoid interference with a scheduled sampling period. Report the audit flow rates and the corresponding flow rates indicated by the sampler's normally used flow indicator. The percent differences between these flow rates are used to calculate accuracy as described in section 5.4.1.

Great care must be used in auditing high-volume particulate matter samplers having flow regulators because the introduction of resistance plates in the audit flow standard device can cause abnormal flow patterns at the point of flow sensing. For this reason, the flow audit standard should be used with a normal filter in place and without resistance plates in auditing flow-regulated high-volume samplers, or other steps should be taken to assure that flow patterns are not perturbed at the point of flow sensing.

3.4.2 SO_2 Methods. Prepare audit solutions from a working sulfite-tetrachloromercurate (TCM) solution as described in section 10.2 of the SO_2 Reference Method (Appendix A of Part 50 of this chapter). These audit samples must be prepared independently from the standardized sulfite solutions used in the routine calibration procedure. Sulfite-TCM audit samples must be stored between 0 and 5 °C and expire 30 days after preparation.

Prepare audit samples in each of the concentration ranges of 0.2-0.3, 0.5-0.6, and 0.8-0.9 μg SO_2/ml. Analyze an audit sample in each of the three ranges at least once each day that samples are analyzed and at least twice per calendar quarter. Report the audit concentrations (in μg SO_2/ml) and the corresponding indicated concentrations (in μg SO_2/ml). The percent differences between these concentrations are used to calculate accuracy as described in section 5.4.2.

3.4.3 NO_2 Methods. Prepare audit solutions from a working sodium nitrite solution as described in the appropriate equivalent method (see Reference 4). These audit samples must be prepared independently from the standardized nitrite solutions used in the routine calibration procedure. Sodium nitrite audit samples expire in 3 months after preparation. Prepare audit samples in each of the concentration ranges of 0.2-0.3, 0.5-0.6, and 0.8-0.9 μg NO_2/ml. Analyze an audit sample in each of the three ranges at least once each day that samples are analyzed and at least twice per calendar quarter. Report the audit concentrations (in μg NO_2/ml) and the corresponding indicated concentrations (in μg NO_2/ml). The percent differences between these concentrations are used to calculate accuracy as described in section 5.4.2.

3.4.4 Pb Methods. For the Pb Reference Method (Appendix G of Part 50 of this chapter), the flow rates of the high-volume Pb samplers shall be audited as part of the TSP network using the same procedures described in Section 3.4.1. For agencies operating both TSP and Pb networks, 25 percent of the total number of high-volume samplers are to be audited each quarter.

Each calendar quarter, audit the Pb Reference Method analytical procedure using glass fiber filter strips containing a known quantity of Pb. These audit sample strips are prepared by depositing a Pb solution on 1.9 cm by 20.3 cm (¾ inch by 8 inch) unexposed glass fiber filter strips and allowing them to dry thoroughly. The audit samples must be prepared using batches of reagents different from those used to calibrate the Pb analytical equipment being audited. Prepare audit samples in the following concentration ranges:

Range	Pb concentration, μg/strip	Equivalent ambient Pb concentration,[1] $\mu g/m^3$
1	100-300	0.5-1.5
2	600-1000	3.0-5.0

[1] Equivalent ambient Pb concentration in $\mu g/m^3$ is based on sampling at 1.7 m^3/min for 24 hours on a 20.3 cm × 25.4 cm (8 inch × 10 inch) glass fiber filter.

Audit samples must be extracted using the same extraction procedure used for exposed filters.

Analyze three audit samples in each of the two ranges each quarter samples are analyzed. The audit sample analyses shall be distributed as much as possible over the entire calendar quarter. Report the audit concentrations (in μg Pb/strip) and the corresponding measured concentrations (in μg Pb/strip) using unit code 77. The percent differences between the concentrations are used to calculate analytical accuracy as described in section 5.4.2.

The accuracy of an equivalent Pb method is assessed in the same manner as for the reference method. The flow auditing device and Pb analysis audit samples must be compatible with the specific requirements of the equivalent method.

4. *Reporting Requirements*

For each pollutant, prepare a list of all monitoring sites and their SAROAD site identification codes in each reporting organization and submit the list to the appropriate EPA Regional Office, with a copy to the Environmental Monitoring Systems Laboratory (MD-75), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711 (EMSL/RTP). Whenever there is a change in this list of monitoring sites in a reporting organization, report this change to the Regional Office and to EMSL/RTP.

4.1 Quarterly Reports. Within 120 calendar days after the end of each calendar quarter, each reporting organization shall report to EMSL/RTP via the appropriate EPA Regional Office the results of all valid precision and accuracy tests it has carried out during the quarter. Report all collocated measurements including those falling below the levels specified in section 5.3.1. Do not report results from invalid tests, from tests carried out during a time period for which ambient data immediately prior or subsequent to the tests were invalidated for

appropriate reasons, or from tests of methods or analyzers not approved for use in SLAMS monitoring networks under Appendix C of this part.

Quarterly reports as specified herein shall commence not later than the report pertaining to the first calendar quarter of 1987, although such reports will be accepted beginning with the report pertaining to the third calendar quarter of 1986.

The information should be reported in a format similar to that shown in Figures A-1 and A-2. The data may be reported (1) via magnetic computer tape according to data format specifications provided by the Regional Offices, (2) by direct, interactive computer entry via a data terminal and the PARS data entry system, or (3) on the forms illustrated in Figures A-1 and A-2. Minor variations of these forms (to facilitate local use) or computer-generated (facsimile) forms may also be used, provided they follow the same general format, use the same block numbers, and are clear and completely legible. Instructions for using these forms are provided in section 4.3.

Within 240 days after the end of the reporting quarter, EPA will calculate integrated precision and accuracy assessments for each reporting organization as specified in section 5 and return, through the Regional Offices, reports of the respective assessments to each reporting organization.

4.2 Annual Reports. When precision and accuracy estimates for a reporting organization have been calculated for all four quarters of the calendar year, EPA will calculate the properly weighted probability limits for precision and accuracy for the entire calendar year. These limits will then be associated with the data submitted in the annual SLAMS report required by § 58.26.

Each reporting organization shall submit, along with its annual SLAMS report, a listing by pollutant of all monitoring sites in the reporting organization.

4.3 Instructions for Using Data Quality Assessment Reporting Forms. Suggested forms for reporting data quality assessment information are provided in Figure A-1 (for reporting accuracy data) and Figure A-2 (for reporting precision data). The forms may be used in a "universal" way to report data for different pollutants and for different sites on the same form. Or, either form may be used as a site-specific or pollutant-specific form (where all entries on the form are for a common site, a common pollutant, or both) by filling in the site or pollutant information in the appropriate box in the upper left corner of the form. Detailed instructions for individual blocks are as follows:

Instructions common to both forms:

Block No.	Description
1-2	State. The two digit SAROAD State code
3-5	Reporting Organization. A unique 3 digit code assigned by each State to each of its respective reporting organizations
6-7	Year: Last two digits of the calendar year corresponding to the quarter specified in block 8.
8	Quarter. Enter 1, 2, 3, or 4 to refer to the calendar quarter during which the data quality assessments were obtained
9	Enter "1" for original assessment data, "2" to revise assessment data previously submitted, or "3" to delete previously submitted assessment data. When a "3" is entered, only blocks 1 to 28 need be completed.

Also enter the name of the reporting organization, the date the form is submitted, and (optionally) the name of the person who prepared the form on the blanks provided.

Block No.	Description
10-18	Site: Enter the SAROAD site identification code (first 9 digits only). If all entries on the form are for the same site, enter the site code and site identification in the upper left corner of the form. Also check the block in the corner of the box and leave the other blocks 10 to 18 on the form blank
21-23	Method Code: Enter the measurement method code from the back of the form. Also enter the pollutant symbol (e.g., SO_2, CO, TSP, etc.) on the blank to the left of block No. 21. If all entries on the form are for the same method, enter the code, symbol, and method identification in the lower box in the upper left corner of the form. Also check the block in the corner of the box and leave the other blocks 21 to 23 on the form blank.
24	Preceded with an "A" or a "P".
25-28	Date: Enter the month and day of the test.

Additional Instructions for Accuracy form (Figure A-1):

Block No.	Description
29	Y: Enter "1" if the reporting organization conducted the audit and also certified the audit standard used, enter "2" if the reporting organization conducted the audit but did not certify the audit standard used, enter "3" if the audit was not conducted by the reporting organization
30	S: Enter the code letter of the source of the local primary standard used, from the list on the form
31-32	Unit code: Enter the unit code number from the unit code list on the form (use only the codes listed). Also write in the unit on the blank to the left of block 31
33	Preceded with a "0" or a "1".

Block No.	Description
34-40	Level 1 Actual: Enter the actual concentration determined from the audit standard in the appropriate blocks with respect to the preceded decimal point.
41-47	Level 1 Indicated: Enter the concentration indicated by the analyzer, sampler, or method being audited in the appropriate blocks with respect to the preceded decimal point.
48-61	Level 2. Enter the actual and indicated concentrations for audit level 2, if applicable.
34-61	Levels 3 and 4 (if applicable). On the second line, enter the actual and indicated concentrations for audit level 3 and, if used, audit level 4.

Additional Instructions for Precision form (Figure A-2):

Block No.	Description
31-32	Unit Code. Enter the unit code number from the unit code list on the form (use only the codes listed). Also write in the unit on the blank to the left of block 31.
34-40	Actual or Primary: Enter the value of the known test concentration or the concentration measurement associated with the sampler designated as the primary sampler in the appropriate blocks with respect to the preceded decimal point.
41-47	Indicated or Duplicate. Enter the value of the concentration measurement from the analyzer or the duplicate collected sampler in the appropriate blocks with respect to the preceded decimal point

5. *Calculations for Data Quality Assessment*

Calculation of estimates of integrated precision and accuracy are carried out by EPA according to the following procedures. Reporting organizations should report the results of individual precision and accuracy tests as specified in sections 3 and 4 even though they may elect to carry out some or all of the calculations in this section on their own.

5.1 Precision of Automated Methods. Estimates of the precision of automated methods are calculated from the results of biweekly precision checks as specified in section 3.1. At the end of each calendar quarter, an integrated precision probability interval for all SLAMS analyzers in the organization is calculated for each pollutant.

5.1.1 Single Analyzer Precision. The percentage difference (d_i) for each precision check is calculated using equation 1, where Y_i is the concentration indicated by the analyzer for the i-th precision check and X_i is the known concentration for the i-th precision check.

$$d_i = \frac{Y_i - X_i}{X_i} \times 100 \qquad (1)$$

For each analyzer, the quarterly average (d_j) is calculated with equation 2, and the standard deviation (S_j) with equation 3, where n is the number of precision checks on the instrument made during the calendar quarter. For example, n should be 6 or 7 if precision checks are made biweekly during a quarter.

$$d_j = \frac{1}{n} \sum_{i=1}^{n} d_i \qquad (2)$$

$$S_j = \sqrt{\frac{1}{n-1}\left[\sum_{i=1}^{n} d_i^2 - \frac{1}{n}\left(\sum_{i=1}^{n} d_i\right)^2\right]} \qquad (3)$$

5.1.2 Precision for Reporting Organization. For each pollutant, the average of averages (D) and the pooled standard deviation (S_a) are calculated for all analyzers audited for the pollutant during the quarter, using either equations 4 and 5 or 4a and 5a, where k is the number of analyzers audited within the reporting organization for a single pollutant.

$$D = \frac{1}{k}\sum_{j=1}^{k} d_j \qquad (4)$$

$$D = \frac{n_1 d_1 + n_2 d_2 + \ldots + n_j d_j + \ldots + n_k d_k}{n_1 + n_2 + \ldots + n_j + \ldots + n_k} \qquad (4a)$$

$$S_a = \sqrt{\frac{1}{k}\sum_{j=1}^{k} S_j^2} \qquad (5)$$

$$S_a = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2 + \ldots + (n_j - 1)S_j^2 + \ldots + (n_k - 1)S_k^2}{n_1 + n_2 + \ldots + n_j + \ldots + n_k - k}} \qquad (5a)$$

Equations 4 and 5 are used when the same number of precision checks are made for each analyzer. Equations 4a and 5a are used to obtain a weighted average and a weighted standard deviation when different numbers of precision checks are made for the analyzers.

For each pollutant, the 95 Percent Probability Limits for the precision of a reporting organization are calculated using equations 6 and 7.

Upper 95 Percent Probability Limit = D + 1.96 S_a .... (6)
Lower 95 Percent Probability Limit = D − 1.96 S_a .... (7)

5.2 Accuracy of Automated Methods. Estimates of the accuracy of automated methods are calculated from the results of independent audits as described in section 3.2. At the end of each calendar quarter, an integrated accuracy probability interval for all SLAMS analyzers audited in the reporting organization is calculated for each pollutant. Separate probability limits are calculated for each audit concentration level in section 3.2.

5.2.1 Single Analyzer Accuracy. The percentage difference (d_i) for each audit concentration is calculated using equation 1, where Y_i is the analyzer's indicated concentration measurement from the i th audit check and X_i is the actual concentration of the audit gas used for the i-th audit check.

5.2.2 Accuracy for Reporting Organization. For each audit concentration level, the average (D) of the individual percentage differences (d_i) for all n analyzers measuring a given pollutant audited during the quarter is calculated using equation 8.

$$D = \frac{1}{n}\sum_{i=1}^{n} d_i \qquad (8)$$

For each concentration level, the standard deviation (S_a) of all the individual percentage differences for all analyzers audited during the quarter is calculated, for each pollutant, using equation 9.

$$S_a = \sqrt{\frac{1}{n-1}\left[\sum_{i=1}^{n} d_i^2 - \frac{1}{n}\left(\sum_{i=1}^{n} d_i\right)^2\right]} \qquad (9)$$

For reporting organizations having four or fewer analyzers for a particular pollutant, only one audit is required each quarter, and the average and standard deviation cannot be calculated. For such reporting organizations, the audit results of two consecutive quarters are required to calculate an average and a standard deviation, using equations 8 and 9. Therefore, the reporting of probability limits shall be on a semiannual (instead of a quarterly) basis.

For each pollutant, the 95 Percent Probability Limits for the accuracy of a reporting organization are calculated at each audit concentration level using equations 6 and 7.

5.3 Precision of Manual Methods. Estimates of precision of manual methods are calculated from the results obtained from collocated samplers as described in section 3.3. At the end of each calendar quarter, an integrated precision probability interval for all collocated samplers operating in the reporting organization is calculated for each manual method network.

5.3.1 Single Sampler Precision. At low concentrations, agreement between the measurements of collocated samplers, expressed as percent differences, may be relatively poor. For this reason, collocated measurement pairs are selected for use in the precision calculations only when both measurements are above the following limits:

TSP: 20 µg/m³,
SO_2: 45 µg/m³,
NO_2: 30 µg/m³,
Pb: 0.15 µg/m³, and
PM_{10}: 20 µg/m³.

For each selected measurement pair, the percent difference (d_i) is calculated, using equation 10,

$$d_i = \frac{Y_i - X_i}{(Y_i + X_i)/2} \times 100 \qquad (10)$$

Where y_i is the pollutant concentration measurement obtained from the duplicate sampler and X_i is the concentration measurement obtained from the primary sampler designated for reporting air quality for the site. For each site, the quarterly average percent difference (d_j) is calculated from equation 2 and the standard deviation (S_j) is calculated from equation 3, where n = the number of selected measurement pairs at the site.

5.3.2 Precision for Reporting Organization. For each pollutant, the average percentage difference (D) and the pooled standard deviation (S_a) are calculated, using equations 4 and 5, or using equations 4a and 5a if different numbers of paired measurements are obtained at the collocated sites. For these calculations, the k of equations 4, 4a, 5 and 5a is the number of collocated sites.

The 95 Percent Probability Limits for the integrated precision for a reporting organization are calculated using equations 11 and 12.

Upper 95 Percent Probability Limit = D + 1.96 $S_a/\sqrt{2}$ .... (11)
Lower 95 Percent Probability Limit = D − 1.96 $S_a/\sqrt{2}$ .... (12)

5.4 Accuracy of Manual Methods. Estimates of the accuracy of manual methods are calculated from the results of independent audits as described in Section 3.4. At the end of each calendar quarter, an integrated accuracy probability interval is calculated for each manual method network operated by the reporting organization.

5.4.1 Particulate Matter Samplers (including reference method Pb samplers).

(a) *Single Sampler Accuracy.* For the flow rate audit described in Section 3.4.1, the percentage difference (d_i) for each audit is calculated using equation 1, where X_i represents the known flow rate and Y_i represents the flow rate indicated by the sampler.

(b) *Accuracy for Reporting Organization.* For each type of particulate matter measured (e.g., TSP/Pb), the average (D) of the individual percent differences for all similar particulate matter samplers audited during the calendar quarter is calculated using equation 8. The standard deviation (S_a) of the percentage differences for all of the similar particulate matter samplers audited during the calendar quarter is calulated using equation 9. The 95 percent probability limits for the integrated accuracy for the reporting organization are calculated using equations 6 and 7. For reporting organizations having four or fewer particulate matter samplers of one type, only one audit is required each quarter, and the audit results of two consecutive quarters are required to calculate an average and a standard deviation. In that case, probability limits shall be reported semi-annually rather than quarterly.

5.4.2 Analytical Methods for SO_2, NO_2, and Pb.

(a) *Single Analysis-Day Accuracy.* For each of the audits of the analytical methods for SO_2, NO_2, and Pb described in section 3.4.2, 3.4.3, and 3.4.4, the percentage difference (d_i) at each concentration level is calculated using equation 1, where X_i represents the known value of the audit sample and Y_i represents the value of SO_2, NO_2, and Pb indicated by the analytical method.

(b) *Accuracy for Reporting Organization.* For each analytical method, the average (D) of the individual percent differences at each concentration level for all audits during the calendar quarter is calculated using equation 8. The standard deviation (S_a) of the percentage differences at each concentration level for all audits during the calendar quarter is calculated using equation 9. The 95 percent probability limits for the accuracy for the reporting organization are calculated using equations 6 and 7.

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4. "List of Designated Reference and Equivalent Methods." Available from U.S. Environmental Protection Agency, Department E (MD-77), Research Triangle Park, NC 27711.

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6. Paur, R.J. and F.F. McElroy. Technical Assistance Document for the Calibration of Ambient Ozone Monitors. EPA-600/4-79-057. U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, September, 1979.

7. McElroy, F.F. Transfer Standards for the Calibration of Ambient Air Monitoring Analyzers for Ozone. EPA-600/4-79-056. U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, September, 1979.

TABLE A-1—MINIMUM DATA ASSESSMENT REQUIREMENTS

Method	Assessment method	Coverage	Minimum frequency	Parameters reported
Precision:				
Automated methods for SO_2, NO_2, O_3, and CO.	Response check at concentration between .08 and .10 ppm (8 & 10 ppm for CO).	Each analyzer	Once per 2 weeks	Actual concentration and measured concentration.
Manual methods including lead.	Collocated samplers	1 site for 1-5 sites; 2 sites 6-20 sites; 3 sites >20 sites; (sites with highest conc.).	Once per week	Two concentration measurements.
Accuracy:				
Automated methods for SO_2, NO_2, O_3, and CO.	Response check at .03-.08 ppm;[1] .15-.20 ppm;[1] .35-.45 ppm;[1] .80-.90 ppm[1] (if applicable).	1. Each analyzer; 2. 25% of analyzers (at least 1).	1 Once per year. 2 Each calendar quarter.	Actual concentration and measured (indicated) concentration for each level.
Manual methods for SO_2, and NO_2.	Check of analytical procedure with audit standard solutions.	Analytical system	Each day samples are analyzed, at least twice per quarter.	Actual concentration and measured (indicated) concentration for each audit solution.
TSP, PM_{10}	Check of sampler flow rate.	1. Each sampler; 2 25% of samplers (at least 1).	1 Once per year; 2 Each calendar quarter.	Actual flow rate and flow rate indicated by the sampler.
Lead	1. Check sample flow rate as for TSP; 2 Check analytical system with Pb audit strips.	1. Each sampler; 2. Analytical system.	1. Include with TSP; 2 Each quarter.	1 Same as for TSP; 2. Actual cocentration and measured (indicated) concentration of audit samples (µg Pb/strip)

[1] Conc. times 100 for CO.

ACCURACY

DATA QUALITY ASSESSMENT REPORTING FORM

LEVEL 1 · LEVEL 2 · LEVEL 3 · LEVEL 4

PRECISION

DATA QUALITY ASSESSMENT REPORTING FORM

SAROAD SITE CODE 10-18	POLLUTANT	METHOD CODE 21-23	DATE MON 24-25	DAY 27-28	UNIT	UNIT CODE 31-32	ACTUAL OR DESIGNATED 34-37	INDICATED OR COLLOCATED 41-44

[illegible]

INFORMATION TO BE CONTAINED ON THE BACK OF THE DATA REPORTING FORMS

[51 FR 9587, Mar. 19, 1986, as amended at 52 FR 24741, July 1, 1987]

Appendix B—Quality Assurance Requirements for Prevention of Significant Deterioration (PSD) Air Monitoring

1. *General Information*

This Appendix specifies the minimum quality assurance requirements for the control and assessment of the quality of the PSD ambient air monitoring data submitted to EPA by an organization operating a network of PSD stations. Such organizations are encouraged to develop and maintain quality assurance programs more extensive than the required minimum.

Quality assurance of air monitoring systems includes two distinct and important interrelated functions. One function is the control of the measurement process through the implementation of policies, procedures, and corrective actions. The other function is the assessment of the quality of the monitoring data (the product of the measurement process). In general, the greater the effort and effectiveness of the control of a given monitoring system, the better will be the resulting quality of the monitoring data. The results of data quality assessments indicate whether the control efforts need to be increased.

Documentation of the quality assessments of the monitoring data is important to data users, who can then consider the impact of the data quality in specific applications (see Reference 1). Accordingly, assessments of PSD monitoring data quality are required to be made and reported periodically by the monitoring organization.

To provide national uniformity in the assessment and reporting of data quality among all PSD networks, specific assessment and reporting procedures are prescribed in detail in Sections 3, 4, 5, and 6 of this Appendix.

In contrast, the control function encompasses a variety of policies, procedures, specifications, standards, and corrective measures which affect the quality of the resulting data. The selection and extent of the quality control activities—as well as additional quality assessment activities—used by a monitoring organization depend on a number of local factors such as the field and laboratory conditions, the objectives of the monitoring, the level of the data quality needed, the expertise of assigned personnel, the cost of control procedures, pollutant concentration levels, etc. Therefore, the quality assurance requirements, in Section 2 of this Appendix, are specified in general terms to allow each organization to develop a quality control system that is most efficient and effective for its own circumstances.

For purposes of this Appendix, "organization" is defined as a source owner/operator, a government agency, or their contractor that operates an ambient air pollution monitoring network for PSD purposes.

2. *Quality Assurance Requirements*

2.1 Each organization must develop and implement a quality assurance program consisting of policies, procedures, specifications, standards and documentation necessary to:

(1) Provide data of adequate quality to meet monitoring objectives and quality assurance requirements of the permit-granting authority, and

(2) Minimize loss of air quality data due to malfunctions or out-of-control conditions.

This quality assurance program must be described in detail, suitably documented, and approved by the permit-granting authority. The Quality Assurance Program will be reviewed during the system audits described in Section 2.4.

2.2 Primary guidance for developing the Quality Assurance Program is contained in References 2 and 3, which also contain many suggested procedures, checks, and control specifications. Section 2.0.9 of Reference 3 describes specific guidance for the development of a Quality Assurance Program for automated analyzers. Many specific quality control checks and specifications for manual methods are included in the respective reference methods described in Part 50 of this chapter or in the respective equivalent method descriptions available from EPA (see Reference 4). Similarly, quality control procedures related to specifically designated reference and equivalent analyzers are contained in their respective operation and instruction manuals. This guidance, and any other pertinent information from appropriate sources, should be used by the organization in developing its quality assurance program.

As a minimum, each quality assurance program must include operational procedures for each of the following activities:

(1) Selection of methods, analyzers, or samplers;

(2) Training;

(3) Installation of equipment;

(4) Selection and control of calibration standards;

(5) Calibration;

(6) Zero/span checks and adjustments of automated analyzers;

20 137 O 89 6

REFERENCES FOR SECTION 3.3

SCHEDULE D.6—PERMANENT WAIVER FROM INTERIM CONTROLS TEST—Continued

[Smelter identification]

	Line	1984	1985	1986	1987	1988	1989	1990	Total
6 Current salvage value	17	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
7 Net present value	18	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

SCHEDULE D.7—HORIZON VALUE OF CASH FLOWS

[Smelter identification]

	Line	Final forecast years		Horizon years					Total
		1989	1990	1991	1992	1993	1994	1995	
A. Depreciation-free horizon value.									
1 Net cash flow projections	01	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2 Depreciation tax savings:									
a. Depreciation and amortization	02	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. Marginal tax rate	03	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Tax savings	04	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
3 Depreciation-free net cash flows:									
a. Nominal dollar values	05	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. 1980 dollar values	06	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Average	07	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
4 Horizon factor	08	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
5 Depreciation-free horizon value	09	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
B. Depreciation tax savings over the horizon period									
1 Depreciation and amortization	10	XXXX	XXXX	....	....	....	....	....	XXXX
2 Marginal tax rate	11	XXXX	XXXX	....	....	....	....	....	XXXX
3 Tax savings	12	XXXX	XXXX	....	....	....	....	....	XXXX
4 Discount factors	13	XXXX	XXXX	....	....	....	....	....	XXXX
5 Present value of tax savings	14	XXXX	XXXX	....	....	....	....	....	XXXX
6 Total present value of tax savings	15	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
C. Horizon Value	16	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

Subpart A—General Provisions

Subpart B—Monitoring Criteria

Subpart C—State and Local Air Monitoring Stations (SLAMS)

Subpart D—National Air Monitoring Stations (NAMS)

Subpart E—Air Quality Index Reporting

Subpart F—Federal Monitoring

AUTHORITY: Secs. 110, 301(a), 313, and 319 of the Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

SOURCE: 44 FR 27571, May 10, 1979, unless otherwise noted.

Subpart A—General Provisions

§ 58.1 Definitions.

As used in this part, all terms not defined herein have the meaning given them in the Act:

(a) "Act" means the Clean Air Act as amended (42 U.S.C. 7401, et seq.).

(b) "SLAMS" means State or Local Air Monitoring Station(s). The SLAMS make up the ambient air quality monitoring network which is required by § 58.20 to be provided for in the State's implementation plan. This definition places no restrictions on the use of the physical structure or facility housing the SLAMS. Any combination of SLAMS and any other monitors (Special Purpose, NAMS, PSD) may occupy the same facility or structure without affecting the respective definitions of those monitoring station.

(c) "NAMS" means National Air Monitoring Station(s). Collectively the NAMS are a subset of the SLAMS ambient air quality monitoring network.

(d) "PSD station" means any station operated for the purpose of establishing the effect on air quality of the emissions from a proposed source for purposes of prevention of significant deterioration as required by § 51.24(n) of Part 51 of this chapter.

(e) "SO_2" means sulfur dioxide.

(f) "NO_2" means nitrogen dioxide.

(g) "CO" means carbon monoxide.

(h) "O_3" means ozone.

(i) "Plan" means an implementation plan, approved or promulgated pursuant to section 110 of the Clean Air Act.

(j) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or his or her authorized representative.

(k) "Regional Administrator" means the Administrator of one of the ten EPA Regional Offices or his or her authorized representative.

(l) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(m) "Local agency" means any local government agency, other than the State agency, which is charged with the responsibility for carrying out a portion of the plan.

(n) "Indian Reservation" means any Federally recognized reservation established by treaty, agreement, executive order, or act of Congress.

(o) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

(p) "Storage and Retrieval of Aerometric Data (SAROAD) system" is a computerized system which stores and reports information relating to ambient air quality.

(q) "SAROAD site identification form" is one of the several forms in the SAROAD system. It is the form which provides a complete description of the site (and its surroundings) of an ambient air quality monitoring station.

(r) "Traceable" means that a local standard has been compared and certified, either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM) or a USEPA/NBS-approved Certified Reference Material (CRM).

(s) "Urban area population" means the population defined in the most

NAMS design criteria contained in Appendix D to this part.

§ 58.33 NAMS methodology.

Each NAMS must meet the monitoring methodology requirements of Appendix C to this part applicable to NAMS at the time the station is put into operation as a NAMS.

§ 58.34 NAMS network completion.

By January 1, 1981, with the exception of Pb, which shall be by July 1, 1982 and PM_{10} samplers, which shall be by 1 year after the effective date of promulgation:

(a) Each NAMS must be in operation, be sited in accordance with the criteria in Appendix E to this part, and be located as described in the station's SAROAD site identification form; and

(b) The quality assurance requirements of Appendix A to this part must be fully implemented for all NAMS.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 52 FR 24740, July 1, 1987]

§ 58.35 NAMS data submittal.

(a) The requirements of this section apply only to those stations designated as NAMS by the network description required by § 58.30.

(b) The State shall report quarterly to the Administrator (through the appropriate Regional Office) all ambient air quality data and information specified by AEROS Users Manual (EPA-450/2-76-029, OAQPS No. 1.2-039) to be coded into the SAROAD Air Quality Data forms. Such air quality data and information must be submitted on either paper forms, punched cards, or magnetic tape in the format of the SAROAD Air Quality Data forms.

(c) The quarterly reporting periods are January 1-March 31, April 1-June 30, July 1-September 30, and October 1-December 31. The quarterly report must:

(1) Be received by the National Aerometric Data Bank within 120 days of the end of each reporting period, after being submitted by the States to the Regional Offices for review;

(2) Contain all data and information gathered during the reporting period.

(d) For TSP, CO, SO_2, O_3, and NO_2, the first quarterly report will be due on or before June 30, 1981, for data collected during the first quarter of 1981. For Pb, the first quarterly report will be due on December 31, 1982, for data collected during the third quarter of 1982. For PM_{10} samplers, the first quarterly report will be due 120 days after the first quarter of operation.

(e) Air quality data submitted in the quarterly report must have been edited and validated so that such data are ready to be entered into the SAROAD data files. Procedures for editing and validating data are described in AEROS Users Manual (EPA-450/2-76-029, OAQPS No. 1.2-039).

(f) This section does not permit a State to exempt those SLAMS which are also designated as NAMS from all or any of the reporting requirements applicable to SLAMS in § 58.26.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 51 FR 9586, Mar. 19, 1986; 52 FR 24740, July 1, 1987]

§ 58.36 System modification.

During the annual SLAMS Network Review specified in § 58.20, any changes to the NAMS network identified by the EPA and/or proposed by the State and agreed to by the EPA will be evaluated. These modifications should address changes invoked by a new census and changes to the network due to changing air quality levels, emission patterns, etc. The State shall be given one year (until the next annual evaluation) to implement the appropriate changes to the NAMS network.

[51 FR 9586, Mar. 19, 1986]

Subpart E—Air Quality Index Reporting

§ 58.40 Index reporting.

(a) The State shall report to the general public on a daily basis through prominent notice an air quality index in accordance with the requirements of Appendix G to this part.

(b) Reporting must commence by January 1, 1981, for all urban areas with a population exceeding 500,000, and by January 1, 1983, for all urban areas with a population exceeding 200,000.

(c) The population of an urban area for purposes of index reporting is the most recent U.S. census population figure as defined in § 58.1 paragraph (a).

[44 FR 27571, May 10, 1979, as amended at 51 FR 9586, Mar. 19, 1986]

Subpart F—Federal Monitoring

§ 58.50 Federal monitoring.

The Administrator may locate and operate an ambient air monitoring station if the State fails to locate, or schedule to be located, during the initial network design process or as a result of the annual review required by § 58.20(d):

(a) A SLAMS at a site which is necessary in the judgment of the Regional Administrator to meet the objectives defined in Appendix D to this part, or

(b) A NAMS at a site which is necessary in the judgment of the Administrator for meeting EPA national data needs.

§ 58.51 Monitoring other pollutants.

The Administrator may promulgate criteria similar to that referenced in Subpart B of this part for monitoring a pollutant for which a National Ambient Air Quality Standard does not exist. Such an action would be taken whenever the Administrator determines that a nationwide monitoring program is necessary to monitor such a pollutant.

Appendix A—Quality Assurance Requirements for State and Local Air Monitoring Stations (SLAMS)

1. General Information.

This Appendix specifies the minimum quality assurance requirements applicable to SLAMS air monitoring data submitted to EPA. States are encouraged to develop and maintain quality assurance programs more extensive than the required minimum.

Quality assurance of air monitoring systems includes two distinct and important interrelated functions. One function is the control of the measurement process through the implementation of policies, procedures, and corrective actions. The other function is the assessment of the quality of the monitoring data (the product of the measurement process). In general, the greater the effort effectiveness of the control of a given monitoring system, the better will be the resulting quality of the monitoring data. The results of data quality assessments indicate whether the control efforts need to be increased.

Documentation of the quality assessments of the monitoring data is important to data users, who can then consider the impact of the data quality in specific applications (see Reference 1). Accordingly, assessments of SLAMS data quality are required to be reported to EPA periodically.

To provide national uniformity in this assessment and reporting of data quality for all SLAMS networks, specific assessment and reporting procedures are prescribed in detail in sections 3, 4, and 5 of this Appendix.

In contrast, the control function encompasses a variety of policies, procedures, specifications, standards, and corrective measures which affect the quality of the resulting data. The selection and extent of the quality control activities—as well as additional quality assessment activities—used by a monitoring agency depend on a number of local factors such as the field and laboratory conditions, the objectives of the monitoring, the level of the data quality needed, the expertise of assigned personnel, the cost of control procedures, pollutant concentration levels, etc. Therefore, the quality assurance requirements, in section 2 of this Appendix, are specified in general terms to allow each State to develop a quality assurance system that is most efficient and effective for its own circumstances.

2. Quality Assurance Requirements

2.1 Each State must develop and implement a quality assurance program consisting of policies, procedures, specifications, standards and documentation necessary to:

(1) Provide data of adequate quality to meet monitoring objectives, and

(2) Minimize loss of air quality data due to malfunctions or out-of-control conditions.

This quality assurance program must be described in detail, suitably documented, and approved by the appropriate Regional Administrator, or his designee. The Quality Assurance Program will be reviewed during the annual system audit described in section 2.4.

2.2 Primary guidance for developing the quality assurance program is contained in References 2 and 3, which also contain many suggested procedures, checks, and control specifications. Section 2.0.9 of Reference 3 describes specific guidance for the de-

velopment of a Quality Assurance Program for SLAMS automated analyzers. Many specific quality control checks and specifications for manual methods are included in the respective reference methods described in Part 50 of this chapter or in the respective equivalent method descriptions available from EPA (see Reference 4). Similarly, quality control procedures related to specifically designated reference and equivalent analyzers are contained in the respective operation and instruction manuals associated with those analyzers. This guidance, and any other pertinent information from appropriate sources, should be used by the States in developing their quality assurance programs.

As a minimum, each quality assurance program must include operational procedures for each of the following activities:

(1) Selection of methods, analyzers, or samplers;

(2) Training;

(3) Installation of equipment;

(4) Selection and control of calibration standards;

(5) Calibration;

(6) Zero/span checks and adjustments of automated analyzers;

(7) Control checks and their frequency;

(8) Control limits for zero, span and other control checks, and respective corrective actions when such limits are surpassed;

(9) Calibration and zero/span checks for multiple range analyzers (see Section 2.6 of Appendix C of this part);

(10) Preventive and remedial maintenance;

(11) Quality control procedures for air pollution episode monitoring;

(12) Recording and validating data;

(13) Data quality assessment (precision and accuracy);

(14) Documentation of quality control information.

2.3 *Pollutant Concentration and Flow Rate Standards.*

2.3.1 Gaseous pollutant concentration standards (permeation devices or cylinders of compressed gas) used to obtain test concentration for CO, SO_2, and NO_2 must be traceable to either a National Bureau of Standards (NBS) Standard Reference Material (SRM) or an NBS/EPA-approved commercially available Certified Reference Material (CRM). CRM's are described in Reference 5, and a list of CRM sources is available from the Quality Assurance Division (MD-77), Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

General guidance and recommended techniques for certifying gaseous working standards against an SRM or CRM are provided in section 2.0.7 of Reference 3. Direct use of a CRM as a working standard is acceptable, but direct use of an NBS SRM as a working standard is discouraged because of the limited supply and expense of SRMs.

2.3.2 Test concentrations for O_3 must be obtained in accordance with the UV photometric calibration procedure specified in Appendix D of Part 50 of this chapter, or by means of a certified ozone transfer standard. Consult References 6 and 7 for guidance on primary and transfer standards for O_3.

2.3.3 Flow rate measurements must be made by a flow measuring instrument that is traceable to an authoritative volume or other standard. Guidance for certifying some types of flowmeters is provided in Reference 3.

2.4 *National Performance and System Audit Programs.*

Agencies operating SLAMS network stations shall be subject to annual EPA systems audits of their ambient air monitoring program and are required to participate in EPA's National Performance Audit Program. These audits are described in section 1.4.16 of Reference 2 and section 2.0.11 of Reference 3. For instructions, agencies should contact either the appropriate EPA Regional Quality Assurance Coordinator or the Quality Assurance Division (MD-77B), Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

3. *Data Quality Assessment Requirements*

All ambient monitoring methods or analyzers used in SLAMS shall be tested periodically, as described in this section 3, to quantitatively assess the quality of the SLAMS data being routinely produced. Measurement accuracy and precision are estimated for both automated and manual methods. The individual results of these tests for each method or analyzer shall be reported to EPA as specified in section 4. EPA will then calculate quarterly integrated estimates of precision and accuracy applicable to the SLAMS data as described in section 5. Data assessment results should be reported to EPA only for methods and analyzers approved for use in SLAMS monitoring under Appendix C of this Part.

The integrated data quality assessment estimates will be calculated on the basis of "reporting organizations." A reporting organization is defined as a State, subordinate organization within a State, or other organization that is responsible for a set of stations that monitor the same pollutant and for which precision or accuracy assessments can be pooled. States must define one or more reporting organizations for each pollutant such that each monitoring station in the State SLAMS network is included in one, and only one, reporting organization.

Each reporting organization shall be defined such that precision or accuracy among all stations in the organization can be expected to be reasonably homogeneous, as a result of common factors. Common factors that should be considered by States in defining reporting organizations include: (1) operation by a common team of field operators, (2) common calibration facilities, and (3) support by a common laboratory or headquarters. Where there is uncertainty in defining the reporting organizations or in assigning specific sites to reporting organizations, States shall consult with the appropriate EPA Regional Office for guidance. All definitions of reporting organizations shall be subject to final approval by the appropriate EPA Regional Office.

Assessment results shall be reported as specified in section 4. Concentration and flow standards must be as specified in sections 2.3 or 2.4. In addition, working standards and equipment used for accuracy audits must not be the same standards and equipment used for routine calibration. Concentration measurements reported from analyzers or analytical systems (indicated concentrations) should be based on stable readings and must be derived by means of the same calibration curve and data processing system used to obtain the routine air monitoring data (see Reference 1, page 82, and Reference 3, section 2.0.9.1.3(d)). Table A-1 provides a summary of the minimum data quality assessment requirements, which are described in more detail in the following sections.

3.1 Precision of Automated Methods. A one-point precision check must be carried out at least once every two weeks on each automated analyzer used to measure SO_2, NO_2, O_3 and CO. The precision check is made by challenging the analyzer with a precision check gas of known concentration between 0.08 and 0.10 ppm for SO_2, NO_2, and O_3 analyzers, and between 8 and 10 ppm for CO analyzers. To check the precision of SLAMS analyzers operating on ranges higher than 0 to 1.0 ppm SO_2, NO_2, and O_3, or 0 to 100 ppm for CO, use precision check gases of appropriately higher concentration as approved by the appropriate Regional Administrator or his designee. However, the results of precision checks at concentration levels other than those shown above need not be reported to EPA. The standards from which precision check test concentrations are obtained must meet the specifications of section 2.3.

Except for certain CO analyzers described below, analyzers must operate in their normal sampling mode during the precision check, and the test atmosphere must pass through all filters, scrubbers, conditioners and other components used during normal ambient sampling and as much of the ambient air inlet system as is practicable. If permitted by the associated operation or instruction manual, a CO analyzer may be temporarily modified during the precision check to reduce vent or purge flows, or the test atmosphere may enter the analyzer at a point other than the normal sample inlet, *provided that* the analyzer's response is not likely to be altered by these deviations from the normal operational mode. If a precision check is made in conjunction with a zero or span adjustment, it must be made prior to such zero or span adjustments. Randomization of the precision check with respect to time of day, day of week, and routine service and adjustments is encouraged where possible.

Report the actual concentrations of the precision check gas and the corresponding concentrations indicated by the analyzer. The percent differences between these concentrations are used to assess the precision of the monitoring data as described in section 5.1.

3.2 Accuracy of Automated Methods. Each calendar quarter (during which analyzers are operated), audit at least 25 percent of the SLAMS analyzers that monitor for SO_2, NO_2, O_3, or CO such that each analyzer is audited at least once per year. If there are fewer than four analyzers for a pollutant within a reporting organization, randomly reaudit one or more analyzers so that at least one analyzer for that pollutant is audited each calendar quarter. Where possible, EPA strongly encourages more frequent auditing, up to an audit frequency of once per quarter for each SLAMS analyzer.

The audit is made by challenging the analyzer with at least one audit gas of known concentration from each of the following ranges that fall within the measurement range of the analyzer being audited:

Audit level	Concentration range, ppm		
	SO_2, O_3	NO_2	CO
1	0.03-0.08	0.02-0.08	3-8
2	0.15-0.20	0.15-0.20	15-20
3	0.35-0.45	0.35-0.45	35-45
4	0.80-0.90		80-90

NO_2 audit gas for chemiluminescence-type NO_2 analyzers must also contain at least 0.08 ppm NO.

NOTE: NO concentrations substantially higher than 0.08 ppm, as may occur when using some gas phase titration (GPT) techniques, may lead to audit errors in chemiluminescence analyzers due to inevitable minor NO-NO_x channel imbalance. Such errors may be atypical of routine monitoring errors to the extent that such NO concentrations exceed typical ambient NO concentrations at the site. These errors may be minimized by modifying the GPT technique

to lower the NO concentrations remaining in the NO_2 audit gas to levels closer to typical ambient NO concentrations at the site.

To audit SLAMS analyzers operating on ranges higher than 0 to 1.0 ppm for SO_2, NO_2, and O_3 or 0 to 100 ppm for CO, use audit gases of appropriately higher concentration as approved by the appropriate Regional Administrator or his designee. The results of audits at concentration levels other than those shown in the above table need not be reported to EPA.

The standards from which audit gas test concentrations are obtained must meet the specifications of section 2.3. Working or transfer standards and equipment used for auditing must not be the same as the standards and equipment used for calibration and spanning, but may be referenced to the same NBS SRM, CRM, or primary UV photometer. The auditor should not be the operator or analyst who conducts the routine monitoring, calibration, and analysis.

The audit shall be carried out by allowing the analyzer to analyze the audit test atmosphere in its normal sampling mode such that the test atmosphere passes through all filters, scrubbers, conditioners, and other sample inlet components used during normal ambient sampling and as much of the ambient air inlet system as is practicable. The exception given in section 3.1 for certain CO analyzers does not apply for audits.

Report both the audit test concentrations and the corresponding concentration measurements indicated or produced by the analyzer being tested. The percent differences between these concentrations are used to assess the accuracy of the monitoring data as described in section 5.2.

3.3 Precision of Manual Methods. For each network of manual methods, select one or more monitoring sites within the reporting organization for duplicate, collocated sampling as follows: for 1 to 5 sites, select 1 site; for 6 to 20 sites, select 2 sites; and for over 20 sites, select 3 sites. Where possible, additional collocated sampling is encouraged. For particulate matter, a network for measuring PM_{10} shall be separate from a TSP network. Sites having annual mean particulate matter concentrations among the highest 25 percent of the annual mean concentrations for all the sites in the network must be selected or, if such sites are impractical, alternate sites approved by the Regional Administrator may be selected.

In determining the number of collocated sites required, monitoring networks for Pb should be treated independently from networks for particulate matter, even though the separate networks may share one or more common samplers. However, a single pair of samplers collocated at a common-sampler monitoring site that meets the requirements for both a collocated lead site and a collocated particulate matter site may serve as a collocated site for both networks.

The two collocated samplers must be within 4 meters of each other, and particulate matter samplers must be at least 2 meters apart to preclude airflow interference. Calibration, sampling and analysis must be the same for both collocated samplers and the same as for all other samplers in the network.

For each pair of collocated samplers, designate one sampler as the primary sampler whose samples will be used to report air quality for the site, and designate the other as the duplicate sampler. Each duplicate sampler must be operated concurrently with its associated routine sampler at least once per week. The operation schedule should be selected so that the sampling days are distributed evenly over the year and over the seven days of the week. The every-6-day schedule used by many monitoring agencies is recommended. Report the measurements from both samplers at each collocated sampling site, including measurements falling below the limits specified in 5.3.1. The percent differences in measured concentration ($\mu g/m^3$) between the two collocated samplers are used to calculate precision as described in section 5.3.

3.4 Accuracy of Manual Methods. The accuracy of manual sampling methods is assessed by auditing a portion of the measurement process. For particulate matter methods, the flow rate during sample collection is audited. For SO_2 and NO_2 methods, the analytical measurement is audited. For Pb methods, the flow rate and analytical measurement are audited.

3.4.1 Particulate matter methods. Each calendar quarter, audit the flow rate of at least 25 percent of the samplers such that each sampler is audited at least once per year. If there are fewer than four samplers within a reporting organization, randomly reaudit one or more samplers so that one sampler is audited each calendar quarter. Audit each sampler at its normal operating flow rate, using a flow rate transfer standard as described in section 2.3.3. The flow rate standard used for auditing must not be the same flow rate standard used to calibrate the sampler. However, both the calibration standard and the audit standard may be referenced to the same primary flow rate standard. The flow audit should be scheduled so as to avoid interference with a scheduled sampling period. Report the audit flow rates and the corresponding flow rates indicated by the sampler's normally used flow indicator. The percent differences between these flow rates are used to calculate accuracy as described in section 5.4.1.

Great care must be used in auditing high-volume particulate matter samplers having flow regulators because the introduction of

resistance plates in the audit flow standard device can cause abnormal flow patterns at the point of flow sensing. For this reason, the flow audit standard should be used with a normal filter in place and without resistance plates in auditing flow-regulated high-volume samplers, or other steps should be taken to assure that flow patterns are not perturbed at the point of flow sensing.

3.4.2 SO_2 Methods. Prepare audit solutions from a working sulfite-tetrachloromercurate (TCM) solution as described in section 10.2 of the SO_2 Reference Method (Appendix A of Part 50 of this chapter). These audit samples must be prepared independently from the standardized sulfite solutions used in the routine calibration procedure. Sulfite-TCM audit samples must be stored between 0 and 5 °C and expire 30 days after preparation.

Prepare audit samples in each of the concentration ranges of 0.2-0.3, 0.5-0.6, and 0.8-0.9 μg SO_2/ml. Analyze an audit sample in each of the three ranges at least once each day that samples are analyzed and at least twice per calendar quarter. Report the audit concentrations (in μg SO_2/ml) and the corresponding indicated concentrations (in μg SO_2/ml). The percent differences between these concentrations are used to calculate accuracy as described in section 5.4.2.

3.4.3 NO_2 Methods. Prepare audit solutions from a working sodium nitrite solution as described in the appropriate equivalent method (see Reference 4). These audit samples must be prepared independently from the standardized nitrite solutions used in the routine calibration procedure. Sodium nitrite audit samples expire in 3 months after preparation. Prepare audit samples in each of the concentration ranges of 0.2-0.3, 0.5-0.6, and 0.8-0.9 μg NO_2/ml. Analyze an audit sample in each of the three ranges at least once each day that samples are analyzed and at least twice per calendar quarter. Report the audit concentrations (in μg NO_2/ml) and the corresponding indicated concentrations (in μg NO_2/ml). The percent differences between these concentrations are used to calculate accuracy as described in section 5.4.2.

3.4.4 Pb Methods. For the Pb Reference Method (Appendix G of Part 50 of this chapter), the flow rates of the high-volume Pb samplers shall be audited as part of the TSP network using the same procedures described in Section 3.4.1. For agencies operating both TSP and Pb networks, 25 percent of the total number of high-volume samplers are to be audited each quarter.

Each calendar quarter, audit the Pb Reference Method analytical procedure using glass fiber filter strips containing a known quantity of Pb. These audit sample strips are prepared by depositing a Pb solution on 1.9 cm by 20.3 cm (3/4 inch by 8 inch) unexposed glass fiber filter strips and allowing them to dry thoroughly. The audit samples must be prepared using batches of reagents different from those used to calibrate the Pb analytical equipment being audited. Prepare audit samples in the following concentration ranges:

Range	Pb concentration, µg/strip	Equivalent ambient Pb concentration,[1] µg/m³
1	100-300	0.5-1.5
2	600-1000	3.0-5.0

[1] Equivalent ambient Pb concentration in $\mu g/m^3$ is based on sampling at 1.7 m^3/min for 24 hours on a 20.3 cm × 25.4 cm (8 inch × 10 inch) glass fiber filter.

Audit samples must be extracted using the same extraction procedure used for exposed filters.

Analyze three audit samples in each of the two ranges each quarter samples are analyzed. The audit sample analyses shall be distributed as much as possible over the entire calendar quarter. Report the audit concentrations (in μg Pb/strip) and the corresponding measured concentrations (in μg Pb/strip) using unit code 77. The percent differences between the concentrations are used to calculate analytical accuracy as described in section 5.4.2.

The accuracy of an equivalent Pb method is assessed in the same manner as for the reference method. The flow auditing device and Pb analysis audit samples must be compatible with the specific requirements of the equivalent method.

4. *Reporting Requirements*

For each pollutant, prepare a list of all monitoring sites and their SAROAD site identification codes in each reporting organization and submit the list to the appropriate EPA Regional Office, with a copy to the Environmental Monitoring Systems Laboratory (MD-75), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711 (EMSL/RTP). Whenever there is a change in this list of monitoring sites in a reporting organization, report this change to the Regional Office and to EMSL/RTP.

4.1 Quarterly Reports. Within 120 calendar days after the end of each calendar quarter, each reporting organization shall report to EMSL/RTP via the appropriate EPA Regional Office the results of all valid precision and accuracy tests it has carried out during the quarter. Report all collocated measurements including those falling below the levels specified in section 5.3.1. Do not report results from invalid tests, from tests carried out during a time period for which ambient data immediately prior or subsequent to the tests were invalidated for

appropriate reasons, or from tests of methods or analyzers not approved for use in SLAMS monitoring networks under Appendix C of this part.

Quarterly reports as specified herein shall commence not later than the report pertaining to the first calendar quarter of 1987, although such reports will be accepted beginning with the report pertaining to the third calendar quarter of 1986.

The information should be reported in a format similar to that shown in Figures A-1 and A-2. The data may be reported (1) via magnetic computer tape according to data format specifications provided by the Regional Offices, (2) by direct, interactive computer entry via a data terminal and the PARS data entry system, or (3) on the forms illustrated in Figures A-1 and A-2. Minor variations of these forms (to facilitate local use) or computer-generated (facsimile) forms may also be used, provided they follow the same general format, use the same block numbers, and are clear and completely legible. Instructions for using these forms are provided in section 4.3.

Within 360 days after the end of the reporting quarter, EPA will calculate integrated precision and accuracy assessments for each reporting organization as specified in section 5 and return, through the Regional Offices, reports of the respective assessments to each reporting organization.

4.2 Annual Reports. When precision and accuracy estimates for a reporting organization have been calculated for all four quarters of the calendar year, EPA will calculate the properly weighted probability limits for precision and accuracy for the entire calendar year. These limits will then be associated with the data submitted in the annual SLAMS report required by § 58.26.

Each reporting organization shall submit, along with its annual SLAMS report, a listing by pollutant of all monitoring sites in the reporting organization.

4.3 Instructions for Using Data Quality Assessment Reporting Forms. Suggested forms for reporting data quality assessment information are provided in Figure A-1 (for reporting accuracy data) and Figure A-2 (for reporting precision data). The forms may be used in a "universal" way to report data for different pollutants and for different sites on the same form. Or, either form may be used as a site-specific or pollutant-specific form (where all entries on the form are for a common site, a common pollutant, or both) by filling in the site or pollutant information in the appropriate box in the upper left corner of the form. Detailed instructions for individual blocks are as follows:

Instructions common to both forms:

Block No	Description
1-2	State. The two digit SAROAD State code
3-5	Reporting Organization. A unique 3 digit code assigned by each State to each of its respective reporting organizations
6-7	Year. Last two digits of the calendar year corresponding to the quarter specified in block 8
8	Quarter. Enter 1, 2, 3, or 4 to refer to the calendar quarter during which the data quality assessments were obtained
9	Enter "1" for original assessment data, "2" to revise assessment data previously submitted, or "3" to delete previously submitted assessment data. When a "3" is entered, only blocks 1 to 20 need be completed

Also enter the name of the reporting organization, the date the form is submitted, and (optionally) the name of the person who prepared the form on the blanks provided.

Block No	Description
10-18	Site. Enter the SAROAD site identification code (first 9 digits only). If all entries on the form are for the same site, enter the site code and site identification in the upper left corner of the form. Also check the block in the corner of the box and leave the other blocks 10 to 18 on the form blank
21-23	Method Code: Enter the measurement method code from the back of the form. Also enter the pollutant symbol (e.g., SO_2, CO, TSP, etc.) on the blank to the left of block No. 21. If all entries on the form are for the same method, enter the code, symbol, and method identification in the lower box in the upper left corner of the form. Also check the block in the corner of the box and leave the other blocks 21 to 23 on the form blank
24	Preceded with an "A" or a "P".
25-28	Date: Enter the month and day of the test

Additional Instructions for Accuracy form (Figure A-1):

Block No	Description
29	Enter "1" if the reporting organization conducted the audit and also certified the audit standard used, enter "2" if the reporting organization conducted the audit but did not certify the audit standard used, enter "3" if the audit was not conducted by the reporting organization
30	Enter the code letter of the source of the local primary standard used, from the list on the form
31-32	Unit code. Enter the unit code number from the unit code list on the form (use only the codes listed). Also write in the unit on the blank to the left of block 31
33	Preceded with a "0" or a "1".

Block No	Description
34-40	Level 1 Actual. Enter the actual concentration determined from the audit standard in the appropriate blocks with respect to the preceded decimal point
41-47	Level 1 Indicated. Enter the concentration indicated by the analyzer, sampler, or method being audited in the appropriate blocks with respect to the preceded decimal point
48-54	Level 2. Enter the actual and indicated concentrations for audit level 2, if applicable.
34-54	Levels 3 and 4 (if applicable). On the second line, enter the actual and indicated concentrations for audit level 3 and, if used, audit level 4

Additional Instructions for Precision form (Figure A-2):

Block No	Description
31-32	Unit Code: Enter the unit code number from the unit code list on the form (use only the codes listed). Also write in the unit on the blank to the left of block 31.
34-40	Actual or Primary. Enter the value of the known test concentration or the concentration measurement associated with the sampler designated as the primary sampler in the appropriate blocks with respect to the preceded decimal point
41-47	Indicated or Duplicate. Enter the value of the concentration measurement from the analyzer or the duplicate collected sampler in the appropriate blocks with respect to the preceded decimal point

5. *Calculations for Data Quality Assessment*

Calculation of estimates of integrated precision and accuracy are carried out by EPA according to the following procedures. Reporting organizations should report the results of individual precision and accuracy tests as specified in sections 3 and 4 even though they may elect to carry out some or all of the calculations in this section on their own.

5.1 Precision of Automated Methods. Estimates of the precision of automated methods are calculated from the results of biweekly precision checks as specified in section 3.1. At the end of each calendar quarter, an integrated precision probability interval for all SLAMS analyzers in the organization is calculated for each pollutant.

5.1.1 Single Analyzer Precision. The percentage difference (d_i) for each precision check is calculated using equation 1, where Y_i is the concentration indicated by the analyzer for the i-th precision check and X_i is the known concentration for the i-th precision check.

$$d_i = \frac{Y_i - X_i}{X_i} \times 100 \qquad (1)$$

For each analyzer, the quarterly average ($\bar{d}_j$) is calculated with equation 2, and the standard deviation (S_j) with equation 3, where n is the number of precision checks on the instrument made during the calendar quarter. For example, n should be 6 or 7 if precision checks are made biweekly during a quarter.

$$\bar{d}_j = \frac{1}{n} \sum_{i=1}^{n} d_i \qquad (2)$$

$$S_j = \sqrt{\frac{1}{n-1}\left[\sum_{i=1}^{n} d_i^2 - \frac{1}{n}\left(\sum_{i=1}^{n} d_i\right)^2\right]} \qquad (3)$$

5.1.2 Precision for Reporting Organization. For each pollutant, the average of averages (D) and the pooled standard deviation (S_a) are calculated for all analyzers audited for the pollutant during the quarter, using either equations 4 and 5 or 4a and 5a, where k is the number of analyzers audited within the reporting organization for a single pollutant.

$$D = \frac{1}{k}\sum_{j=1}^{k} d_j \qquad (4)$$

$$D = \frac{n_1 d_1 + n_2 d_2 + \dots + n_j d_j + \dots + n_k d_k}{n_1 + n_2 + \dots + n_j + \dots + n_k} \qquad (4a)$$

$$S_a = \sqrt{\frac{1}{k}\sum_{j=1}^{k} S_j^2} \qquad (5)$$

$$S_a = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2 + \dots + (n_j - 1)S_j^2 + \dots + (n_k - 1)S_k^2}{n_1 + n_2 + \dots + n_j + \dots + n_k - k}} \qquad (5a)$$

Equations 4 and 5 are used when the same number of precision checks are made for each analyzer. Equations 4a and 5a are used to obtain a weighted average and a weighted standard deviation when different numbers of precision checks are made for the analyzers.

For each pollutant, the 95 Percent Probability Limits for the precision of a reporting organization are calculated using equations 6 and 7.

Upper 95 Percent Probability Limit $= D + 1.96\,S_a$ ...... (6)

Lower 95 Percent Probability Limit $= D - 1.96\,S_a$ ...... (7)

5.2 *Accuracy of Automated Methods*. Estimates of the accuracy of automated methods are calculated from the results of independent audits as described in section 3.2. At the end of each calendar quarter, an integrated accuracy probability interval for all SLAMS analyzers audited in the reporting organization is calculated for each pollutant. Separate probability limits are calculated for each audit concentration level in section 3.2.

5.2.1 *Single Analyzer Accuracy*. The percentage difference (d_i) for each audit concentration is calculated using equation 1, where Y_i is the analyzer's indicated concentration measurement from the i-th audit check and X_i is the actual concentration of the audit gas used for the i-th audit check.

5.2.2 *Accuracy for Reporting Organization*. For each audit concentration level, the average (D) of the individual percentage differences (d_i) for all n analyzers measuring a given pollutant audited during the quarter is calculated using equation 8.

$$D = \frac{1}{n}\sum_{i=1}^{n} d_i \qquad (8)$$

For each concentration level, the standard deviation (S_a) of all the individual percentage differences for all analyzers audited during the quarter is calculated, for each pollutant, using equation 9.

$$S_a = \sqrt{\frac{1}{n-1}\left[\sum_{i=1}^{n} d_i^2 - \frac{1}{n}\left(\sum_{i=1}^{n} d_i\right)^2\right]} \qquad (9)$$

For reporting organizations having four or fewer analyzers for a particular pollutant, only one audit is required each quarter, and the average and standard deviation cannot be calculated. For such reporting organizations, the audit results of two consecutive quarters are required to calculate an average and a standard deviation, using equations 8 and 9. Therefore, the reporting of probability limits shall be on a semiannual (instead of a quarterly) basis.

For each pollutant, the 95 Percent Probability Limits for the accuracy of a reporting organization are calculated at each audit concentration level using equations 6 and 7.

5.3 *Precision of Manual Methods*. Estimates of precision of manual methods are calculated from the results obtained from collocated samplers as described in section 3.3. At the end of each calendar quarter, an integrated precision probability interval for all collocated samplers operating in the reporting organization is calculated for each manual method network.

5.3.1 *Single Sampler Precision*. At low concentrations, agreement between the measurements of collocated samplers, expressed as percent differences, may be relatively poor. For this reason, collocated measurement pairs are selected for use in the precision calculations only when both measurements are above the following limits:

TSP: 20 µg/m³,
SO_2: 45 µg/m³,
NO_2: 30 µg/m³,
Pb: 0.15 µg/m³, and
PM_{10}: 20 µg/m³.

For each selected measurement pair, the percent difference (d_i) is calculated, using equation 10.

$$d_i = \frac{Y_i - X_i}{(Y_i + X_i)/2} \times 100 \qquad (10)$$

Where Y_i is the pollutant concentration measurement obtained from the duplicate sampler and X_i is the concentration measurement obtained from the primary sampler designated for reporting air quality for the site. For each site, the quarterly average percent difference (d_j) is calculated from equation 2 and the standard deviation (S_j) is calculated from equation 3, where n = the number of selected measurement pairs at the site.

5.3.2 *Precision for Reporting Organization*. For each pollutant, the average percentage difference (D) and the pooled standard deviation (S_a) are calculated, using equations 4 and 5, or using equations 4a and 5a if different numbers of paired measurements are obtained at the collocated sites. For these calculations, the k of equations 4, 4a, 5 and 5a is the number of collocated sites.

The 95 Percent Probability Limits for the integrated precision for a reporting organization are calculated using equations 11 and 12.

Upper 95 Percent Probability Limit $= D + 1.96\,S_a/\sqrt{2}$ ...... (11)

Lower 95 Percent Probability Limit $= D - 1.96\,S_a/\sqrt{2}$ ...... (12)

5.4 *Accuracy of Manual Methods*. Estimates of the accuracy of manual methods are calculated from the results of independent audits as described in Section 3.4. At the end of each calendar quarter, an integrated accuracy probability interval is calculated for each manual method network operated by the reporting organization.

5.4.1 *Particulate Matter Samplers (including reference method Pb samplers)*.

(a) *Single Sampler Accuracy*. For the flow rate audit described in Section 3.4.1, the percentage difference (d_i) for each audit is calculated using equation 1, where X_i represents the known flow rate and Y_i represents the flow rate indicated by the sampler.

(b) *Accuracy for Reporting Organization*. For each type of particulate matter measured (e.g., TSP/Pb), the average (D) of the individual percent differences for all similar particulate matter samplers audited during the calendar quarter is calculated using equation 8. The standard deviation (S_a) of the percentage differences for all of the similar particulate matter samplers audited during the calendar quarter is calulated using equation 9. The 95 percent probability limits for the integrated accuracy for the reporting organization are calculated using equations 6 and 7. For reporting organizations having four or fewer particulate matter samplers of one type, only one audit is required each quarter, and the audit results of two consecutive quarters are required to calculate an average and a standard deviation. In that case, probability limits shall be reported semi-annually rather than quarterly.

5.4.2 *Analytical Methods for SO_2, NO_2, and Pb*.

(a) *Single Analysis-Day Accuracy*. For each of the audits of the analytical methods for SO_2, NO_2, and Pb described in section 3.4.2, 3.4.3, and 3.4.4, the percentage difference (d_i) at each concentration level is calculated using equation 1, where X_i represents the known value of the audit sample and Y_i represents the value of SO_2, NO_2, and Pb indicated by the analytical method.

(b) *Accuracy for Reporting Organization*. For each analytical method, the average (D) of the individual percent differences at each concentration level for all audits during the calendar quarter is calculated using equation 8. The standard deviation (S_a) of the percentage differences at each concentration level for all audits during the calendar quarter is calculated using equation 9. The 95 percent probability limits for the accuracy for the reporting organization are calculated using equations 6 and 7.

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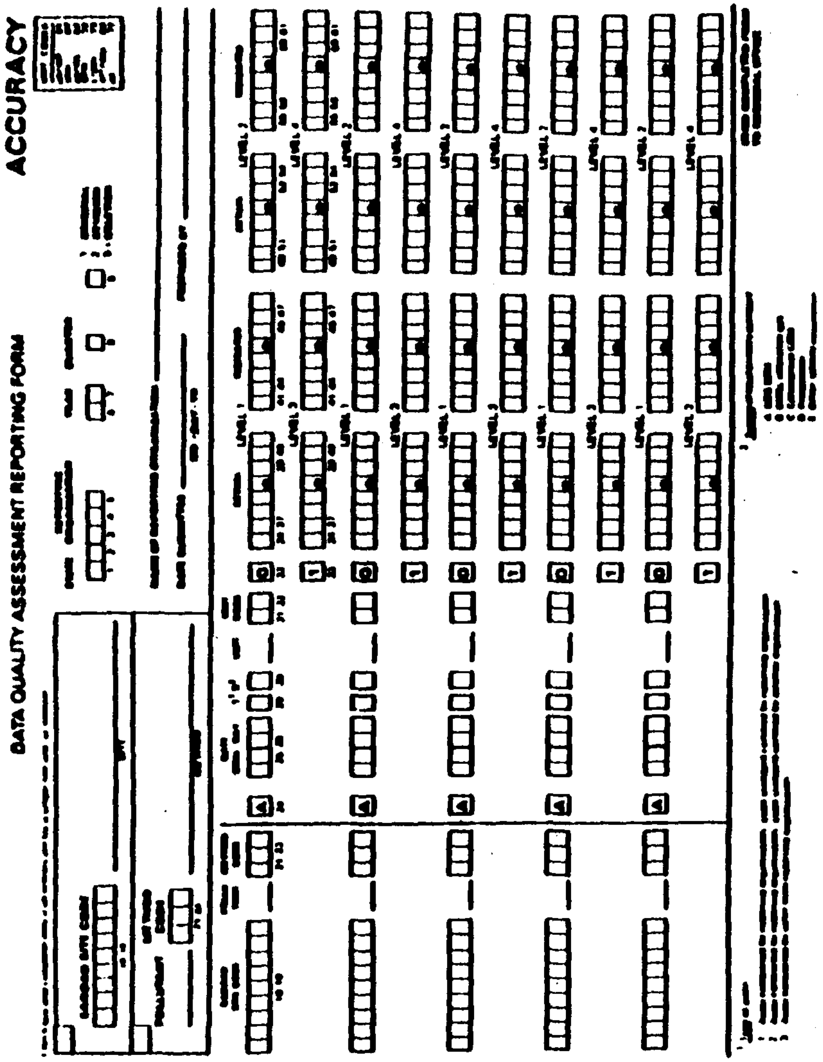
TABLE A-1—MINIMUM DATA ASSESSMENT REQUIREMENTS

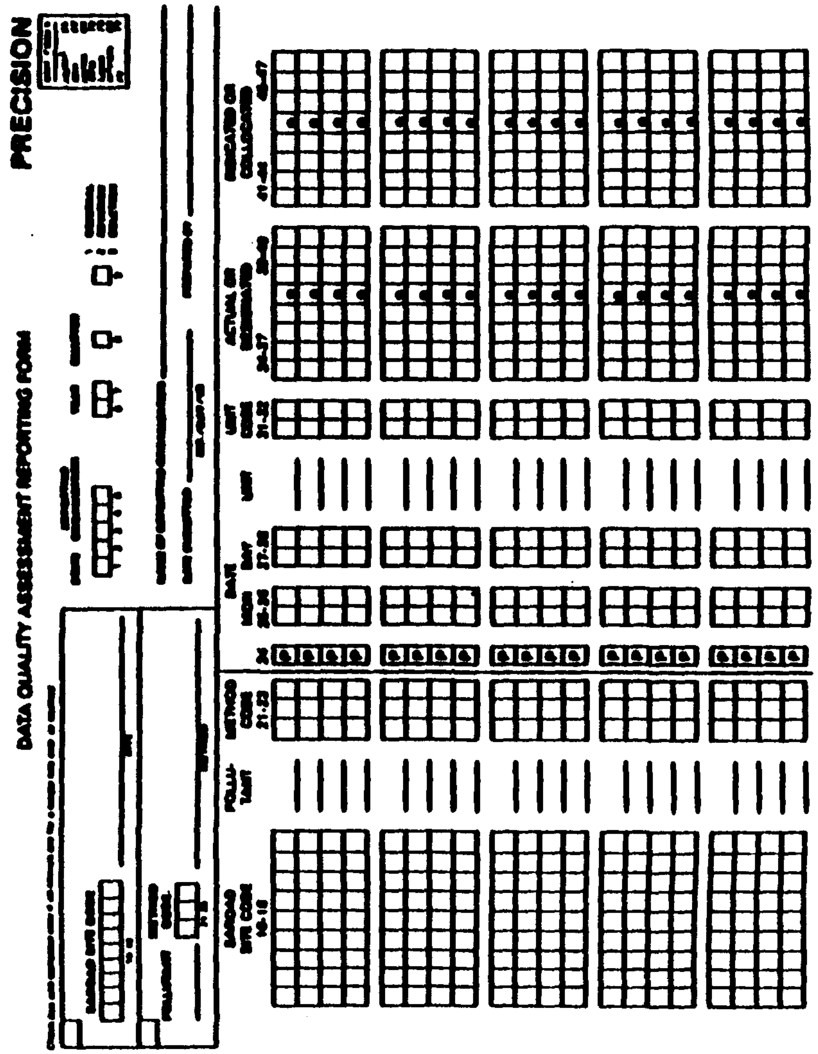
Method	Assessment method	Coverage	Minimum frequency	Parameters reported
Precision:				
Automated methods for SO_2, NO_2, O_3, and CO	Response check at concentration between .08 and .10 ppm (8 & 10 ppm for CO).	Each analyzer	Once per 2 weeks	Actual concentration and measured concentration.
Manual methods including lead	Collocated samplers	1 site for 1-5 sites; 2 sites 6-20 sites; 3 sites >20 sites (sites with highest conc.)	Once per week	Two concentration measurements.
Accuracy:				
Automated methods for SO_2, NO_2, O_3, and CO.	Response check at .03-.08 ppm;[1] .15-.20 ppm;[1] .35-.45 ppm;[1] .80-.90 ppm[1] (if applicable).	1. Each analyzer; 2. 25% of analyzers (at least 1).	1. Once per year; 2. Each calendar quarter.	Actual concentration and measured (indicated) concentration for each level.
Manual methods for SO_2 and NO_2.	Check of analytical procedure with audit standard solutions.	Analytical system	Each day samples are analyzed, at least twice per quarter.	Actual concentration and measured (indicated) concentration for each audit solution.
TSP, PM_{10}	Check of sampler flow rate	1. Each sampler; 2. 25% of samplers (at least 1).	1. Once per year; 2. Each calendar quarter.	Actual flow rate and flow rate indicated by the sampler.
Lead	1. Check sample flow rate as for TSP; 2. Check analytical system with Pb audit strips.	1. Each sampler; 2. Analytical system.	1. Include with TSP; 2. Each quarter.	1. Same as for TSP; 2. Actual concentration and measured (indicated) concentration of audit samples (µg Pb/strip).

[1] Conc. times 100 for CO.



DATA QUALITY ASSESSMENT REPORTING FORM

ACCURACY



DATA QUALITY ASSESSMENT REPORTING FORM

PRECISION

[illegible]

INFORMATION TO BE CONTAINED ON THE BACK OF THE DATA REPORTING FORMS

[51 FR 9597, Mar. 19, 1986, as amended at 52 FR 24741, July 1, 1987]

APPENDIX B—QUALITY ASSURANCE REQUIREMENTS FOR PREVENTION OF SIGNIFICANT DETERIORATION (PSD) AIR MONITORING

1. *General Information*

This Appendix specifies the minimum quality assurance requirements for the control and assessment of the quality of the PSD ambient air monitoring data submitted to EPA by an organization operating a network of PSD stations. Such organizations are encouraged to develop and maintain quality assurance programs more extensive than the required minimum.

Quality assurance of air monitoring systems includes two distinct and important interrelated functions. One function is the control of the measurement process through the implementation of policies, procedures, and corrective actions. The other function is the assessment of the quality of the monitoring data (the product of the measurement process). In general, the greater the effort and effectiveness of the control of a given monitoring system, the better will be the resulting quality of the monitoring data. The results of data quality assessments indicate whether the control efforts need to be increased.

Documentation of the quality assessments of the monitoring data is important to data users, who can then consider the impact of the data quality in specific applications (see Reference 1). Accordingly, assessments of PSD monitoring data quality are required to be made and reported periodically by the monitoring organization.

To provide national uniformity in the assessment and reporting of data quality among all PSD networks, specific assessment and reporting procedures are prescribed in detail in Sections 3, 4, 5, and 6 of this Appendix.

In contrast, the control function encompasses a variety of policies, procedures, specifications, standards, and corrective measures which affect the quality of the resulting data. The selection and extent of the quality control activities—as well as additional quality assessment activities—used by a monitoring organization depend on a number of local factors such as the field and laboratory conditions, the objectives of the monitoring, the level of the data quality needed, the expertise of assigned personnel, the cost of control procedures, pollutant concentration levels, etc. Therefore, the quality assurance requirements, in Section 2 of this Appendix, are specified in general terms to allow each organization to develop a quality control system that is most efficient and effective for its own circumstances.

For purposes of this Appendix, "organization" is defined as a source owner/operator, a government agency, or their contractor that operates an ambient air pollution monitoring network for PSD purposes.

2. *Quality Assurance Requirements*

2.1 Each organization must develop and implement a quality assurance program consisting of policies, procedures, specifications, standards and documentation necessary to:

(1) Provide data of adequate quality to meet monitoring objectives and quality assurance requirements of the permit-granting authority, and

(2) Minimize loss of air quality data due to malfunctions or out-of-control conditions.

This quality assurance program must be described in detail, suitably documented, and approved by the permit-granting authority. The Quality Assurance Program will be reviewed during the system audits described in Section 2.4.

2.2 Primary guidance for developing the Quality Assurance Program is contained in References 2 and 3, which also contain many suggested procedures, checks, and control specifications. Section 2.0.9 of Reference 3 describes specific guidance for the development of a Quality Assurance Program for automated analyzers. Many specific quality control checks and specifications for manual methods are included in the respective reference methods described in Part 50 of this chapter or in the respective equivalent method descriptions available from EPA (see Reference 4). Similarly, quality control procedures related to specifically designated reference and equivalent analyzers are contained in their respective operation and instruction manuals. This guidance, and any other pertinent information from appropriate sources, should be used by the organization in developing its quality assurance program.

As a minimum, each quality assurance program must include operational procedures for each of the following activities:

(1) Selection of methods, analyzers, or samplers;

(2) Training;

(3) Installation of equipment;

(4) Selection and control of calibration standards;

(5) Calibration;

(6) Zero/span checks and adjustments of automated analyzers;

29 131 O 89 6

recent decennial U.S. Census of Population Report.

(t) "TSP" (total suspended particulates) means particulate matter as measured by the method described in Appendix B of Part 50 of this chapter.

(u) "PM_{10}" means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by a reference method based on Appendix J of Part 50 of this chapter and designated in accordance with Part 53 of this chapter or by an equivalent method designated in accordance with Part 53 of this chapter.

(v) "Pb" means lead.

[44 FR 27571, May 10, 1979, as amended at 48 FR 2529, Jan. 20, 1983; 51 FR 9586, Mar. 19, 1986; 52 FR 24739, July 1, 1987]

§ 58.2 Purpose.

(a) This part contains criteria and requirements for ambient air quality monitoring and requirements for reporting ambient air quality data and information. The monitoring criteria pertain to the following areas:

(1) Quality assurance procedures for monitor operation and data handling.

(2) Methodology used in monitoring stations.

(3) Operating schedule.

(4) Siting parameters for instruments or instrument probes.

(b) The requirements pertaining to provisions for an air quality surveillance system in the State Implementation Plan are contained in this part.

(c) This part also acts to establish a national ambient air quality monitoring network for the purpose of providing timely air quality data upon which to base national assessments and policy decisions. This network will be operated by the States and will consist of certain selected stations from the States' SLAMS networks. These selected stations will remain as SLAMS and will continue to meet any applicable requirements on SLAMS. The stations, however, will also be designated as National Air Monitoring Stations (NAMS) and will be subject to additional data reporting and monitoring methodology requirements as contained in Subpart D of this part.

(d) Requirements for the daily reporting of an index of ambient air quality, to insure that the population of major urban areas are informed daily of local air quality conditions, are also included in this part.

§ 58.3 Applicability.

This part applies to:

(a) State air pollution control agencies.

(b) Any local air pollution control agency or Indian governing body to which the State has delegated authority to operate a portion of the State's SLAMS network.

(c) Owners or operators of proposed sources.

Subpart B—Monitoring Criteria

§ 58.10 Quality assurance.

(a) Appendix A to this part contains quality assurance criteria to be followed when operating the SLAMS network.

(b) Appendix B to this part contains the quality assurance criteria to be followed by the owner or operator of a proposed source when operating a PSD station.

§ 58.11 Monitoring methods.

Appendix C to this part contains the criteria to be followed in determining acceptable monitoring methods or instruments for use in SLAMS.

§ 58.12 Siting of instruments or instrument probes.

Appendix E to this part contains criteria for siting instruments or instrument probes for SLAMS.

§ 58.13 Operating schedule.

Ambient air quality data collected at any SLAMS must be collected as follows:

(a) For continuous analyzers—consecutive hourly averages except during:

(1) Periods of routine maintenance,

(2) Periods of instrument calibration, or

(3) Periods or seasons exempted by the Regional Administrator.

(b) For manual methods (excluding PM_{10} samplers)—at least one 24-hour sample every six days except during periods or seasons exempted by the Regional Administrator.

(c) For PM_{10} samplers—a 24-hour sample must be taken from midnight to midnight (local time) to ensure national consistency. The sampling shall be conducted on the following schedules which are based on either the first year of PM_{10} monitoring or a long-term selective PM_{10} monitoring plan:

(1) *First year PM_{10} monitoring.* The sampling frequency for the first year (12 consecutive months) of ambient PM_{10} monitoring shall be based on the monitoring area's SIP area grouping (I, II, III) which is described in the PM_{10} SIP Development Guideline and the Preamble to Part 51 of this chapter. In general, the SIP groupings are defined in terms of the estimated probability of not attaining the PM_{10} NAAQS. Procedures to develop these probabilities are found in Pace, T., et al. "Procedures for Estimating Probability of Nonattainment of a PM_{10} NAAQS Using Total Suspended Particulate or Inhalable Particulate Data." OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, N. C. December 1986. The most recent 3 calendar years of air quality data must be used in this determination. The SIP area groupings are divided into three categories: Group I—areas whose probability is greater than or equal to 95 percent; Group II—areas whose probability is greater than or equal to 20 percent to less than 95 percent probability, and Group III—areas whose probability is less than 20 percent. The use of the term "monitoring area" as it applies to the required sampling frequencies of the "monitoring area" is as follows: First, any urbanized area as defined by the U.S. Bureau of Census; second, any incorporated place such as a city or town as defined by the U.S.Bureau of Census or group of cities or towns; and third, any "monitoring area" designated by the responsible air pollution control agency. In designating these latter "monitoring areas", the control agency should consider technical factors such as the types of emissions, their spatial distribution, meteorology, and topography and how these factors contribute to the uniqueness of the "monitoring area" thereby distinguishing it from other designated "monitoring areas". The starting date for this first year of PM_{10} monitoring may begin prior to the effective date of promulgation of this regulation.

(i) For Group I areas, everyday PM_{10} sampling is required for at least one PM_{10} site which must be located in the area of expected maximum concentration. The remainder require every sixth day sampling.

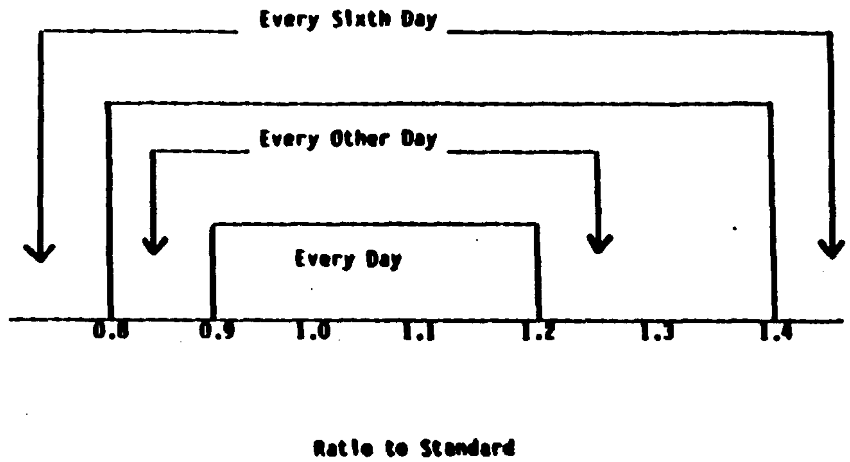
(ii) For Group II areas, every other day sampling is required for at least one PM_{10} site which must be located in the area of expected maximum concentration. The remainder require every sixth day sampling.

(iii) For Group III areas, a minimum of one in six day sampling is required.

If a monitoring site in a Group III or Group II area later records levels exceeding the short term (24-hour) PM_{10} NAAQS, as described in Part 50 Appendix K, and the monitoring frequency was less than everyday, then everyday sampling must be initiated in the area of expected maximum concentration no later than 90 days following the end of the calendar quarter in which the exceedance occurred and continue for the subsequent four calender quarters.

(2) *Long term monitoring selective sampling.* To be eligible for the long term selective sampling plan, the first year of PM_{10} sampling, or its equivalent, must be conducted. A complete year comprises all four calendar quarters with each quarter containing data from 75 percent of the scheduled sampling days. The equivalent to one year of PM_{10} sampling to be completed within one year of the effective date of promulgation is defined as follows: First, for everyday sampling: 2 years of every other day sampling or 2 years of every sixth day sampling and 1 year of every other day sampling or 3 years of every sixth day sampling; second, for every other day sampling: 3 years of every sixth day sampling. After one year of PM_{10} monitoring or it's equivalent has been obtained, the minimum monitoring schedule for the site in the area of expected maximum concentration shall be based on the relative

level of that monitoring site concentration with respect to the level of the controlling standard. For those areas in which the short-term (24-hour) standard is controlling i.e., has the highest ratio, the selective sampling requirements are illustrated in Figure 1. If the operating agency were able to demonstrate, by a combination of historical TSP data and at least one year of PM_{10} data that there were certain periods of the year where conditions preclude violation of the PM_{10} 24-hour standard, the increased sampling frequency for those periods or seasons may be exempted by the Regional Administrator and revert back to once in six days. The minimum sampling schedule for all other sites in the area would be once every six days. For those areas in which the annual standard is the controlling standard, the minimum sampling schedule for all monitors in the area would be once every six days. During the annual review of the SLAMS network, the most recent year of data must be considered to estimate the air quality status for the controlling air quality standard (24-hour or annual). Statistical models such as analysis of concentration frequency distributions as described in "Guideline for the Interpretation of Ozone Air Quality Standards," EPA-450/479-003, U.S. Environmental Protection Agency, Research Triangle Park, N.C., January 1979, should be used. Adjustments to the monitoring schedule must be made on the basis of the annual review. The site having the highest concentration in the most current year must be given first consideration when selecting the site for the more frequent sampling schedule. Other factors such as major change in sources of PM_{10} emissions or in sampling site characteristics could influence the location of the expected maximum concentration site. Also, the use of the most recent three years of data might in some cases, be justified in order to provide a more representative data base from which to estimate current air quality status and to provide stability to the network. This multiyear consideration would reduce the possibility of an anamalous year biasing a site selected for accelerated sampling. If the maximum concentration site based on the most current year is not selected for the more frequent operating schedule, documentation of the justification for selection of an alternate site must be submitted to the Regional Office for approval during the annual review process. It should be noted that minimum data completeness critieria, number of years of data and sampling frequency for judging attainment of the NAAQS are discussed in Appendix K of Part 50.



[44 FR 27571, May 10, 1979, as amended at 52 FR 24739, July 1, 1987]

§ 58.14 Special purpose monitors.

(a) Any ambient air quality monitoring station other than a SLAMS or PSD station from which the State intends to use the data as part of a demonstration of attainment or nonattainment or in computing a design value for control purposes of the National Ambient Air Quality Standards (NAAQS) must meet the requirements for SLAMS described in § 58.22 and, after January 1, 1983, must also meet the requirements for SLAMS as described in § 58.13 and Appendices A and E to this part.

(b) Any ambient air quality monitoring station other than a SLAMS or PSD station from which the State intends to use the data for SIP-related functions other than as described in paragraph (a) of this section is not necessarily required to comply with the requirements for a SLAMS station under paragraph (a) but must be operated in accordance with a monitoring schedule, methodology, quality assurance procedures, and probe or instrument-siting specifications approved by the Regional Administrator.

[46 FR 44164, Sept. 3, 1981]

Subpart C—State and Local Air Monitoring Stations (SLAMS)

§ 58.20 Air quality surveillance: Plan content.

By January 1, 1980, the State shall adopt and submit to the Administrator a revision to the plan which will:

(a) Provide for the establishment of an air quality surveillance system that consists of a network of monitoring stations designated as State and Local Air Monitoring Stations (SLAMS) which measure ambient concentrations of those pollutants for which standards have been established in Part 50 of this chapter.

(b) Provide for meeting the requirements of Appendices A, C, D, and E to this part.

(c) Provide for the operation of at least one SLAMS per pollutant except Pb during any stage of an air pollution episode as defined in the contingency plan.

(d) Provide for the review of the air quality surveillance system on an annual basis to determine if the system meets the monitoring objectives defined in Appendix D to this part. Such review must identify needed modifications to the network such as termination or relocation of unnecessary stations or establishment of new stations which are necessary.

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/4-87-007
May 1987

Air

EPA

Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)

REFERENCES FOR SECTION 3.4

SCHEDULE D.6—PERMANENT WAIVER FROM INTERIM CONTROLS TEST—Continued

[Smelter identification]

	Line	1984	1985	1986	1987	1988	1989	1990	Total
6 Current salvage value	17	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
7 Net present value	18	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

SCHEDULE D.7—HORIZON VALUE OF CASH FLOWS

[Smelter identification]

	Line	Final forecast years		Horizon years					Total
		1989	1990	1991	1992	1993	1994	1995	
A. Depreciation-free horizon value									
1 Net cash flow projections	01	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2. Depreciation tax savings:									
a. Depreciation and amortization	02	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. Marginal tax rate	03	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Tax savings	04	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
3 Depreciation-free net cash flows:									
a. Nominal dollar values	05	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. 1980 dollar values	06	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Average	07	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
4 Horizon factor	08	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
5 Depreciation-free horizon value	09	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
B. Depreciation tax savings over the horizon period:									
1 Depreciation and amortization	10	XXXX	XXXX	....	....	....	....	....	XXXX
2 Marginal tax rate	11	XXXX	XXXX	....	....	....	....	....	XXXX
3 Tax savings	12	XXXX	XXXX	....	....	....	....	....	XXXX
4 Discount factors	13	XXXX	XXXX	....	....	....	....	....	XXXX
5 Present value of tax savings	14	XXXX	XXXX	....	....	....	....	....	XXXX
6 Total present value of tax savings	15	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
C. Horizon Value	16	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

AUTHORITY: Secs. 110, 301(a), 313, and 319 of the Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

SOURCE: 44 FR 27571, May 10, 1979, unless otherwise noted.

Subpart A—General Provisions

§ 58.1 Definitions.

As used in this part, all terms not defined herein have the meaning given them in the Act:

(a) "Act" means the Clean Air Act as amended (42 U.S.C. 7401, et seq.).

(b) "SLAMS" means State or Local Air Monitoring Station(s). The SLAMS make up the ambient air quality monitoring network which is required by § 58.20 to be provided for in the State's implementation plan. This definition places no restrictions on the use of the physical structure or facility housing the SLAMS. Any combination of SLAMS and any other monitors (Special Purpose, NAMS, PSD) may occupy the same facility or structure without affecting the respective definitions of those monitoring station.

(c) "NAMS" means National Air Monitoring Station(s). Collectively the NAMS are a subset of the SLAMS ambient air quality monitoring network.

(d) "PSD station" means any station operated for the purpose of establishing the effect on air quality of the emissions from a proposed source for purposes of prevention of significant deterioration as required by § 51.24(n) of Part 51 of this chapter.

(e) "SO_2" means sulfur dioxide.

(f) "NO_2" means nitrogen dioxide.

(g) "CO" means carbon monoxide.

(h) "O_3" means ozone.

(i) "Plan" means an implementation plan, approved or promulgated pursuant to section 110 of the Clean Air Act.

(j) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or his or her authorized representative.

(k) "Regional Administrator" means the Administrator of one of the ten EPA Regional Offices or his or her authorized representative.

(l) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(m) "Local agency" means any local government agency, other than the State agency, which is charged with the responsibility for carrying out a portion of the plan.

(n) "Indian Reservation" means any Federally recognized reservation established by treaty, agreement, executive order, or act of Congress.

(o) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

(p) "Storage and Retrieval of Aerometric Data (SAROAD) system" is a computerized system which stores and reports information relating to ambient air quality.

(q) "SAROAD site identification form" is one of the several forms in the SAROAD system. It is the form which provides a complete description of the site (and its surroundings) of an ambient air quality monitoring station.

(r) "Traceable" means that a local standard has been compared and certified, either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM) or a USEPA/NBS-approved Certified Reference Material (CRM).

(s) "Urban area population" means the population defined in the most

2.8.3.3 A brief statement of belief concerning the extent to which the modification will or may affect the performance characteristics of the method; and

2.8.3.4 Such further information as may be necessary to explain and support the statements required by sections 2.8.3.2 and 2.8.3.3.

2.8.4 Within 75 days after receiving a request for approval under this section (2.8) and such further information as he may request for purposes of his decision, the Administrator will approve or disapprove the modification in question by letter to the person or agency requesting such approval.

2.8.5 A temporary modification that will or might alter the performance characteristics of a reference, equivalent, or alternative method may be made without prior approval under this section (2.8) if the method is not functioning or is malfunctioning, provided that parts necessary for repair in accordance with the applicable operation manual cannot be obtained within 45 days. Unless such temporary modification is later approved under section 2.8.4, the temporarily modified method shall be repaired in accordance with the applicable operation manual as quickly as practicable but in no event later than 4 months after the temporary modification was made, unless an extension of time is granted by the Administrator. Unless and until the temporary modification is approved, air quality data obtained with the method as temporarily modified must be clearly identified as such when submitted in accordance with § 58.28 or § 58.35 of this chapter and must be accompanied by a report containing the information specified in section 2.8.2. A request that the Administrator approve a temporary modification may be submitted in accordance with sections 2.8.1 through 2.8.4. In such cases the request will be considered as if a request for prior approval had been made.

3.0 *National Air Monitoring Stations (NAMS)*

3.1 Methods used in those SLAMS which are also designated as NAMS to measure SO_2, CO, NO_2, or O_3 must be automated reference or equivalent methods (continuous analyzers).

4.0 *Particulate Matter Episode Monitoring.*

4.1 For short-term measurements of PM_{10} during air pollution episodes (see § 51.152 of this chapter) the measurement method must be:

4.1.1 Either the "Staggered PM_{10}" method or the "PM_{10} Sampling Over Short Sampling Times" method, both of which are based on the reference method for PM_{10} and are described in reference 1; or

4.1.2 Any other method for measuring PM_{10}:

4.1.2.1 Which has a measurement range or ranges appropriate to accurately measure air pollution episode concentration of PM_{10},

4.1.2.2 Which has a sample period appropriate for short-term PM_{10} measurements, and

4.1.2.3 For which a quantitative relationship to a reference or equivalent method for PM_{10} has been established at the use site. Procedures for establishing a quantitative site-specific relationship are contained in reference 1.

4.2 Quality Assurance. PM_{10} methods other than the reference method are not covered under the quality assessment requirements of Appendix A. Therefore, States must develop and implement their own quality assessment procedures for those methods allowed under this section 4. These quality assessment procedures should be similar or analogous to those described in section 3 of Appendix A for the PM_{10} reference method.

5.0 *References*

5.1 Pelton, D.J. Guideline for Particulate Episode Monitoring Methods, GEOMET Technologies, Inc., Rockville, MD. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA Contract No. 68-02-3584. EPA 450/4-83-005. February 1983.

[44 FR 27571, May 10, 1979, as amended at 44 FR 37918, June 29, 1979; 44 FR 65070, Nov. 9, 1979; 51 FR 9597, Mar. 19, 1986; 52 FR 24741, 24742, July 1, 1987]

Appendix D—Network Design for State and Local Air Monitoring Stations (SLAMS) and National Air Monitoring Stations (NAMS)

1. *SLAMS Monitoring Objectives and Spatial Scales*

The purpose of this appendix is to describe monitoring objectives and general criteria to be applied in establishing the State and Local Air Monitoring Stations (SLAMS) networks and for choosing general locations for new monitoring stations. It also describes criteria for determining the number and location of National Air Monitoring Stations (NAMS). These criteria will also be used by EPA in evaluating the adequacy of SLAMS/NAMS networks.

The network of stations which comprise SLAMS should be designed to meet a minimum of four basic monitoring objectives. These basic monitoring objectives are: (1) To determine highest concentrations expected to occur in the area covered by the network; (2) to determine representative concentrations in areas of high population density; (3) to determine the impact on ambient pollution levels of significant sources or source categories; and (4) to determine general background concentration levels.

To a large extent, the existing State Implementation Plan (SIP) monitoring networks have been designed with these four objectives in mind. Thus, they can serve as the logical starting point for establishing the SLAMS network. This will, however, require a careful review of each existing SIP ambient network to determine the principal objectives of each station and the extent to which the location criteria presented herein are being met. It should be noted that this appendix contains no criteria for determining the total number of stations in SLAMS networks, except that a minimum number of lead SLAMS is prescribed. The optimum size of a particular SLAMS network involves trade offs among data needs and available resources which EPA believes can best be resolved during the network design process.

This appendix focuses on the relationship between monitoring objectives and the geographical location of monitoring stations. Included are a rationale and set of general criteria for identifying candidate station locations in terms of physical characteristics which most closely match a specific monitoring objective. The criteria for more specifically siting the monitoring station including spacing from roadways and vertical and horizontal probe placement, are described in Appendix E of this part.

To clarify the nature of the link between general monitoring objectives and the physical location of a particular monitoring station, the concept of spatial scale of representativeness of a monitoring station is defined. The goal in siting stations is to correctly match the spatial scale represented by the sample of monitored air with the spatial scale most appropriate for the monitoring objective of the station.

Thus, spatial scale of representativeness is described in terms of the physical dimensions of the air parcel nearest to a monitoring station throughout which actual pollutant concentrations are reasonably similar. The scale of representativeness of most interest for the monitoring objectives defined above are as follows:

Microscale—defines the concentrations in air volumes associated with area dimensions ranging from several meters up to about 100 meters.

Middle Scale—defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometer.

Neighborhood Scale—defines concentrations within some extended area of the city that has relatively uniform land use with dimensions in the 0.5 to 4.0 kilometers range.

Urban Scale—defines the overall, citywide conditions with dimensions on the order of 4 to 50 kilometers. This scale would usually require more than one site for definition.

Regional Scale—defines usually a rural area of reasonably homogeneous geography and extends from tens to hundreds of kilometers.

National and Global Scales—these measurement scales represent concentrations characterizing the nation and the globe as a whole.

Proper siting of a monitoring station requires precise specification of the monitoring objective which usually includes a desired spatial scale of representativeness. For example, consider the case where the objective is to determine maximum CO concentrations in areas where pedestrians may reasonably be exposed. Such areas would most likely be located within major street canyons of large urban areas and near traffic corridors. Stations located in these areas are most likely to have a microscale of representativeness since CO concentrations typically peak nearest roadways and decrease rapidly as the monitor is moved from the roadway. In this example, physical location was determined by consideration of CO emission patterns, pedestrian activity, and physical characteristics affecting pollutant dispersion. Thus, spatial scale of representativeness was not used in the selection process but was a *result* of station location.

In some cases, the physical location of a station is determined from joint consideration of both the basic monitoring objective, and a desired spatial scale of representativeness. For example, to determine CO concenbe predicted by ambient air quality modeling, a large fixed network of CO monitors is not required. Long-term CO monitoring should be confined to a limited number of micro and neighborhood scale stations in large metropolitan areas to measure maximum pollution levels and to determine the effectiveness of control strategies.

Microscale—Measurements on this scale would represent distributions within street canyons, over sidewalks, and near major roadways. The measurements at a particular location in a street canyon would be typical of one high concentration area which can be shown to be a representation of many more areas throughout the street canyon or other similar locations in a city. This is a scale of measurement that would provide valuable information for devising and evaluating "hot spot" control measures.

Middle Scale—This category covers dimensions from 100 meters to 0.5 kilometer. In certain cases discussed below, it may apply to regions that have a total length of several kilometers. In many cases of interest, sources and land use may be reasonably homogeneous for long distances along a street, but very inhomogeneous normal to the street. This is the case with strip development and freeway corridors. Included in this category are measurements to characterize the CO concentrations along the urban features just enumerated. When a location is chosen to represent conditions in a block of street development, then the characteristic dimensions of this scale are tens of meters by hundreds of meters. If an attempt is made to characterize street-side conditions throughout the downtown area or along an extended stretch of freeway, the dimensions may be tens of meters by kilometer.

The middle scale would also include the parking lots and feeder streets associated with indirect sources which attract significant numbers of pollutant emitters, particularly autos. Shopping centers, stadia, and office buildings are examples of indirect sources.

Neighborhood Scale—Measurements in this category would represent conditions throughout some reasonably homogeneous urban subregions, with dimensions of a few kilometers and generally more regularly shaped than the middle scale. Homogeneity refers to CO concentration, but it probably also applies to land use. In some cases, a location carefully chosen to provide neighborhood scale data, might represent not only the immediate neighborhood, but also neighborhoods of the same type in other parts of the city. These kinds of stations would provide information relating to health effects because they would represent conditions in areas where people live and work. Neighborhood scale data would provide valuable information for developing, testing, and revising concepts and models that describe the larger scale concentration patterns, especially those models relying on spatially smoothed emission fields for inputs. These types of measurements could also be used for interneighborhood comparisons within or between cities.

After the spatial scale has been determined to meet the monitoring objectives for each location, the location selection procedures, as shown in reference 3 should be used to evaluate the adequacy of each existing CO station and must be used to relocate an existing station or to locate any new SLAMS stations. The background material necessary for these procedures may include the average daily traffic on all streets in the area, wind roses for different hours of the day, and maps showing one-way streets, street widths, and building heights. If the station is to typify the area with the highest concentrations, the streets with the greatest daily traffic should be identified. If some streets are one-way, those streets that have the greatest traffic during the afternoon and evening hours should be selected as tentative locations, because the periods of high traffic volume are usually of greatest duration through the evening hours. However, the strength of the morning inversion has to be considered along with the traffic volume and pattern when seeking areas with the highest concentrations. Traffic counters near the stations will provide valuable data for interpreting the observed CO concentrations.

Monitors should not be placed in the vicinity of possible anomalous source areas. Examples of such areas include toll gates on turnpikes, metered freeway ramps, and drawbridge approaches. Additional information on network design may be found in reference 3.

3.5 Ozone (O_3) Design Criteria for SLAMS

Ozone is not directly emitted into the atmosphere but results from complex photochemical reactions involving organic compounds, oxides of nitrogen, and solar radiation.

The relationships between primary emissions (precursors) and secondary pollutants (O_3) tend to produce large separations spatially and temporally between the major sources and the areas of high oxidant pollution. This suggests that the meteorological transport process and the relationships between sources and sinks need to be considered in the development of the network design criteria and placement of monitoring stations, especially in measuring peak concentration levels.

The principal spatial scales for SLAMS purposes based on the monitoring objectives are neighborhood, urban, regional, and to a lesser extent, middle scale. Since ozone requires appreciable formation time, the mixing of reactants and products occurs over large volumes of air, and this reduces the importance of monitoring small scale spatial variability.

Middle Scale—Measurement in this scale would represent conditions close to sources of NO_x such as roads where it would be expected that suppression of O_3 concentrations would occur. Trees also may have a strong scavenging effect on O_3 and may tend to suppress O_3 concentrations in their immediate vicinity. Measurements at these stations would represent conditions over relatively small portions of the urban area.

Neighborhood Scale—Measurements in this category represent conditions throughout some reasonably homogeneous urban subregion, with dimensions of a few kilometers. Homogeneity refers to pollutant concentrations. Neighborhood scale data will provide valuable information for developing, testing, and revising concepts and models that describe urban/regional concentration patterns. They will be useful to the understanding and definition of processes that take periods of hours to occur and hence involve considerable mixing and transport. Under stagnation conditions, a station located in the neighborhood scale may also experience peak concentration levels within the urban areas.

Urban Scale—Measurement in this scale will be used to estimate concentrations over large portions of an urban area with dimensions of several kilometers to 50 or more kilometers. Such measurements will be used for determining trends, and designing area-wide control strategies. The urban scale stations would also be used to measure high concentrations downwind of the area having the highest precursor emissions.

Regional Scale—This scale of measurement will be used to typify concentrations over large portions of a metropolitan area and even larger areas with dimensions of as much as hundreds of kilometers. Such measurements will be useful for assessing the ozone that is transported into an urban area. Data from such stations may be useful in accounting for the ozone that cannot be reduced by control strategies in that urban area.

The location selection procedure continues after the spatial scale is selected based on the monitoring objectives. The appropriate network design procedures as found in reference 4, should be used to evaluate the adequacy of each existing O_3 monitor and must be used to relocate an existing station or to locate any new O_3 SLAMS stations. The first step in the siting procedure would be to collect the necessary background material, which may consist of maps, emission inventories for nonmethane hydrocarbons and oxides of nitrogen (NO_x), climatological data, and existing air quality data for ozone, nonmethane hydrocarbons, and NO_x/NO.

For locating a neighborhood scale station to measure typical city concentrations, a reasonably homogeneous geographical area near the center of the region should be selected which is also removed from the influence of major NO_x sources. For an urban scale station to measure the high concentration areas, the emission inventories should be used to define the extent of the area of important nonmethane hydrocarbons and NO_x emissions. The most frequent wind speed and direction for periods of important photochemical activity should be determined. Then the prospective monitoring area should be selected in a direction from the city that is most frequently downwind during periods of photochemical activity. The distance from the station to the upwind edge of the city should be about equal to the distance traveled by air moving for 5 to 7 hours at wind speeds prevailing during periods of photochemical activity. Prospective areas for locating O_3 monitors should always be outside the area of major NO_x.

In locating a neighborhood scale station which is to measure high concentrations, the same procedures used for the urban scale are followed except that the station should be located closer to the areas bordering on the center city or slightly further downwind in an area of high density population.

For regional scale background monitoring stations, the most frequent wind associated with important photochemical activity should be determined. The prospective monitoring area should be upwind for the most frequent direction and outside the area of city influence.

Since ozone levels decrease significantly in the colder parts of the year in many areas, ozone is required to be monitored at NAMS and SLAMS monitoring sites only during the "ozone season" as designated in the SAROAD files on a State by State basis and described below:

OZONE MONITORING SEASON BY STATE

State	Begin month	End month
Alabama	March	November
Alaska	April	October
Arizona	January	December
Arkansas	March	November
California	January	December
Colorado	March	September
Connecticut	April	October
Delaware	April	October
District of Columbia	April	October
Florida	January	December
Georgia	March	November
Hawaii	January	December
Idaho	April	October
Illinois	April	October

found to represent the microscale and middle scale dimension. For areas where predominant lead levels come from point sources, the category (a) station generally represents the microscale or middle scale impact of the point source. However, in a few cases, sufficient mixing may occur during transport of the emissions from the source to the ground so that the category (a) station represents a neighborhood scale. The required category (b) station must be a neighborhood scale station since the microscale and middle scale station would not represent the air quality over large geographical areas and frequently may not be located in highly populated areas. It is recognized that in certain areas, a middle scale station may be located at schools or playgrounds near major roadways. However, in most cases, they are not located in such areas and since children (7) are the segment of the population most susceptible to the effects of lead and are more likely to live and play in the residential section of the urban area, the category (b) station should be located in residential areas having a combination of high population and traffic density. In the case where lead levels come primarily from point sources, the category (b) station generally represents a neighborhood scale impact of the point source.

To locate monitoring stations, it will be necessary to obtain background information such as stationary and mobile source emissions inventories, morning and evening traffic patterns, climatological summaries, and local geographical characteristics. Such information should be used to identify areas that are most suitable to the particular monitoring objective and spatial scale of representativeness desired. Reference 9 provides additional guidance on locating sites to meet specific urban area monitoring objectives and must be used in locating new stations or evaluating the adequacy of existing stations.

After locating each Pb station, and, to the extent practicable, taking into consideration the collective impact of all Pb sources and surrounding physical characteristics of the siting area, a spatial scale of representativeness must be assigned to each station.

Guidance on locating monitoring stations in the vicinity of stationary lead sources is given in reference 10. This reference provides assistance in designing a network to meet the monitoring objective of determining the impact of point sources on ambient Pb levels.

2.8 PM_{10} *Design Criteria for SLAMS*

As with other pollutants measured in the SLAMS network, the first step in designing the PM_{10} network is to collect the necessary background information. Various studies[11,12,13,14,15,16] have documented the major source categories of particulate matter and their contribution to ambient levels in various locations throughout the country. Because the sources for PM_{10} are similar to those for TSP, the procedures for collecting the necessary background information for PM_{10} are also similar. Sources of background information would be regional and traffic maps and aerial photographs showing topography, settlements, major industries and highways. These maps and photographs would be used to identify areas of the type that are of concern to the particular monitoring objective. After potentially suitable monitoring areas for PM_{10} have been identified on a map, modeling may be used to provide an estimate of PM_{10} concentrations throughout the area of interest. After completing the first step, existing TSP SLAMS or other particulate matter stations should be evaluated to determine their potential as candidates for SLAMS designation. Stations meeting one or more of the four basic monitoring objectives described in section 1 of this Appendix must be classified into one of the five scales of representativeness (micro, middle, neighborhood, urban and regional) if the stations are to become SLAMS. In siting and classifying PM_{10} stations, the procedures in reference 17 should be used.

If existing TSP samplers meet the quality assurance requirements of Appendix A, the PM_{10} siting requirements of Appendix E, and are located in areas of suspected maximum concentrations are described in section 3 of Appendix D, and if the TSP levels are below the ambient PM_{10} standards, TSP samplers may continue to be used as substitutes for PM_{10} SLAMS samplers under the provisions of Section 2.2 of Appendix C.

The most important spatial scales to effectively characterize the emissions of PM_{10} from both mobile and stationary sources are the micro, middle and neighborhood scales. For purposes of establishing monitoring stations to represent large homogenous areas other than the above scales of representativeness, urban or regional scale stations would also be needed.

Microscale—This scale would typify areas such as downtown street canyons and traffic corridors where the general public would be exposed to maximum concentrations from mobile sources. Because of the very steep ambient PM_{10} gradients resulting from mobile sources, the dimensions of the microscale for PM_{10} generally would not extend beyond 15 meters from the roadway, but could continue the length of the roadway which could be several kilometers. Microscale PM_{10} sites should be located near inhabited buildings or locations where the general public can be expected to be exposed to the concentration measured. Emissions from stationary sources such as primary and secondary smelters, power plants, and other large industrial processes may,

under certain plume conditions, likewise result in high ground level concentrations at the microscale. In the latter case, the microscale would represent an area impacted by the plume with dimensions extending up to approximately 100 meters. Data collected at microscale stations provide information for evaluating and developing "hotspot" control measures.

Middle Scale—Much of the measurement of short-term public exposure to PM_{10} is on this scale. People moving through downtown areas, or living near major roadways, encounter particles that would be adequately characterized by measurements of this spatial scale. Thus, measurements of this type would be appropriate for the evaluation of possible short-term public health effects of particulate matter pollution. This scale also includes the characteristic concentrations for other areas with dimensions of a few hundred meters such as the parking lot and feeder streets associated with shopping centers, stadia, and office buildings. In the case of PM_{10}, unpaved or seldom swept parking lots associated with these sources could be an important source in addition to the vehicular emissions themselves.

Neighborhood Scale—Measurements in this category would represent conditions throughout some reasonably homogeneous urban subregion with dimensions of a few kilometers and of generally more regular shape than the middle scale. Homogeneity refers to the PM_{10} concentrations, as well as the land use and land surface characteristics. In some cases, a location carefully chosen to provide neighborhood scale data would represent not only the immediate neighborhood but also neighborhoods of the same type in other parts of the city. Stations of this kind provide good information about trends and compliance with standards because they often represent conditions in areas where people commonly live and work for periods comparable to those specified in the NAAQS. This category also includes industrial and commercial neighborhoods, as well as residential.

Neighborhood scale data could provide valuable information for developing, testing, and revising models that describe the larger-scale concentration patterns, especially those models relying on spatially smoothed emission fields for inputs. The neighborhood scale measurements could also be used for neighborhood comparisons within or between cities. This is the most likely scale of measurements to meet the needs of planners.

Urban Scale—This class of measurement would be made to characterize the PM_{10} concentration over an entire metropolitan area. Such measurements would be useful for assessing trends in city-wide air quality, and hence, the effectiveness of large scale air pollution control strategies.

Regional Scale—These measurements would characterize conditions over areas with dimensions of as much as hundreds of kilometers. As noted earlier, using representative conditions for an area implies some degree of homogeneity in that area. For this reason, regional scale measurements would be most applicable to sparsely populated areas with reasonably uniform ground cover. Data characteristics of this scale would provide information about larger scale processes of PM_{10} emissions, losses and transport.

3. *Network Design for National Air Monitoring Stations (NAMS)*

The NAMS must be stations selected from the SLAMS network with emphasis given to urban and multisource areas. Areas to be monitored must be selected based on urbanized population and pollutant concentration levels. Generally, a larger number of NAMS are needed in more polluted urban and multisource areas. The network design criteria discussed below reflect these concepts. However, it should be emphasized that deviations from the NAMS network design criteria may be necessary in a few cases. Thus, these design criteria are not a set of rigid rules but rather a guide for achieving a proper distribution of monitoring sites on a national scale.

The primary objective for NAMS is to monitor in the areas where the pollutant concentration and the population exposure are expected to be the highest consistent with the averaging time of the NAAQS. Accordingly, the NAMS fall into two categories:

Category (a): Stations located in area(s) of expected maximum concentrations (generally microscale for CO, microscale or middle scale for Pb and PM_{10}, neighborhood scale for SO_2, and NO_2, and urban scale for O_3.

Category (b): Stations which combine poor air quality with a high population density but not necessarily located in an area of expected maximum concentrations (neighborhood scale, except urban scale for NO_2). Category (b) monitors would generally be representative of larger spatial scales than category (a) monitors.

For each urban area where NAMS are required, both categories of monitoring stations must be established. In the case of TSP and SO_2 if only one NAMS is needed, then category (a) must be used. The analysis and interpretation of data from NAMS should consider the distinction between these types of stations as appropriate.

The concept of NAMS is designed to provide data for national policy analyses/trends and for reporting to the public on major metropolitan areas. It is not the intent to monitor in every area where the NAAQS are violated. On the other hand, the data from SLAMS should be used primarily for nonattainment decisions/analyses in specific geographical areas. Since the NAMS are stations from the SLAMS network, station locating procedures for NAMS are part of the SLAMS network design process.

3.1 [Reserved]

3.2 Sulfur Dioxide (SO_2) Design Criteria for NAMS

It is desirable to have a greater number of NAMS in the more polluted and densely populated urban and multisource areas. The data in Table 3 show the approximate number of permanent stations needed in urban areas to characterize the national and regional SO_2 air quality trends and geographical patterns. These criteria require that the number of NAMS in areas where urban populations exceed 1,000,000 and concentrations also exceed the primary NAAQS may range from 6 to 10 and that in areas where the SO_2 problem is minor, only one or two (or no) monitors are required. For those cases where more than one station is required for an urban area, there should be at least one station for category (a) and category (b) objectives as discussed in Section 3. Where three or more stations are required, the mix of category (a) and (b) stations is determined on a case-by-case basis. The actual number and location of the NAMS must be determined by EPA Regional Offices and the State agency, subject to the approval of EPA Headquarters (OANR).

TABLE 3—SO_2 National Air Monitoring Station Criteria

[Approximate number of stations per area][a]

Population category	High concentration[b]	Medium concentration[c]	Low concentration[d]
>1,000,000	6-10	4-8	2-4
500,000 to 1,000,000	4-8	2-4	1-2
250,000 to 500,000	3-4	1-2	0-1
100,000 to 250,000	1-2	0-1	0

[a] Selection of urban areas and actual number of stations per area will be jointly determined by EPA and the State agency.

[b] High concentration—exceeding level of the primary NAAQS.

[c] Medium concentration—exceeding 60 percent of the level of the primary or 100% of the secondary NAAQS.

[d] Low concentration—less than 60 percent of the level of the primary or 100% of the secondary NAAQS.

The estimated number of SO_2 NAMS which would be required nationwide ranges from approximately 200 to 300. This number of NAMS SO_2 monitors is sufficient for national trend purposes due to the low background SO_2 levels, and the fact that air quality is very sensitive to SO_2 emission changes. The actual number of stations in any specific area depends on local factors such as meteorology, topography, urban and regional air quality gradients, and the potential for significant air quality improvements or degradation. The greatest density of stations should be where urban populations are large and where pollution levels are high. Fewer NAMS are necessary in the western States since concentrations are seldom above the NAAQS in their urban areas. Exceptions to this are in the areas where an expected shortage of clean fuels indicates that ambient air quality may be degraded by increased SO_2 emissions. In such cases, a minimum number of NAMS is required to provide EPA with a proper national perspective on significant changes in air quality.

Like TSP, the worst air quality in an urban area is to be used as the basis for determining the required number of SO_2 NAMS (see Table 3). This includes SO_2 air quality levels within populated parts of urbanized areas, that are affected by one or two point sources of SO_2 if the impact of the source(s) extends over a reasonably broad geographic scale (neighborhood or larger). Maximum SO_2 air quality levels in remote unpopulated areas should be excluded as a basis for selecting NAMS regardless of the sources affecting the concentration levels. Such remote areas are more appropriately monitored by SLAMS or SPM networks and/or characterized by diffusion model calculations as necessary.

3.3 Carbon Monoxide (CO) Design Criteria for NAMS

Information is needed on ambient CO levels in major urbanized areas where CO levels have been shown or inferred to be a significant concern. At the national level, EPA will not routinely require data from as many stations as are required for TSP, and perhaps, SO_2, since CO trend stations are principally needed to assess the overall air quality progress resulting from the emission controls required by the Federal motor vehicle control program (FMVCP).

Although State and local air programs may require extensive monitoring to document and measure the local impacts of CO emissions and emission controls, an adequate national perspective is possible with as few as two stations per major urban area. The two categories for which CO NAMS would be required are: (a) Peak concentration areas such as are found around major traffic arteries and near heavily traveled streets in downtown areas (micro scale); and (b) neighborhoods where concentration exposures are significant (middle scale, neighborhood scale).

The peak concentration station (micro scale) is usually found near heavily traveled downtown streets (street canyons), but could be found along major arterials (corridors), either near intersections or at low elevations which are influenced by downslope drainage patterns under low inversion conditions. The peak concentration station should be located so that it is representative of several similar source configurations in the urban area, where the general population has access. Thus, it should reflect one of many potential peak situations which occur throughout the urban area. It is recognized that this does not measure air quality which represents large geographical areas. Thus, a second type of station on the neighborhood scale is necessary to provide data representative of the high concentration levels which exist over large geographical areas.

The category (b) (middle scale or neighborhood scale) should be located in areas with a stable, high population density, projected continuity of neighborhood character, and high traffic density. The stations should be located where no major zoning changes, new highways, or new shopping centers are being considered. The station should be where a significant CO pollution problem exists, but not be unduly influenced by any one line source. Rather, it should be more representative of the overall effect of the sources in a significant portion of the urban area.

Because CO is generally associated with heavy traffic and population clusters, an urbanized area with a population greater than 500,000 is the principal criterion for identifying the urban areas for which pairs of NAMS for this pollutant will be required. The criterion is based on judgment that stations in urban areas with greater than 500,000 population would provide sufficient data for national analysis and national reporting to Congress and the public. Also, it has generally been shown that major CO problems are found in areas greater than 500,000 population.

3.4 Ozone (O_3) Design Criteria for NAMS

The criterion for selecting locations for ozone NAMS is any urbanized area having a population of more than 200,000. This population cut off is used since the sources of hydrocarbons are both mobile and stationary and are more diverse. Also, because of local and national control strategies and the complex chemical process of ozone formation and transport, more sampling stations than for CO are needed on a national scale to better understand the ozone problem. This selection criterion is based entirely on population and will include those relatively highly populated areas where most of the oxidant precursors originate.

Each urban area will generally require only two ozone NAMS. One station would be representative of maximum ozone concentrations (category (a), urban scale) under the wind transport conditions as discussed in section 2.8. The exact location should balance local factors affecting transport and buildup of peak O_3 levels with the need to represent population exposure. The second station (category (b), neighborhood scale), should be representative of high density population areas on the fringes of the central business district along the predominant summer/fall daytime wind direction. This latter station should measure peak O_3 levels under light and variable or stagnant wind conditions. Two ozone NAMS stations will be sufficient in most urban areas since spatial gradients for ozone generally are not as sharp as for other criteria pollutants.

3.5 Nitrogen Dioxide (NO_2) Criteria for NAMS. Nitrogen dioxide NAMS will be required in those areas of the country which have a population greater than 1,000,000. These areas will have two NO_2 NAMS. It is felt that stations in these major metropolitan areas would provide sufficient data for a national analysis of the data, and also because NO_2 problems occur in areas of greater than 1,000,000 population.

Within urban areas requiring NAMS, two permanent monitors are sufficient. The first station (category (a), middle scale or neighborhood scale) would be to measure the photochemical production of NO_2 and would best be located in that part of the urban area where the emission density of NO_x is the highest. The second station (category (b) urban scale), would be to measure the NO_2 produced from the reaction of NO with O_3 and should be downwind of the area of peak NO_x emission areas.

3.6 Lead (Pb) Design Criteria for NAMS. In order to achieve the national monitoring objective, two of the SLAMS located in urbanized areas with populations greater than 500,000 will be designated as NAMS. One of the stations must be a microscale or middle scale category (a) station, located adjacent to a major roadway (>30,000 ADT) or near the roadway with the largest traffic volume if the volume is less than 30,000 ADT. A microscale location is preferred, but a middle scale is also acceptable if a suitable microscale location cannot be found.

The second station must be a neighborhood scale category (b) station located in a highly populated residential section of the urbanized area where traffic density is high, preferably (>30,000 ADT) or near the roadway with the largest traffic volume if the volume is less than 30,000 ADT.

In certain urbanized areas greater than 500,000 population, point sources may have a significant impact on air quality lead levels in populated areas. To measure the impact of such sources, other monitors in the SLAMS network would normally be used.

3.7 *PM_{10} Design Criteria for NAMS*.

Table 4 indicates the approximate number of permanent stations required in urban areas to characterize national and regional PM_{10} air quality trends and geographical patterns. The number of stations in areas where urban populations exceed 1,000,000 must be in the range from 2 to 10 stations, while in low population urban areas, no more than two stations are required. A range of monitoring stations is specified in Table 4 because sources of pollutants and local control efforts can vary from one part of the country to another and therefore, some flexibility is allowed in selecting the actual number of stations in any one locale.

It is recognized that no PM_{10} samplers will be designated as PM_{10} reference or equivalent methods until, at the earliest, approximately six months after promulgation of PM_{10} NAAQS and the reference and equivalent method requirements. Even though non-designated PM_{10} samplers will have been commercially available, and a small number of samplers will have been in use by EPA, other agencies, and industry, there will not be enough ambient PM_{10} data to determine ambient PM_{10} levels for all areas of the country. Accordingly, EPA has provided guidance[10] on converting ambient IP_{15} data to ambient PM_{10} data. Ambient IP_{15} data are data from high volume samplers utilizing quartz filters or dichotomous samplers, both with inlets designed to collect particles nominally 15 um and below. Also included in the guidance are procedures for calculating from ambient TSP data the probability that an area will be nonattainment for PM_{10}. For determining the appropriate number of NAMS per area, the converted IP_{15} data or the probabilities of PM_{10} nonattainment are used in Table 4, unless ambient PM_{10} data are available. If only one monitor is required in an urbanized area, it must be a category (a) type. Since emissions associated with the operation of motor vehicles contribute to urban area particulate matter levels, consideration of the impact of these sources must be included in the design of the NAMS network, particularly in urban areas greater than 500,000 population. In certain urban areas particulate emissions from motor vehicle diesel exhaust currently is or is expected to be a significant source of PM_{10} ambient levels. If an evaluation of the sources of PM_{10} as described in section 2.8 indicates that the maximum concentration area is predominantly influenced by roadway emissions, then the category (a) station should be located adjacent to a major road and should be a microscale or middle scale. A microscale is preferable but a middle scale is also acceptable if a suitable microscale location cannot be found. However, if the predominant influence in the suspected maximum concentration area is expected to be industrial emissions, and/or combustion products (from other than an isolated single source), the category (a) station should be a middle scale or neighborhood scale. A middle scale exposure is preferable to a neighborhood scale in representing the maximum concentration impact from multiple sources, other than vehicular, but a neighborhood scale is acceptable, especially in large residential areas that burn oil, wood, and/or coal for space heating.

For those cases where more than one station is required for an urban area, there should be at least one station for category (a) and one station for category (b) neighborhood scale objectives as discussed in Section 3. Where three or more stations are required, the mix of category (a) and (b) stations is to be determined on a case-by-case basis. The actual number of NAMS and their locations must be determined by EPA Regional Offices and the State agencies, subject to the approval of the Administrator as required by § 58.32. The Administrator's approval is necessary to insure that individual stations conform to the NAMS selection criteria and that the network as a whole is sufficient in terms of number and location for purposes of national analyses. As required under the provisions of section 2.2 of Appendix C, all PM_{10} NAMS that were previously designated as TSP NAMS must concurrently collect ambient TSP and PM_{10} data for a one-year period beginning when each NAMS PM_{10} sampler is put into operation.

TABLE 4—PM_{10} NATIONAL AIR MONITORING STATION CRITERIA

[Approximate Number of Stations per Area][a]

Population category	High concentration[b]	Medium concentration[c]	Low concentration[d]
>1,000,000	6-10	4-8	2-4
500,000-1,000,000	4-8	2-4	1-2
250,000-500,000	3-4	1-2	0-1
100,000-250,000	1-2	0-1	0

[a] Selection of urban areas and actual number of stations per area will be jointly determined by EPA and the State agency.

[b] High concentration areas are those for which: Ambient PM_{10} data or ambient IP_{15} data converted to PM_{10} show ambient concentrations exceeding either PM_{10} NAAQS by 20 percent or more, or the probability of PM_{10} nonattainment, calculated from TSP data, is 95 percent or greater.

[c] Medium concentration areas are those for which: Ambient PM_{10} data or ambient IP_{15} data converted to PM_{10} show ambient concentrations exceeding either 80 percent of the PM_{10} NAAQS, or the probability of PM_{10} nonattainment, calculated from TSP data, is >20 percent and <95 percent.

[d] Low concentration areas are those for which: Ambient PM_{10} data or ambient IP_{15} data converted to PM_{10} show ambient concentrations less than 80 percent of the PM_{10} NAAQS; or the probability of PM_{10} nonattainment, calculated from TSP data, is less than 20 percent.

[e] Procedures for estimating ambient PM_{10} concentrations from IP_{15} ambient air measurements or for estimating the probability of nonattainment for PM_{10} given observed TSP data are provided in reference 10.

4. *Summary*

Table 5 shows by pollutant, all of the spatial scales that are applicable for SLAMS and the required spatial scales for NAMS. There may also be some situations, as discussed later in Appendix E, where additional scales may be allowed for NAMS purposes.

TABLE 5—SUMMARY OF SPATIAL SCALES FOR SLAMS AND REQUIRED SCALES FOR NAMS

Spatial Scale	Scale Applicable for SLAMS						Scales Required for NAMS					
	SO_2	CO	O_3	NO_2	Pb	PM_{10}	SO_2	CO	O_3	NO_2	Pb	PM_{10}
Micro		✓			✓	✓		✓			✓	✓
Middle	✓	✓	✓	✓	✓	✓					✓	✓
Neighborhood	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Urban	✓		✓	✓	✓	✓			✓	✓		
Regional	✓		✓		✓	✓						

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(44 FR 27571, May 10, 1979; 44 FR 72592, Dec. 14, 1979, as amended at 46 FR 44168, Sept. 3, 1981; 51 FR 9597, Mar. 19, 1986; 52 FR 24743—23744, July 1, 1987; 52 FR 27286, July 20, 1987)

Appendix E—Probe Siting Criteria for Ambient Air Quality Monitoring

1. *Introduction*

This appendix contains probe siting criteria to be applied to ambient air quality monitors or monitor probes after the general station location has been selected based on the monitoring objectives and spatial scale of representativeness as discussed in Appendix D of this part. Adherence to these siting criteria is necessary to ensure the uniform collection of compatible and comparable air quality data.

The probe siting criteria as discussed below must be followed to the maximum extent possible. It is recognized that there may be situations when the probe siting criteria cannot be followed. If the siting criteria cannot be met, this must be thoroughly documented with a written request for a waiver which describes how and why the siting criteria differs. This documentation should help to avoid later questions about the data. Conditions under which EPA would consider an application for waiver from these siting criteria are discussed in Section 10 of this appendix.

The spatial scales of representativeness used in this appendix, i.e., micro, middle, neighborhood, urban, and regional are defined and discussed in Appendix D of this part. The pollutant specific probe siting criteria generally apply to all spatial scales except where noted otherwise. Specific siting criteria that are prefaced with a "must" are defined as a requirement and exceptions must be approved through the waiver provisions. However, siting criteria that are prefaced with a "should" are defined as a goal to meet for consistency but are not a requirement.

2. [Reserved]

3. *Sulfur Dioxide* (SO_2)

3.1 Horizontal and Vertical Probe Placement. As with TSP monitoring, the most desirable height for an SO_2 monitor inlet probe is near the breathing height. Various factors enumerated before may require that the inlet probe be elevated. Therefore, the inlet probe must be located 3 to 15 meters above ground level. If the inlet probe is located on the side of a building, then it should be located on the windward side of the building relative to the prevailing winter wind direction. The inlet probe must also be located more than 1 meter vertically or horizontally away from any supporting structure and also away from dirty, dusty areas.

3.2 Spacing from Obstructions. No furnace or incineration flues, or other minor sources of SO_2 should be nearby. The separation distance is dependent on the height of the flues, type of waste or fuel burned, and the quality of the fuel (sulfur content). If the inlet probe is located on a roof or other structure, it must be at least 1 meter from walls, parapets, penthouses, etc.

The inlet probe must be located away from obstacles and buildings. The distance between the obstacles and the inlet probe must be at least twice the height that the obstacle protrudes above the inlet probe. Sampling stations that are located closer to obstacles than this criterion allows should not be classified as a neighborhood scale, since the measurements from such a station would closely represent middle scale stations. Therefore, stations not meeting the criterion should be classified as middle scale. Airflow must also be unrestricted in an arc of at least 270° around the inlet probe, and the predominant wind direction for the season of greatest pollutant concentration potential must be included in the 270° arc. If the probe is located on the side of a building, 180° clearance is required. Additional information on SO_2 probe siting criteria may be found in reference 11.

3.3 Spacing from trees and other considerations. Trees can provide surfaces for SO_2 adsorption and act as an obstruction to normal wind flow patterns. To minimize the possible effects of trees on the measured SO_2 levels, the sampler should be placed at least 20 meters from the drip line of trees. However, in situations where trees could be classified as an obstruction, i.e., the distance between the tree(s) and the sampler is less than twice the height that the tree(s) protrudes above the sampler, the sampler must be placed at least 10 meters from the drip line of the obstructing tree(s).

4. *Carbon Monoxide* (CO)

4.1 Horizontal and Vertical Probe Placement. Because of the importance of measuring population exposure to CO concentrations, air should be sampled at average breathing heights. However, practical factors require that the inlet probe be higher. The required height of the inlet probe for CO monitoring is therefore 3 ± ½ meter for a microscale site, which is a compromise between representative breathing height and prevention of vandalism. The recommended 1 meter range of heights is also a compromise to some extent. For consistency and comparability, it would be desirable to have all inlets at exactly the same height, but practical considerations often prevent this. Some reasonable range must be specified and 1 meter provides adequate leeway to meet most requirements.

For the middle and neighborhood scale stations, the vertical concentration gradients are not as great as for the microscale station. This is because the diffusion from roads is greater and the concentrations would represent larger areas than for the microscale. Therefore, the required height of the inlet probe is 3 to 15 meters for middle and neighborhood scale stations. The inlet probe must be located more than 1 meter in the vertical or horizontal direction from any supporting structure.

4.2 Spacing from Obstructions. Airflow must also be unrestricted in an arc of at least 270° around the inlet probe, and the predominant wind direction for the season of greatest pollutant concentration potential must be included in the 270° arc. If the probe is located on the side of a building, 180° clearance is required.

4.3 Spacing from Roads. Street canyon and traffic corridor stations (microscale) are intended to provide a measurement of the influence of the immediate source on the pollution exposure of the population. In order to provide some reasonable consistency and comparability in the air quality data from such stations, a minimum distance of 2 meters and a maximum distance of 10 meters from the edge of the nearest traffic lane must be maintained for these CO monitor inlet probes. This should give consistency to the data, yet still allow flexibility of finding suitable locations.

Street canyon/corridor (microscale) inlet probes must be located at least 10 meters from an intersection and preferably at a midblock location. Midblock locations are preferable to intersection locations because intersections represent a much smaller portion of downtown space than do the streets between them. Pedestrian exposure is probably also greater in street canyon/corridors than at intersections. Also, the practical difficulty of positioning sampling inlets is less at midblock locations than at the intersection. However, the final siting of the monitor must meet the objectives and intent of Appendix D, Sections 2.4, 3, 2.3 and Appendix E, Section 4.

In determining the minimum separation between a neighborhood scale monitoring

United States Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park NC 27711
EPA-450/4-87-007
May 1987

Air

EPA

Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)

REFERENCES FOR SECTION 3.5

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/4-87-007
May 1987

Air

Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)

SCHEDULE D.6—PERMANENT WAIVER FROM INTERIM CONTROLS TEST—Continued

[Smelter identification]

	Line	1984	1985	1986	1987	1988	1989	1990	Total
6 Current salvage value	17	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
7 Net present value	18	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

SCHEDULE D.7—HORIZON VALUE OF CASH FLOWS

[Smelter identification]

	Line	Final forecast years		Horizon years					Total
		1989	1990	1991	1992	1993	1994	1995	
A. Depreciation-free horizon value.									
1 Net cash flow projections	01	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2 Depreciation tax savings.									
a. Depreciation and amortization	02	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. Marginal tax rate	03	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Tax savings	04	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
3 Depreciation-free net cash flows:									
a. Nominal dollar values	05	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. 1980 dollar values	06	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Average	07	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
4 Horizon factor	08	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
5 Depreciation free horizon value	09	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
B. Depreciation tax savings over the horizon period.									
1 Depreciation and amortization	10	XXXX	XXXX	....	....	....	....	....	XXXX
2 Marginal tax rate	11	XXXX	XXXX	....	....	....	....	....	XXXX
3 Tax savings	12	XXXX	XXXX	....	....	....	....	....	XXXX
4 Discount factors	13	XXXX	XXXX	....	....	....	....	....	XXXX
5 Present value of tax savings	14	XXXX	XXXX	....	....	....	....	....	XXXX
6 Total present value of tax savings	15	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
C. Horizon Value	16	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

AUTHORITY: Secs. 110, 301(a), 313, and 319 of the Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

SOURCE: 44 FR 27571, May 10, 1979, unless otherwise noted.

Subpart A—General Provisions

§ 58.1 Definitions.

As used in this part, all terms not defined herein have the meaning given them in the Act:

(a) "Act" means the Clean Air Act as amended (42 U.S.C. 7401, et seq.).

(b) "SLAMS" means State or Local Air Monitoring Station(s). The SLAMS make up the ambient air quality monitoring network which is required by § 58.20 to be provided for in the State's implementation plan. This definition places no restrictions on the use of the physical structure or facility housing the SLAMS. Any combination of SLAMS and any other monitors (Special Purpose, NAMS, PSD) may occupy the same facility or structure without affecting the respective definitions of those monitoring station.

(c) "NAMS" means National Air Monitoring Station(s). Collectively the NAMS are a subset of the SLAMS ambient air quality monitoring network.

(d) "PSD station" means any station operated for the purpose of establishing the effect on air quality of the emissions from a proposed source for purposes of prevention of significant deterioration as required by § 51.24(n) of Part 51 of this chapter.

(e) "SO_2" means sulfur dioxide.

(f) "NO_2" means nitrogen dioxide.

(g) "CO" means carbon monoxide.

(h) "O_3" means ozone.

(i) "Plan" means an implementation plan, approved or promulgated pursuant to section 110 of the Clean Air Act.

(j) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or his or her authorized representative.

(k) "Regional Administrator" means the Administrator of one of the ten EPA Regional Offices or his or her authorized representative.

(l) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(m) "Local agency" means any local government agency, other than the State agency, which is charged with the responsibility for carrying out a portion of the plan.

(n) "Indian Reservation" means any Federally recognized reservation established by treaty, agreement, executive order, or act of Congress.

(o) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

(p) "Storage and Retrieval of Aerometric Data (SAROAD) system" is a computerized system which stores and reports information relating to ambient air quality.

(q) "SAROAD site identification form" is one of the several forms in the SAROAD system. It is the form which provides a complete description of the site (and its surroundings) of an ambient air quality monitoring station.

(r) "Traceable" means that a local standard has been compared and certified, either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM) or a USEPA/NBS-approved Certified Reference Material (CRM).

(s) "Urban area population" means the population defined in the most

ronmental Criteria and Assessment Office, Research Triangle Park, NC. December 1981.

14. Watson, J.G., et al. Analysis of Inhalable and Fine Particulate Matter Measurements. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA 450/4-81-035. December 1981.

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Appendix E—Probe Siting Criteria for Ambient Air Quality Monitoring

1. *Introduction*

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The probe siting criteria as discussed below must be followed to the maximum extent possible. It is recognized that there may be situations when the probe siting criteria cannot be followed. If the siting criteria cannot be met, this must be thoroughly documented with a written request for a waiver which describes how and why the siting criteria differs. This documentation should help to avoid later questions about the data. Conditions under which EPA would consider an application for waiver from these siting criteria are discussed in Section 10 of this appendix.

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2. [Reserved]

3. *Sulfur Dioxide* (SO_2)

3.1 Horizontal and Vertical Probe Placement. As with TSP monitoring, the most desirable height for an SO_2 monitor inlet probe is near the breathing height. Various factors enumerated before may require that the inlet probe be elevated. Therefore, the inlet probe must be located 3 to 15 meters above ground level. If the inlet probe is located on the side of a building, then it should be located on the windward side of the building relative to the prevailing winter wind direction. The inlet probe must also be located more than 1 meter vertically or horizontally away from any supporting structure and also away from dirty, dusty areas.

3.2 Spacing from Obstructions. No furnace or incineration flues, or other minor sources of SO_2 should be nearby. The separation distance is dependent on the height of the flues, type of waste or fuel burned, and the quality of the fuel (sulfur content). If the inlet probe is located on a roof or other structure, it must be at least 1 meter from walls, parapets, penthouses, etc.

The inlet probe must be located away from obstacles and buildings. The distance between the obstacles and the inlet probe must be at least twice the height that the obstacle protrudes above the inlet probe. Sampling stations that are located closer to obstacles than this criterion allows should not be classified as a neighborhood scale, since the measurements from such a station would closely represent middle scale stations. Therefore, stations not meeting the criterion should be classified as middle scale. Airflow must also be unrestricted in an arc of at least 270° around the inlet probe, and the predominant wind direction for the season of greatest pollutant concentration potential must be included in the 270° arc. If the probe is located on the side of a building, 180° clearance is required. Additional information on SO_2 probe siting criteria may be found in reference 11.

3.3 Spacing from trees and other considerations. Trees can provide surfaces for SO_2 adsorption and act as an obstruction to normal wind flow patterns. To minimize the possible effects of trees on the measured SO_2 levels, the sampler should be placed at least 20 meters from the drip line of trees. However, in situations where trees could be classified as an obstruction, i.e., the distance between the tree(s) and the sampler is less than twice the height that the tree(s) protrudes above the sampler, the sampler must be placed at least 10 meters from the drip line of the obstructing tree(s).

4. *Carbon Monoxide* (CO)

4.1 Horizontal and Vertical Probe Placement. Because of the importance of measuring population exposure to CO concentrations, air should be sampled at average breathing heights. However, practical factors require that the inlet probe be higher. The required height of the inlet probe for CO monitoring is therefore 3 ± ½ meter for a microscale site, which is a compromise between representative breathing height and prevention of vandalism. The recommended 1 meter range of heights is also a compromise to some extent. For consistency and comparability, it would be desirable to have all inlets at exactly the same height, but practical considerations often prevent this. Some reasonable range must be specified and 1 meter provides adequate leeway to meet most requirements.

For the middle and neighborhood scale stations, the vertical concentration gradients are not as great as for the microscale station. This is because the diffusion from roads is greater and the concentrations would represent larger areas than for the microscale. Therefore, the required height of the inlet probe is 3 to 15 meters for middle and neighborhood scale stations. The inlet probe must be located more than 1 meter in the vertical or horizontal direction from any supporting structure.

4.2 Spacing from Obstructions. Airflow must also be unrestricted in an arc of at least 270° around the inlet probe, and the predominant wind direction for the season of greatest pollutant concentration potential must be included in the 270° arc. If the probe is located on the side of a building, 180° clearance is required.

4.3 Spacing from Roads. Street canyon and traffic corridor stations (microscale) are intended to provide a measurement of the influence of the immediate source on the pollution exposure of the population. In order to provide some reasonable consistency and comparability in the air quality data from such stations, a minimum distance of 2 meters and a maximum distance of 10 meters from the edge of the nearest traffic lane must be maintained for these CO monitor inlet probes. This should give consistency to the data, yet still allow flexibility of finding suitable locations.

Street canyon/corridor (microscale) inlet probes must be located at least 10 meters from an intersection and preferably at a midblock location. Midblock locations are preferable to intersection locations because intersections represent a much smaller portion of downtown space than do the streets between them. Pedestrian exposure is probably also greater in street canyon/corridors than at intersections. Also, the practical difficulty of positioning sampling inlets is less at midblock locations than at the intersection. However, the final siting of the monitor must meet the objectives and intent of Appendix D, Sections 2.4, 3, 3.3 and Appendix E, Section 4.

In determining the minimum separation between a neighborhood scale monitoring

station and a specific line source, the presumption is made that measurements should not be unduly influenced by any one roadway. Computations were made to determine the separation distances, and table 1 provides the required minimum separation distance between roadways and neighborhood scale stations. Sampling stations that are located closer to roads than this criterion allows should not be classified as a neighborhood scale, since the measurements from such a station would closely represent the middle scale. Therefore, stations not meeting this criterion should be classified as middle scale. Additional information on CO probe siting may be found in reference 12.

TABLE 1—MINIMUM SEPARATION DISTANCE BETWEEN NEIGHBORHOOD SCALE CO STATIONS AND ROADWAYS (EDGE OF NEAREST TRAFFIC LANE)

Roadway average daily traffic, vehicles per day	Minimum separation distance between stations and roadways, meters
≤10,000	[1] ≤10
15,000	25
20,000	45
30,000	80
40,000	115
50,000	135
≥60,000	≥150

[1] Distances should be interpolated based on traffic flow.

4.4 Spacing from trees and other considerations. Since CO is relatively non-reactive, the major factor concerned trees is as obstructions to normal wind flow patterns. For middle and neighborhood scale stations, trees should not be located between the major sources of CO, usually vehicles on a heavily traveled road, and the sampler. The sampler must be at least 10 meters from the drip line of a tree which is between the sampler and the road and extends at least 5 meters above the sampler. For microscale stations, no trees or shrubs should be located between the sampling inlet probe and the road.

5. *Ozone* (O_3)

5.1 Vertical and Horizontal Probe Placement. The inlet probe for ozone monitors should be as close as possible to the breathing zone. The complicating factors discussed previously, however, require that the probe be elevated. The height of the inlet probe must be located 3 to 15 meters above ground level. The probe must also be located more than 1 meter vertically or horizontally away from any supporting structure.

5.2 Spacing from Obstructions. The probe must be located away from obstacles and buildings such that the distance between the obstacles and the inlet probe is at least twice the height that the obstacle protrudes above the sampler. Airflow must be unrestricted in an arc of at least 270° around the inlet probe, and the predominant wind direction for the season of greatest pollutant concentration potential must be included in the 270° arc. If the probe is located on the side of a building, 180° clearance is required.

5.3 Spacing from Roads. It is important in the probe siting process to minimize destructive interferences from sources of nitric oxide (NO) since NO readily reacts with ozone. Table 2 provides the required minimum separation distances between roadways and ozone monitoring stations. These distances were based on recalculations using the methodology in reference 13 and validated using more recent ambient data collected near a major roadway. Sampling stations that are located closer to roads than this criterion allows should not be classified as neighborhood or urban scale, since the measurements from such stations would more closely represent the middle scale. Accordingly, such stations should be classified as middle scale. Additional information on ozone probe siting criteria may be found in reference 13.

TABLE 2—MINIMUM SEPARATION DISTANCE BETWEEN NEIGHBORHOOD AND URBAN SCALE OZONE STATIONS AND ROADWAYS (EDGE OF NEAREST TRAFFIC LANE)

Roadway average daily traffic, vehicles per day	Minimum separation distance between roadways and stations, meters
≤10,000	[1] ≤10
15,000	20
20,000	30
40,000	50
70,000	100
≥110,000	≥250

[1] Distances should be interpolated based on traffic flow.

5.4 Spacing from trees and other considerations. Trees can provide surfaces for O_3 adsorption and/or reactions and obstruct normal wind flow patterns. To minimize the possible effect of trees on measured O_3 levels, the probe should be placed at least 20 meters from the drip line of trees. Since the scavenging effect of trees is greater for ozone than for the other criteria pollutants, strong consideration of this effect must be given in locating the O_3 inlet probe to avoid this problem. Therefore, the sampler must be at least 10 meters from the drip line of trees that are located between the urban city core area and the sampler along the

predominant summer day-time wind direction.

6. *Nitrogen Dioxide* (NO_2)

6.1 Vertical and Horizontal Probe Placement. The height of the NO_2 inlet probe must be 3 to 15 meters above the ground. This is a compromise between measuring in the breathing zone and avoidance of vandalism, finding suitable sites, etc. For NO_2, the height does not appear to be a critical factor since the NO_2 should be fairly well mixed and somewhat uniform in the vertical direction. The distance of the inlet probe from any supporting structure must be greater than 1 meter vertically or horizontally.

6.2 Spacing from Obstructions. Buildings and other obstacles may possibly scavenge NO_2. In order to avoid this kind of interference, the station must be located well away from such obstacles so that the distance between obstacles and the inlet probe is at least twice the height that the obstacle protrudes above the probe. Sampling stations that are located closer to obstacles than this criterion allows should not be classified in the neighborhood or urban scales, since the measurements from such stations would more closely represent the middle scale. Such stations should be classified as middle scale. For similar reasons, a probe inlet along a vertical wall is undesirable because air moving along that wall may be subject to possible removal mechanisms. There must be unrestricted airflow in an arc of at least 270° around the inlet probe, and the predominant wind direction for the season of greatest pollutant concentration potential must be included in the 270° arc. If the probe is located on the side of the building, 180° clearance is required.

6.3 Spacing from Roads. It is important that the monitoring probe be removed from oxides of nitrogen sources to avoid measurements being dominated by any one source and to allow time for conversion (reactions) of NO emissions to NO_2. Further, the effects of roadway sources must be minimized by using separation distances for neighborhood and urban scale stations found in Table 3. These distances were based on recalculations using the methodology in reference 13 and validated using more recent ambient data collected near a major roadway. The minimum separation distance must also be maintained between an NO_2 probe and any other similar volume of automotive traffic such as parking lots. Sampling stations that are located closer to roads than this criterion allows should not generally be classified as neighborhood or urban scales, since the measurements from such stations would more closely represent middle scale stations. Such stations should generally be classified as middle scale. Additional information on NO_2 probe siting criteria may be found in reference 13.

TABLE 3—MINIMUM SEPARATION DISTANCE BETWEEN NEIGHBORHOOD AND URBAN SCALE NO_2 STATIONS AND ROADWAYS (EDGE OF NEAREST TRAFFIC LANE)

Roadway average daily traffic, vehicles per day	Minimum separation distance between roadways and station, meters
≤10,000	[1] ≥10
15,000	20
20,000	30
40,000	50
70,000	100
≤110,000	≥250

[1] Distance should be interpolated based on traffic flow.

6.4 Spacing from trees and other considerations. Trees can provide surfaces for NO_2 adsorption and/or reactions and obstruct normal wind flow patterns. To minimize the possible scavenging effect of trees on the measured levels of NO_2 the probe should be placed at least 20 meters from the drip line. For trees that protrude above the height of the probe by 5 meters or more, the sampler must be at least 10 meters from the drip line of the trees.

7. *Lead* (Pb)

7.1 Vertical Placement. Several studies (*5, 14-15*) on the relationship between roadway placement of lead samplers and measured ambient concentrations do not typically indicate large gradients within the first 6 to 7 meters above ground level. Similar to monitoring for other pollutants, optimal placement of the sampler inlet for lead monitoring should be at breathing height level. However, practical factors such as prevention of vandalism, security, and safety precautions must also be considered when siting a lead monitor. Given these considerations, the sampler inlet for microscale lead monitors must be 2-7 meters above ground level. The lower limit was based on a compromise between ease of servicing the sampler and the desire to avoid unrepresentative conditions due to re-entrainment from dusty surfaces. The upper limit represents a compromise between the desire to have measurements which are most representative of population exposures and a consideration of the practical factors noted above.

For middle or larger spatial scales, increased diffusion results in vertical concentration gradients which are not as great as for the small scales. Thus, the required height of the air intake for middle or larger scales is 2-15 meters.

7.2 Spacing from Obstructions. The sampler must be located away from obstacles such as buildings, so that the distance between obstacles and the sampler is at least twice the height that the obstacle protrudes above the sampler.

A minimum of 2 meters of separation from walls, parapets, and penthouses is required for rooftop samplers. No furnace or incinerator flues should be nearby. The height and type of flues and the type, quality, and quantity of waste or fuel burned determine the separation distances. For example, if the emissions from the chimney have high lead content and there is a high probability that the plume would impact on the sampler during most of the sampling period, then other buildings/locations in the area that are free from the described sources should be chosen for the monitoring site.

There must be unrestricted airflow in an arc of at least 270° around the sampler. Since the intent of the category (a) site is to measure the maximum concentrations from a road or point source, there must be no significant obstruction between a road or point source and the monitor, even though other spacing from obstruction criteria are met. The predominant direction for the season with the greatest pollutant concentration potential must be included in the 270° arc.

7.3 *Spacing from Roadways.* Numberous studies have shown that ambient lead levels near mobile source are a function of the traffic volume and are most pronounced at ADT >30,000 within the first 15 meters, on the downwind side of the roadways. (1, 10-19) Therefore, stations to measure the peak concentration from mobile sources should be located at the distance most likely to produce the highest concentrations. For the microscale station, the location must be between 5 and 15 meters from the major roadway. For the middle scale station, a range of acceptable distances from the major roadway is shown in Table 4. This table also includes separation distances between a roadway and neighborhood or larger scale stations. These distances are based upon the data of reference 10 which illustrates that lead levels remain fairly constant after certain horizontal distances from the roadway. As depicted in the above reference, this distance is a function of the traffic volume.

TABLE 4—SEPARATION DISTANCE BETWEEN Pb STATIONS AND ROADWAYS (EDGE OF NEAREST TRAFFIC LANE)

Roadway average daily traffic vehicles per day	Separation distance between roadways and stations, meters		
	Micro scale	Middle scale	Neighborhood urban regional scale
<10,000	5-15	[1] >15-50	[1] >50
20,000	5-15	>15-75	>75
>40,000	5-15	>15-100	>100

[1] Distances should be interpolated based on traffic flow.

7.4. Spacing from trees and other considerations. Trees can provide surfaces for deposition or adsorption of lead particles and obstruct normal wind flow patterns. For microscale and middle scale category (a) roadway sites there must not be any tree(s) between the source of the lead, i.e., the vehicles on the roadway, and the sampler. For neighborhood scale category (b) sites, the sampler should be at least 20 meters from the drip line of trees. The sampler must, however, be placed at least 10 meters from the drip line of trees which could be classified as an obstruction, i.e., the distance between the tree(s) and the sampler is less than the height that the tree protrudes above the sampler.

8. *Particulate Matter (PM$_{10}$)*

8.1 Vertical Placement—Although there are limited studies on the PM$_{10}$ concentration gradients around roadways or other ground level sources, References 1, 2, 4, 18 and 19 of this Appendix show a distinct variation in the distribution of TSP and Pb levels near roadways. TSP, which is greatly affected by gravity, has large concentration gradients, both horizontal and vertical, immediately adjacent to roads. *Lead, being* predominately sub-micron in size, behaves more like a gas and exhibits smaller vertical and horizontal gradients than TSP. PM$_{10}$, being intermediate in size between these two extremes exhibits dispersion properties of both gas and settleable particulates and does show vertical and horizontal gradients.[19] Similar to monitoring for other pollutants, optimal placement of the sampler inlet for PM$_{10}$ monitoring should be at breathing height level. However, practical factors such as prevention of vandalism, security, and safety precautions must also be considered when siting a PM$_{10}$ monitor. Given these considerations, the *sampler* inlet for microscale PM$_{10}$ monitors must be 2-7 meters above ground level. The lower limit was based on a compromise between ease of servicing the sampler and the desire to avoid reentrainment from dusty surfaces. The upper limit represents a compromise between the desire to have measurements which are most representative of population exposures and a consideration of the practical factors noted above.

For middle or larger spatial scales, increased diffusion results in vertical concentration gradients that are not as great as for the microscale. Thus, the required height of the air intake for middle or larger scales is 2-15 meters.

8.2 *Spacing from Obstructions*—If the sampler is located on a roof or other structure, then there must be a minimum of 2 meters separation from walls, parapets, penthouses, etc. No furnace or incineration flues should be nearby. This separation distance from flues is dependent on the height of the flues, type of waste or fuel burned, and quality of the fuel (ash content). In the case of emissions from a chimney resulting from natural gas combustion, as a precautionary measure, the sampler should be placed at least 5 meters from the chimney. On the other hand, if fuel oil, coal, or solid waste is burned and the stack is sufficiently short so that the plume could reasonably be expected to impact on the sampler intake a significant part of the time, other buildings/locations in the area that are free from these types of sources should be considered for sampling. Trees provide surfaces for particulate desposition and also restrict airflow. Therefore, the sampler should be placed at least 20 meters from the dripline and must be 10 meters from the dripline when the tree(s) acts as an obstruction.

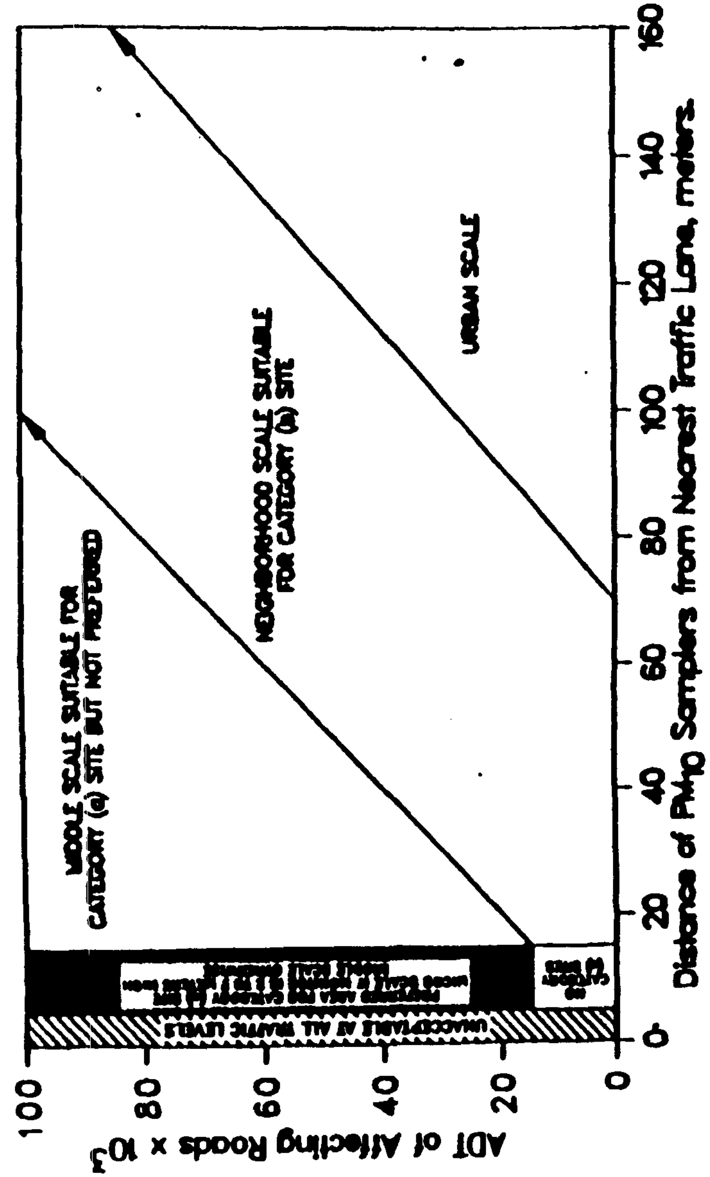
The sampler must also be located away from obstacles such as buildings, so that the distance between obstacles and the sampler is at least twice the height that the obstacle protrudes above the sampler except for street canyon sites. Sampling stations that are located closer to obstacles than this criterion allows should not be classified as neighborhood, urban, or regional scale, since the measurements from such a station would closely represent middle scale stations. Therefore, stations not meeting the criterion should be classified as middle scale.

There must be unrestricted airflow in an arc of at least 270° around the sampler except for street canyon sites. Since the intent of the category (a) site is to measure the maximum concentrations from a road or point source, there must be no significant obstruction between a road or point source and the monitor, even though other spacing from obstruction criteria are met. The predominant direction for the season with the greatest pollutant concentration potential must be included in the 270° arc.

8.3 *Spacing from Roads*—Since emissions associated with the operation of motor vehicles contribute to urban area particulate matter ambient levels, spacing from roadway criteria are necessary for ensuring national consistency in PM$_{10}$ sampler siting.

The intent is to locate category (a) NAMS sites in areas of highest concentrations whether it be from mobile or multiple stationary sources. If the area is primarily affected by mobile sources and the maximum concentration area(s) is judged to be a traffic corridor or street canyon location, then the monitors should be located near roadways with the highest traffic volume and at separation distances most likely to produce the highest concentrations. For the microscale traffic corridor station, the location must be between 5 and 15 meters from the major roadway. For the microscale street canyon site the location must be between 2 and 10 meters from the roadway. For the middle scale station, a range of acceptable distances from the roadway is shown in Figure 2. This figure also includes separation distances between a roadway and neighborhood or larger scale stations by default. Any station, 2 to 15 meters high, and further back than the middle scale requirements will generally be neighborhood, urban or regional scale. For example, according to Figure 2, if a PM$_{10}$ sampler is primarily influenced by roadway emissions and that sampler is set back 10 meters from a 30,000 ADT road, the station should be classified as a micro scale, if the sampler height is between 2 and 7 meters. If the sampler height is between 7 and 15 meters, the station should be classified as middle scale. If the sample is 20 meters from the same road, it will be classified as middle scale; if 40 meters, neighborhood scale; and if 110 meters, an urban scale.

Figure 2. Acceptable Areas for PM_{10} Micro, Middle, Neighborhood, and Urban Samplers Except for Microscale Street Canyon Sites.



It is important to note that the separation distances shown in Figure 2 are measured from the edge of the nearest traffic lane of the roadway presumed to have the most influence on the site. In general, this presumption is an oversimplification of the usual urban settings which normally have several streets that impact a given site. The effects of surrounding streets, wind speed, wind direction and topography should be considered along with Figure 2 before a final decision is made on the most appropriate spatial scale assigned to the sampling station.

8.4 Other Considerations. For those areas that are primarily influenced by stationary source emissions as opposed to roadway emissions, guidance in locating these areas may be found in the guideline document Optimum Network Design and Site Exposure Criteria for Particulate Matter.

Stations should not be located in an unpaved area unless there is vegetative ground cover year round, so that the impact of wind blown dusts will be kept to a minimum.

9. *Probe Material and Pollutant Sample Residence Time*

For the reactive gases, [illegible], NO_2, and O_3, special probe material must be used. Studies have been conducted to determine the suitability of materials such as polypropylene, polyethylene, polyvinylchloride, tygon, aluminum, brass, stainless steel, copper, pyrex glass and teflon for use as intake sampling lines. Of the above materials, only pyrex glass and teflon have been found to be acceptable for use as intake sampling lines for all the reactive gaseous pollutants. Furthermore, EPA has specified borosilicate glass or FEP teflon as the only acceptable probe materials for delivering test atmospheres in the determination of reference or equivalent methods. Therefore, borosilicate glass, FEP teflon, or their equivalent must be used for existing and new NAMS or SLAMS.

No matter how nonreactive the sampling probe material is initially, after a period of use reactive particulate matter is deposited on the probe walls. Therefore, the time it takes the gas to transfer from the probe inlet to the sampling device is also critical. Ozone in the presence of NO will show significant losses even in the most inert probe material when the residence time exceeds 20 seconds. Other studies indicate that a 10-second or less residence time is easily achievable. Therefore, sampling probes for reactive gas monitors at SLAMS or NAMS must have a sample residence time less than 20 seconds.

10. *Waiver Provisions*

It is believed that most sampling probes or monitors can be located so that they meet the requirements of this appendix. New stations with rare exceptions, can be located within the limits of this appendix. However, some existing stations may not meet these requirements and yet still produce useful data for some purposes. EPA will consider a written request from the State Agency to waive one or more siting criteria for some monitoring stations providing that the State can adequately demonstrate the need (purpose) for monitoring or establishing a monitoring station at that location. For establishing a new station, a waiver may be granted only if both of the following criteria are met:

The site can be demonstrated to be as representative of the monitoring area as it would be if the siting criteria were being met.

The monitor or probe cannot reasonably be located so as to meet the siting criteria because of physical constraints (e.g., inability to locate the required type of station the necessary distance from roadways or obstructions).

However, for an existing station, a waiver may be granted if either of the above criteria are met.

Cost benefits, historical trends, and other factors may be used to add support to the above, however, they in themselves, will not be acceptable reasons for granting a waiver. Written requests for waivers must be submitted to the Regional Administrator. For those SLAMS also designated as NAMS, the request will be forwarded to the Administrator.

11. *Discussion and Summary*

Table 5 presents a summary of the requirements for probe-siting criteria with respect to distances and heights. It is apparent from Table 5 that different elevation distances above the ground are shown for the various pollutants. The discussion in the text for each of the pollutants described reasons for elevating the monitor or probe. The differences in the specified range of heights are based on the vertical concentration gradients. For CO, the gradients in the vertical direction are very large for the microscale, so a small range of heights has been used. The upper limit of 15 meters was specified for consistency between pollutants and to allow the use of a single manifold for monitoring more than one pollutant.

"See References at end of this Appendix.

TABLE 5—SUMMARY OF PROBE SITING CRITERIA

Pollutant	Scale	Height above ground, meters	Distance from supporting structure, meters		Other spacing criteria
			Vertical	Horizontal[a]	
SO_2	All	3-15	>1	>1	1. Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) act as an obstruction 2. Distance from inlet probe to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the inlet probe[b] 3. Must have unrestricted airflow 270° around the inlet probe, or 180° if probe is on the side of a building 4. No furnace or incinerator flues should be nearby[c]
CO	Micro	3±½	>1	>1	1. Must be >10 meters from street intersection and should be at a midblock location 2. Must be 2-10 meters from edge of nearest traffic lane 3. Must have unrestricted airflow 180° around the inlet probe
	Middle Neighborhood	3-15	>1	>1	1. Must have unrestricted airflow 270° around the inlet probe, or 180° if probe is on the side of a building 2. Spacing from roads varies with traffic (see Table 1)
O_3	All	3-15	>1	>1	1. Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) act as an obstruction 2. Distance from inlet probe to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the inlet probe[b] 3. Must have unrestricted airflow 270° around the inlet probe, or 180° if probe is on the side of a building 4. Spacing from roads varies with traffic (see Table 2)
NO_2	All	3-15	>1	>1	1. Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) act as an obstruction 2. Distance from inlet probe to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the inlet probe[b] 3. Must have unrestricted airflow 270° around the inlet probe, or 180° if probe is on the side of a building 4. Spacing from roads varies with traffic (see Table 3)
Pb	Micro	2-7	—	>2	1. Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) act as an obstruction 2. Distance from sampler to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the sampler[b] 3. Must have unrestricted airflow 270° around the sampler except for street canyon sites 4. No furnace or incineration flues should be nearby[c] 5. Must be 5 to 15 meters from major roadway
	Middle neighborhood, urban and regional	2-15	—	>2	1. Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) act as an obstruction 2. Distance from sampler to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the sampler[b] 3. Must have unrestricted airflow 270° around the sampler 4. No furnace or incineration flues should be nearby[c] 5. Spacing from roads varies with traffic (see Table 4)

TABLE 5—SUMMARY OF PROBE SITING CRITERIA—Continued

Pollutant	Scale	Height above ground, meters	Distance from supporting structure, meters		Other spacing criteria
			Vertical	Horizontal[a]	
PM_{10}	Micro	2-7	—	>2	1. Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) acts as an obstruction 2. Distance from sampler to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the sampler except for street canyon sites[b] 3. Must have unrestricted airflow 270° around the sampler except for street canyon sites 4. No furnace or incineration flues should be nearby 5. Spacing from roads varies with traffic (see Figure 2) except for street canyon sites which must be from 2 to 10 meters from the edge of the nearest traffic lane
	Middle, neighborhood urban and regional scale	2-15	—	>2	1. Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) act as an obstruction 2. Distance from sampler to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the sampler[b] 3. Must have unrestricted airflow 270° around the sampler 4. No furnace or incineration flues should be nearby[c] 5. Spacing from roads varies with traffic (see Figure 2)

[a] When probe is located on rooftop, this separation distance is in reference to walls, parapets, or penthouses located on the roof.
[b] Sites not meeting this criterion would be classified as middle scale (see text)
[c] Distance is dependent on height of furnace or incineration flues, type of fuel or waste burned, and quality of fuel (sulfur, ash or lead content). This is to avoid undue influences from minor pollutant sources.

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Appendix F—Annual SLAMS Air Quality Information

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2.1.2 Annual Summary Statistics
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2.2.1 Site and Monitoring Information
2.2.2 Annual Summary Statistics
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2.7 Particulate Matter (PM_{10})
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2.7.2 Annual Summary Statistics
2.7.3 Episode and Other Unscheduled Sampling Data

1. *General*

This appendix describes information to be compiled and submitted annually to EPA for each ambient monitoring station in the SLAMS Network in accordance with § 58.26. The annual summary statistics that are described in section 2 below shall be construed as only the minimum necessary statistics needed by EPA to overview national air quality status. They will be used by EPA to convey information to a variety of interested parties including environmental groups, Federal agencies, the Congress, and private citizens upon request. As the need arises, EPA may issue modifications to these minimum requirements to reflect changes in EPA policy concerning the National Ambient Air Quality Standards (NAAQS).

As indicated in § 58.26(c), the contents of the SLAMS annual report shall be certified by the senior air pollution control officer in the State to be accurate to the best of his knowledge. In addition, the manner in which the data were collected must be certified to have conformed to the applicable quality assurance, air monitoring methodology, and probe siting criteria given in Appendices A, C, and E to this part. A certified statement to this effect must be included with the annual report. As required by § 58.26(a), the report must be submitted by July 1 of each year for data collected during the period January 1 to December 31 of the previous year.

EPA recognizes that most air pollution control agencies routinely publish air quality statistical summaries and interpretive reports. EPA encourages State and local agencies to continue publication of such reports and recommends that they be expanded, where appropriate, to include analysis of air quality trends, population exposure, and pollutant distributions. At their discretion, State and local agencies may wish to integrate the SLAMS report into routine agency publications.

2. *Required information*

This paragraph describes air quality monitoring information and summary statistics which must be included in the SLAMS annual report. The required information is itemized below by pollutant. Throughout this appendix, the time of occurrence refers to the ending hour. For example, the ending hour of an 8-hour CO average from 12:01 a.m. to 8:00 a.m. would be 8:00 a.m.

For the purposes of range assignments the following rounding convention will be used. The air quality concentration should be rounded to the number of significant digits used in specifying the concentration intervals. The digit to the right of the last significant digit determines the rounding process. If this digit is greater than or equal to 5, the last significant digit is rounded up. The insignificant digits are truncated. For example, 100.5 ug/m³ rounds to 101 ug/m³ and 0.1245 ppm rounds to 0.12 ppm.

2.1 *Sulfur Dioxide* (SO_2)

2.1.1 *Site and Monitoring Information.* City name (when applicable), county name and street address of site location. SAROAD site code. SAROAD monitoring method code. Number of hourly observations. (*1*) Number of daily observations. (*2*)

2.1.2 *Annual Summary Statistics.* Annual arithmetic mean (ppm). Highest and second highest 24-hour averages (*3*) (ppm) and dates of occurrence. Highest and second highest 3-hour averages (*1*, *3*) (ppm) and dates and times (*1*) (ending hour) of occurrence. Number of exceedances of the 24-hour primary NAAQS. (*3*) Number of exceedances of the 3-hour secondary NAAQS. (*3*) Number of 24-hour average concentrations (*4*) in ranges:

Range	Number of values
0.00 to 0.04 (ppm)	
0.05 to 0.08	
0.09 to 0.12	
0.13 to 0.16	
0.17 to 0.20	
0.21 to 0.24	
0.25 to 0.28	
Greater than .28	

2.2 *Total Suspended Particulates (TSP)*

2.2.1 *Site and Monitoring Information.* City name (when applicable), county name and street address of site location. SAROAD site code. Number of daily observations.

2.2.2 *Annual Summary Statistics.* Annual arithmetic mean (µg/m³) as specified in Appendix K of Part 50. Daily TSP values exceeding the level of the 24-hour PM_{10} NAAQS and dates of occurrence. If more than 10 occurrences, list only the 10 highest daily values. Sampling schedule used such as once every six days, once every three days, etc. Number of additional sampling days beyond sampling schedule used. Number of 24-hour average concentrations in ranges:

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REFERENCES FOR SECTION 3.7

(e) Provide for having a SLAMS network description available for public inspection and submission to the Administrator upon request. The network description must be available at the time of plan revision submittal except for Pb which must be available by December 1, 1981 and for PM_{10} monitors which must be available by 6 months after the effective date of promulgation and must contain the following information for each SLAMS:

(1) The SAROAD site identification form for existing stations.

(2) The proposed location for scheduled stations.

(3) The sampling and analysis method.

(4) The operating schedule.

(5) The monitoring objective and spatial scale of representativeness as defined in Appendix D to this part.

(6) A schedule for: (i) Locating, placing into operation, and making available the SAROAD site identification form for each SLAMS which is not located and operating at the time of plan revision submittal, (ii) implementing quality assurance procedures of Appendix A to this part for each SLAMS for which such procedures are not implemented at the time of plan revision submittal, and (iii) resiting each SLAMS which does not meet the requirements of Appendix E to this part at the time of plan revision submittal.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 52 FR 24740, July 1, 1987]

§ 58.21 SLAMS network design.

The design criteria for SLAMS contained in Appendix D to this part must be used in designing the SLAMS network. The State shall consult with the Regional Administrator during the network design process. The final network design will be subject to the approval of the Regional Administrator.

§ 58.22 SLAMS methodology.

Each SLAMS must meet the monitoring methodology requirements of Appendix C to this part at the time the station is put into operation as a SLAMS.

§ 58.23 Monitoring network completion.

By January 1, 1983, with the exception of PM_{10} samplers whose probability of nonattainment of the PM_{10} ambient standard is greater than or equal to 20 percent which shall be by 1 year after the effective date of promulgation and the remaining PM_{10} samplers which shall be by 2 years after the effective date of promulgation:

(a) Each station in the SLAMS network must be in operation, be sited in accordance with the criteria in Appendix E to this part, and be located as described on the station's SAROAD site identification form, and

(b) The quality assurance requirements of Appendix A to this part must be fully implemented.

[44 FR 27571, May 10, 1979, as amended at 52 FR 24740, July 1, 1987]

§ 58.24 [Reserved]

§ 58.25 System modification.

The State shall annually develop and implement a schedule to modify the ambient air quality monitoring network to eliminate any unnecessary stations or to correct any inadequacies indicated by the result of the annual review required by § 58.20(d). The State shall consult with the Regional Administrator during the development of the schedule to modify the monitoring program. The final schedule and modifications will be subject to the approval of the Regional Administrator. Nothing in this section will preclude the State, with the approval of the Regional Administrator, from making modifications to the SLAMS network for reasons other than those resulting from the annual review.

§ 58.26 Annual SLAMS summary report.

(a) The State shall submit to the Administrator (through the appropriate Regional Office) an annual summary report of all the ambient air quality monitoring data from all monitoring stations designated State and Local Air Monitoring Stations (SLAMS). The annual report must be submitted by July 1 of each year for data collected from January 1 to December 31 of the previous year.

(b) The annual summary report must contain:

(1) The information specified in Appendix F.

(2) The location, date, pollution source, and duration of each incident of air pollution during which ambient levels of a pollutant reached or exceeded the level specified by § 51.16(a) of this chapter as a level which could cause significant harm to the health of persons.

(c) The senior air pollution control officer in the State or his designee shall certify that the annual summary report is accurate to the best of his knowledge.

[44 FR 27571, May 10, 1979, as amended at 51 FR 9586, Mar. 19, 1986]

§ 58.27 Compliance date for air quality data reporting.

The annual air quality data reporting requirements of § 58.26 apply to data collected after December 31, 1980. Data collected before January 1, 1981, must be reported under the reporting procedures in effect before the effective date of Subpart C of this part.

§ 58.28 Regional Office SLAMS data acquisition.

The State shall submit all or a portion of the SLAMS data to the Regional Administrator upon his request.

Subpart D—National Air Monitoring Stations (NAMS)

§ 58.30 NAMS network establishment.

(a) By January 1, 1980, with the exception of Pb, which shall be by December 1, 1981, and PM_{10} samplers, which shall be by 6 months after the effective date of promulgation, the State shall:

(1) Establish, through the operation of stations or through a schedule for locating and placing stations into operation, that portion of a National Ambient Air Quality Monitoring Network which is in that State, and

(2) Submit to the Administrator (through the appropriate Regional Office) a description of that State's portion of the network.

(b) Hereinafter, the portion of the national network in any State will be referred to as the NAMS network.

(c) The stations in the NAMS network must be stations from the SLAMS network required by § 58.20.

(d) The requirements of Appendix D to this part must be met when designing the NAMS network. The process of designing the NAMS network must be part of the process of designing the SLAMS network as explained in Appendix D to this part.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 52 FR 24740, July 1, 1987]

§ 58.31 NAMS network description.

The NAMS network description required by § 58.30 must contain the following for all stations, existing or scheduled:

(a) The SAROAD site identification form for existing stations.

(b) The proposed location for scheduled stations.

(c) Identity of the urban area represented.

(d) The sampling and analysis method.

(e) The operating schedule.

(f) The monitoring objective and spatial scale of representativeness as defined in Appendix D to this part.

(g) A schedule for:

(1) Locating, placing into operation, and submitting the SAROAD site identification form for each NAMS which is not located and operating at the time of network description submittal,

(2) Implementing quality assurance procedures of Appendix A to this part for each NAMS for which such procedures are not implemented at the time of network description submittal, and

(3) Resiting each NAMS which does not meet the requirements of Appendix E to this part at the time of network description submittal.

§ 58.32 NAMS approval.

The NAMS network required by § 58.30 is subject to the approval of the Administrator. Such approval will be contingent upon completion of the network description as outlined in § 58.31 and upon conformance to the

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

JUL 12 1989

MEMORANDUM

SUBJECT: Boilerplates for Block Averaging and Grandfathering Modeling Analyses

FROM: Robert D. Bauman, Chief Bob Bauman
SO_2/Particulate Matter Programs Branch (MD-15)

TO: Chief, Air Branch
Regions I-X

Based upon EPA's June 1, 1989 denial of NRDC's petition for reconsideration of the use of block averaging in an Ohio SIP revision (attached), we recommend that the Regional Offices use language similar to the following boilerplate in future Federal Register notices and/or TSD's in which the SO_2 averaging method is a relevant factor, and which involve otherwise approvable actions:

> The State based the SIP revision on a (block or running) interpretation of the national ambient air quality standards. Under the decision in NRDC v. Thomas, 845 F.2d 1088 (D.C. Cir. 1988), the D.C. Circuit determined that a State is free to submit a SIP revision using either block or running averages. As a result, EPA finds the State's choice to utilize (block or running) averaging to be fully acceptable.

The EPA policy for grandfathering modeling analyses is contained in a January 2, 1985 memorandum from Joseph Tikvart, Chief, Source Receptor Analysis Branch, to the Regional Modeling Contact, Regions I-X. Boilerplate to assist in implementing this policy has previously been informally distributed. However, at this time we request that where grandfathering occurs the Regional Office should incorporate language into the Federal Register and/or TSD similar to the following:

> The modeling techniques used in the demonstration supporting this revision are based on modeling guidance in place at the time that the analysis was performed (cite "old" guidance document). Since that time, the modeling guidance has been changed by EPA (cite "new" guidance document). Because the modeling analysis was substantially complete prior to issuance of the revised guidance, EPA accepts the analysis. If for some reason

this, or any other, analysis must be redone in the future, then it should be redone in accordance with current modeling guidance.

If you have any questions regarding these policies, please contact Doug Grano of my staff at 8-629-5255.

Attachment

cc: Ron Campbell, OAQPS
John Calcagni, AQMD
Pat Embrey, OGC
Eric Ginsburg, AQMD
Dean Wilson, TSD
Regional Modeling Contact, Regions I-X

bcc: D. Grano
J. Vitas

SCHEDULE D.6—PERMANENT WAIVER FROM INTERIM CONTROLS TEST—Continued

[Smelter identification]

	Line	1984	1985	1986	1987	1988	1989	1990	Total
6 Current salvage value	17	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
7 Net present value	18	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	

SCHEDULE D.7—HORIZON VALUE OF CASH FLOWS

[Smelter identification]

	Line	Final forecast years		Horizon years					Total
		1989	1990	1991	1992	1993	1994	1995	
A Depreciation free horizon value.									
1 Net cash flow projections	01			XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2 Depreciation tax savings.									
a. Depreciation and amortization	02			XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. Marginal tax rate	03			XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Tax savings	04			XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
3 Depreciation-free net cash flows:									
a. Nominal dollar values	05			XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. 1980 dollar values	06			XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Average	07	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
4 Horizon factor	08	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
5 Depreciation-free horizon value	09	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
B Depreciation tax savings over the horizon period.									
1 Depreciation and amortization	10	XXXX	XXXX						XXXX
2 Marginal tax rate	11	XXXX	XXXX						XXXX
3 Tax savings	12	XXXX	XXXX						XXXX
4 Discount factors	13	XXXX	XXXX						XXXX
5 Present value of tax savings	14	XXXX	XXXX						XXXX
6. Total present value of tax savings	15	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
C Horizon Value	16	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

AUTHORITY: Secs. 110, 301(a), 313, and 319 of the Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

SOURCE: 44 FR 27571, May 10, 1979, unless otherwise noted.

Subpart A—General Provisions

§ 58.1 Definitions.

As used in this part, all terms not defined herein have the meaning given them in the Act:

(a) "Act" means the Clean Air Act as amended (42 U.S.C. 7401, et seq.).

(b) "SLAMS" means State or Local Air Monitoring Station(s). The SLAMS make up the ambient air quality monitoring network which is required by § 58.20 to be provided for in the State's implementation plan. This definition places no restrictions on the use of the physical structure or facility housing the SLAMS. Any combination of SLAMS and any other monitors (Special Purpose, NAMS, PSD) may occupy the same facility or structure without affecting the respective definitions of those monitoring station.

(c) "NAMS" means National Air Monitoring Station(s). Collectively the NAMS are a subset of the SLAMS ambient air quality monitoring network.

(d) "PSD station" means any station operated for the purpose of establishing the effect on air quality of the emissions from a proposed source for purposes of prevention of significant deterioration as required by § 51.24(n) of Part 51 of this chapter.

(e) "SO_2" means sulfur dioxide.

(f) "NO_2" means nitrogen dioxide.

(g) "CO" means carbon monoxide.

(h) "O_3" means ozone.

(i) "Plan" means an implementation plan, approved or promulgated pursuant to section 110 of the Clean Air Act.

(j) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or his or her authorized representative.

(k) "Regional Administrator" means the Administrator of one of the ten EPA Regional Offices or his or her authorized representative.

(l) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(m) "Local agency" means any local government agency, other than the State agency, which is charged with the responsibility for carrying out a portion of the plan.

(n) "Indian Reservation" means any Federally recognized reservation established by treaty, agreement, executive order, or act of Congress.

(o) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

(p) "Storage and Retrieval of Aerometric Data (SAROAD) system" is a computerized system which stores and reports information relating to ambient air quality.

(q) "SAROAD site identification form" is one of the several forms in the SAROAD system. It is the form which provides a complete description of the site (and its surroundings) of an ambient air quality monitoring station.

(r) "Traceable" means that a local standard has been compared and certified, either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM) or a USEPA/NBS-approved Certified Reference Material (CRM).

(s) "Urban area population" means the population defined in the most

NAMS design criteria contained in Appendix D to this part.

§ 58.33 NAMS methodology.

Each NAMS must meet the monitoring methodology requirements of Appendix C to this part applicable to NAMS at the time the station is put into operation as a NAMS.

§ 58.34 NAMS network completion.

By January 1, 1981, with the exception of Pb, which shall be by July 1, 1982 and PM_{10} samplers, which shall be by 1 year after the effective date of promulgation:

(a) Each NAMS must be in operation, be sited in accordance with the criteria in Appendix E to this part, and be located as described in the station's SAROAD site identification form; and

(b) The quality assurance requirements of Appendix A to this part must be fully implemented for all NAMS.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 52 FR 24740, July 1, 1987]

§ 58.35 NAMS data submittal.

(a) The requirements of this section apply only to those stations designated as NAMS by the network description required by § 58.30.

(b) The State shall report quarterly to the Administrator (through the appropriate Regional Office) all ambient air quality data and information specified by AEROS Users Manual (EPA-450/2-76-029, OAQPS No. 1.2-039) to be coded into the SAROAD Air Quality Data forms. Such air quality data and information must be submitted on either paper forms, punched cards, or magnetic tape in the format of the SAROAD Air Quality Data forms.

(c) The quarterly reporting periods are January 1-March 31, April 1-June 30, July 1-September 30, and October 1-December 31. The quarterly report must:

(1) Be received by the National Aerometric Data Bank within 120 days of the end of each reporting period, after being submitted by the States to the Regional Offices for review;

(2) Contain all data and information gathered during the reporting period.

(d) For TSP, CO, SO_2, O_3, and NO_2, the first quarterly report will be due on or before June 30, 1981, for data collected during the first quarter of 1981. For Pb, the first quarterly report will be due on December 31, 1982, for data collected during the third quarter of 1982. For PM_{10} samplers, the first quarterly report will be due 120 days after the first quarter of operation.

(e) Air quality data submitted in the quarterly report must have been edited and validated so that such data are ready to be entered into the SAROAD data files. Procedures for editing and validating data are described in AEROS Users Manual (EPA-450/2-76-029, OAQPS No. 1.2-039).

(f) This section does not permit a State to exempt those SLAMS which are also designated as NAMS from all or any of the reporting requirements applicable to SLAMS in § 58.26.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 51 FR 9586, Mar. 19, 1986; 52 FR 24740, July 1, 1987]

§ 58.36 System modification.

During the annual SLAMS Network Review specified in § 58.20, any changes to the NAMS network identified by the EPA and/or proposed by the State and agreed to by the EPA will be evaluated. These modifications should address changes invoked by a new census and changes to the network due to changing air quality levels, emission patterns, etc. The State shall be given one year (until the next annual evaluation) to implement the appropriate changes to the NAMS network.

[51 FR 9586, Mar. 19, 1986]

Subpart E—Air Quality Index Reporting

§ 58.40 Index reporting.

(a) The State shall report to the general public on a daily basis through prominent notice an air quality index in accordance with the requirements of Appendix G to this part.

(b) Reporting must commence by January 1, 1981, for all urban areas with a population exceeding 500,000, and by January 1, 1983, for all urban areas with a population exceeding 200,000.

(c) The population of an urban area for purposes of index reporting is the most recent U.S. census population figure as defined in § 58.1 paragraph (a).

[44 FR 27571, May 10, 1979, as amended at 51 FR 9586, Mar. 19, 1986]

Subpart F—Federal Monitoring

§ 58.50 Federal monitoring.

The Administrator may locate and operate an ambient air monitoring station if the State fails to locate, or schedule to be located, during the initial network design process or as a result of the annual review required by § 58.20(d):

(a) A SLAMS at a site which is necessary in the judgment of the Regional Administrator to meet the objectives defined in Appendix D to this part, or

(b) A NAMS at a site which is necessary in the judgment of the Administrator for meeting EPA national data needs.

§ 58.51 Monitoring other pollutants.

The Administrator may promulgate criteria similar to that referenced in Subpart B of this part for monitoring a pollutant for which a National Ambient Air Quality Standard does not exist. Such an action would be taken whenever the Administrator determines that a nationwide monitoring program is necessary to monitor such a pollutant.

Appendix A—Quality Assurance Requirements for State and Local Air Monitoring Stations (SLAMS)

1. General Information.

This Appendix specifies the minimum quality assurance requirements applicable to SLAMS air monitoring data submitted to EPA. States are encouraged to develop and maintain quality assurance programs more extensive than the required minimum.

Quality assurance of air monitoring systems includes two distinct and important interrelated functions. One function is the control of the measurement process through the implementation of policies, procedures, and corrective actions. The other function is the assessment of the quality of the monitoring data (the product of the measurement process). In general, the greater the effort effectiveness of the control of a given monitoring system, the better will be the resulting quality of the monitoring data. The results of data quality assessments indicate whether the control efforts need to be increased.

Documentation of the quality assessments of the monitoring data is important to data users, who can then consider the impact of the data quality in specific applications (see Reference 1). Accordingly, assessments of SLAMS data quality are required to be reported to EPA periodically.

To provide national uniformity in this assessment and reporting of data quality for all SLAMS networks, specific assessment and reporting procedures are prescribed in detail in sections 3, 4, and 5 of this Appendix.

In contrast, the control function encompasses a variety of policies, procedures, specifications, standards, and corrective measures which affect the quality of the resulting data. The selection and extent of the quality control activities—as well as additional quality assessment activities—used by a monitoring agency depend on a number of local factors such as the field and laboratory conditions, the objectives of the monitoring, the level of the data quality needed, the expertise of assigned personnel, the cost of control procedures, pollutant concentration levels, etc. Therefore, the quality assurance requirements, in section 2 of this Appendix, are specified in general terms to allow each State to develop a quality assurance system that is most efficient and effective for its own circumstances.

2. Quality Assurance Requirements

2.1 Each State must develop and implement a quality assurance program consisting of policies, procedures, specifications, standards and documentation necessary to:

(1) Provide data of adequate quality to meet monitoring objectives, and

(2) Minimize loss of air quality data due to malfunctions or out-of-control conditions.

This quality assurance program must be described in detail, suitably documented, and approved by the appropriate Regional Administrator, or his designee. The Quality Assurance Program will be reviewed during the annual system audit described in section 2.4.

2.2 Primary guidance for developing the quality assurance program is contained in References 2 and 3, which also contain many suggested procedures, checks, and control specifications. Section 2.0.9 of Reference 3 describes specific guidance for the de-

REFERENCES FOR SECTION 3.8

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

DATE: SEP 1 1981

SUBJECT: Ambient Monitoring Networks for Model Evaluations

FROM: Richard G. Rhoads, Director
Monitoring and Data Analysis Division

TO: Ronald C. Campbell, Assistant Director
for Program Operations, OAQPS

Under favorable conditions our available air quality models can provide errors of from ±10 to ±40 percent. Under unfavorable conditions the errors can be much worse. For these reasons, we have been considering how to use ambient monitoring data to supplement or improve model estimates on a case-by-case basis.

It is generally not feasible to establish emission limits for point sources based solely on monitoring data. This is because current programs require that emission limits be based upon a fairly rare event (i.e., the second maximum concentration anywhere in the area, at anytime, and with the facility operating at full capacity) and to capture that event on a monitor would normally require a prohibitively large and expensive network.

An alternative approach is to establish a monitoring network of reasonable size, use the resulting monitored data to evaluate the models for applicability to those particular conditions, and then use the resulting "best available" model to establish the emission limitation.

One problem with this approach is defining the "network of reasonable size" which would be used to evaluate the models. If the network is too small, the data would be inadequate to distinguish between models and the evaluation would have no validity. If the network is too large, the cost would be excessive.

Although our experience with evaluations of this nature is very limited, I have recently recommended to Region V that, for a variety of power plants in the Midwest, networks consisting of approximately 15 monitors each should be considered. This recommendation was based upon the following knowledge:

- My staff and the technical modeling staff of Region V estimate that, in moderate terrain, a network of 25-30 monitors would be desirable to obtain "reasonable scientific credibility."

- The Electric Power Research Institute has conducted one phase of a major model evaluation study (called Plume Model Validation) around the Kincaid Power Plant. The PMV network consisted of 30 ambient monitors supplemented by several hundred tracer monitors for special studies.

• The model evaluation program around the Westvaco Luke Mill in Maryland is using nine monitors. The issue at Luke Mill involves only one wind direction (quadrant): If all wind directions were pertinent, a larger network would have been necessary.

• The model evaluation program around the Ashland Oil facility in Kentucky used a network consisting of 18 monitors. The issue involved complex terrain in a valley situation.

• The model evaluation program around the Simplot acid plant in Idaho used a network consisting of five monitors. The issue at Simplot involved only one wind direction and one set of meteorological conditions.

• The model evaluation program around the Big Bend Power Plant on the coast of Florida used a network consisting of eight monitors supplemented by sophisticated plume measurements. The issue at Big Bend involved only a single wind direction.

Based on our experienc with these programs (all of which were reasonably successful but, with the exception of EPRI, none of which were "data rich"), I believe that approximately 15 monitors operating for one year is probably the minimum network size to obtain a valid data base under normal circumstances. Fifteen would probably be too few in rugged, complex terrain; fifteen would probably be too many if the issue involved only a single specific location (e.g. a single isolated hilltop) or single meteorological condition.

It is necessary to minimize the number of monitors because the cost of a network of 15 monitors, plus an adequate meteorological station, plus emission monitoring, could range from $300K to over $1 million. The wide range in costs is influenced primarily by the availability of power at the monitoring sites, by the ease of servicing the monitors, and by the complexity of both the terrain and the meteorological conditions. Based on preliminary discussions between Region V staff and electric utility representatives, I believe that most large utilities would be willing and able to bear this cost if they perceive that the evaluation would result in a relaxation of stringent emission limitations.

In the past many utility representatives held a strong opinion that the CRSTER model (most commonly used to evaluate power plants in level to moderate terrain) tended to overestimate the magnitude of concentrations, i.e. that the model had a strong conservative bias. The preliminary data from the EPRI model evaluation disprove that opinion: the EPRI results indicate no significant bias (at least in level terrain).

Also the preliminary data from Westvaco (involving the SHORTZ model), the results from Ashland Oil (involving the VALLEY model), and the results from Big Bend (involving the CRSTER model), all tend to confirm the model predictions, although Ashland Oil showed VALLEY to be somewhat conservative as expected. I would classify the Simplot results as "inconclusive."

As this new information regarding bias (actually lack of bias in our models) becomes widely recognized, it is possible that the utilities may become less willing to gamble on an expensive evaluation which could result in more stringent emission limits rather than more lenient ones. However, I believe that it is to everyone's advantage to have at least a few scientifically valid model evaluation programs so that we can either improve the accuracy of the models or establish reasonable credibility with their results

cc: J. Tikvart
R. Neligan

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

DATE: AUG 7 1981

SUBJECT: Monitoring Around Mid-Western Power Plants

FROM: Richard G. Rhoads, Director
Monitoring and Data Analysis Division (MD-14)

TO: David Kee, Director
Air and Hazardous Materials Division, Region V

We have previously discussed the requests of several utilities to conduct air quality monitoring around their power plants located in Illinois, Indiana and Ohio. The purpose of the monitoring would be to provide a data base suitable for evaluating air quality models and to select the most reliable model for setting emission limits.

No widely accepted performance standards are available with which to judge the acceptability of a single model. Thus, to determine the best model for a specific application, we must rely on a comparison of the relative performance of two or more models using a variety of statistical tests. Such an approach has been recommended by the American Meteorological Society and is incorporated in an OAQPS report entitled "Interim Procedures for Evaluating Air Quality Models" that was provided to your staff last week (see attached memorandum).

These interim procedures are the best available basis for discussions with the utilities on the monitoring programs and subsequent analyses. The procedures involve (1) identification of applicable models; (2) selection and weighting of statistical performance measures; and (3) determination of an appropriate ambient monitoring program. I suggest that you forward this information to the utilities and set up meetings where these issues can be discussed.

At such meetings it will be necessary for the utility representatives to propose alternative models that they believe to be more reliable than the standard EPA models. Statistical tests and performance measures must be agreed upon to determine the relative performance of the models under consideration. These performance measures must be adequate to evaluate the entire range of meteorological conditions which affect the source area, as well as appropriate averaging times. While these meetings will involve highly technical issues, management personnel may be required to make decisions relative to the most important evaluation tests and the best measures of uncertainty.

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RTP, N.C. 27711

It will be necessary to agree on an adequate air quality monitoring network composed of continuous monitors with quality assurance meeting the requirements of 40 CFR 58. Although our experience with networks for this purpose is limited, we believe that an appropriate balance between the technical requirements of the analyses and the costs would result in approximately 15 monitors, depending upon the type of terrain, meteorological conditions, prior knowledge of air quality in the area, etc. For the specific case of the Baldwin plant which you mentioned, it is likely that 11 monitors would be adequate if the monitors were carefully located at predicted points of maximum impact under the full range of meteorological conditions. (Location of the monitors at points of maximum impact only under unstable conditions would not provide adequate coverage.)

It will be necessary to agree on an adequate on-site meteorological data collection program. As a minimum, these measurements should be similar to those available from National Weather Service Stations and should be consistent with the PSD Monitoring Guideline requiremerts. It may be necessary to collect additional data in order to satisfy the input requirements of proposed alternative models.

It will be necessary to agree on an adequate program to collect plant operating data. Ideally, this would consist of continuous in-stack emission monitors supplemented by routine operating characteristics. Many plants are willing to install emission monitors for a variety of purposes. However, if continuous emission monitors are considered to be too expensive, it is usually possible to construct adequate emissions data from a carefully planned as-fired fuel sampling program.

We assume that the utility will be responsible for all data collection, data reduction, and quality assurance. Once a protocol for the specific statistical performance measures and their weighting are established, we further assume that the utility will also be responsible for all calculations and model evaluations. Once the analysis is complete, we can jointly review the results with the utility and come to a reasoned decision as to the most appropriate model for setting emission limits for that source. Thus, the crucial part of this exercise is establishing in a written protocol the data to be collected, the procedures to be followed, and the basis for judging the relative performance of the models being considered.

We must emphasize that the general procedures which are proposed are interim. They will evolve in future applications as we gain experience with developing protocols. We expect, though, that useful and meaningful protocols can result at this time from good faith negotiations between EPA and the utility and its consultants. My staff will be happy to provide you with technical support in developing protocols and in analyzing the model comparisons. Please contact Joe Tikvart or me if you desire further assistance.

Attachment

cc: W. Barber
T. Devine
R. Smith
E. Tuerk
S. Wassersug

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

DATE: 7/30/81

SUBJECT: Interim Procedures for Evaluating Air Quality Models

FROM: Joseph A. Tikvart, Chief J. Tikvart
Source Receptor Analysis Branch (MD-14)

TO: Chief, Air Programs Branch, Regions I - X

Attached is a report entitled "Interim Procedures for Evaluating Air Quality Models." The purpose of the report is to provide a general framework for the quantitative evaluation and comparison of air quality models. It is intended to help you decide whether a proposed model, not specifically recommended in the Guideline on Air Quality Models, is acceptable on a case-by-case basis for specific regulatory application. The need for such a report is identified in Section 7 of "Regional Workshops on Air Quality Modeling: A Summary Report."

An earlier draft (Guideline for Evaluation of Air Quality Models) was provided to you for comment in January 1981. We received comments from four Regional Offices and have incorporated many of the suggestions. These comments reflected a diversity of opinion on how rigid the procedures and criteria should be for demonstrating the acceptability of a nonguideline model. One Region maintained that EPA should establish minimum acceptable requirements on data bases, decision rationale, etc. Others felt that we should be more flexible in our approach. This report defines the steps that should be followed in evaluating a model but leaves room for considerable flexibility in details for each step.

The procedures and criteria presented in this new report are considered interim. They are an extension of recommendations resulting from the Woods Hole Workshop in Dispersion Model Performance held in Setpember 1980. That workshop was sponsored under a cooperative agreement between EPA and the American Meteorological Society. Thus, while some of the performance evaluation procedures may be resource intensive, they reflect most of the requirements identified by an appropriate scientific peer group. However, since the concepts are relatively new and untested, problems may be encountered in their initial application. Thus, the report provides suggested procedures; it is <u>not</u> a "guideline."

We recommend that you begin using the procedures on actual situations within the context of the caveats expressed in the Preface and in Section 5.3. Where suggestions are inappropriate, the use of alternative techniques to accomplish the desired goals is encouraged. Feedback on your experience and problems are important to us. After a period of time during which experience is gained and problems are identified, the report will be updated and guidance will gradually evolve. Questions on the use of the procedures and feedback on your experiences with their application should be directed to the Model Clearinghouse (Dean Wilson, 629-5681). An example of the procedures applied to a real data base is being developed under contract and should be completed in early 1982.

Attachment

cc: Regional Modeling Contacts, Region I - X
W. Barber
D. Fox
T. Helms
W. Keith
M. Muirhead
L. Niemeyer
R. Smith
F. White

EPA-450/4-84-023

Interim Procedures for Evaluating Air Quality Models (Revised)

U.S. ENVIRONMENTAL PROTECTION AGENCY
Monitoring and Data Analysis Division
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

September 1984

REFERENCES FOR SECTIONS 4.1 AND 4.2

Authority: Secs. 1-19. 48 Stat. 31. as amended: 7 U.S.C. 601-674.

2. Section 959.229 is added to read as follows:

§ 959.229 Expenses and assessment rate.

Expenses of $379.675 by the South Texas Onion Committee are authorized and an assessment rate of $0.055 per 50-pound container or equivalent quantity of regulated onions is established for the fiscal period ending July 31. 1989. Unexpended funds may be carried over as a reserve.

Dated: January 13. 1989.

William J. Doyle.

Associate Deputy Director, Fruit and Vegetable Division.

[FR Doc. 89-1250 Filed 1-18-89; 8:45 am]

FILLING CODE 3410-02-M

DEPARTMENT OF THE TREASURY

31 CFR Part 103

Extension of Time for Comments on Proposed Bank Secrecy Act Regulations

AGENCY: Departmental Offices. Treasury.

ACTION: Advance notice of proposed rulemaking. extension of comment period.

SUMMARY: Notice is hereby given that the Department of the Treasury is extending the comment period on the Advance Notice of Proposed Rulemaking Relating to Identification Requirements Required to Purchase Bank Checks. Cashier's Checks. Traveler's Checks and Money Orders. published in the **Federal Register** on December 23. 1988 (53 FR 51846). The Treasury Department has determined that more time is needed for the public to review and comment on the proposal.

DATE: Comments now will be accepted through February 15. 1989.

ADDRESS: Comments should be addressed to Amy G. Rudnick. Director. Office of Financial Enforcement. Department of the Treasury. Room 4320. 1500 Pennsylvania Avenue. NW.. Washington. DC 20220.

FOR FURTHER INFORMATION CONTACT: Kathleen A. Scott. Attorney Advisor. Office of the Assistant General Counsel (Enforcement). (202) 566-9947.

Dated: January 13. 1989.

Salvatore R. Martoche.

Assistant Secretary (Enforcement).

[FR Doc. 89-1204 Filed 1-18-89; 8:45 am]

BILLING CODE 4810-25-M

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 51

[FRL-3428-2]

State Implementation Plan Completeness Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of Proposed Rulemaking.

SUMMARY: This notice describes the procedure for assessing whether a State implementation plan (SIP) submittal is adequate to trigger the Clean Air Act requirement that EPA review and take action the submittal. The notice describes. among other things. the criteria for determining the "completeness" of the submittal. EPA is concerned that uncertainty and excessive delays in reviewing SIPs frustrate the development of an optimum State/Federal partnership. cause confusion for sources regarding applicable regulations. and generally dampen initiative in State regulatory programs. Prompted by this concern. EPA is instituting a wide range of SIP processing reforms as described elsewhere in this Federal Register. The proposed rulemaking described below is one of these reforms.

EPA's previous SIP processing procedures provided no mechanism to reject or otherwise eliminate essentially unreviewable SIP submittals (i.e.. those missing information necessary to make a reasonable decision as to their procedural and environmental adequacy). Heretofore. SIP submittals that lacked required basic information such as evidence of legal authority or of properly conducted public hearings. or technical support information sufficient to describe a proposed change. generally went through full notice and comment rulemaking (proposed and final) before being rejected. Today's proposal provides a procedure and screening criteria to enable States to prepare adequate SIP submittals. and to enable EPA reviewers to promptly screen SIP submittals. identify those that are incomplete. and return them to the State for corrective action without having to go through rulemaking.

EPA believes that this change. together with those described elsewhere in this **Federal Register**. should enable SIP submittals to be prepared and processed more efficiently and. overall. should improve the quality of SIP submittals.

DATE: All comments should be submitted to EPA at the address shown below by March 6. 1989.

ADDRESSES: Interested parties may submit written comments in duplicate to Public Docket No. A-88-18 at: Central Docket Section (A-130). South Conference Center. Room 4. U.S. Environmental Protection Agency. Attention: Docket No. A-88-18. 401 M. Street. SW.. Washington. DC 20460.

Materials relevant to this rulemaking have been placed in Docket No. A-88-18 by EPA and are available for inspection at the above address between 8:00 a.m. and 3:30 p.m.. Monday through Friday. The EPA may charge a reasonable fee for copying.

FOR FURTHER INFORMATION CONTACT: Mr. James Weigold. Office of Air Quality Planning and Standards (MD-15). U.S. Environmental Protection Agency. Research Triangle Park. North Carolina 27711: Telephone (919) 541-5642 or (FTS) 629-5642.

SUPPLEMENTARY INFORMATION:

Background

The 1970 Clean Air Act (CAA) established the air quality management process as a basic philosophy for air pollution control in this country. Under this system. EPA establishes air quality goals (National Ambient Air Quality Standards—NAAQS) for common pollutants. There are now standards for 6 pollutants: ozone. carbon monoxide. sulfur dioxide. nitrogen dioxide. particulate matter (PM_{10}). and lead. States then develop control programs to attain and maintain these NAAQS. These programs are defined by State Implementation Plans (SIPs) which are approved formally by EPA and are legally enforceable by the Agency. Under section 110(a)(2). a SIP must demonstrate attainment. describe a control strategy. contain legally enforceable regulations. include an emission inventory and procedures for new source review. outline a program for monitoring. and show adequate resources. In addition there can be many other requirements specific to the pollutant being considered. Under section 110(a)(3). revisions to a SIP must not interfere with the SIPs ability to meet these requirements. The consequences of State failure to get SIP approval may be serious: they include Federal promulgation of control regulations and economic sanctions.

Affirmative action is required by EPA on essentially all aspects of every SIP and SIP revision. Since EPA's final decision comes after a regulation already is adopted and implemented at the State level. excessive delay in the review process often is a major source of friction in EPA's relations with State and local agencies. SIP processing at EPA has a schedule goal of 5/2-5/2 for final action. That is, the Regions nominally have 5 months to review submittals in both the proposal and promulgation phases; Headquarters nominally has 2 months in each phase. However, SIP actions often take considerably longer than the total 14 months allocated to publish a final decision.[1]

The lengthy decision process has resulted in strong criticism from sources both inside and outside the EPA. In response, the Deputy Administrator commissioned in July 1987 a senior level task group to assess the problems inherent in the process and to recommend solutions. The task group conducted its assessment and presented recommendations to the Deputy Administrator. The recommendations were approved fully and are described in a companion notice in today's **Federal Register**. One of these recommendations concerns a procedure and criteria for identifying a "complete" SIP package, thereby providing States with guidance on preparing adequate SIP revisions and EPA with a clearly defined mechanism to keep essentially unreviewable SIP revisions out of the review process.

This is important because if a State submits a SIP change without properly stated emission limits, legal authority or compliance schedules, or which contains other obvious deficiencies, it can enter the full EPA review system. Such a SIP either will be eventually disapproved, or languish while the State is required (perhaps months later) to supply essential data. Heretofore, EPA's procedures did not provide in any comprehensive way prompt rejection for incompleteness. Independently, however, some Regional Offices have tried to deal with this problem, and have developed procedures wherein SIP submittals are judged against a set of completeness criteria. The purpose of these procedures has been to keep incomplete packages out of the more extensive review system, thereby saving both EPA and the State valuable time and resources. Today, EPA is proposing to institute an EPA-wide procedure for completeness review of all SIP submittals.

Completeness Review

In order to free EPA resources that would otherwise be consumed in processing incomplete and inherently unapprovable SIPs, EPA has created a completeness review process. Under this process, EPA will review a SIP for completeness when it is initially submitted to determine if all the necessary components have been included to allow the agency to properly review and act on the substance of the SIP revision. This will be a quick screen that will assess the reviewability of a SIP submittal, not its ultimate approvability. EPA will then promptly inform the submitting State whether the agency will proceed to process the SIP revision or if it must be modified by the State because it is incomplete.

There are several benefits to an early determination of completeness. First, the State is informed promptly as to the reviewability of the submittal, a current source of uncertainty in the SIP process. Second, SIP submittals that are inadequate for processing are returned to the State to be corrected, rather than going through the review process only to be disapproved because of a lack of information. Third, unreviewable SIPs are removed from the process early so that resources at the Federal level are allocated to processing only SIPs that are adequate for review. Finally, the completeness criterial provide the States with guidelines on how to prepare reviewable SIPs. It is expected that once the agencies involved (State and local, EPA) become accustomed to the completeness review process, the number of unreviewable submittals will diminish sharply.

Screening criteria have been developed that define the essential elements of an acceptable package, that will avoid obvious inadequacies, and that can be applied uniformly with limited subjective judgement and review. The criteria were developed by EPA Regional Offices already using a list of criteria to determine completeness of SIP packages in an informal way. On March 18, 1988 a policy for determining completeness of SIP submittals was issued by Gerald A. Emison, Director, Office of Air Quality Planning and Standards (OAQPS), to the Regional Offices (a copy has been placed in the docket as item II-B-4). The policy includes basic criteria for determining completeness, and sample letters for accepting and rejecting SIP submittals. This policy will be followed by EPA until today's proposed regulation is made final.

As part of this action, the Administrator is proposing to add these criteria for determining the completeness of State submittals to 40 CFR Part 51 as Appendix V. In addition, EPA proposes to modify § 51.103(a) such that State submissions that do not meet the criteria are not considered official plan submissions for purposes of meeting the requirements of Part 51. In order to be considered as a complete SIP submission or an official submission for Part 51, each plan must meet the criteria described below and in Appendix V. The basic criteria are adaptable for use in parallel processing of State regulations by EPA.[2]

EPA is creating this completeness review process under the authority of Section 301 of the Clean Air Act, which authorizes the Administrator to prescribe such regulations as are necessary to carry out his functions under the Act. EPA is interpreting the terms "plan" in section 110(a)(1) and (2) and "revision" in Section 110(a)(3) to be only those plans and revisions that contain all of the components necessary to allow EPA to a adequately review and take action on such plan or revision under section 110 (and, where applicable, Part D). EPA believes that Congress would not have intended to require EPA to review and take action on SIP submittals that were simply not reviewable because they were lacking important components. Therefore, the Administrator concludes that Section 110(a) requires him to act only on complete State submittals.

Completeness Criteria

The criteria for determining whether a submittal by the State is complete have been separated into two categories: (a) Administrative information and (b) technical support information. Administrative information includes the documentation necessary to demonstrate that the basic administrative procedures have been adhered to by the State during the adoption process. Technical support information includes the documentation that adequately identifies all of the required technical components of the plan submission.

Administrative Information

The administrative information required by the criteria are those basic

[1] Note that section 110(a)(2) of the Clean Air Act requires that "The Administrator shall, within four months after the date required for submission of a [SIP], approve, or disapprove such [SIP] for each portion thereof." Under the Agency's present processing workload, such a time limit is literally impossible to meet for all but the most trivial of actions. EPA maintains that this deadline does not apply to SIP revisions, but rather only to the initial SIP submitted after EPA promulgates a NAAQS. Some courts have supported EPA's position; other courts have held that a 4-month review period applies to a SIP revision.

[2] Parallel processing is a procedure by which EPA processes, as a proposal, State rules which have not yet been fully adopted by the State in order to expedite the final review process.

documents that demonstrate that the State has properly followed the administrative requirements called for by the Clean Air Act for the adoption of State implementation plans. These include a letter from the Governor or his designee requesting that EPA approve the SIP revision, and evidence that the revision has been adopted by the State in final form, either as part of the State code if the revision is a regulation, or as appropriate source specific documentation in the form of a permit, order, or a consent agreement. The State also must provide documentation that the necessary legal authority exists within the State to adopt and implement the plan revision, must include the requisite copies of the actual revision (regulation, permit, order, etc.), and must indicate that the revision is enforceable by the State. Finally, the State must submit information indicating that the program administrative procedures have been followed, including evidence of public notice and hearings, a compilation of the public comments, and the State's response to these comments.

Technical Support

The purpose of the technical support information is to identify the State's view of the impact of the revision on the environment. The components are intended to demonstrate that the applicable requirements, such as those for attainment and maintenance of ambient standards, increment consumption, and control technology, are in conformance with basic statutory and EPA requirements. In order for EPA to make a reasonable decision concerning the adequacy of a proposed SIP revision, certain information at a minimum must be included in each submittal. Therefore, for purposes of determining the completeness of a SIP submission the implementation plan revision must include an adequate description of the:

(a) Pollutants involved;

(b) Source location and attainment status of the area;

(c) Emissions changes;

(d) Demonstration that standards/increments are protected;

(e) Information used for any modeling demonstration;

(f) Evidence of continuous emissions controls;

(g) Evidence of emissions limitations and other restrictions necessary to ensure emission levels;

(h) Compliance strategies; and

(i) Technological and economic justification for the change where applicable.

Upon receipt of the plan revision, the Regional Office will objectively examine the revision for inclusion of the administrative and technical support information. When the revision is determined complete, the formal review of the adequacy of the information and the approvability of the revision will proceed. In those situations where the submission does not meet the basic criteria as discussed above and set forth in Part 51, Appendix V, the submission will be returned to the State with a letter indicating the deficiencies found. In accordance with the change proposed in 40 CFR 51.103(a), any submission that does not meet the criteria of Appendix V will not be considered an official submission triggering the Act's requirements for EPA review and action. The basic requirements are similar for sequential and parallel processing, varying only in form dictated by the method of processing. In order to be effective, the determination of completeness should be made expeditiously. The Regional Office generally will make a determination of completeness within 45 days of receiving a SIP revision, using the criteria to make an objective decision.

After the decision has been made on completeness, the Regional Offices will process the SIP revision if the submission is complete, or return the SIP revision to the State if it is incomplete. A letter will be sent to the State, informing the State of the completeness status of the SIP revision. If a SIP submittal is incomplete, the deficiencies will be detailed in the letter to the State. If a SIP submittal is complete, the Regional Office will include EPA's expected processing schedule in the letter to the State.

Administrative Requirements

The docket is an organized and complete file of all the information considered by EPA in the development of these SIP processing changes. The docket is a dynamic file because material is added throughout the notice preparation and comment process. The docketing system is intended to allow members of the public and industries involved to identify and locate documents so that they can effectively participate in the process. Along with the statement of basis and purpose of the SIP processing changes and EPA responses to significant comments, the contents of the docket, except for interagency review materials, will serve as the record in case of judicial review (see Clean Air Act, section 307(d)(7)(A), 42 U.S.C. 7607(d)(7)(A).

Section 317(a) of the Clean Air Act, 42 U.S.C. 7617(a), states that economic impact assessments are required for revisions to standards or regulations when the Administrator determines such revisions to be substantial. The changes described today do not change the substantive requirements for preparing and submitting an adequate SIP package. No increase in cost as a result of complying with the changes described today is expected; moreover, the monitoring, recordkeeping, and reporting requirements have been determined to be insubstantial. Because the expected economic effect of the changes is not substantial, no detailed economic impact assessment has been prepared.

The information collection requirements of these changes are considered to be no different than those currently required by the Clean Air Act and EPA procedures. Thus, the public reporting burden resulting from today's notice is estimated to be unchanged from existing requirements. The public is invited to send comments regarding the burden estimate or other aspect of information collection, including suggestions for reducing any burden, to the docket and the following: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA."

Under Executive Order 12291, EPA is required to judge whether an action is "major" and therefore subject to the requirement of a regulatory impact analysis (RIA). The Agency has determined that the SIP processing changes announced today would result in none of the significant adverse economic effects set forth in section 1(b) of the Order as grounds for a finding of "major." The Agency has, therefore, concluded that this action is not a "major" action under Executive Order 12291.

This rule was submitted to OMB for review consistent with section 307(d) of the Clean Air Act. A copy of the draft rule as submitted to OMB, any documents accompanying the draft, any written comment received from other agencies (including OMB), and any written responses to those comments have been included in the docket.

The Regulatory Flexibility Act of 1980, 5 U.S.C. 601-612, requires the identification of potentially adverse impacts of Federal actions upon small business entities. The Act requires the completion of a regulatory flexibility analysis for every action unless the Administrator certifies that the action will not have a significant economic impact on a substantial number of small

entities. For reasons described above, I hereby certify that the final rule will not have a significant impact on a substantial number of small entities.

Date: January 9, 1989.

Lee M. Thomas,

Administrator.

For the reasons set out in the preamble, 40 CFR Part 51 is proposed to be amended as follows:

PART 51—[AMENDED]

1. The authority citation for Part 51 continues to read as follows:

Authority: This rulemaking is promulgated under authority of Sections 101(b)(1), 110, 160–69, 171–178, and 301(a) of the Clean Air Act, 42 U.S.C. 7401(b)(1), 7410, 7420–7429, 7501–7508, and 7601(a).

2. Section 51.103 is proposed to be amended by revising paragraph (a) introductory text to read as follows:

§ 51.103 Submission of plans, preliminary review of plans.

(a) The State makes an official plan submission to EPA when the plan conforms to the requirements of Appendix V to this part, and the State delivers five copies of the plan to the appropriate Regional office, with a letter giving notice of such action. The State must adopt the plan and the Governor or his designee must submit it to EPA as follows:

* * * * *

3. Part 51 is proposed to be amended by adding Appendix V to read as follows:

Appendix V—Criteria for Determining the Completeness of Plan Submissions.

1.0. Purpose

This Appendix V sets forth the minimum criteria for determining whether a State implementation plan submitted for consideration by EPA is an official submission for purpose of review under § 51.103.

1.1. The EPA shall return to the submitting official any plan or revision thereof which fails to meet the criteria set forth in this Appendix V, or otherwise request corrective action, identifying the component(s) absent or insufficient to perform a review of the submitted plan.

1.2. The EPA shall inform the submitting official when a plan submission meets the requirements of this Appendix V, such determination resulting in the plan being an official submission for purposes of § 51.103.

2.0 Criteria

The following shall be included in plan submissions for review by EPA:

2.1. Administrative Materials

(a) A formal letter of submittal from the Governor or his designee, requesting EPA approval of the plan or revision thereof (hereafter "the plan").

(b) Evidence that the State has adopted the plan in the State code or body of regulations; or issued the permit, order, consent agreement (hereafter document) in final form. That evidence shall include the date of adoption or final issuance as well as the effective date of the plan if different from the adoption/issuance date.

(c) Evidence that the State has the necessary legal authority under State law to adopt and implement the plan.

(d) A copy of the actual regulation, or document submitted for approval and incorporation by reference into the plan, including indication of the changes made to the existing approved plan, where applicable. The submittal shall be a copy of the official State regulation/document signed, stamped, dated by the appropriate State official indicating that it is fully enforceable by the State. The effective date of the regulation/document shall, whenever possible, be indicated in the document itself.

(e) Evidence that the State followed all of the procedural requirements of the State's laws and constitution in conducting and completing the adoption/issuance of the plan.

(f) Evidence that public notice was given of the proposed change consistent with procedures approved by EPA, including the date of publication of such notice.

(g) Certification that public hearing(s) were held in accordance with the information provided in the public notice and the State's laws and constitution, if applicable.

(h) Compilation of public comments and the State's response thereto.

2.2. Technical Support

(a) Identification of all regulated pollutants affected by the plan.

(b) Identification of the locations of affected sources including the EPA attainment/nonattainment designation of the locations and the status of the attainment plan for the affected areas(s).

(c) Quantification of the changes in plan allowable emissions from the affected sources; estimates of changes in current actual emissions from affected sources or, where appropriate, quantification of changes in actual emissions from affected sources through calculations of the differences between certain baseline levels and allowable emissions anticipated as a result of the revision.

(d) The State's demonstration that the National Ambient Air Quality Standards, prevention of significant deterioration increments, reasonable further progress demonstration, and visibility, are protected if the plan is approved and implemented.

(e) Modeling information required to support the proposed revision, including input data, output data, models used, justification of model selections, ambient monitoring data used, meteorological data used, justification for use of offsite date (where used), modes of models used, assumptions, and other information relevant to the determination of adequacy of the modeling analysis.

(f) Evidence, where necessary, that emission limitations are based on continuous emission reduction technology.

(g) Evidence that the plan contains emission limitations, work practice standards and recordkeeping/reporting requirements, where necessary, to ensure emission levels.

(h) Compliance/enforcement strategies, including how compliance will be determined in practice.

(i) Special economic and technological justifications required by any applicable EPA policies.

2.3. Exceptions

2.3.1. The EPA, for the purposes of expediting the review of the plan, has adopted a procedure referred to as "parallel processing." Parallel processing allows a State to submit the plan prior to actual adoption by the State and provides an opportunity for the State to consider EPA comments prior to submission of a final plan for final review and action. Under these circumstances the plan submitted will not be able to meet all of the requirements of paragraph 2.1 (all requirements of paragraph 2.2 will apply). As a result, the following exceptions apply to plans submitted explicitly for parallel processing:

(a) The letter required by paragraph 2.1(a) shall request that EPA propose approval of the proposed plan by parallel processing.

(b) In lieu of paragraph 2.1(b) the State shall submit a schedule for final adoption or issuance of the plan.

(c) In lieu of paragraph 2.1(d) the plan shall include a copy of the proposed/draft regulation or document.

(d) The requirements of paragraphs 2.1(e)–2.1(h) shall not apply to plans submitted for parallel processing.

2.3.2. The exceptions granted in paragraph 2.3.1 shall apply only to EPA's determination of proposed action and all requirements of paragraph 2.1 shall be met prior to publication of EPA's final determination of plan approvability.

[FR Doc. 89–1001 Filed 1–18–89; 8:45 am]

BILLING CODE 6560-50-M

FEDERAL EMERGENCY MANAGEMENT AGENCY

Federal Insurance Administration

44 CFR Part 67

[Docket No. FEMA-6946]

Proposed Flood Elevation Determinations

AGENCY: Federal Emergency Management Agency.

ACTION: Proposed rule.

SUMMARY: Technical information or comments are solicited on the proposed base (100-year) flood elevations and proposed base flood elevation modifications listed below for selected locations in the nation. These base (100-year) flood elevations are the basis for the floodplain management measures that the community is required to either adopt or show evidence of being already in effect in order to qualify or remain qualified for participation in the

EPA-450/2-78-027R

Guideline On Air Quality Models (Revised)

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

July 1986

EPA-450/2-78-027R
SUPPLEMENT A
JULY 1987

SUPPLEMENT A

TO THE

GUIDELINE

ON

AIR QUALITY MODELS (REVISED)

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office Of Air And Radiation
Office Of Air Quality Planning And Standards
Research Triangle Park, North Carolina 27711

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

January 2, 1985

MEMORANDUM

SUBJECT: Regional Implementation of Modeling Guidance

FROM: Joseph A. Tikvart, Chief J. Tikvart
Source Receptor Analysis Branch, MDAD (MD-14)

TO: Regional Modeling Contact, Regions I-X

Attached for your use is information on the implementation of modeling guidance. Attachment 1 is an excerpt of a memorandum from J. Wilburn to D. Tyler (dated November 13, 1984) which identifies several issues. Attachment 2 provides our response to these issues.

It is our intent that the response merely reiterate the way in which we understand modeling guidance to be routinely implemented by all Regional Offices. However, having formalized that understanding, we believe that its circulation is desirable. If you have any questions, please call me.

Attachments

cc: Chief, Air Programs Branch, Regions, I-X
B. Turner
✓ D. Wilson

Attachment 1

(Excerpt of Memorandum from J. Wilburn to D. Tyler, Dated November 13, 1984)

As discussed in this memo, we are quite concerned as to our credibility regarding the development and approval of SIP revisions and bubbles which consider complicated and involved modeling. While our Armco experience may be viewed by some as atypical, we feel that the problem is real enough to the point that we request guidance on the following three questions:

1. When do changes in EPA modeling procedures become official Agency policy? Do such forms as informal modeling protocols and consensus opinions developed at meteorologist meetings and workshops constitute official Agency policy? If so, how is management at the regional division and branch level informed of those decisions (i.e., are such decisions communicated by policy memorandum or must regional management be dependent upon regional participants at such meetings and workshops to accurately convey OAQPS's policy decisions)?

2. How do changes in Agency modeling policy affect in progress modeling analyses? Do policy changes in modeling procedures invalidate modeling protocols which accurately reflected modeling policy at the initiation of ongoing modeling analyses? If so, we would appreciate copies of all policy memorandums which communicated such policies.

3. Will it be necessary in order for Armco's bubble application to be concurred with by OAQPS, for Region IV to require Armco to submit a fourth revision to their modeling procedures which would provide an analysis of the 46 days with more than 6 hours of calm which have thus far been deleted for the submittal pursuant to the original protocol? If so, we would like an explanation of the rationale for this requirement in light of our discussion in this memo.

Attachment 2

(Excerpt of Memorandum from R. Rhoads to J. Wilburn, Dated December 24, 1984)

Regarding your first question: Changes in EPA modeling procedures become official Agency guidance when (1) they are published as regulations or guidelines, (2) they are formally transmitted as guidance to Regional Office managers, (3) they are formally transmitted to Regional Modeling Contacts as the result of a Regional consensus on technical issues, or (4) they are a result of decisions by the Model Clearinghouse that effectively set a national precedent. In the last case, such issues and decisions are routinely forwarded to all of the Regional Modeling Contacts. In order for this system to work, the Regional Modeling Contacts must be actively involved in all Regional modeling issues and they must be consulted on modeling guidance as necessary by other Regional personnel.

Regarding your second question: The time at which changes in modeling guidance affect on-going modeling analyses is a function of the type of agreement under which those analyses are being conducted. On-going analyses should normally be "grandfathered" if (1) there is a written protocol with a legal or regulatory basis (such as the Lovett Power Plant) or (2) the analysis is complete and regulatory action is imminent or underway. If the analysis is based on a less formal agreement and is underway, the Regional Office should inform the source operators of the change and determine whether the change can be implemented without serious disruption to the analysis. If for some reason any previous analysis must be redone, then it should be redone in accordance with current modeling guidance. In any event, consequences of failing to implement current guidance should be discussed with the OAQPS staff (Helms/Tikvart) to ensure that inappropriate commitments are not made by the Regional Office.

Regarding your third question: As previously discussed with your staff, the recent Armco modeling analysis is technically inadequate and not approvable so long as the approximately 46 days with calms are ignored. At the time the original protocol was developed, the deletion of calms was common practice because we had no consensus on technically valid procedures for addressing calms. However, (largely due to the assistance of RO IV staff in developing a technical solution to the calms issue) this practice was discontinued by consensus of the Regional Modeling Contacts who recommended immediate implementation of the new procedures (see Joe Tikvart's June 13, 1983, memo to Regional Modeling Contacts). The subsequent Armco analysis which ignored calms was, therefore, deficient since there is no rationale for "grandfathering" an analysis which was initiated after the new calms guidance was disseminated. This issue is no longer an issue since Armco has already submitted a reanalysis that addresses the calms issue.

June 7, 1988

MEMORANDUM

SUBJECT Revised Model Clearinghouse Operational Plan

FROM: Joseph A. Tikvart, Chief J. Tikvart
Source Receptor Analysis Branch (MD-14)

TO: Chief, Air Branch, Region VII
Chief, Technical Support Branch, Region I
Chief, Air and Radiation Branch, Region V
Chief, Air Programs Branch, Regions II, III, IV, VI, VIII, IX, X

On February 9, 1988 I notified you of the expansion of the Model Clearinghouse to include all criteria pollutants. That memorandum explained briefly how the expanded Clearinghouse would operate and identified individuals in the Technical Support Division and in the Air Quality Management Division who would be involved in resolving Agency regulatory modeling issues. The memorandum also promised that we would be revising the 1981 Operational Plan for the Model Clearinghouse to reflect the current operation. Attached is a copy of that revised plan.

To highlight major functions of the operational plan which you should become most familiar with, please note the structure of the Clearinghouse contained in Section 3, particularly Figure 1. Also you should become familiar with the procedures for referring modeling issues to the Clearinghouse, described in Section 4. Appendix B identifies the contacts in the Regions for various types of modeling problems. Please check over these lists for accuracy and keep us informed of any changes of these personnel in your Region.

It should be remembered that the Model Clearinghouse is a service we provide to the Regional Offices. We do not normally deal directly with the State/local agencies or with industry since this would compromise our function as second level reviewers and would interfere with your function. However we have discussed access by States to Clearinghouse expertise through the Regional Offices. Where a State wishes such a contact, we urge your staff to work closely with their State counterparts to establish a mutally agreed-upon position on the issue.

Finally, for purposes of responding to questions from States and local agencies about the Clearinghouse and its operation, we have no problem if you wish to furnish them with a copy of this plan. For questions from the public we would prefer that you instead provide them with a copy of Appendix C, a separate copy of which is attached. This Appendix is a revised version of a flyer we have distributed for a number of years at the EPA booth at the annual APCA meeting.

EPA Model Clearinghouse
Summary

The Model Clearinghouse is the single EPA focal point for reviewing the use of modeling techniques for criteria pollutants in specific regulatory applications. The Clearinghouse also serves to compile and periodically report for Regional Office benefit Agency decisions concerning deviations from the requirements of the "Guideline on Air Quality Models (Revised)."

Need for the Model Clearinghouse

The Guideline states that when a recommended model or data base is not used, the Regional Administrator may approve the use of other techniques that are demonstrated to be more appropriate. However, there is also a need to provide for a mechanism that promotes fairness and consistency in modeling decisions among the various Regional Offices and the States. The Model Clearinghouse promotes this fairness and uniformity and also serves as a focal point for technical review of "nonguideline" techniques proposed for use/approval by a Regional Administrator.

Functions of the Model Clearinghouse

The major function of the Clearinghouse is to review specific proposed actions which involve interpretation of modeling guidance, deviations from strict interpretation of such guidance and the use of options in the guidance, e.g., Regional Office acceptance of nonguideline models and data bases. This is handled in two ways: (1) the Clearinghouse, on request from the Regional Office, will review the Region's position on proposed (specific case) use of a nonguideline model for technical soundness and national consistency, and (2) the Clearinghouse will screen Federal Register regulatory packages for adherence to modeling policy and make recommendations for resolution of any issues identified.

A secondary function of the Model Clearinghouse is to communicate to regulatory model users in EPA significant decisions involving the interpretation of modeling guidance. This is accomplished through an annual "Clearinghouse Report" which itemizes the significant decisions that have been made and the circumstances involved. This report serves to improve consistency in future decisions and as a source of technical information for the Regional Offices. In addition to the annual report the Clearinghouse informs users on a contemporary basis of significant decisions through copies of written decisions and briefings at various meetings and workshops.

Structure of the Clearinghouse

The Clearinghouse is formally located in the Source Receptor Analysis Branch (SRAB) of OAQPS. However, the Air Quality Management Division (AQMD) also participates in Clearinghouse matters involving SIP attainment strategies and other regulatory functions.

The primary responsibility for managing the Clearinghouse and ensuring that all of its functions are carried out is performed by a person full-time within SRAB. The responsibility for responding to requests for review of modeling issues is assigned, on a pollutant/program basis to three SRAB individuals. In addition, AQMD supports the Clearinghouse with staff who are also knowledgeable in modeling policy. These individuals are responsible for screening SIP submittals and related documents, referring modeling issues to SRAB through the Clearinghouse and documenting the final (and any significant interim) decision on disposition of the issues.

Communication Chain

The Model Clearinghouse functions within the organizational structure of EPA. As such the Clearinghouse serves the EPA Regional Offices. It coordinates with and communicates decisions to the Regional Offices. Any coordination with State and local agencies and individual sources on Clearinghouse activities is a function of the EPA Regional Offices.

REFERENCES FOR SECTION 4.3

EPA-450/2-78-027R

Guideline On Air Quality Models (Revised)

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

July 1986

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

February 15, 1989

MEMORANDUM

SUBJECT: Modeling Requirements for Pennsylvania Power and Light (PP&L), Martins Creek, Pennsylvania

FROM: Robert D. Bauman, Chief
SO_2/Particulate Matter Programs Branch (MD-15)

TO: Joseph Tikvart, Chief
Source Receptor Analysis Branch (MD-14)

This is in response to a memorandum dated January 4, 1989 from Al Cimorelli, Region 3, to Dean Wilson of your branch. Since this appears to be more of a policy than a technical issue, my branch agreed to prepare a response.

Region 3 is asking if EPA policy would allow PP&L's modeling analysis to address only the designated nonattainment area in Warren County, New Jersey. If so, it might be possible to reclassify the Warren County area to attainment without an evaluation of PP&L's impact outside the Warren County nonattainment area. Additionally, the Region has asked if a redesignation for Warren County could proceed independent of any revision to the Pennsylvania SIP, in the event the modeling analysis shows Warren County to be attainment but shows a modeled violation in Pennsylvania.

The Guideline on Air Quality Models (Revised) (Guideline) on page 1-3 states that the current guidance should be followed in all air quality analyses relative to State implementation plans and in analyses required by EPA, State and local agency air programs. This policy is consistent with stack height implementation policy and general guidance found in a January 2, 1985 memorandum from SRAB to the regional modeling contacts. Guidance contained in the Guideline recommends on page 9-8 that "all sources expected to cause a significant concentration gradient in the vicinity of the source or sources under consideration for emission limit(s) should be explicitly modeled." On page 8-4, the Guideline states that "Receptor sites for refined modeling should be utilized in sufficient detail to estimate the highest concentrations and possible violations of a NAAQS or a PSD increment."

I believe that application of guidance noted above does not allow a partial modeling analysis. If a modeling analysis is required for any reason, that analysis must meet the requirements of the Guideline.

Redesignation policy is generally contained in the April 21, 1983 memorandum from Sheldon Meyers to the Regional Air Directors. That policy includes requirements for a modeling analysis demonstrating attainment and evidence of implementation of the approved SIP. As noted by Region 3, PP&L's analysis may show violations at locations outside of the designated nonattainment area, while demonstrating an absence of violations within the nonattainment area. In such an event, the existing SIP may be judged adequate to demonstrate attainment in Warren County and an action to redesignate the area to attainment could proceed before the State completes the necessary effort to resolve the violations outside the nonattainment area. While separate rulemaking actions are possible, it may be more efficient to consolidate the redesignation and SIP revision actions whenever possible.

I trust that this memorandum is responsive to Region 3's concerns. If you need any additional information, please call me.

cc: A. Cimorelli, Region 3
B. Ginsburg, OAQPS/AQMD
D. Grano, OAQPS/AQMD
S. Sambol, Region 2
D. Wilson, OAQPS/TSD

REFERENCES FOR SECTION 4.7

EPA-450/2-78-027R

Guideline On Air Quality Models
(Revised)

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

July 1986

REFERENCES FOR SECTION 5.1

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 51

[AD-FRL-2847-6]

Stack Height Regulation

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rulemaking.

SUMMARY: Section 123 of the Clean Air Act, as amended, requires EPA to promulgate regulations to ensure that the degree of emission limitation required for the control of any air pollutant under an applicable State implementation plan (SIP) is not affected by that portion of any stack height which exceeds good engineering practice (GEP) or by any other dispersion technique. A regulation implementing section 123 was promulgated on February 8, 1982, at 47 FR 5864. Revisions to the regulation were proposed on November 9, 1984, at 49 FR 44878. Today's action incorporates changes to the proposal and adopts this regulation in final form.

EFFECTIVE DATE: This regulation becomes effective on August 7, 1985.

FOR FURTHER INFORMATION CONTACT: Eric O. Ginsburg, MD-15, Office of Air Quality Planning and Standards, EPA, Research Triangle Park, North Carolina 27711. Telephone (919) 541-5540.

SUPPLEMENTARY INFORMATION:

Docket Statement

Pertinent information concerning this regulation is included in Docket Number A-83-49. The docket is open for public inspection between the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday, at the EPA Central Docket Section, West Tower Lobby, Gallery One, 401 M Street, SW., Washington, D.C. Background documents normally available to the public, such as Federal Register notices and Congressional reports, are not included in the docket. A reasonable fee may be charged for copying documents.

Background

Statute

Section 123, which was added to the Clean Air Act by the 1977 Amendments, regulates the manner in which techniques for disperson of pollutants from a source may be considered in setting emission limitations. Specifically, section 123 requires that the degree of emission limitation shall not be affected by that portion of a stack which exceeds GEP or by "any other dispersion technique." It defines GEP, with respect to stack heights as:

> the height necessary to insure that emissions from the stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of atmospheric downwash, eddies or wakes which may be created by the source itself, nearby structures or nearby terrain obstacles . . . [Section 123(c)].

Section 123 further provides that GEP stack height shall not exceed two and one-half times the height of the source (2.5H) unless a demonstration is performed showing that a higher stack is needed to avoid "excessive concentrations." As the legislative history of section 123 makes clear, this reference to a two and one-half times test reflects the established practice of using a formula for determining the GEP stack height needed to avoid excessive downwash. Finally, section 123 provides that the Administrator shall regulate only stack height credits—that is, the portion of the stack height used in calculating an emission limitation—rather than actual stack heights.

With respect to "other dispersion techniques" for which emission limitation credit is restricted, the statute is less specific. It states only that the term shall include intermittent and supplemental control systems (ICS, SCS), but otherwise leaves the definition of that term to the discretion of the Administrator.

Thus the statute delegates to the Administrator the responsibility for defining key phrases, including "excessive concentrations" and "nearby," with respect to both structures and terrain obstacles, and "other dispersion techniques." The Administrator must also define the requirements of an adequate demonstration justifying stack height credits in excess of the 2.5H formula.

Rulemaking and Litigation

On February 8, 1982 (47 FR 5864), EPA promulgated final regulations limiting stack height credits and other dispersion techniques. Information concerning the development of the regulation was included in Docket Number A-79-01 and is available for inspection at the EPA Central Docket Section. This regulation was challenged in the U.S. Court of Appeals for the D.C. Circuit by the Sierra Club Legal Defense Fund, Inc.; the Natural Resources Defense Council, Inc.; and the Commonwealth of Pennsylvania in *Sierra Club* v. *EPA*, 719 F. 2d 436. On October 11, 1983, the court issued its decision ordering EPA to reconsider portions of the stack height regulation, reversing certain portions and upholding other portions. Further discussion of the court decision is provided later in this notice.

Administrative Proceedings Subsequent to the Court Decision

On December 19, 1983, EPA held a public meeting to take comments to assist the Agency in implementing the mandate of the court. This meeting was announced in the Federal Register on December 8, 1983, at 48 FR 54999. Comments received by EPA are included in Docket Number A-83-49. On February 28, 1984, the electric power industry filed a petition for a writ of certiorari with the U.S. Supreme Court. While the petition was pending before the court, the mandate from the U.S. Court of Appeals was stayed. On July 2, 1984, the Supreme Court denied the petition (104 S.Ct. 3571), and on July 18, 1984, the Court of Appeals' mandate was formally issued, implementing the court's decision and requiring EPA to promulgate revisions to the stack height regulations within 6 months. The promulgation deadline was ultimately extended to June 27, 1985, in order to provide additional opportunities for public comment, to allow EPA to hold a public hearing on January 8, 1985, and to provide additional time for EPA to complete its analysis of rulemaking alternatives.

Documents

In conjunction with the 1982 regulation and this revision, EPA developed several technical and guidance documents. These served as background information for the regulation, and are included in Dockets A-79-01 and A-83-49. The following documents have been or will be placed in the National Technical Information Service (NTIS) system and may be obtained by contacting NTIS at 5285 Port Royal Road, Springfield, Virginia 22161.

(1) "Guideline for Use of Fluid Modeling to Determine Good Engineering Stack Height," July 1981. EPA, Office of Air Quality Planning and Standards. EPA-450/4-81-003 (NTIS PB82 145327).

(2) "Guideline for Fluid Modeling of Atmospheric Diffusion," April 1981. EPA, Environmental Sciences Research Laboratory. EPA-600/8-81-009 (NTIS PB81 201410).

(3) "Guidance for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulation)," June 1985. EPA, Office of Air Quality Planning and Standards. EPA-450/4-80-023R.

(4) "Determination of Good Engineering Practice Stack Height—A

Fluid Model Demonstration Study for a Power Plant." April 1983. EPA. Environmental Sciences Research Laboratory. EPA-600/3-83-024 (NTIS PB83 207407).

(5) "Fluid Modeling Demonstration of Good-Engineering-Practice Stack Height in Complex Terrain." April 1985. EPA Atmospheric Sciences Research Laboratory. EPA/600/3-85/022 (NTIS PB85 203107).

In addition, the following documents are available in Docket A-83-49.

"Economic Impact Assessment for Revisions to the EPA Stack Height Regulation." June 1985.

"Effect of Terrain-Induced Downwash on Determination of Good-Engineering-Practice Stack Height." July 1984.

Program Overview

General

The problem of air pollution can be approached in either of two ways: through reliance on a technology-based program that mandates specific control requirements (either control equipment or control efficiencies) irrespective of ambient pollutant concentrations, or through an air quality based system that relies on ambient air quality levels to determine the allowable rates of emissions. The Clean Air Act incorporates both approaches, but the SIP program under section 110 uses an air quality-based approach to establish emission limitations for sources. Implicitly, this approach acknowledges and is based on the normal dispersion of pollutants from their points of origin into the atmosphere prior to measurements of ambient concentrations at ground level.

There are two general methods for preventing violations of the national ambient air quality standards (NAAQS) and prevention of significant deterioration (PSD) increments. Continuous emission controls reduce on a continuous basis the quantity, rate, or concentrations of pollutants released into the atmosphere from a source. In contrast, dispersion techniques rely on the dispersive effects of the atmosphere to carry pollutant emissions away from the source in order to prevent high concentrations of pollutants near the source. Section 123 of the Clean Air Act limits the use of dispersion techniques by pollution sources to meet the NAAQS or PSD increments.

Tall stacks, manipulation of exhaust gas parameters, and varying the rate of emissions based on atmospheric conditions (ICS and SCS) are the basic types of dispersion techniques. Tall stacks enhance dispersion by releasing pollutants into the air at elevations high above ground level, thereby providing greater mixing of pollutants into the atmosphere. The result is to dilute the pollutant levels and reduce the concentrations of the pollutant at ground level, without reducing the total amount of pollution released. Manipulation of exhaust gas parameters increases the plume rise from the source to achieve similar results. ICS and SCS vary a source's rate of emissions to take advantage of meteorologic conditions. When conditions favor rapid dispersion, the source emits pollutants at higher rates, and when conditions are adverse, emission rates are reduced. Use of dispersion techniques in lieu of constant emission controls results in additional atmospheric loadings of pollutants and can increase the possibility that pollution will travel long distances before reaching the ground.

Although overreliance on dispersion techniques may produce adverse effects, some use of the dispersive properties of the atmosphere has long been an important factor in air pollution control. For example, some stack height is needed to prevent excessive pollutant concentrations near a source. When wind meets an obstacle such as a hill or a building, a turbulent region of downwash, wakes, and eddies is created downwind of the obstacle as the wind passes over and around it. This can force a plume rapidly to the ground, resulting in excessive concentrations of pollutants near the source. As discussed previously, section 123 recognizes these phenomena and responds by allowing calculation of emission limitations with explicit consideration of that portion of a source's stack that is needed to ensure that excessive concentrations due to downwash will not be created near the source. This height is called GEP stack height.

Summary of the Court Decision

Petitions for review of EPA's 1982 regulation were filed in the D.C. Circuit within the statutory time period following promulgation of the regulation. On October 11, 1983, the court issued its decision ordering EPA to reconsider portions of the stack height regulation, reversing certain portions and upholding others. The following is a summary of the court decision.

The EPA's 1982 rule provided three ways to determine GEP stack height. One way was to calculate the height by using a formula based on the dimensions of nearby structures. The other two were a *de minimis* height of 65 meters, and the height determined by a fluid modeling demonstration or field study. The court endorsed the formula as a starting point to determine GEP height. However, it held that EPA has not demonstrated that the formula was an accurate predictor of the stack heigh needed to avoid "excessive concentrations of pollutants due to downwash. Accordingly, the court directed EPA to re-examine in three ways the conditions under which exceptions to the general rule of formula reliance could be justified.

First, the 1982 rule allowed a source to justify raising its stack above formula height by showing a 40-percent increase in concentrations due to downwash, wakes, or eddies, on the ground that this was the percentage increase that the formula avoided. The court found this justification insufficient, and remanded the definition to EPA with instructions to make it directly responsive to health and welfare considerations.

Similarly, the 1982 rule allowed a source that built a stack to less than formula height to raise it to formula height automatically. Once again, the court required more justification that such a step was needed to avoid adverse health or welfare effects.

Finally, the court directed EPA either to allow the authorities administering the stack height regulations to require modeling by sources in other cases as a check on possible error in the formula, or explain why the accuracy of the formula made such a step unnecessary.

The 1982 rule provided two formulae to calculate GEP stack height. For sources constructed on or before January 12, 1979, the date of initial proposal of the stack height regulations, the applicable formula was 2.5 times the height of the source or other nearby structure. For sources constructed after that date, the rule specified a newer, refined formula, the height of the source or other nearby structure plus 1.5 times the height or width of that structure, whichever is less (H+1.5L). The EPA based its decision to include two formulae on the unfairness of applying the new formula retroactively. In its examination of this issue, the court specified four factors that influence whether an agency has a duty to apply a rule retroactively. They are:

1. Whether the new rule represents an abrupt departure from well established practice or merely attempts to fill a void in an unsettled area of law.

2. The extent to which the party against whom the new rule is applied relied on the former rule.

3. The degree of burden which a retroactive order imposes on a party, and

4. The statutory interest in applying a new rule despite the reliance of a party on the old standard.

719 F.2d at 467 (citations omitted). Applying this analysis to the two formulae, the court upheld EPA's basic decision.

However, the court also held that sources constructed on or before January 12, 1979, should not be automatically entitled to full credit calculated under the 2.5H formula unless they could demonstrate reliance on that formula. The court remanded this provision for revision to take actual reliance on the 2.5H formula into account.

The statute limits stack height credit to that needed to avoid excessive concentrations due to downwash caused by "nearby" structures or terrain features. The 1982 regulation defined "nearby" for GEP formula applications as five times the lesser of either the height or projected width of the structure causing downwash, not to exceed one-half mile. No such distance limitation was placed on structures or terrain features whose effects were being considered in fluid modeling demonstrations or field studies. The court held that section 123 explicitly applies the "nearby" limitation to demonstrations and studies as well as formula applications, and remanded the rule to EPA to apply the limitation in both contexts.

The 1982 rule defined "dispersion techniques" as those techniques which attempt to affect pollutant concentrations by using that portion of a stack exceeding GEP, by varying emission rates according to atmospheric conditions or pollutant concentrations, or by the addition of a fan or reheater to obtain a less stringent emission limitation. The court found this definition too narrow because any technique "significantly motivated by an intent to gain emissions credit for greater dispersion" should be barred. 719 F.2d 462. As a result, the court directed EPA to develop rules disallowing credit for all such dispersion techniques unless the Agency adequately justified exceptions on the basis of administrative necessity or a *de minimis* result.

The GEP formulae established in the 1982 rule do not consider plume rise, on the ground that plume rise is not significant under downwash conditions. In its review of this provision, the court affirmed this judgment by EPA.

The 1982 rule addressed pollutant concentrations estimated to occur when a plume impacts elevated terrain by allowing credit for stack height necessary to avoid air quality violations in such cases. However, the court ruled that section 123 did not allow EPA to grant credit for plume impaction in setting emission limits, and reversed this part of the regulation.

The preamble to the 1982 regulation provided a 22 month process for State implementation of the regulation. The court found this period to be contrary to section 406(d)(2) of the Clean Air Act and reversed it.

The regulation, following the statute, excluded stacks "in existence" on or before December 31, 1970, from the GEP requirements. However, the regulation did not prohibit sources constructed after December 31, 1970, from receiving credit for tying into pre-1971 stacks. Although the court upheld EPA's definition of "in existence," it noted that EPA had failed to address the tie-in issue. Accordingly, the court remanded this issue to EPA for justification.

One other provision of the regulation was challenged in the *Sierra Club* suit: The exclusion of flares from the definition of "stack." In its review of this provision, the court held that EPA had acted properly.

Other provisions of the stack height regulation, such as the *de minimis* stack height established under § 51.1(ii)(1), were not challenged in the suit and thus remain in effect.

Summary of the November 9, 1984, Notice of Proposed Rulemaking

In the November 9, 1984, notice responding to the court decision, EPA proposed to redefine a number of specific terms, including "excessive concentrations," "dispersion techniques," "nearby," and other important concepts, and proposed to modify some of the bases for determining GEP stack height. The following is a summary of the revisions that were proposed.

Excessive Concentrations

The Court of Appeals held that EPA erred in defining "excessive concentrations" due to downwash, for purposes of justifying a stack greater than formula height, as nothing more than a 40-percent increase in pollutant concentrations over what would occur in the absence of downwash. It remanded this issue to EPA to relate the definition to some absolute level of air pollution that could be interpreted to endanger health and welfare, and thus to be "excessive."

The EPA proposed two alternative approaches to defining "excessive concentrations." First, EPA requested comment on whether the 40-percent approach adopted as part of the 1982 regulation in fact protects against the dangers to health and welfare envisioned by Congress when it enacted section 123. In the event that such a showing could not be made, EPA proposed a two-part definition of excessive concentrations, requiring that the downwash, wakes, or eddies induced by nearby structures or terrain features result in increases in ground-level pollutant concentrations that:

(a) Cause or contribute to an exceedance of a NAAQS or applicable PSD increment, and

(b) Are at least 40 percent in excess of concentrations projected to occur in the absence of such structures or terrain features.

Definition of GEP Stack Height

EPA proposed to find that the traditional (2.5H) and refined (H+1.5L) formulae remained proper methods for calculating GEP stack height except EPA proposed to revise its regulation to allow EPA, the State or local air pollution control agency discretion to require a further demonstration using a field study or fluid model to demonstrate GEP stack height for a source in a case where it was believed that the formula may not reliably predict GEP height. In the case of structures that are porous or aerodynamically smoother than block-shaped structures, it would require a source to demonstrate the downwash effects of such structures using a field study or fluid model before receiving credit for stack height based on the structures. EPA also proposed generally to allow sources to raise existing stacks up to formula GEP height without further demonstrations with the exception noted above for discretionary modeling.

Reliance on the 2.5H Formula

In its 1982 rules, EPA allowed sources built before January 12, 1979, the date on which it proposed the refined H+1.5L formulae, to calculate their emission limits based on the traditional 2.5H formula that existed previously. The court approved this distinction, but ruled that it should be limited to sources that "relied" on the traditional formula, suggesting, for example, that sources that had claimed credit for stacks far taller than the formula provided could not be said to have "relied" on it.

In response to the court decision, EPA proposed to revise its regulation to require that for stacks in existence on January 12, 1979, sources demonstrate that they actually relied on the 2.5H formula in the design of their stacks before receiving credit for that height in setting their emission limitations. In the proposal, EPA requested comment on what it should consider as acceptable evidence of such reliance.

Definition of "Nearby"

In its 1982 rules, EPA allowed sources that modeled the effects of terrain obstacles on downwash to include any terrain features in their model without limiting their distance from the stack. The court, though persuaded that this was a sensible approach, since it allowed the model to best approximate reality, ruled that Congress had intended a different result, namely that terrain features beyond ½ mile from the stack should not be included in the model.

In response, EPA proposed to revise § 51.1(ii)(3) of its regulation to limit the consideration of downwash, wakes, and eddy effects of structures and terrain features to those features classified as being "nearby" as defined in § 51.1(jj). Under this proposal, structures and terrain features would be considered to be "nearby" if they occur within a distance of not more than 0.8 km (½ mile); terrain features that extend beyond 0.8 km could be considered if, at a distance of 0.8 km, they achieved a height greater than or equal to 40-percent of the GEP stack height calculated by applying the GEP formula to actual nearby structures. In other words, a terrain feature would be said to "begin" within ½ mile if it reached at least the height of nearby buildings within that distance. Such features could be considered only out to a distance equal to 10 times the maximum height of the feature, not to exceed 2 miles.

The EPA proposed two options for distinguishing between sources constructed before and after the date of promulgation of these revisions. The first option would treat both categories of sources the same. The second option would limit the consideration of terrain for new sources to only those portions of terrain features that fall *entirely* within 0.8 km, thereby removing the possibility of including features extending beyond ½ mile.

Finally, EPA proposed three alternatives for conducting fluid modeling to evaluate the downwash effects or nearby terrain features. These alternatives described various ways of limiting terrain in the model beyond the proposed distance limitations.

To establish a baseline for comparison, two alternatives would initially model the stack on a flat plane with no structure or terrain influences. To analyze downwash effects, the first approach would then insert nearby terrain, with all terrain beyond the distance limit "cut off" horizontally. The second approach would gradually smooth and slope the terrain beyond the distance limit, down to the elevation of the base of the stack.

The third approach would proceed in a somewhat different manner. A baseline would be established by modeling all terrain beyond the distance limit, smoothing and sloping nearby terrain to minimize its influence. To analyze downwash effects, the nearby terrain would then be inserted into the model and the difference in effect measured to determine appropriate downwash credit for stack height.

Definition of "Dispersion Techniques"

In the 1982 rules, EPA identified two practices, in addition to stacks above GEP and ICS/SCS, as having no purpose other than to obtain a less stringent emission limitation. In so doing, it allowed credit for any other practice that had the result of increasing dispersion. The court concluded that Congress had intended, at a minimum, to forbid any dispersion enhancement practice that was significantly motivated by an intent to obtain additional credit for greater dispersion, and remanded the question to EPA for reexamination.

The EPA proposed to revise its definition of "dispersion techniques" generally to include, in addition to ICS, SCS, and stack heights in excess of GEP, any techniques that have the effect of enhancing exhaust gas plume rise. Combining several existing stacks into one new stack can have such an effect. However, such combinations also often have independent economic and engineering justification. Accordingly, EPA requested comment on defining the circumstances under which the combining of gas streams should not be considered a dispersion technique, and proposed to allow sources to take credit in emission limitations for such merging where a facility was originally designed and constructed with merged gas streams or where the merging occurs with the installation of additional controls yielding a net reduction in total emissions of the affected pollutant. The EPA retained exclusions from its definition of prohibited dispersion techniques for smoke management in agricultural and silvicultural prescribed burning programs and also proposed to exclude episodic restrictions on residential woodburning and debris burning.

New Sources Tied into Pre-1971 Stacks

Section 123 exempts stacks "in existence" at the end of 1970 from its requirements. EPA's general approach to implementing this language was upheld by the court. However, in its 1982 rule EPA had also allowed this credit to sources built after that date that had tied into stacks built before that date. EPA failed to respond to comments objecting to this allowance, and so the court remanded the question to EPA for the agency to address.

Upon reexamination, EPA saw no convincing justification for granting credit to these sources. Consequently, for sources constructed after December 31, 1970, with emissions ducted into grandfathered stacks of greater than GEP height and for sources constructed before that date but for which major modifications or reconstruction have been carried out subsequently, EPA proposed to limit stack height credit to only so much of the actual stack height as conforms to GEP. Sources constructed prior to December 31, 1970, for which modifications are carried out that are not classified as "major" under 40 CFR 51.18(j)(i), 51.24(b)(2)(i), and 51.21(b)(2)(i) would be allowed to retain full credit for their existing stack heights.

Plume Impaction

In its 1982 rules, EPA allowed stack height credit for "plume impaction," a phenomenon that is distinct from downwash, wakes and eddies. The court, though sympathetic to EPA's policy position, reversed this judgment as beyond the scope of the statute. Accordingly, EPA proposed to delete the allowance of plume impaction credit from its regulation in compliance with the court decision. However, EPA also recognized that sources in complex terrain face additional analytical difficulties when attempting to conduct modeling to determine appropriate emission limitations. Consequently, EPA requested comment on whether any allowance should be made for implementation problems that may result from the application of revised GEP stack height assumptions and, if so, how such allowance should be made.

State Implementation Plan Requirements

EPA's 1982 rules gave states a total of 22 months to revise their rules and to establish source emission limitations based on new stack height credits. The court found this, too, to go beyond the language of the statute. In response, EPA stated in the proposal that States would be required, pursuant to section 406(d)(2)(b) of the Clean Air Act, to review their rules and existing emission limitations, revising them as needed to comply with the new regulation within 9 months of the date of its promulgation.

Response to Public Comments on the November 9, 1984, Proposal

The EPA received over 400 comments during the public comment period and at the public hearing, addressing a number of aspects of the proposed regulation.These comments have been consolidated according to the issues raised and are discussed, along with EPA's responses, in a "Response to Comments" document included in the rulemaking docket. Certain comments can be characterized as "major" in that they address issues that are fundamental to the development of the final regulation. These comments are summarized below, along with EPA's responses. Additional discussion of the issues raised and further responses by EPA can be found in the "Response to Comments" document.

I. Maximum Control of Emissions in Lieu of Dispersion

A central legal and policy question addressed in this rulemaking was raised in the comments of the Natural Resources Defense Council (NRDC) and the Sierra Club. They contend that section 123 requires all sources to install the maximum feasible control technology before receiving any credit for the dispersive effects of a stack of any height, or for other practices that may enhance pollutant dispersion.

The NRDC argument is summarized fully in the Response to Comments document together with EPA's response. Very briefly, NRDC contends that litigation prior to the 1977 Clean Air Act Amendments had established that dispersion can never be used as an alternative to emission control, and that this understanding was carried forward and strengthened in the 1977 Clean Air Act Amendments. Accordingly, no rule that does not require full control of emissions as a prerequisite to any stack height credit would be consistent with Congressional intent.

EPA disagrees. During the 6 years between 1977 and NRDC's comments, a period covering two Administrations and three Administrators, NRDC's position has never been either adopted by EPA or seriously advocated before it. The pre-1977 cases cited by NRDC do not bar all stack credit, but only credit for stacks beyond the historical norm. Finally, the text and legislative history of section 123 contain essentially no support for NRDC's "control first" position.

II. Discussion of Other Major Issues

The EPA's position on the "control first" comments provides the necessary background against which the remaining major issues in this rulemaking are discussed. These issues are: the definition of "excessive concentrations" due to downwash, wakes, and eddies; the definition of "nearby;" and the definition of "dispersion technique." A question that affects several of these decisions, and that is addressed where it arises, concerns the extent to which any changes made in the stack heights regulations should be applied prospectively rather than retroactively.

This discussion of "excessive concentrations" is in turn divided into a discussion of the physical characteristics of downwash, followed by a discussion of the significance of those characteristics as they pertain to the GEP formulae, to stacks above formula height, to stacks being raised to formula height, and to stacks at formula height being modeled at the choice of the administering authorities.

Definition of "Excessive Concentrations"

The Physical Nature of Downwash. A number of commenters, including the Utility Air Regulatory Group (UARG), have argued that the court decision does not obligate EPA to revise the definition adopted in the 1982 regulation, but only directs EPA to ensure that the 40-percent criterion protects against concentrations due to downwash that could be related to health and welfare concerns. They point out that when emissions from a source become trapped in the wake region produced by the source itself or upwind structures and terrain features, those emissions are brought rapidly to earth, with little dilution. This, the commenters argue, can produce short-term peak concentrations at groundlevel that are many times greater that the concentration levels of the NAAQS. Because their duration is relatively short, averaging these concentrations over the times specified by the NAAQS does not result in NAAQS violations. Nonetheless, the commenters argue that these concentrations should be regarded as nuisances that section 123 was specifically enacted to avoid. Accordingly, the commenters held that EPA would be justified in retaining the 40-percent criterion without requiring that such increases result in exceedances of the NAAQS.

These same commenters argued that severe hardships would result if EPA's second proposed definition of "excessive concentrations" is adopted, and that, by limiting stack height credit to that just necessary to avoid exceedance of NAAQS or PSD increments, the definition would act to limit actual stack design and construction in a way that would increase the likelihood of NAAQS or PSD exceedances. This would occur, they argue, because, by building only so tall a stack as they can receive credit for, sources would be eliminating a "margin of safety" that would normally be provided otherwise. Furthermore, it was argued that, due to the changing nature of background air quality, inclusion of absolute concentrations such as the NAAQS or PSD increments in the definition would render determinations of GEP stack height constantly subject to change.

NRDC argued on the other hand that only a violation of air quality standards can be considered the type of "excessive concentration" for which downwash credit can be justified, the EPA had failed to specify the health or welfare significance of the short-term peaks that it might consider as meeting this description, and that in any event UARG's attempt to show that short stacks could cause a large number of short-term peaks was technically flawed in several different ways.

Response. Extensive discussion of the downwash phenomenon, as well as the aerodynamic effects of buildings and terrain features on windflow patterns and turbulence, is contained in the technical and guidance documents previously listed in this notice. To summarize briefly, numerous studies have shown that the region of turbulence created by obstacles to windflow extends to a height of approximately 2.5 times the height of the obstacle. Pollutants emitted into this region can be rapidly brought to the ground, with limited dilution. Though this tendency decreases the higher vertically within the downwash region that the plume is released, because of the highly unpredictable nature of downwash and the lack of extensive quantitative data, it is extremely difficult to reliably predict plume behavior within the downwash region. As noted in the comments submitted, the distinguishing features of downwash do not show up well over an averaging time as long as 1 hour or more. Pollutant concentrations resulting from downwash can arise and subside very quickly as meteorological conditions, including wind speed and atmospheric stability vary. This can result in short-term peaks, lasting up to 2 minutes or so, recurring intermittently for up to several hours, that significantly exceed the concentrations of the 3- and 24-hour NAAQS. Little quantitative information is available on the actual levels of these peaks, or on the frequency of their occurrence since most stacks have been

designed to avoid downwash and because downwash monitoring is not typically conducted.

A number of modeling and monitoring studies in the record assess the significance of downwash when plumes are released into the downwash region. The most important of these are a number of studies cited in the November 9 proposal showing that for sources with sulfur dioxide (SO_2) emission rates of 4 to 5 pounds per million British Thermal Units (lb./mmBTU), stacks releasing the plume into the downwash region can significantly exceed the 3-hour NAAQS.

The utility industry submitted monitoring results from four sites showing that facilities with short stacks (ranging from 23 to 88 percent of formula height) generated many short-term peaks in the vicinity of the plant at concentrations at least 2 times the highest concentration of the 3-hour SO_2 standard, i.e., 1 ppm for up to 10 minutes. Those concentrations are the maximun that could be recorded by the monitors used. There is no way to determine from these data the true peak ground-level concentrations.

The NRDC, in commenting on this subject, has argued that downwash-related concentrations are largely theoretical, since stacks have generally been built to avoid downwash, and that actual concentrations occur under other meteorological conditions such as "inversion breakup fumigations" and "looping plume," that can equal these "theoretical" concentrations predicted under downwash.[1] The NRDC also criticized the utility data on numerous technical grounds.

EPA's studies indicate that, when stacks are significantly less than GEP formula height, high short-term concentrations can indeed occur due to downwash that are in the range of the values reported by the utility industry. Concentrations produced by the other conditions cited by NRDC, though high, may be lower by an order of magnitude, and occur less frequently by as much as two orders of magnitude, than those produced by downwash.[2] As stack height approaches the height determined by the GEP formula, the expected frequency and severity of short-term peaks due to downwash becomes less certain. This is to be expected, since it is the purpose of a formula height stack to avoid excessive downwash. While it might theoretically be possible for EPA to revise the GEP formula downward (e.g., from H+1.5L to H+1.2L, or some other value), such a revision would have little purpose. By moving the release point further into the downwash region, such a change would increase the probability of high downwash-caused peaks. On the other hand, such relatively small changes in stack height are not likely to appreciably affect the emission limitation for the source. This is because emission limitations are calculated based on physical stack height and associated plume rise under atmospheric conditions judged most controling for the source. Increasing or decreasing stack height by a small fraction will not greatly change the rate or extent of dispersion and thus will not affect the ground-level concentration. Moreover, as EPA noted in its November 9 proposal, no data presently exist on which to base a revision to the formula.

The NRDC submitted data to EPA which it believed to support the conclusions that it urged EPA to adopt concerning short-term peak concentrations under other meterological conditions.[3] However, these data were not presented in a form that could be readily interpreted, and EPA has thus far been unable to draw any conclusions from them.[4]

In reviewing NRDC's comments on building downwash, EPA agrees that there is great uncertainty about our present understanding of this phenomenon, and this is supported by the range and variation of downwash effects observed in recent studies. However, no information has been presented which would convince EPA to abandon the present GEP formulae in favor of any alternative.

The health and welfare significance of downwash concentrations that result in violations of the ambient standards are documented and acknowledged in the standards themselves. The significance of short-term peaks at the levels that EPA's analyses predict is more judgmental. However, a number of studies cited in EPA's "Review of the National Ambient Air Quality Standards for Sulfur Oxides: Assessment of Scientific and Technical Informa[tion]" (EPA-450/5-82-007, November 19[82]) indicate that concentrations of one p[pm] sustained for durations of 5 minutes [or] more can produce bronchoconstrictio[n] in asthmatics accompanied by symptoms such as wheezing and coughing. Such concentrations are we[ll] within the range of concentrations tha[t] can result from downwash. When sources meet the ambient standards, [the] frequency of occurrence for these concentrations under the other conditions cited by NRDC is substantially lower than for downwas[h] when stacks are less than GEP.

GEP Formula Stack Height. Some commenters, including NRDC, stated that EPA cannot justify retention of th[e] traditional (2.5H) and refined (H+1.5L) GEP formulae based simply on their relationship to the 40-percent criterion, and argued that the formulae provide too much credit in many or most cases. This, they argue, results in allowing sources to obtain unjustifiably lenient emission limitations.

Other commenters argued that Congress explicitly reaffirmed the traditional GEP formula, and that EPA should allow maximum reliance on it (and, by implication, on the refined formula that was subsequently der[ived] from it).

Response. The use of EPA's refined formula as a starting point for determining GEP was not called into question by any litigant in the *Sierra Club* case. The court's opinion likewise does not question the use of the formula as a starting point. A detailed discussio[n] of the court's treatment of the formula, showing how it endorsed the formula's presumptive validity, is contained in the Response to Comments document.

Despite this limited endorsement, EPA might need to revisit the formula on its own if its reexamination of the "excessive concentration" and modeling issues indicated that the formula clearly and typically misstated the degree of stack height needed to avoid downwash concentrations that cause health or welfare concerns.

However, no such result has emerged from our reexamination. Stacks below formula height are associated with downwash-related violations of the air quality standards themselves where emission rates significantly exceed the levels specified by NSPS. Even where emissions are low, downwash conditions at stacks below formula height can be expected, unlike other conditions, to generate numerous sho[rt]-term peaks of air pollution at high levels

[1] In "inversion breakup fumigation," an inversion layer dissipates due to heating of the ground, letting the pollutants that were trapped in it descend suddenly to ground level. In "looping plumes," a plume is brought down to the ground close to the source in the form of intermittent puffs under very unstable atmospheric conditions.

[2] "Comments on Peak Ground-Level Concentrations Due to Building Downwash Relative to Peak Concentrations Under Atmospheric Dispersion Processes," Alan H. Huber and Francis Pooler, Jr. June 10, 1985.

[3] Memorandum from David G. Hawkins, NRDC, to William F. Pedersen, Jr. Office of General Counsel, USEPA, May 29, 1985.

[4] Memorandum from Alan H. Huber, ASRL, to David Stonefield, OAQPS, June 21, 1985.

that raise a real prospect of local health or welfare impacts.

As EPA stated in the proposal, it is impossible to rely primarily on fluid modeling to implement the stack height regulations, particularly under the timetable established by the court. 49 FR 44883 (November 9, 1984). No commenter other than NRDC even suggested a different formula that in their eyes would be better, and NRDC's suggestions were premised on their "control first" position, which EPA has found inconsistent with the statute and has rejected. EPA considers the refined formula to be the state-of-the-art for determining necessary stack height.

Given the degree of presumptive validity the formula already possesses under the statute and the court opinion, we believe that this record amply supports its reaffirmation.

Stacks Above GEP Formula Height. The EPA's 1978 stack height guidelines [cite] imposed special conditions on stacks above formula height—the installation of control technology—that were not imposed on lower stacks. Similarly, EPA's 1973 proposal had made credit above formula height subject to a vaguely defined "detailed investigation" (38 FR 25700). The legislative history of the 1977 Clean Air Act Amendments cautioned that credit for stacks above formula height should be granted only in rare cases, and the Court of Appeals adopted this as one of the keystones of its opinion. The court also concluded that Congress deliberately adopted very strict requirements for sources locating in hilly terrain.

For these reasons, EPA is requiring sources seeking credit for stacks above formula height and credit for any stack height justified by terrain effects to show by field studies or fluid modeling that this height is needed to avoid a 40-percent increase in concentrations due to downwash and that such an increase would result in exceedance of air quality standards or applicable PSD increments. This will restrict stack height credit in this context to cases where the downwash avoided is at levels specified by regulation or by act of Congress as possessing health or welfare significance.

To conduct a demonstration to show that an absolute air quality concentration such as NAAQS or PSD increment will be exceeded, it is necessary to specify an emission rate for the source in question.[5] The EPA believes that in cases where greater than formula height may be needed to prevent excessive concentrations, sources should first attempt to eliminate such concentrations by reducing their emissions. For this reason EPA is requiring that the emission rate to be met by a source seeking to conduct a demonstration to justify stack height credit above the formula be equivalent to the emission rate prescribed by NSPS applicable to the industrial source category. In doing this, EPA is making the presumption that this limit can be met by all sources seeking to justify stack heights above formula height. Sources may rebut this presumption, establishing an alternative emission limitation, on a case-by-case basis, by demonstrating to the reviewing authority that the NSPS emission limitation may not feasibly be met, given the characteristics of the particular source.[6] For example, it may be possible for a source presently emitting SO_2 at a rate of 1.8 lb./mmBTU to show that meeting the NSPS rate of 1.2 lb./mmBTU would be prohibitive in that it would require scrapping existing scrubber equipment for the purpose of installing higher efficiency scrubbers. Similarly, a source may be able to show that, due to space constraints and plant configuration, it is not possible to install the necessary equipment to meet the NSPS emission rate. In the event that a source believes that downwash will continue to result in excessive concentrations when the source emission rate is consistent with NSPS requirements, additional stack height credit may be justified through fluid modeling at that emission rate.

A source, of course, always remains free to accept the emission rate that is associated with a formula height stack rather than relying on a demonstration under the conditions described here. The third alternative mentioned in the proposal—using the actual emission limit for the source—has been rejected because, to the extent that limit relied on greater than formula height, it would amount to using a tall stack to justify itself.

The EPA's reliance on exceedances, rather than violations of the NAAQS and PSD increments, is deliberate. Fluid modeling demonstrations are extremely complicated to design and carry out, even when the most simple demonstration criteria—that is, a percentage increase in concentrations, with no consideration of absolute values—are assumed. Adding consideration of an absolute concentration such as a NAAQS or PSD increment substantially complicates this effort further and introduces the scientific uncertainties associated with predicting an exceedance of a 3-hour or 24-hour standard based on 1 hour or less of modeling data. Using an hour or less of modeling values, based on one set of meteorological data, to draw the distinction between only one exceedance of the standard during the 8760 hours in a year, and the two or more that constitute a violation pushes that uncertainty beyond reasonable limits. EPA therefore does not find the additional difficulties that would be created by requiring violations instead of exceedances to be warranted. That is particularly so here, given that the regulations require sources seeking credit above the formula to be well-controlled as a condition of obtaining such credit.

Use of an absolute concentration in the test of "excessive concentrations" can lead to problems of administering the program, in that it can have a "zoning" effect. Since a source can only get stack height credit to the extent that it is needed to avoid a PSD increment or NAAQS exceedance, an emissions increase in the area of that source may increase concentrations beyond the controlling limit, thereby making it difficult for new sources to locate in the area, or for sequential construction of additional emitting units at the source in question.

This effect cannot be avoided under any test for "excessive concentrations" that is tied to absolute concentrations. However, that effect will be mitigated by the fact that the use of this approach is voluntary and limited to sources wishing to rely on fluid modeling to justify stack height credit. Moreover, the effects of downwash tend to occur very near the source, usually on fenced company property. Since concentrations measured at such locations are not used to evaluate NAAQS attainment or PSD increment consumption, new sources wishing to locate in the area are less likely to be affected.

Sources planning sequential construction of new emitting units at one location or contemplating future expansion can reduce the uncertainties noted above by initially obtaining permits for the total number of units anticipated and by planning for expansion in the calculation of necessary physical stack height. In the latter instance, only the allowable stack height credit would be revised as

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[5] In contrast, if the test of "excessive concentrations" involved a simple percentage increase, there would be no need to specify an emission rate, since the increase in concentration caused by downwash is independent of emission rates.

[6] The EPA will rely on its Best Available Retrofit Technology Guideline in reviewing any rebuttals and alternative emission limitations.

expansion is carried out—not actual stack height.

An additional theoretical complication is presented when an absolute concentration is used where meteorological conditions other than downwash result in the highest predicted ground-level concentrations in the ambient air. In such cases, a source that has established GEP at a particular height, assuming a given emission rate, may predict a NAAQS violation at that stack height and emission rate under some other condition, e.g., atmospheric stability Class 'A.' Reducing the emission rate to eliminate the predicted violation would result in stack height credit greater than absolutely necessary to avoid an excessive concentration under downwash. However, reducing stack height places the source back in jeopardy of a NAAQS violation under the other meteorological condition, and so on, "ratcheting" stack height credit and emission rates lower and lower. The EPA has eliminated this "ratcheting" potential in the GEP guideline by providing that, once GEP is established for a source, adjusting the emission rate to avoid a violation under other conditions does not require recalculation of a new GEP stack height.

EPA is making this part of the regulations retroactive to December 31, 1970. In the terms of the court's retroactivity analysis, stacks greater than formula height represent a situation that Congress did affirmatively "intend to alter" in section 123. Moreover, EPA regulatory pronouncements since 1970 have placed a stricter burden on sources raising stacks above formula height than on others.

No source is precluded from building a stack height greater than formula height if such height is believed to be needed to avoid excessive downwash. However, the design and purpose of section 123 prohibit SIP credit for that effort unless a relatively rigorous showing can be made.

Given the ability of sources to avoid modeling and rely on validity of the GEP formulae and requirement for further control of emissions in conjunction with stack heights in excess of formulae height, the result predicted by UARG—exceedances of the NAAQS or PSD increments due to inadequate stack height—is highly unlikely.

The potential effect of changes in background air quality on stack height credit is not substantially different from the effect that such changes in background can have on source emission limitations in nonattainment areas. In the first case, however, sources may be able to address these effects through greater stack height if such changes affect the concentrations under downwash. Moreover, the possibility that shifting background air quality can yield different calculations of GEP is significantly limited by the fact that consideration of background in GEP calculations is restricted to those cases where credit for greater than formula height is being sought or sources are seeking to raise stacks to avoid excessive concentrations.

Raising Stacks Below Formula Height to Formula Height. In response to EPA's proposal to allow automatic credit for GEP formula height, several commenters have argued that EPA has failed to adequately respond to the court's directive to "reconsider whether, in light of its new understanding of 'excessive concentrations,' demonstrations are necessary before stack heights may be raised, even if the final height will not exceed formula height."

Response. Raising a stack below formula height to formula height is not, in EPA's judgment, subject to the same statutory reservations as building stacks greater than formula height. However, as the court has cautioned, it may still be necessary for these sources to show that raising stacks is necessary to avoid "excessive concentrations" that raise health or welfare concerns.

For these reasons, sources wishing to raise stacks subsequent to October 11, 1983, the date of the D.C. Circuit opinion, must provide evidence that additional height is necessary to avoid downwash-related concentrations raising health and welfare concerns. These rules allow sources to do this in two ways.

The first way is to rebut the presumption that the short stack was built high enough to avoid downwash problems; i.e., to show, by site-specific information such as monitoring data or citizen complaints, that the short stack had in fact caused a local nuisance and must be raised for this reason. The EPA believes that both the historical experience of the industry and the data on short-term peaks discussed earlier show that short stacks can cause local nuisances due to downwash. However, where a source has built a short stack rather than one at formula height, it has created a presumption that this is not the case. General data on short-term peaks may not be strong enough to support, by themselves and in the abstract, a conclusion that the stack must be raised to avoid local adverse effects. Instead, that proposition must be demonstrated for each particular source involved.

In the event that a source cannot make such a showing, the second way to justify raising a stack is to demonstrate by fluid modeling or field study an increase in concentrations due to downwash that is at least 40-percent in excess of concentrations in the absence of such downwash and in excess of the applicable NAAQS or PSD increments. In making this demonstration, the emission rate in existence before the stack is raised must be used.

Since raising stacks to formula height is not subject to the same extraordinary reservations expressed by Congress and the court with respect to stacks being raised above formula height, EPA does not believe that the use of presumptive "well-controlled" emission rate is appropriate here. As discussed in EPA's response to NRDC's "control first" argument, the basic purpose of section 123 was to take sources as it found them and, based on those circumstances, to assure that they did not avoid control requirements through additional dispersion. Use of a source's actual emission rate in this instance is consistent with that basic purpose and, absent special indications of a different intent, should be used in stack height calculations.

The EPA believes that it is most unlikely that any source with a current emission limitation has failed to claim full formula credit for a stack of formula height. Accordingly, the question whether a source can receive stack height credit up to formula height will involve only sources that want to actually raise their physical stack, not sources that simply want to claim more credit for a stack already in existence. A source will presumably not go to the trouble of raising an existing stack without some reason. If a source cannot show that the reason was in fact the desire to avoid a problem caused by downwash, then the inference that it was instead a desire for more dispersion credit is hard to avoid. A nuisance caused by downwashed emissions could include citizen or employee complaints or property damage. A source would be expected to show that complaints of this nature were reasonably widespread before getting credit under this section.

The EPA does not intend to make this rule retroactive to stacks that "commenced construction" on modifications that would raise them to formula height prior to October 11, 1983. Applying the court's retroactivity analysis, it appears:

1. The new rule does depart from prior practice. The EPA's 1973 proposed rule affirmatively encouraged sources with shorter stacks to raise them to formula

height.[7] Though EPA's 1978 guideline can be read as imposing a "control first" requirement on some stack height increases, its general thrust gave automatic credit for all stacks that met the "2.5" times formula.[8] Automatic permission was similarly set forth in the 1979 proposal, in the 1981 reproposal, and in the 1982 final rule. Only a notice published in 1980, but later withdrawn, departs from this trend, requiring the use of field studies or fluid modeling demonstrations to justify stack height increases up to GEP formula height.[9] Even then, the notice would have made this policy prospective in its application.

2. Sources that raised stacks in reliance on this past EPA guidance assuming the availability of dispersion credit cannot be distinguished from the sources, in the example approved by the court, that built stacks to the traditional formula in an identical expectation of dispersion credit.

3. It cannot be said that the raising of stacks to formula height is a practice that Congress "affirmatively sought to end." It is not mentioned in the text of the statute or its legislative history. Further, as the court has already noted, the statute attributes a degree of presumptive validity to the formula on which sources that raise their stacks will have relied.

Discretion to Require Fluid Modeling. Several commenters argued that EPA's proposal to allow agencies to require the use of fluid modeling was unnecessary, since EPA had already documented the validity of the GEP formulae. Furthermore, these commenters argue that this allowance would make fluid modeling the rule, rather than the exception. This would result, the commenters state, because it was their expectation that agencies or environmental groups would nearly always call for fluid modeling demonstrations during the permit application and review process.

Other commenters stated that providing the discretion to require fluid modeling was appropriate, since EPA had failed to demonstrate that the GEP formulae represented the minimum height necessary to avoid excessive concentrations.

Response. The Court of Appeals directed EPA to reexamine whether its rules should allow States, as a matter of discretion, to require even sources that planned to rely on the formula to show instead by fluid modeling that a stack this high was required to avoid dangers to health and welfare caused by downwash. The court suggested that EPA should include such a provision unless it could find that the formula was so accurate, or tended so much to err on the low side, as to make discretionary authority to adjust formula height downward unnecessary.

The EPA believes that the court was mistaken in its conclusion that a stack at formula height is likely to generate downwash concentrations as great as 40 percent only in uncommon situations. In fact, EPA's observations indicate that when stacks are built to GEP formula height, an increase in concentrations due to downwash can still be expected to occur that is between 20 and 80 percent greater than the concentration that would occur in the absence of building influences.[10]

Nevertheless, in response to the court's remand, EPA is including in this final rule a provision for the authority administering these rules to require field studies or fluid modeling demonstrations, even for stacks built to formula height, in cases where it believes that the formula may significantly overstate the appropriate stack height credit.[11]

While EPA believes the formula is a reasonable rule of thumb indicating the stack height needed to avoid some probability of a standards violation and a significantly greater probability of a local nuisance, actual results in any given case may vary somewhat based on specific circumstances. The EPA has attempted to minimize this possibility within the limits of available data by identifying two particular situations in which it believes that the formulae may not be reliable indicators of GEP: Porous structures and buildings whose shapes are aerodynamically smoother than the simple block-shaped structures on which the formulae are based.[12] However, EPA acknowledges that other situations, of which the Agency is not presently aware, may arise wherein the formulae may not be adequate.

The EPA intends to "grandfather" any source that relied on the formula in building its stack before the date of EPA's 1979 proposal from the effect of this discretionary reexamination requirement.

Only in that proposal did EPA first suggest that such a discretionary reexamination provision might be included in the final rule. The retroactivity analysis set out earlier therefore supports exempting stacks built in reliance on EPA guidance before that data from discretionary reexamination. Indeed, a failure to "grandfather" these sources would lead to the paradoxical result that a source that had built a GEP stack under the traditional EPA formula would have its direct reliance interests protected by the "grandfather" provision previously upheld by the court, but could then lose that "grandfathered" credit through a case-specific demonstration requirement showing that the traditional formula was somewhat inaccurate—the very reason behind the change in the formula properly found non-retroactive by EPA earlier.

Given this background, EPA believes that the effect on emissions of including or of excluding a provision for discretionary determinations from this rule is likely to be very small. Building stacks above formula height, and raising stacks below formula height to formula height, are covered by regulatory provisions already discussed. The only case left for discretionary determinations to address is the building of stacks at formula height in the post-1979 period. However, all major sources built since that time are already controled to SO_2 emission rates no greater than 1.2 lb./mmBTU—and, not uncommonly much less—under various EPA regulations. All new power plants on which construction "commenced" since 1971 must meet EPA's NSPS mandating an emission rate no greater than this level. That standard was tightened for all power plants on which construction "commenced" after 1978. In addition, all "major" sources built since 1977 in areas subject to the Act's PSD requirements have had to install best available control technology. That technology must require the greatest degree of emission control that is achievable considering technology, economics, and energy impacts.[13]

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[7] "The use of stack height up to the level of good engineering practice is encouraged by EPA in order to avoid local nuisances." (38 FR 25700).

[8] 41 FR 7451 (February 18, 1976); Guideline Sections B.1, C.1(2), C.2(2).

[9] 45 FR 42279 (June 24, 1980); specific discussion of stack height credit is discussed at 42281–2.

[10] Guideline for Determination of Good Engineering Practice Stack Height, pp 29–32. This is further illustrated in Figures 5 and 6.

[11] Quite apart from any such regulatory provision, States have authority to require such demonstrations, on the terms outlined or on stricter or more lenient terms, under the savings provisions of section 116 of the Clean Air Act.

[12] Earlier EPA guidance, although expressing reservations about the accuracy of the formula when applied to rounded structures, allowed its use for certain tapered structures and cooling towers. "Guideline for Determination of Good Engineering Practice Stack Height," July 1981 at 39–40. For this reason, EPA will grandfather any credits for such structures that were granted prior to November 9, 1984. Since EPA guidance has never allowed credit for porous structures, the restriction in this rule for such structures applies to all stacks in existence since December 31, 1970.

[13] Clean Air Act section 169.

If such sources had to show that use of a formula height stack was needed to avoid exceedances of the NAAQS or PSD increments, that might prove difficult for many of them. The likelihood of such exceedances tends to decrease as the emission rate for the source decreases. By the same token, the incremental emission reductions available from the sources that are at issue here tend to be small and among the most expensive available. In terms of emission reductions, little is at stake where these sources are concerned.

Accordingly, the rules will require such sources, if a reviewing authority calls for a demonstration, to the rules show that the use of a formula stack height is needed to avoid a 40-percent increase in concentrations due to downwash. This will provide a rough check on whether the formula, as applied in the particular case at issue, produces the result it was designed to produce.

The EPA is not providing here for sources to justify their formula height stacks by arguing that the height in excess of that needed to avoid NAAQS violations is needed to avoid a local nuisance. The discretionary modeling requirement is designed for application to stacks before they were built. Beyond that, there is no way to determine based on the *absence* of a local nuisance that a formula height stack is not too tall, in the way that the *presence* of a nuisance shows that a stack under formula height in fact is too short. Accordingly, there will be no way, as there was with short stacks being raised, to determine from actual experience whether a local nuisance would occur at a shorter stack height. Though avoiding local nuisance is a legitimate purpose for which stacks are built, it would be very difficult to show by modeling what stack height was needed to avoid it.

Some commenters have misunderstood EPA's allowance of discretion to require fluid modeling as requiring such modeling whenever *any* individual or entity called for such a demonstration. This discretion rests explicitly with the reviewing agencies who have always had the prerogative to require more stringent analyses in the SIP process, and no obligation is implied for these agencies to require fluid modeling simply because it has been called for by some individual during the permit review process. It is EPA's expectation that technical decisions to require such additional demonstrations would be based on sound rationale and valid data to show why the formulae may not be adequate in a given situation. In any case, given the burden of reviewing a fluid modeling demonstration, an agency is not likely to exercise this option absent sufficient justification. Consequently, EPA disagrees with the commenters' contention that fluid modeling will supplant the use of the GEP formulae, except in what EPA believes will be unusual instances.

Reliance on the 2.5H Formula. In limiting the applicability of the 2.5H formula to those cases where the formula was actually relied upon, the November 9 proposal defined such reliance in terms of stack design. A number of comments indicated that actual stack design and construction may ultimately be control, not by the 2.5H engineering rule, but by construction materials specifications. Consequently, while 2.5H rule may have provided an initial starting point in stack design, the rule may not have dictated final stack height. In other cases, it was argued that a number of source owners may have constructed their stacks in excess of what was determined to be minimum GEP for precautionary reasons, for process requirements, or in anticipation of additional growth in the area surrounding the facility, even though emission limitations for these sources would have been limited then, as now, to formula height. Consequently, it was argued that EPA should allow sources to demonstrate reliance on the formula in the calculation of emission limits as well as in the design of the stack.

In response to EPA's request for comments on what evidence should be considered acceptable in determining reliance on the 2.5H formula, some commenters urged EPA to consider reconstructed evidence, e.g., affidavits from design engineers or copies of correspondence indicating past reliance on EPA guidance. Other commenters stated that "reliance" should be very strictly construed, that EPA should be circumspect in its review of reliance demonstrations, and that only contemporaneous documentary evidence, such as blueprints and facility design plans, be accepted as evidence.

Response. The EPA is in general agreement with the view that reliance should be considered in relation to the emission limitation for the source, not the design. Since section 123 specifically prohibits EPA from regulating actual stack heights and rather regulates stack height credits used in setting emission limitations, it would be illogical to require that sources demonstrate reliance on the 2.5H formula for actual stack design. Moreover, such an approach would contradict principles of sound planning, in that it would penalize those sources that have built taller stacks in anticipation of facility expansion or other growth in the area that could influence GEP determinations.

If a stack has been built taller than 2.5H formula provides, while the emission limitation has been calculated assuming 2.5H credit, a convincing demonstration has been made that the source properly relied on the formula. Conversely, if the emission limitation for the source is based on some other stack height credit, such as 2.8H, 3.5H or some other number, it would be difficult to show that the GEP formula had in fact been relied on.

In some cases the emission limit information may be unavailable or inconclusive. In such cases, EPA will allow reliance on reconstructed evidence of construction intent.

In comments submitted during the public comment period and in response to questions raised by EPA at the public hearing held on January 8, 1985, industry representatives repeatedly stated that contemporaneous evidence of reliance on the 2.5H formula, such as facility design plans, dated engineering calculations, or decision records are rarely, if ever, retained for more than a few years after construction of the facility is completed. Consequently, they argued that most cases of legitimate reliance would be denied if contemporaneous evidence were required in order to retain for the 2.5H formula.

The EPA agrees. Additionally, credit afforded by the 2.5H formula in excess of that resulting from the use of the H+1.5L derivative is likely to be small, except when the building on which stack height credit is based is substantially taller than it is wide. Finally, it is EPA's view that the court did not intend that sources be subject to a rigorous or overly stringent of reliance, but only that they be accorded a reasonable opportunity to show reliance on the 2.5H formula. For these reasons, EPA will allow the submission of reconstructed, i.e., noncontemporaneous documentary evidence to demonstrate reliance on the 2.5H formula.

Definition of "Nearby". Comments were submitted by UARG and others, arguing that, effectively, no limitation should be placed on the consideration of terrain-induced downwash. Alternatively, some of these commenters argued that the court decision requires that a limitation be adopted that does not apply any distance restriction of ½ mile in modeling terrain effects such as is

applied to structures in the use of GEP formulae, but rather allows consideration of all terrain that results in the same downwash effect as those structures within ½ mile of the stack.

Other commenters have argued that the court decision and legislative history preclude EPA from allowing consideration of any terrain beyond a distance of ½ mile, regardless of where it begins.

Response. For the reasons summarized below, EPA does not accept either the interpretation that the court decision authorizes EPA to adopt a definition based solely on effect, or that it limits consideration exclusively to terrain features falling entirely within ½ mile.

When Congress discussed the allowance of credit for stack height to address downwash, it stated that the term "nearby" was to be "strictly construed," noting that if the term were to be interpreted "to apply to man-made structures *or terrain features* ¼ to ½ mile away from the sources or more, the result could be an open invitation to raise stack heights to unreasonably high elevations and to defeat the basic underlying committee intent." [14]

In its opinion, the court held that EPA could not give unlimited credit when modeling terrain features because that would conflict with the Congressional intention to impose artificial limits on that credit. The court was not presented with, and did not address, the question of what to do about terrain features that "began" within ½ mile and extended outside it. The approach adopted by EPA carried out this congressional purpose to impose an artificial limit but at the same time reflects the real facts more closely than an absolute ½ mile limitation.

Unlike man-made structures, terrain features do not have readily definable dimensions other than height. For this reason, EPA has defined "nearby" as generally allowing inclusion of consideration of terrain features that fall within a distance of ½ mile of the stack. EPA's definition will permit consideration of such terrain that extends beyond the ½ mile limit if the terrain begins within ½ mile, allowing that portion within 10 times the maximum height of the feature, not to exceed 2 miles, as described in the proposal.

To define when a terrain feature "begins" within ½ mile, EPA has related terrain height at the ½ mile distance to the maximum stack height that could be justified under the other two methods for determining GEP. Accordingly, EPA will require that terrain features reach a height at the ½ mile distance limit of either 26 meters (i.e., 65 meters divided by 2.5) or 40 percent of the stack height determined by the GEP formulae applied to nearby buildings.

Treatment of New versus Existing Sources Under the Definition of "Nearby". In the proposal, EPA requested comment on whether new sources should be treated differently from existing sources and presented two options for addressing them.

Few comments were received on these options. Several questioned the logic of distinguishing between new and existing sources in the regulations. One commenter argued that new and existing sources should both be subject to the strict ½ mile limit proposed under one option for new sources only. This has already been discussed under EPA's response to comments on the general definition of "nearby" and is not addressed further here.

Response. New sources are initially subject to more stringent control requirements than many existing sources. Consequently, it is less likely that the emission limitations and stack height credits for these sources will be affected by terrain features. Furthermore, EPA believes that the effect of applying a more restrictive distance limitation will be insignificant and will result only in minor changes in siting, rather than substantial relocation of sources. For this reason, EPA has selected the second option, treating new and existing sources identically under the definition of "nearby."

EPA is giving this definition of "nearby" retroactive application to December 31, 1970. The court's decision makes clear its conclusion that Congress affirmatively focused on this issue and decided thus making application as of the enactment date proper.

Definition of Other Dispersion Techniques. The EPA received many comments on the proper scope of the definition of "dispersion techniques," and perhaps more on the appropriate bounds of the exclusions. Industry commenters generally argued that EPA had improperly proposed to deny consideration for plume-enhancement effects that are "coincidental" with techniques and practices routinely carried out for sound engineering and economic reasons. They argued that EPA should prohibit credit only when a technique or practice was decisively motivated by a desire for dispersion credit. Such an approach would create a "but for" test using the intent of the source owner or operator as the basis for EPA's decisions.

Other commenters argued that EPA must use a test based purely on *effects*, prohibiting credit where a technique or practice has the effect of enhancing dispersion, regardless of any other justification.

Response. In the final regulation, EPA has rejected the polar positions discussed above. The argument that dispersion *effects* are forbidden regardless of motive is discussed and rejected as a part of the general response to the argument that only "well-controlled" sources can receive any dispersion credit.

Conversely, a pure "but for" test runs the risk of creating exclusions that effectively swallow the rule itself. The EPA judges that few, if any, circumstances are likely to arise in which some other benefit or justification cannot be asserted as the basis for a practice, and therefore for such an exclusion.

Where prospective evaluation of merged gas streams, or combined stacks, is concerned, there is no reason to assume the serious administrative burdens investigating such claims might entail. The court directed EPA to apply an intent test "at a minimum," and left it free to take an approach that may be less generous toward credit for combined stacks. Since sources in the future will be able to plan against the background of rules that define permissible credits precisely, little unfairness results from a restrictive approach.

When retrospective application is concerned, however, the retroactivity analysis spelled out by the court directs that an intent-based test be employed as described later.

Accordingly, after considering the record on these matters, EPA has determined to take a "middle-ground" approach to this question. The final regulation retains the same broad prohibition found in the proposal on increasing exhaust gas plume rise by manipulation of parameters, or the combining of exhaust gases from several existing stacks into one stack, with several classes of exclusions. These exclusions recognize the existence of independent justifications based on engineering and/or economic factors, and include:

(1) Demonstration of original facility design and construction with merged gas streams;

(2) Demonstration that merging after July 8, 1985 is part of a change in operation that includes the installation of pollution controls and results in a net reduction in allowable emissions of the pollutant for which credit is sought; or

[14] H.R. Report No. 294, 95th Cong., 1st Sess. 88 (1977).

(3) Demonstration that merging before July 8, 1985 was part of a change in operation that included the installation of control equipment, or was carried out for sound economic or engineering reasons. An allowable emissions increase creates the presumption that the merging was not carried out for sound economic or engineering reasons.[15]

Of these exclusions, the first is identical to the proposal, and the second and third are modifications of the second exclusion included in the proposal, with a refinement based on prospective/retroactive application.

The first exclusion was retained for the reasons stated in the proposal. After reviewing the comments submitted, EPA determined that its previous conclusion—that standard practice in designing and constructing facilities routinely includes venting emissions from several units into a common or multiflued stack—is correct. Sound engineering and economic reasons, based on costs of constructing and maintaining separate stacks, availability of land, and cost savings for pollution control equipment support facility design and construction considerations. Even if air pollution requirements did not exist at all, sources would have incentives to use as few stacks as possible.

Since *increasing* plume rise, rather than plume rise itself, is a "dispersion technique" and original design and construction define the initial base, such original design and construction of merged gas streams is not considered a dispersion technique. Moreover, in designing the facility, a source can usually choose to build one larger unit rather than several smaller units. Therefore, prohibiting credit for original design generally only affect the design of units and not the plume rise.

Objections have been raised to applying this logic to sources which are constructed over a period of time, but use a single stack. However, the same factual arguments just listed would apply is the same, if the original design included provision for the additional units in the plans for the facility, and in the design and construction of the stack. In such a case, the later units merged into the stack would be included within the exclusion.

In addition, it would be logically very difficult to apply a rule denying credit to original design stacks. EPA or the State would have to assume how many stacks would have been built absent a desire for dispersion credit, where they would have been located, and how high they would have been. Since these alternative stacks would be purely hypothetical, there would be no clear way of answering these questions; the answer would simply have to be selected arbitrarily from the wide range of possible answers. This problem is absent when existing stacks have been combined.

In contrast, EPA finds changes from the original design of a facility in order to include merged stacks to require a narrower judgment. The EPA concluded that, where prospective application is concerned, the exclusion should be available only to sources that combine stacks reduces allowable emissions of the pollutant for which the credit is granted. There are obvious economic advantages in combining stacks to reduce the number of emission control units that must be purchased. In addition, the installation of pollution control for the pollutant in question provides substantial assurance that the purpose of the combination is not to receive a more lenient emission limit.

However, given past EPA guidance on merging of stacks, EPA has concluded that retroactive application of this test would not be proper. The EPA guidance documents uniformly took the view that merging of separate stacks into a single stack "is generally not considered a dispersion technique" absent other factors such as excessive use of fans or other devices.[16] Each document provided guidance to a source of a Regional Office regarding the proper treatment of merged stacks in calculating emission limitations. Considering these statements, EPA must consider the standards expressed by the court, as previously discussed in this notice, in judging the propriety of a differing standard for retroactive application. Given the nature and applications of the guidance which it issued in the past, EPA judges the first two criteria—that is, whether the new rule represents an abrupt departure from well-established practice, and whether the parties against whom the new rule is applied relied on the former rule—to be satisfied. In addition, applying the prospective criteria to past practice would require significant changes in fuel and/or control equipment for parties whose emission limits were based on previous guidance. Finally, and particularly where sources have not been allowed to increase their previous emissions as a result of the combining stacks, EPA does not judge the statute interest to be overriding in this instance, since the rule even in its retrospective version only exempts sources that can show a reasonable non-dispersion enhancement ground for combining stacks, and thereby implements the "intent" test suggested by the court. On the other hand, EPA has never suggested that combined stacks that *cannot* meet such a test are proper. Sources whose actual emissions are increased, or whose emission limitations are relaxed in connection with the combining of stacks create a strong presumption that the combination was carried out in order to avoid the installation of controls. Such combinations would indeed run counter to the statutory purpose, and retrospective application of a test that forbids them is therefore proper.

Exemptions from the Definition of Dispersion Techniques. The EPA received numerous comments in response to its request for input on what consideration, if any, should be given to excluding sources from the definition of "Dispersion Techniques" whose emissions are below a specified level or whose stacks are less than the *de minimis* height. These commenters argued that combining gas streams in particular often had an economic justification independent of its effects on dispersion, and therefore should not be generally forbidden. Other comments stated that, in considering any such exclusion, EPA should consider the effect on total atmospheric loadings.

Response. Some limitation on the number of sources affected by the definition of "dispersion techniques" necessary for EPA to carry out the stack height program. There are currently estimated to be over 23,000 sources of SO_2 in the United States with actual emissions exceeding 100 tons per year. It would not be possible for EPA or States to review the emission limits of even a significant fraction of this number within a reasonable time period. Twenty-two thousand of these sources have emissions less than 5,000 tons per year and contribute a total of less than 13 percent of the total annual SO_2 emission.[17] For this reason, and for reasons of administrative necessity discussed earlier, EPA is adopting an exemption from prohibitions on manipulating plume rise for facilities with allowable SO_2 emissions below

[15] In cases where no emission limit existed for a source prior to the merging, such merging is not to result in any increase in the actual emissions that occurred prior to the merging.

[16] Memorandum from Darryl Tyler to Steven Rothblatt, August 28, 1982. See also letter from Walt Barber from Howard Ellis, October 6, 1982, and from David Stonefield to Joseph Pausa, June 27, 1982.

[17] Memorandum from Eric Ginsburg, OAQPS to David Stonefield, "Stratification of SO_2 Point Sources by Size," June 28, 1985.

5,000 tons per year. The EPA believes the effect of this exemption on total SO_2 emissions to be *de minimis* in nature. Even if these sources were able to increase their emission rates as the result of an exemption from the definition of dispersion techniques, their combined effect would not be significant. Indeed, because these sources are exempt on the basis of their annual emissions, there exists an upper limit to the extent to which they may obtain relaxed emission limitations, i.e., to maintain an exemption, the annual emissions of a source may never exceed 5,000 tons per year. For these reasons, the 5,000 ton limit passes a *de minimis* test even more clearly than the 65-meter limit included without challenge in the prior version of this rule. Moreover, EPA believes that a large majority of these sources would not be inclined to seek less stringent emission limitations, in part because a substantial portion of them are limited by State and local fuel use rules.

The EPA believes at this time that a *de minimis* size exemption is justified only for sources of SO_2 and that the number of small sources for which emission limitations for other pollutants are a significant concern would not support a similar exemption. The EPA will continue to review the need for such exemptions and, if deemed appropriate, will propose them for review and comment at a later date.

Plume Impaction. The EPA received a number of comments requesting that credit for plume impaction be retained on the grounds that eliminating such credit would have severe impacts on existing sources. Several approaches were offered for overcoming plume impaction effects in modeling to determine emission limitations based on GEP stack height. Generally, these approaches focused on modifying the stack-terrain relationship represented in the models. Several commenters argued along these lines that the court recognized and approved of EPA's attempt to avoid the effects of plume impaction, but only disapproved of EPA's regulatory method in allowing sources to avoid impaction. These commenters argued that the court did not preclude EPA from allowing credit to avoid plume impaction, but only from allowing credit for stack height in excess of GEP; this, it was argued, could be remedied in a way that was consistent with the court decision by incorporating impaction avoidance within the definition of GEP. It was also suggested that EPA give its "interim approval" to the use of certain refined complex terrain models, in particular the Rough Terrain Display Model (RTDM), to calculate emission limitations for sources affected by changes to the stack height regulation.

Response. The EPA agrees that the court was cognizant of the problem of plume impaction and noted that there was much to recommend EPA's allowance of credit for impaction avoidance. However, the allowance of credit for plume impaction was not remanded to EPA for revision or reconsideration, but was reversed by the court as exceeding EPA's authority.

The EPA does not agree that it would be possible to redefine GEP in a manner that allowed credit for avoiding impaction, since GEP is explicitly defined in terms of preventing excessive concentrations due to downwash, wakes, and eddies. Plume impaction is a phenomenon completely unrelated to downwash and, rather, is a consequence of effluent gases being emitted at an insufficient height to avoid their striking downwind hillsides, cliffs, or mountainsides prior to dilution. Manipulation or "adjustment" of modeling parameters to avoid predicting theoretical plume impaction where actual stacks have been constructed above GEP would be tantamount to granting the same impaction credit that was invalidated by the court. Furthermore, EPA believes that the manipulation of modeling parameters for no other reason than to avoid an undesirable result is technically indefensible.

The EPA is in the process of revising its "Guideline on Air Quality Models." A number of individuals commenting on the guideline have requested that EPA approve the use of the RTDM model as a preferred technique. Further discussion of this issue can be found in documents associated with EPA's action on the modeling guideline (Docket No. A-80-46). With respect to the revised stack height regulation, EPA has not rejected the use of RTDM. To the extent that appropriate and complete data bases and information on model accuracy are available, EPA may approve the use of RTDM on a case-by-case basis when executed in accordance with the guideline requirements. Sponsors of RTDM and presently developing more extensive support for broader applications of the model. When such support is received and reviewed by EPA, consideration will be given to allowing more general use of RTDM in regulatory activities such as compliance with the stack height rule.

Timetable for State Implementation. A number of commenters stated that it was not possible to conduct the necessary analyses, prepare and submit revised State rules and source-specific emission limitations within the 9-month timeframe referred to in the November 9 proposal. A variety of alternative schedules were proposed by these commenters for consideration by EPA.

Response. As with EPA's previous allowance of credit for plume impaction, the timetable for preparation and submittal of revised SIP's was not an issue remanded by the court. The EPA is in agreement that these revisions to the stack height regulation will require significant efforts by State and local agencies, individual emission source owners and EPA Regional and Headquarters offices in order to comply within the 9-month timeframe required by section 406(d)(2) of the 1977 Clean Air Act Amendments. It was based on this concern that EPA originally provided a two-step process for States to follow in revising their plans and submitting them to EPA for approval. However, the court found that this effort was explicitly contrary to section 406(d)(2) and ordered EPA to follow the 9-month schedule provided in the Clean Air Act.

New Sources Tied into Pre-1971 Stacks. As indicated earlier, in response to the court opinion, EPA proposed to deny "grandfathered" status to post-1970 sources tying into pre-1971 stacks. Some commenters stated that EPA was in no way prohibited from allowing credit for new sources ducted into pre-1971 stacks exceeding GEP height. Rather, they indicated that EPA simply had to provide justification for such allowance.

Other commenters indicated general support for EPA's proposal with respect to new sources tying into grandfathered stacks, but suggested that several expansions or clarifications be provided, most notably that, in addition to new and major modified sources, reconstructed sources not be allowed greater than GEP stack height credit when tying into greater than GEP stacks.

Response. In further review of this issue, EPA can find no convincing rationale to allow sources constructed after December 31, 1970, to avoid GEP restrictions simply by ducting their emissions into a stack that is "grandfathered" under section 123. On the contrary, the intent of section 123 to limit credit for stack height in excess of GEP suggests that EPA should not allow credit for such stack height except to honor financial commitments made prior to the end of 1970. Sources in existence after that date should be treated equally under the regulation and not allowed to avoid legitimate control requirements

through the use of "grandfathered" stack heights.

Sources undertaking major modification, or reconstruction become subject to additional control requirements under the Clean Air Act and are treated as "new sources" for the purpose of new source review and PSD requirements. EPA finds it appropriate that GEP requirements should be invoked at the time that other requirements for new, modified, or reconstructed sources become applicable.

Summary of Modifications to EPA's Proposal Resulting from Public Comments

Based on comments received during the public comment period, EPA has made a number of revisions to its proposed regulation in addition to those discussed above. These revisions are summarized below.

Section 51.1(hh)(2)(B)(ii) of the regulation has been clarified to require sources merging gas streams after July 8, 1985 to achieve a net reduction in allowable emissions. This change was made to make it clear that the effects of merging should not be used as a way of achieving compliance with present emission limits and to avoid penalizing sources who are presently emitting at less than allowable levels.

Section 51.1(hh)(2)(B)(iii) allows credit for a source that merged gas streams in a change of operation at the facility prior to July 8, 1985 that included the installation of control equipment or had other sound engineering or economic reasons. Any increase in the emission limitation, or in the previous actual emissions where no emission limitation existed created a presumption that those sound reasons were not present.

Section 51.1(hh)(2)(E) has been added to exclude from the definition of prohibited "dispersion techniques" the use of techniques affecting final exhaust gas plume rise where the resulting total allowable emissions of SO_2 from the facility do not exceed 5,000 tons per year.

Section 51.1(ii)(1) has been revised to specify that the 65 meter *de minimis* height is to be measured, as in other determinations of GEP stack height, from the ground-level elevation at the base of the stack. This does not represent a substantive change in the rule or in its application relative to past practices, but rather a simple clarification.

Section 51.1(ii)(2) has been revised to require that source owners demonstrate that the 2.5H formula was relied on in establishing the emission limitation.

Section 51.1(ii)(3) has been revised as discussed elsewhere in this notice to specify that an emission rate equivalent to NSPS must be met before a source may conduct fluid modeling to justify stack height credit in excess of that permitted by the GEP formulae.

Section 51.1(jj) now defines "nearby" for purposes of conducting field studies or fluid modeling demonstrations as 0.8 km (½ mile), but allows limited consideration of terrain features extending beyond that distance if such features "begin" within 0.8 km, as defined in the regulation.

Section 51.1(kk) has been revised to provide separate discussions of "excessive concentrations" for the separate situations discussed earlier in this preamble. As that discussion makes clear, EPA believes that the differing categories of sources subject to this rule are best addressed by requirements that vary somewhat with those circumstances. This definition embodies that approach.

Section 51.12(k) has been corrected to provide that the provisions of § 51.12(j) shall not apply to *stack heights* in existence before December 31, 1970. The proposal had incorrectly stated that ". . . § 51.12 shall not apply to *stacks* existence. . . ."

Program

This regulation does not limit the physical stack height of any source, or the actual use of dispersion techniques at a source, nor does it require any specific stack height for any source. Instead, it sets limits on the maximum credit for stack height and other dispersion techniques to be used in ambient air modeling for the purpose of setting an emission limitation and calculating the air quality impact of a source. Sources are modeled at their actual physical stack height unless that height exceeds their GEP stack height. The regulation applies to all stacks in existence and all dispersion techniques implemented since December 31, 1970.

State Implementation Plan Requirements

Pursuant to section 406(d)(2) of the Clean Air Act Amendments of 1977, EPA is requiring that all States (1) review and revise, as necessary, their SIP's to include provisions that limit stack height credits and dispersion techniques in accordance with this regulation and (2) review all existing emission limitations to determine whether any of these limitations have been affected by stack height credits above GEP or by any other dispersion techniques. For any limitations that have been so affected, States must prepare revised limitations consistent with their revised SIP's. All SIP revisions and revised emission limitations must be submitted to EPA within 9 months of promulgation of this regulation.

Interim Guidance

In its proposal, EPA stated that it would use the proposed regulation to govern stack height credits during the period before promulgation of the final regulation. The EPA further stated that any stack height credits that are granted based on this interim guidance would be subject to review against the final rules and may need to be revised. Consequently, with these final rules, EPA is requiring that any actions that were taken on stack heights and stack height credits during this interm period be reviewed and revised as needed to be consistent with this regulation.

Regulatory Flexibility Analysis

Pursuant to the provisions of 5 U.S.C. 605(b), I hereby certify that the attached rule will not have significant economic impacts on a substantial number of small entities. This rule is structured to apply only to large sources; i.e., those with stacks above 65 meters (213 feet), or with annual SO_2 emissions in excess of 5,000 tons, as further noted in the rule. Based on an analysis of impacts, electric utility plants and several smelters and pulp and paper mills will be significantly affected by this regulation.

Executive Order 12291

Under Executive Order 12291, EPA must judge whether a regulation is "major" and therefore subject to the requirement of a regulatory impact analysis. EPA's analysis of economic impacts predicts a potential cost to emission source owners and operators exceeding $100 million; therefore, this is a major rule under Executive Order 12291. However, due to the promulgation deadline imposed by the court, EPA did not have sufficient time to develop a full analysis of costs and benefits as required by the Executive Order. Consequently, it is not possible to judge the annual effect of this rule on the economy. A preliminary economic impact analysis and subsequent revision were prepared and are in the docket.

For any facility, the air quality and economic impact of the stack height regulation generally depends on the extent to which the actual stack at that facility conforms to GEP stack height.

Thus, when the regulation is applied to large sources, i.e., those with stack height greater than GEP and emissions greater than 5,000 tons per year, it will have the potential for producing emission reductions and increased control costs.

A preliminary evaluation of the potential air quality impacts and a cost analysis of the regulation was performed at the time of proposal. The impacts identified were established in isolation of other regulatory requirements. The report predicted a range of impacts, from a "low impact" scenario that presumed that many potentially affected sources would be able to justify their existing stack heights, configurations, and emission limitations to a "high impact" scenario which assumed that all of the potentially affected sources would be required to reduce their emissions to some degree.

In the development of its final rulemaking action, EPA refined its evaluation of potential impacts, producing revised estimates of the probable costs of the changes to the regulation and expected reductions in SO_2 emissions. As a result of this refinement, EPA estimates that the rule will yield reductions in SO_2 emissions of approximately 1.7 million tons per year. The annualized cost of achieving these reductions will be aproximately $750 million, and the capital cost is expected to be approximately $700 million.

This regulation was reviewed by the Office of Management and Budget, and their written comments and any responses are contained in Docket A-83-49.

Judicial Review

The EPA believes that this rule is based on determinations of nationwide scope and effect. Nothing in section 123 limits its applicability to a particular locality, State, or region. Rather, section 123 applies to sources wherever located. Under section 307(b)(1) of the Clean Air Act (42 U.S.C. 7607(b)(1)), judicial review of the actions taken by this notice is available only by the filing of a petition for review in the United States Court of Appeals for the District of Columbia and within 60 days of the date of publication.

List of Subjects in 40 CFR Part 51

Air pollution control, Ozone, Sulfur dioxide, Nitrogen dioxide, Lead, Particulate matter, Hydrocarbons, Carbon monoxide.

Dated: June 27, 1985.

Lee M. Thomas,

Administrator.

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

Part 51 of Chapter I, Title 40 of the Code of Federal Regulations is amended as follows:

1. The authority citation for Part 51 continues to read as follows:

Authority: Sec. 110, 301(a), and 123, Clean Air Act as amended (42 U.S.C. 7410, 7601(a) and 7423).

2. Section 51.1 is amended by revising paragraphs (hh), (ii), (jj), and (kk) as follows:

§ 51.1 Definitions.

* * * * *

(hh)(1) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by:

(i) Using that portion of a stack which exceeds good engineering practice stack height;

(ii) Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or

(iii) Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.

(2) The preceding sentence does not include:

(i) The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;

(ii) The merging of exhaust gas streams where:

(A) The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

(B) After July 8, 1985, such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or

(C) Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the reviewing agency shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the reviewing agency shall deny credit for the effects of such merging in calculating the allowable emissions for the source;

(iii) Smoke management in agricultural or silvicultural prescribed burning programs;

(iv) Episodic restrictions on residential woodburning and open burning; or

(v) Techniques under § 51.1(hh)(1)(iii) which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed 5,000 tons per year.

(ii) "Good engineering practice" (GEP) stack height means the greater of:

(1) 65 meters, measured from the ground-level elevation at the base of the stack:

(2) (i) For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable permits or approvals required under 40 CFR Parts 51 and 52,

$H_g = 2.5H$,

provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation;

(ii) For all other stacks,

$H_g = H + 1.5L$,

where

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack.

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = lesser dimension, height or projected width, of nearby structure(s)

provided that the EPA, State or local control agency may require the use of a field study or fluid model to verify GEP stack height for the source; or

(3) The height demonstrated by a fluid model or a field study approved by the EPA State or local control agency, which ensures that the emissions from a stack do not result in excessive

concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features.

(jj) "Nearby" as used in § 51.1(ii) of this part is defined for a specific structure or terrain feature and

(1) for purposes of applying the formulae provided in § 51.1(ii)(2) means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than 0.8 km (½ mile), and

(2) for conducting demonstrations under § 51.1(ii)(3) means not greater than 0.8 km (½ mile), except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to 10 times the maximum height (H_t) of the feature, not to exceed 2 miles if such feature achieves a height (H_t) 0.8 km from the stack that is at least 40 percent of the GEP stack height determined by the formulae provided in § 51.1(ii)(2)(ii) of this part or 26 meters, whichever is greater, as measured from the ground-level elevation at the base of the stack. The height of the structure or terrain feature is measured from the ground-level elevation at the base of the stack.

(kk) "Excessive concentration" is defined for the purpose of determining good engineering practice stack height under § 51.1(ii)(3) and means:

(1) for sources seeking credit for stack height exceeding that established under § 51.1(ii)(2), a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard. For sources subject to the prevention of significant deterioration program (40 CFR 51.24 and 52.21), an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and greater than a prevention of significant deterioration increment. The allowable emission rate to be used in making demonstrations under this part shall be prescribed by the new source performance standard that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible. Where such demonstrations are approved by the authority administering the State implementation plan, an alternative emission rate shall be established in consultation with the source owner or operator;

(2) for sources seeking credit after October 1, 1983, for increases in existing stack heights up to the heights established under § 51.1(ii)(2), either (i) a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects as provided in paragraph (kk)(1) of this section, except that the emission rate specified by any applicable State implementation plan (or, in the absence of such a limit, the actual emission rate) shall be used, or (ii) the actual presence of a local nuisance caused by the existing stack, as determined by the authority administering the State implementation plan; and

(3) for sources seeking credit after January 12, 1979 for a stack height determined under § 51.1(ii)(2) where the authority administering the State implementation plan requires the use of a field study or fluid model to verify GEP stack height, for sources seeking stack height credit after November 9, 1984 based on the aerodynamic influence of cooling towers, and for sources seeking stack height credit after December 31, 1970 based on the aerodynamic influence of structures not adequately represented by the equations in § 51.1(ii)(2), a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects that is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

3. Section 51.1 is further amended by removing paragraphs (ll) and (mm).

§ 51.12 [Amended]

4. Section 51.12 is amended by removing paragraph (l).

5. Section 51.12(j) is amended by removing "and (l)" from the first sentence.

6. Section 51.12(k) is revised as follows:

(k) The provisions of § 51.12(j) shall not apply to (1) stack heights in existence, or dispersion techniques implemented on or before December 31, 1970, except where pollutants are being emitted from such stacks or using such dispersion techniques by sources, as defined in section 111(a)(3) of the Clean Air Act, which were constructed, or reconstructed, or for which major modifications, as defined in §§ 51.18(j)(1)(v)(a), 51.24(b)(2)(i) and 52.21(b)(2)(i), were carried out after December 31, 1970; or (2) coal-fired steam electric generating units subject to the provisions of Section 118 of the Clean Air Act, which commenced operation before July 1, 1957, and whose stacks were constructed under a construction contract awarded before February 8, 1974.

§ 51.18 [Amended]

7. Section 51.18(l) is amended by removing "and (l)" from the first sentence.

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PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

Authority: This rulemaking is promulgated under authority of sections 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act 42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a).

Source: 36 FR 22398, Nov. 25, 1971, unless otherwise noted.

Editorial Note: Nomenclature changes affecting Part 51 appear at 44 FR 8237, Feb. 8, 1979 and 51 FR 40661, Nov. 7, 1986.

Subparts A-C—[Reserved]

Subpart D—Maintenance of National Standards

Source: 41 FR 18388, May 3, 1976, unless otherwise noted.

§ 51.40 Scope.

(a) *Applicability.* The requirements of this subpart apply to air quality maintenance areas (AQMAs) identified under § 51.110(i) and to any areas identified under § 51.110(l).

(b) *AQMA Analysis.* Under this subpart, procedures are given for the analysis of the air quality impact of specified pollutant emissions from existing sources and emissions associated with projected growth and development in areas identified under paragraphs (i) and (l) of § 51.110. This analysis is referred to in this subpart as an AQMA analysis.

(c) *AQMA Plan.* Under this subpart, the Administrator will require a revision to the State implementation plan for areas identified under § 51.110(i) or § 51.110(l) when necessary to prevent a national ambient air quality standard

estimated amounts of emissions and the amounts of such emissions allowable under the applicable emission limitations or other measures.

§ 51.117 Additional provisions for lead.

In addition to other requirements in §§ 51.100 through 51.116 the following requirements apply to lead. To the extent they conflict, there requirements are controlling over those of the proceeding sections.

(a) *Control strategy demonstration.* Each plan must contain a demonstration showing that the plan will attain and maintain the standard 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 2,000 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 ambient air quality standard concentration for lead, measured since January 1, 1974.

(b) *Time perio for emonstration of a equacy.* The demonstration of adequacy of the control strategy required under § 51.112 may cover a longer period if allowed by the appropriate EPA Regional Administrator.

(c) *Special modeling provisions.* (1) For urbanized areas with measured lead concentrations in excess of 4.0 $\mu g/m^3$, 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. If a proportional model is used, the air quality data should be the same year as the emissions inventory required under the paragraph e.

(2) For each point source listed in § 51.117(a), that plan must employ an atmospheric dispersion model for demonstration of attainment.

(3) 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.

(d) *Air quality data and projections.* (1) Each State must submit to the appropriate EPA Regional Office with the plan, but not 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.

(3) 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.

(e) *Emissions data.* (1) The point source inventory on which the summary of the baseline lead emissions inventory is based must contain all sources that emit five or more tons of lead per year.

(2) Each State must submit lead emissions data to the appropriate EPA Regional Office with the original plan. The submission must be made with the plan, but not as part of the plan, and must include emissions data and information related to point and area source emissions. The emission data and information should include the information identified in the Hazardous and Trace Emissions System (HATREMS) point source coding forms for all point sources and the area source coding forms for all sources that are not point sources, but need not necessarily be in the format of those forms.

§ 51.118 Stack height provisions.

(a) The plan must provide that the degree of emission limitation required of any source for control of any air pollutant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in § 51.118(b). The plan must provide that before a State submits to EPA a new or revised emission limitation that is based on a good engineering practice stack height that exceeds the height allowed by § 51.100(ii) (1) or (2), the State must notify the public of the availablity of the demonstration study and must provide opportunity for a public hearing on it. This section does not require the plan to restrict, in any manner, the actual stack height of any source.

(b) The provisions of § 51.118(a) shall not apply to (1) stack heights in existence, or dispersion techniques implemented on or before December 31, 1970, except where pollutants are being emitted from such stacks or using such dispersion techniques by sources, as defined in section 111(a)(3) of the Clean Air Act, which were constructed, or reconstructed, or for which major modifications, as defined in §§ 51.165(a)(1)(v)(A), 51.166(b)(2)(i) and 52.21(b)(2)(i), were carried out after December 31, 1970; or (2) coal-fired steam electric generating units subject to the provisions of section 118 of the Clean Air Act, which commenced operation before July 1, 1957, and whose stacks were construced under a construction contract awarded before February 8, 1974.

§ 51.119 Intermittent control systems.

(a) The use of an intermittent control system (ICS) may be taken into account in establishing an emission limitation for a pollutant under a State implementation plan, provided:

(1) The ICS was implemented before December 31, 1970, according to the criteria specified in § 51.119(b).

(2) The extent to which the ICS is taken into account is limited to reflect emission levels and associated ambient pollutant concentrations that would result if the ICS was the same as it was before December 31, 1970, and was operated as specified by the operating system of the ICS before December 31, 1970.

(3) The plan allows the ICS to compensate only for emissions from a source for which the ICS was implemented before December 31, 1970, and, in the event the source has been modified, only to the extent the emissions correspond to the maximum capacity of the source before December 31, 1970. For purposes of this paragraph, a source for which the ICS was implemented is any particular structure or equipment the emissions from which were subject to the ICS operating procedures.

(4) The plan requires the continued operation of any constant pollution control system which was in use before December 31, 1970, or the equivalent of that system.

(5) The plan clearly defines the emission limits affected by the ICS and the manner in which the ICS is taken into account in establishing those limits.

(6) The plan contains requirements for the operation and maintenance of the qualifying ICS which, together with the emission limitations and any other necessary requirements, will assure that the national ambient air quality standards and any applicable prevention of significant deterioration increments will be attained and maintained. These requirements shall include, but not necessarily be limited to, the following:

(i) Requirements that a source owner or operator continuously operate and maintain the components of the ICS specified at § 51.119(b)(3) (ii)-(iv) in a manner which assures that the ICS is at least as effective as it was before December 31, 1970. The air quality monitors and meteorological instrumentation specified at § 51.119(b) may be operated by a local authority or other entity provided the source has ready access to the data from the monitors and instrumentation.

(ii) Requirements which specify the circumstances under which, the extent to which, and the procedures through which, emissions shall be curtailed through the activation of ICS.

(iii) Requirements for recordkeeping which require the owner or operator

§ 51.153 Reevaluation of episode plans.

(a) States should periodically re-evaluate priority classifications of all Regions or portion of Regions within their borders. The reevaluation must consider the three most recent years of air quality data. If the evaluation indicates a change to a higher priority classification, appropriate changes in the episode plan must be made as expeditiously as practicable.

Subpart I—Review of New Sources and Modifications

Source: 51 FR 40669, Nov. 7, 1986, unless otherwise noted.

§ 51.160 Legally enforceable procedures.

(a) Each plan must set forth legally enforceable procedures that enable the State or local agency to determine whether the construction or modification of a facility, building, structure or installation, or combination of these will result in—

(1) A violation of applicable portions of the control strategy; or

(2) Interference with attainment or maintenance of a national standard in the State in which the proposed source (or modification) is located or in a neighboring State.

(b) Such procedures must include means by which the State or local agency responsible for final decision-making on an application for approval to construct or modify will prevent such construction or modification if—

(1) It will result in a violation of applicable portions of the control strategy; or

(2) It will interfere with the attainment or maintenance of a national standard.

(c) The procedures must provide for the submission, by the owner or operator of the building, facility, structure, or installation to be constructed or modified, of such information on—

(1) The nature and amounts of emissions to be emitted by it or emitted by associated mobile sources;

(2) The location, design, construction, and operation of such facility, building, structure, or installation as may be necessary to permit the State or local agency to make the determination referred to in paragraph (a) of this section.

(d) The procedures must provide that approval of any construction or modification must not affect the responsibility to the owner or operator to comply with applicable portions of the control strategy.

(e) The procedures must identify types and sizes of facilities, buildings, structures, or installations which will be subject to review under this section. The plan must discuss the basis for determining which facilities will be subject to review.

(f) The procedures must discuss the air quality data and the dispersion or other air quality modeling used to meet the requirements of this subpart.

§ 51.161 Public availability of information.

(a) The legally enforceable procedures in § 51.160 must also require the State or local agency to provide opportunity for public comment on information submitted by owners and operators. The public information must include the agency's analysis of the effect of construction or modification on ambient air quality, including the agency's proposed approval or disapproval.

(b) For purposes of paragraph (a) of this section, opportunity for public comment shall include, as a minimum—

(1) Availability for public inspection in at least one location in the area affected of the information submitted by the owner or operator and of the State or local agency's analysis of the effect on air quality;

(2) A 30-day period for submittal of public comment; and

(3) A notice by prominent advertisement in the area affected of the location of the source information and analysis specified in paragraph (b)(1) of this section.

(c) Where the 30-day comment period required in paragraph (b) of this section would conflict with existing requirements for acting on requests for permission to construct or modify, the State may submit for approval a comment period which is consistent with such existing requirements.

(d) A copy of the notice required by paragraph (b) of this section must also be sent to the Administrator through the appropriate Regional Office, and to all other State and local air pollution control agencies having jurisdiction in the region in which such new or modified installation will be located. The notice also must be sent to any other agency in the region having responsibility for implementing the procedures required under this subpart. For lead, a copy of the notice is required for all point sources. The definition of point for lead is given in § 51.100(k)(2).

§ 51.162 Identification of responsible agency.

Each plan must identify the State or local agency which will be responsible for meeting the requirements of this subpart in each area of the State. Where such responsibility rests with an agency other than an air pollution control agency, such agency will consult with the appropriate State or local air pollution control agency in carrying out the provisions of this subpart.

§ 51.163 Administrative procedures.

The plan must include the administrative procedures, which will be followed in making the determination specified in paragraph (a) of § 51.160.

§ 51.164 Stack height procedures.

Such procedures must provide that the degree of emission limitation required of any source for control of any air pollutant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in § 51.118(b). Such procedures must provide that before a State issues a permit to a source based on a good engineering practice stack height that exceeds the height allowed by § 51.100(ii) (1) or (2), the State must notify the public of the availability of the demonstration study and must provide opportunity for public hearing on it. This section does not require such procedures to restrict in any manner the actual stack height of any source.

§ 51.165 Permit requirements.

(a) State Implementation Plan provisions satisfying sections 172(b)(6) and 173 of the Act shall meet the following conditions:

(1) All such plans shall use the specific definitions. Deviations from the following wording will be approved only if the state specifically demonstrates that the submitted definition is more stringent, or at least as stringent, in all respects as the corresponding definition below:

(i) "Stationary source" means any building, structure, facility, or installation which emits or may emit any air pollutant subject to regulation under the Act.

(ii) "Building, structure, facility, or installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same two-digit code) as described in the *Standard Industrial Classification Manual, 1972*, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0065 and 003-005-00176-0, respectively).

(iii) "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

monitoring or communications portions of a contingency plan, but detailed critiques of such portions are provided to the State.

(c) Where a State plan does not provide for public announcement regarding air pollution emergency episodes or where the State fails to give any such public announcement, the Administrator will issue a public announcement that an episode stage has been reached. When making such an announcement, the Administrator will be guided by the suggested episode criteria and emission control actions suggested in Appendix L of Part 51 of this chapter or those in the approved plan.

[37 FR 10846, May 31, 1972, as amended at 37 FR 19807, Sept. 22, 1972]

§ 52.12 Source surveillance.

(a) Each subpart identifies the plan provisions for source surveillance which are disapproved, and sets forth the Administrator's promulgation of necessary provisions for requiring sources to maintain records, make reports, and submit information.

(b) No provisions are promulgated for any disapproved State or local agency procedures for testing, inspection, investigation, or detection, but detailed critiques of such portions are provided to the State.

(c) For purpose of Federal enforcement, the following test procedures shall be used:

(1) Sources subject to plan provisions which do not specify a test procedure and sources subject to provisions promulgated by the Administrator will be tested by means of the appropriate procedures and methods prescribed in Part 60 of this chapter; unless otherwise specified in this part.

(2) Sources subject to approved provisions of a plan wherein a test procedure is specified will be tested by the specified procedure.

[37 FR 10846, May 31, 1972, as amended at 40 FR 26032, June 20, 1975]

§ 52.13 Air quality surveillance; resources; intergovernmental cooperation.

Disapproved portions of the plan related to the air quality surveillance system, resources, and intergovernmental cooperation are identified in each subpart, and detailed critiques of such portions are provided to the State. No provisions are promulgated by the Administrator.

§ 52.14 State ambient air quality standards.

Any ambient air quality standard submitted with a plan which is less stringent than a national standard is not considered part of the plan.

§ 52.15 Public availability of plans.

Each State shall make available for public inspection at least one copy of the plan in at least one city in each region to which such plan is applicable. All such copies shall be kept current.

§ 52.16 Submission to Administrator.

All requests, reports, applications, submittals, and other communications to the Administrator pursuant to this part shall be submitted in duplicate and addressed to the appropriate Regional Office of the Environmental Protection Agency, to the attention of the Director, Enforcement Division. The Regional Offices are as follows:

Region I (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont), John F. Kennedy Federal Building, Boston, Mass. 02203.

Region II (New York, New Jersey, Puerto Rico, Virgin Islands) Federal Office Building, 26 Federal Plaza (Foley Square), New York, NY 10007.

Region III (Delaware, District of Columbia, Pennsylvania, Maryland, Virginia, West Virginia) Curtis Building, Sixth and Walnut Streets, Philadelphia, PA 19106.

Region IV (Alabama, Florida, Georgia, Mississippi, Kentucky, North Carolina, South Carolina, Tennessee) Suite 300, 1421 Peachtree Street, Atlanta, GA 30309.

Region V (Illinois, Indiana, Minnesota, Ohio, Wisconsin) Federal Building, 230 South Dearborn, Chicago, Illinois 60606.

Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, Texas) 1600 Paterson Street, Dallas, TX 75201.

Region VII (Iowa, Kansas, Missouri, Nebraska) 1735 Baltimore Street, Kansas City, MO 64108.

Region VIII (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming) 916 Lincoln Towers, 1860 Lincoln Street, Denver, CO 80203.

Region IX (Arizona, California, Hawaii, Nevada, Guam, American Samoa) 100

California Street, San Francisco, CA 94111.

Region X (Washington, Oregon, Idaho, Alaska) 1200 Sixth Avenue, Seattle, WA 98101.

[37 FR 19808, Sept. 22, 1972, as amended at 39 FR 37987, Oct. 28, 1974]

§ 52.17 Severability of provisions.

The provisions promulgated in this part and the various applications thereof are distinct and severable. If any provision of this part or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or application of such provision to other persons or circumstances which can be given effect without the invalid provision or application.

[37 FR 19808, Sept. 22, 1972]

§ 52.18 Abbreviations.

Abbreviations used in this part shall be those set forth in Part 60 of this chapter.

[38 FR 12696, May 14, 1973]

§ 52.19 Revision of plans by Administrator.

After notice and opportunity for hearing in each affected State, the Administrator may revise any provision of an applicable plan, including but not limited to provisions specifying compliance schedules, emission limitations, and dates for attainment of national standards; if:

(a) The provision was promulgated by the Administrator, and

(b) The plan, as revised, will be consistent with the act and with the requirements applicable to implementation plans under Part 51 of this chapter.

[38 FR 12696, May 14, 1973]

§ 52.20 Attainment dates for national standards.

Each subpart contains a section which specifies the latest dates by which national standards are to be attained in each region in the State. An attainment date which only refers to a month and a year (such as July 1975) shall be construed to mean the last day of the month in question. However, the specification of attainment dates for national standards does not relieve any State from the provisions of Subpart N of this chapter which require all sources and categories of sources to comply with applicable requirements of the plan—

(a) As expeditiously as practicable where the requirement is part of a control strategy designed to attain a primary standard, and

(b) Within a reasonable time where the requirement is part of a control strategy designed to attain a secondary standard.

[37 FR 19808, Sept. 22, 1972, as amended at 39 FR 34535, Sept. 26, 1974; 51 FR 40676, Nov. 7, 1986]

§ 52.21 Prevention of significant deterioration of air quality.

(a) *Plan disapproval.* The provisions of this section are applicable to any State implementation plan which has been disapproved with respect to prevention of significant deterioration of air quality in any portion of any State where the existing air quality is better than the national ambient air quality standards. Specific disapprovals are listed where applicable, in Subparts B through DDD of this part. The provisions of this section have been incorporated by reference into the applicable implementation plans for various States, as provided in Subparts B through DDD of this part. Where this section is so incorporated, the provisions shall also be applicable to all lands owned by the Federal Government and Indian Reservations located in such State. No disapproval with respect to a State's failure to prevent significant deterioration of air quality shall invalidate or otherwise affect the obligations of States, emission sources, or other persons with respect to all portions of plans approved or promulgated under this part.

(b) *Definitions.* For the purposes of this section:

(1)(i) "Major stationary source" means:

(*a*) Any of the following stationary sources of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any pollutant subject to regulation under the Act: Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants, and charcoal production plants;

(b) Notwithstanding the stationary source size specified in paragraph (b)(1)(i) of this section, any stationary source which emits, or has the potential to emit, 250 tons per year or more of any air pollutant subject to regulation under the Act; or

(c) Any physical change that would occur at a stationary source not otherwise qualifying under paragraph (b)(1) of this section, as a major stationary source, if the changes would constitute a major stationary source by itself.

(ii) A major stationary source that is major for volatile organic compounds shall be considered major for ozone.

(iii) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this section whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

(a) Coal cleaning plants (with thermal dryers);

(b) Kraft pulp mills;

(c) Portland cement plants;

(d) Primary zinc smelters;

(e) Iron and steel mills;

(f) Primary aluminum ore reduction plants;

(g) Primary copper smelters;

(h) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(i) Hydrofluoric, sulfuric, or nitric acid plants;

(j) Petroleum refineries;

(k) Lime plants;

(l) Phosphate rock processing plants;

(m) Coke oven batteries;

(n) Sulfur recovery plants;

(o) Carbon black plants (furnace process);

(p) Primary lead smelters;

(q) Fuel conversion plants;

(r) Sintering plants;

(s) Secondary metal production plants;

(t) Chemical process plants;

(u) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(v) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(w) Taconite ore processing plants;

(x) Glass fiber processing plants;

(y) Charcoal production plants;

(z) Fossil fuel-fired steam electric plants of more that 250 million British thermal units per hour heat input." and

(aa) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

(2)(i) "Major modification" means any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.

(ii) Any net emissions increase that is significant for volatile organic compounds shall be considered significant for ozone.

(iii) A physical change or change in the method of operation shall not include:

(a) Routine maintenance, repair and replacement;

(b) Use of an alternative fuel or raw material by reason of an order under sections 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plant pursuant to the Federal Power Act;

(c) Use of an alternative fuel by reason of an order or rule under section 125 of the Act;

(d) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(e) Use of an alternative fuel or raw material by a stationary source which:

(1) The source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975 pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or 40 CFR 51.166; or

(2) The source is approved to use under any permit issued under 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.166;

(f) An increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975, pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or 40 CFR 51.166.

(g) Any change in ownership at a stationary source.

(3)(i) "Net emissions increase" means the amount by which the sum of the following exceeds zero:

(a) Any increase in actual emissions from a particular physical change or change in method of operation at a stationary source; and

(b) Any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable.

(ii) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between:

(a) The date five years before construction on the particular change commences; and

(b) The date that the increase from the particular change occurs.

(iii) An increase or decrease in actual emissions is creditable only if the Administrator has not relied on it in issuing a permit for the source under this section, which permit is in effect when the increase in actual emissions from the particular change occurs.

(iv) An increase or decrease in actual emissions of sulfur dioxide or particulate matter which occurs before the applicable baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available.

(v) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

(vi) A decrease in actual emissions is creditable only to the extent that:

(a) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

(b) It is federally enforceable at and after the time that actual construction on the particular change begins; and

(c) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

(vii) [Reserved]

(viii) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

(4) "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

(5) "Stationary source" means any building, structure, facility, or installa-

tion which emits or may emit any air pollutant subject to regulation under the Act.

(6) "Building, structure, facility, or installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same first two digit code) as described in the *Standard Industrial Classification Manual, 1972*, as amended by the 1977 Supplement (U. S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively).

(7) "Emissions unit" means any part of a stationary source which emits or would have the potential to emit any pollutant subject to regulation under the Act.

(8) "Construction" means any physical change or change in the method of operation (including fabrication, erection, installation, demolition, or modification of an emissions unit) which would result in a change in actual emissions.

(9) "Commence" as applied to construction of a major stationary source or major modification means that the owner or operator has all necessary preconstruction approvals or permits and either has:

(i) Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

(ii) Entered into binding agreements or contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time.

(10) "Necessary preconstruction approvals or permits" means those permits or approvals required under federal air quality control laws and regulations and those air quality control laws and regulations which are part of the applicable State Implementation Plan.

(11) "Begin actual construction" means, in general, initiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying underground pipework and construction of permanent storage structures. With respect to a change in method of operations, this term refers to those on-site activites other than preparatory activities which mark the initiation of the change.

(12) "Best available control technology" means an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61. If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.

(13)(i) "Baseline concentration" means that ambient concentration level which exists in the baseline area at the time of the applicable baseline date. A baseline concentration is determined for each pollutant for which a baseline date is established and shall include:

(*a*) The actual emissions representative of sources in existence on the applicable baseline date, except as provided in paragraph (b)(13)(ii) of this section;

(*b*) The allowable emissions of major stationary sources which commenced construction before January 6, 1975, but were not in operation by the applicable baseline date.

(ii) The following will not be included in the baseline concentration and will affect the applicable maximum allowable increase(s):

(*a*) Actual emissions from any major stationary source on which construction commenced after January 6, 1975; and

(*b*) Actual emissions increases and decreases at any stationary source occurring after the baseline date.

(14)(i) "Baseline date" means the earliest date after August 7, 1977, on which the first complete application under 40 CFR 52.21 is submitted by a major stationary source or major modification subject to the requirements of 40 CFR 52.21.

(ii) The baseline date is established for each pollutant for which increments or other equivalent measures have been established if:

(*a*) The area in which the proposed source or modification would construct is designated as attainment or unclassifiable under section 107(d)(i) (D) or (E) of the Act for the pollutant on the date of its complete application under 40 CFR 52.21; and

(*b*) In the case of a major stationary source, the pollutant would be emitted in significant amounts, or, in the case of a major modification, there would be a significant net emissions increase of the pollutant.

(15)(i) "Baseline area" means any intrastate area (and every part thereof) designated as attainment or unclassifiable under section 107(d)(1) (D) or (E) of the Act in which the major source or major modification establishing the baseline date would construct or would have an air quality impact equal to or greater than 1 μg/m³ (annual average) of the pollutant for which the baseline date is established.

(ii) Area redesignations under section 107(d)(1) (D) or (E) of the Act cannot intersect or be smaller than the area of impact of any mjaor stationary source or major modification which:

(*a*) Establishes a baseline date; or

(*b*) Is subject to 40 CFR 52.21 and would be constructed in the same state as the state proposing the redesignation.

(16) "Allowable emissions" means the emissions rate of a stationary source calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable limits which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

(i) The applicable standards as set forth in 40 CFR Parts 60 and 61;

(ii) The applicable State Implementation Plan emissions limitation, including those with a future compliance date; or

(iii) The emissions rate specified as a federally enforceable permit condition, including those with a future compliance date.

(17) "Federally enforceable" means all limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable State Implementation Plan, and any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I and 40 CFR 51.166.

(18) "Secondary emissions" means emissions which would occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. Secondary emissions include emissions from any offsite support facility which would not be constructed or increase its emissions except as a result of the construction or operation of the major stationary source or major modification. Secondary emissions do not include any emissions which come di-

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rectly from a mobile source, such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel.

(i) Emissions from ships or trains coming to or from the new or modified stationary source; and

(ii) Emissions from any offsite support facility which would not otherwise be constructed or increase its emissions as a result of the construction or operation of the major stationary source or major modification.

(19) "Innovative control technology" means any system of air pollution control that has not been adequately demonstrated in practice, but would have a substantial likelihood of achieving greater continuous emissions reduction than any control system in current practice or of achieving at least comparable reductions at lower cost in terms of energy, economics, or nonair quality environmental impacts.

(20) "Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

(21)(i) "Actual emissions" means the actual rate of emissions of a pollutant from an emissions unit, as determined in accordance with paragraphs (b)(21) (ii) through (iv) of this section.

(ii) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operation. The Administrator shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

(iii) The Administrator may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(iv) For any emissions unit which has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

(22) "Complete" means, in reference to an application for a permit, that the application contains all of the information necessary for processing the application.

(23) (i) "Significant" means, in reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant and Emissions Rate

Carbon monoxide: 100 tons per year (tpy)
Nitrogen oxides: 40 tpy
Sulfur dioxide: 40 tpy
Particulate matter:
25 tpy of particulate matter emissions;
15 tpy of PM_{10} emissions
Ozone: 40 tpy of volatile organic compounds
Lead: 0.6 tpy
Asbestos: 0.007 tpy
Beryllium: 0.0004 tpy
Mercury: 0.1 tpy
Vinyl chloride: 1 tpy
Fluorides: 3 tpy
Sulfuric acid mist: 7 tpy
Hydrogen sulfide (H_2S): 10 tpy
Total reduced sulfur (including H_2S): 10 tpy
Reduced sulfur compounds (including H_2S): 10 tpy

(ii) "Significant" means, in reference to a net emissions increase or the potential of a source to emit a pollutant subject to regulation under the Act that paragraph (b)(23)(i) of this section, does not list, any emissions rate.

(iii) Notwithstanding paragraph (b)(23)(i) of this section, "significant" means any emissions rate or any net emissions increase associated with a major stationary source or major modification, which would construct within 10 kilometers of a Class I area, and have an impact on such area equal to or greater than 1 $\mu g/m^3$, (24-hour average).

(24) "Federal Land Manager" means, with respect to any lands in the United States, the Secretary of the department with authority over such lands.

(25) "High terrain" means any area having an elevation 900 feet or more above the base of the stack of a source.

(26) "Low terrain" means any area other than high terrain.

(27) "Indian Reservation" means any federally recognized reservation

established by Treaty, Agreement, executive order, or act of Congress.

(28) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self government.

(29) "Adverse impact on visibility" means visibility impairment which interferes with the management, protection, preservation or enjoyment of the visitor's visual experience of the Federal Class I area. This determination must be made on a case-by-case basis taking into account the geographic extent, intensity, duration, frequency and time of visibility impairment, and how these factors correlate with (1) times of visitor use of the Federal Class I area, and (2) the frequency and timing of natural conditions that reduce visibility.

(c) *Ambient air increments.* In areas designated as Class I, II or III, increases in pollutant concentration over the baseline concentration shall be limited to the following:

MAXIMUM ALLOWABLE INCREASE

Pollutant	Micrograms per cubic meter
Class I	
Particulate matter:	
TSP, annual geometric mean	5
TSP, 24-hr. maximum	10
Sulfur dioxide:	
Annual arithmetic mean	2
24-h maximum	5
3-h maximum	25
Class II	
Particulate matter:	
TSP, annual geometric mean	19
TSP, 24-hr. maximum	37
Sulfur dioxide:	
Annual arithmetic mean	20
24-h maximum	91
3-h maximum	512
Class III	
Particulate matter:	
TSP, annual geometric mean	37
TSP, 24-hr. maximum	75
Sulfur dioxide:	
Annual arithmetic mean	40
24-h maximum	182
3-h maximum	700

For any period other than an annual period, the applicable maximum allowable increase may be exceeded during one such period per year at any one location.

(d) *Ambient air ceilings.* No concentration of a pollutant shall exceed:

(1) The concentration permitted under the national secondary ambient air quality standard, or

(2) The concentration permitted under the national primary ambient air quality standard, whichever concentration is lowest for the pollutant for a period of exposure.

(e) *Restrictions on area classifications.* (1) All of the following areas which were in existence on August 7, 1977, shall be Class I areas and may not be redesignated:

(i) International parks,

(ii) National wilderness areas which exceed 5,000 acres in size,

(iii) National memorial parks which exceed 5,000 acres in size, and

(iv) National parks which exceed 6,000 acres in size.

(2) Areas which were redesignated as Class I under regulations promulgated before August 7, 1977, shall remain Class I, but may be redesignated as provided in this section.

(3) Any other area, unless otherwise specified in the legislation creating such an area, is initially designated Class II, but may be redesignated as provided in this section.

(4) The following areas may be redesignated only as Class I or II:

(i) An area which as of August 7, 1977, exceeded 10,000 acres in size and was a national monument, a national primitive area, a national preserve, a national recreational area, a national wild and scenic river, a national wildlife refuge, a national lakeshore or seashore; and

(ii) A national park or national wilderness area established after August

7, 1977, which exceeds 10,000 acres in size.

(f) *Exclusions from increment consumption.* (1) Upon written request of the governor, made after notice and opportunity for at least one public hearing to be held in accordance with procedures established in 40 CFR 51.102, the Administrator shall exclude the following concentrations in determining compliance with a maximum allowable increase:

(i) Concentrations attributable to the increase in emissions from stationary sources which have converted from the use of petroleum products, natural gas, or both by reason of an order in effect under sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) over the emissions from such sources before the effective date of such an order;

(ii) Concentrations attributable to the increase in emissions from sources which have converted from using natural gas by reason of a natural gas curtailment plan in effect pursuant to the Federal Power Act over the emissions from such sources before the effective date of such plan;

(iii) Concentrations of particulate matter attributable to the increase in emissions from construction or other temporary emission-related activities of new or modified sources;

(iv) The increase in concentrations attributable to new sources outside the United States over the concentrations attributable to existing sources which are included in the baseline concentration; and

(v) Concentrations attributable to the temporary increase in emissions of sulfur dioxide or particulate matter from stationary sources which are affected by plan revisions approved by the Administrator as meeting the criteria specified in paragraph (f)(4) of this section.

(2) No exclusion of such concentrations shall apply more than five years after the effective date of the order to which paragraph (f)(1)(i) of this section, refers or the plan to which paragraph (f)(1)(ii) of this section, refers, whichever is applicable. If both such order and plan are applicable, no such exclusion shall apply more than five years after the later of such effective dates.

(3) No exclusion under paragraph (f) of this section shall occur later than 9 months after August 7, 1980, unless a State Implementation Plan revision meeting the requirements of 40 CFR 51.166 has been submitted to the Administrator.

(4) For purposes of excluding concentrations pursuant to paragraph (f)(1)(v) of this section, the proposed plan revision shall:

(i) Specify the time over which the temporary emissions increase of sulfur dioxide or particulate matter would occur. Such time is not to exceed two years in duration unless a longer time is approved by the Administrator;

(ii) Specify that the time period for excluding certain contributions in accordance with paragraph (f)(4)(i) of this section, is not renewable;

(iii) Allow no emissions increase from a stationary source which would:

(*a*) Impact a Class I area or an area where an applicable increment is known to be violated; or

(*b*) Cause or contribute to the violation of a national ambient air quality standard;

(iv) Require limitations to be in effect at the end of the time period specified in accordance with paragraph (f)(4)(i) of this section, which would ensure that the emissions levels from stationary sources affected by the plan revision would not exceed those levels occurring from such sources before the plan revision was approved.

(g) *Redesignation.* (1) All areas (except as otherwise provided under paragraph (e) of this section) are designated Class II as of December 5, 1974. Redesignation (except as otherwise precluded by paragraph (e) of this section) may be proposed by the respective States or Indian Governing Bodies, as provided below, subject to approval by the Administrator as a revision to the applicable State implementation plan.

(2) The State may submit to the Administrator a proposal to redesignate areas of the State Class I or Class II provided that:

(i) At least one public hearing has been held in accordance with procedures established in § 51.102 of this chapter;

(ii) Other States, Indian Governing Bodies, and Federal Land Managers whose lands may be affected by the proposed redesignation were notified at least 30 days prior to the public hearing;

(iii) A discussion of the reasons for the proposed redesignation, including a satisfactory description and analysis of the health, environmental, economic, social and energy effects of the proposed redesignation, was prepared and made available for public inspection at least 30 days prior to the hearing and the notice announcing the hearing contained appropriate notification of the availability of such discussion;

(iv) Prior to the issuance of notice respecting the redesignation of an area that includes any Federal lands, the State has provided written notice to the appropriate Federal Land Manager and afforded adequate opportunity (not in excess of 60 days) to confer with the State respecting the redesignation and to submit written comments and recommendations. In redesignating any area with respect to which any Federal Land Manager had submitted written comments and recommendations, the State shall have published a list of any inconsistency between such redesignation and such comments and recommendations (together with the reasons for making such redesignation against the recommendation of the Federal Land Manager); and

(v) The State has proposed the redesignation after consultation with the elected leadership of local and other substate general purpose governments in the area covered by the proposed redesignation.

(3) Any area other than an area to which paragraph (e) of this section refers may be redesignated as Class III if—

(i) The redesignation would meet the requirements of paragraph (g)(2) of this section;

(ii) The redesignation, except any established by an Indian Governing Body, has been specifically approved by the Governor of the State, after consultation with the appropriate committees of the legislature, if it is in session, or with the leadership of the legislature, if it is not in session (unless State law provides that the redesignation must be specifically approved by State legislation) and if general purpose units of local government representing a majority of the residents of the area to be redesignated enact legislation or pass resolutions concurring in the redesignation;

(iii) The redesignation would not cause, or contribute to, a concentration of any air pollutant which would exceed any maximum allowable increase permitted under the classification of any other area or any national ambient air quality standard; and

(iv) Any permit application for any major stationary source or major modification, subject to review under paragraph (l) of this section, which could receive a permit under this section only if the area in question were redesignated as Class III, and any material submitted as part of that application, were available insofar as was practicable for public inspection prior to any public hearing on redesignation of the area as Class III.

(4) Lands within the exterior boundaries of Indian Reservations may be redesignated only by the appropriate Indian Governing Body. The appropriate Indian Governing Body may submit to the Administrator a proposal to redesignate areas Class I, Class II, or Class III: *Provided*, That:

(i) The Indian Governing Body has followed procedures equivalent to those required of a State under paragraphs (g)(2), (g)(3)(iii), and (g)(3)(iv) of this section; and

(ii) Such redesignation is proposed after consultation with the State(s) in which the Indian Reservation is located and which border the Indian Reservation.

(5) The Administrator shall disapprove, within 90 days of submission, a proposed redesignation of any area only if he finds, after notice and opportunity for public hearing, that such redesignation does not meet the procedural requirements of this paragraph or is inconsistent with paragraph (e) of this section. If any such disapproval occurs, the classification of the area shall be that which was in effect prior

to the redesignation which was disapproved.

(6) If the Administrator disapproves any proposed redesignation, the State or Indian Governing Body, as appropriate, may resubmit the proposal after correcting the deficiencies noted by the Administrator.

(h) *Stack heights.* (1) The degree of emission limitation required for control of any air pollutant under this section shall not be affected in any manner by—

(i) So much of the stack height of any source as exceeds good engineering practice, or

(ii) Any other dispersion technique.

(2) Paragraph (h)(1) of this section shall not apply with respect to stack heights in existence before December 31, 1970, or to dispersion techniques implemented before then.

(i) *Review of major stationary sources and major modifications—Source applicability and exemptions.* (1) No stationary source or modification to which the requirements of paragraphs (j) through (r) of this section apply shall begin actual construction without a permit which states that the stationary source or modification would meet those requirements. The Administrator has authority to issue any such permit.

(2) The requirements of paragraphs (j) through (r) of this section shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the Act that it would emit, except as this section otherwise provides.

(3) The requirements of paragraphs (j) through (r) of this section apply only to any major stationary source or major modification that would be constructed in an area designated as attainment or unclassifiable under section 107(d)(1)(D) or (E) of the Act.

(4) The requirements of paragraphs (j) through (r) of this section shall not apply to a particular major stationary source or major modification, if:

(i) Construction commenced on the source or modification before August 7, 1977. The regulations at 40 CFR 52.21 as in effect before August 7, 1977, shall govern the review and permitting of any such source or modification; or

(ii) The source or modification was subject to the review requirements of 40 CFR 52.21(d)(1) as in effect before March 1, 1978, and the owner or operator:

(*a*) Obtained under 40 CFR 52.21 a final approval effective before March 1, 1978;

(*b*) Commenced construction before March 19, 1979; and

(*c*) Did not discontinue construction for a period of 18 months or more and completed construction within a reasonable time; or

(iii) The source or modification was subject to 40 CFR 52.21 as in effect before March 1, 1978, and the review of an application for approval for the stationary source or modification under 40 CFR 52.21 would have been completed by March 1, 1978, but for an extension of the public comment period pursuant to a request for such an extension. In such a case, the application shall continue to be processed, and granted or denied, under 40 CFR 52.21 as in effect prior to March 1, 1978; or

(iv) The source or modification was not subject to 40 CFR 52.21 as in effect before March 1, 1978, and the owner or operator:

(*a*) Obtained all final Federal, state and local preconstruction approvals or permits necessary under the applicable State Implementation Plan before March 1, 1978;

(*b*) Commenced construction before March 19, 1979; and

(*c*) Did not discontinue construction for a period of 18 months or more and completed construction within a reasonable time; or

(v) The source or modification was not subject to 40 CFR 52.21 as in effect on June 19, 1978 or under the partial stay of regulations published on February 5, 1980 (45 FR 7800), and the owner or operator:

(*a*) Obtained all final Federal, state and local preconstruction approvals or permits necessary under the applicable State Implementation Plan before August 7, 1980;

(*b*) Commenced construction within 18 months from August 7, 1980, or any

earlier time required under the applicable State Implementation Plan; and

(*c*) Did not discontinue construction for a period of 18 months or more and completed construction within a reasonable time; or

(vi) The source or modification would be a nonprofit health or nonprofit educational institution, or a major modification would occur at such an institution, and the governor of the state in which the source or modification would be located requests that it be exempt from those requirements; or

(vii) The source or modification would be a major stationary source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit of the stationary source or modification and the source does not belong to any of the following categories:

(*a*) Coal cleaning plants (with thermal dryers);

(*b*) Kraft pulp mills;

(*c*) Portland cement plants;

(*d*) Primary zinc smelters;

(*e*) Iron and steel mills;

(*f*) Primary aluminum ore reduction plants;

(*g*) Primary copper smelters;

(*h*) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(*i*) Hydrofluoric, sulfuric, or nitric acid plants;

(*j*) Petroleum refineries;

(*k*) Lime plants;

(*l*) Phosphate rock processing plants;

(*m*) Coke oven batteries;

(*n*) Sulfur recovery plants;

(*o*) Carbon black plants (furnace process);

(*p*) Primary lead smelters;

(*q*) Fuel conversion plants;

(*r*) Sintering plants;

(*s*) Secondary metal production plants;

(*t*) Chemical process plants;

(*u*) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(*v*) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(*w*) Taconite ore processing plants;

(*x*) Glass fiber processing plants;

(*y*) Charcoal production plants;

(*z*) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

(*aa*) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act; or

(viii) The source is a portable stationary source which has previously received a permit under this section, and

(*a*) The owner or operator proposes to relocate the source and emissions of the source at the new location would be temporary; and

(*b*) The emissions from the source would not exceed its allowable emissions; and

(*c*) The emissions from the source would impact no Class I area and no area where an applicable increment is known to be violated; and

(*d*) Reasonable notice is given to the Administrator prior to the relocation identifying the proposed new location and the probable duration of operation at the new location. Such notice shall be given to the Administrator not less than 10 days in advance of the proposed relocation unless a different time duration is previously approved by the Administrator.

(ix) The source or modification was not subject to § 52.21, with respect to particulate matter, as in effect before July 31, 1987, and the owner or operator:

(*a*) Obtained all final Federal, State, and local preconstruction approvals or permits necessary under the applicable State implementation plan before July 31, 1987;

(*b*) Commenced construction within 18 months after July 31, 1987, or any earlier time required under the State implementation plan; and

(*c*) Did not discontinue construction for a period of 18 months or more and completed construction within a reasonable period of time.

(x) The source or modification was subject to 40 CFR 52.21, with respect to particulate matter, as in effect before July 31, 1987 and the owner or operator submitted an application for a permit under this section before that date, and the Administrator subsequently determines that the application as submitted was complete with respect to the particulate matter requirements then in effect in this section. Instead, the requirements of paragraphs (j) through (r) of this section that were in effect before July 31, 1987 shall apply to such source or modification.

(5) The requirements of paragraphs (j) through (r) of this section shall not apply to a major stationary source or major modification with respect to a particular pollutant if the owner or operator demonstrates that, as to that pollutant, the source or modification is located in an area designated as nonattainment under section 107 of the Act.

(6) The requirements of paragraphs (k), (m) and (o) of this section shall not apply to a major stationary source or major modification with respect to a particular pollutant, if the allowable emissions of that pollutant from the source, or the net emissions increase of that pollutant from the modification:

(i) Would impact no Class I area and no area where an applicable increment is known to be violated, and

(ii) Would be temporary.

(7) The requirements of paragraphs (k), (m) and (o) of this section as they relate to any maximum allowable increase for a Class II area shall not apply to a major modification at a stationary source that was in existence on March 1, 1978, if the net increase in allowable emissions of each pollutant subject to regulation under the Act from the modification after the application of best available control technology would be less than 50 tons per year.

(8) The Administrator may exempt a stationary source or modification from the requirements of paragraph (m) of this section, with respect to monitoring for a particular pollutant if:

(i) The emissions increase of the pollutant from the new source or the net emissions increase of the pollutant from the modification would cause, in any area, air quality impacts less than the following amounts:

Carbon monoxide—575 $\mu g/m^3$, 8-hour average;

Nitrogen dioxide—14 $\mu g/m^3$, annual average;

Particulate matter:

10 $\mu g/m^3$ of TSP, 24-hour average;

10 $\mu g/m^3$ of PM_{10}, 24-hour average;

Sulfur dioxide—13 $\mu g/m^3$, 24-hour average;

Ozone; [1]

Lead—0.1 $\mu g/m^3$, 3-month average;

Mercury—0.25 $\mu g/m^3$, 24-hour average;

Beryllium—0.001 $\mu g/m^3$, 24-hour average;

Fluorides—0.25 $\mu g/m^3$, 24-hour average;

Vinyl chloride—15 $\mu g/m^3$, 24-hour average;

Total reduced sulfur—10 $\mu g/m^3$, 1-hour average;

Hydrogen sulfide—0.2 $\mu g/m^3$, 1-hour average;

Reduced sulfur compounds—10 $\mu g/m^3$, 1-hour average; or

(ii) The concentrations of the pollutant in the area that the source or modification would affect are less than the concentrations listed in paragraph (i)(8)(i) of this section, or the pollutant is not listed in paragraph (i)(8)(i) of this section.

(9) The requirements for best available control technology in paragraph (j) of this section and the requirements for air quality analyses in paragraph (m)(1) of this section, shall not apply to a particular stationary source or modification that was subject to 40 CFR 52.21 as in effect on June 19, 1978, if the owner or operator of the source or modification submitted an application for a permit under those regulations before August 7, 1980, and the Administrator subsequently determines that the application as submitted before that date was complete. Instead, the requirements at 40 CFR 52.21(j) and (n) as in effect on June 19, 1978 apply to any such source or modification.

(10)(i) The requirements for air quality monitoring in paragraphs (m)(1) (ii) through (iv) of this section shall not apply to a particular source or modification that was subject to 40 CFR 52.21 as in effect on June 19, 1978, if the owner or operator of the source or modification submits an application for a permit under this section on or before June 8, 1981, and the

[1] No *de minimis* air quality level is provided for ozone. However, any net increase of 100 tons per year or more of volatile organic compounds subject to PSD would be required to perform an ambient impact analysis including the gathering of ambient air quality data.

Administrator subsequently determines that the application as submitted before that date was complete with respect to the requirements of this section other than those in paragraphs (m)(1) (ii) through (iv) of this section, and with respect to the requirements for such analyses at 40 CFR 52.21(m)(2) as in effect on June 19, 1978. Instead, the latter requirements shall apply to any such source or modification.

(ii) The requirements for air quality monitoring in paragraphs (m)(1) (ii) through (iv) of this section shall not apply to a particular source or modification that was not subject to 40 CFR 52.21 as in effect on June 19, 1978, if the owner or operator of the source or modification submits an application for a permit under this section on or before June 8, 1981, and the Administrator subsequently determines that the application as submitted before that date was complete, except with respect to the requi ents in paragraphs (m)(1) (ii) through (iv).

(11)(i) At the discretion of the Administrator, the requirements for air quality monitoring of PM_{10} in paragraphs (m)(1) (i)—(iv) of this section may not apply to a particular source or modification when the owner or operator of the source or modification submits an application for a permit under this section on or before June 1, 1988 and the Administrator subsequently determines that the application as submitted before that date was complete, except with respect to the requirements for monitoring particulate matter in paragraphs (m)(1) (i)—(iv).

(ii) The requirements for air quality monitoring of PM_{10} in paragraphs (m)(1), (ii) and (iv) and (m)(3) of this section shall apply to a particular source or modification if the owner or operator of the source or modification submits an application for a permit under this section after June 1, 1988 and no later than December 1, 1988. The data shall have been gathered over at least the period from February 1, 1988 to the date the application becomes otherwise complete in accordance with the provisions set forth under paragraph (m)(1)(viii) of this section, except that if the Administrator determines that a complete and adequate analysis can be accomplished with monitoring data over a shorter period (not to be less than 4 months), the data that paragraph (m)(1)(iii) requires shall have been gathered over a shorter period.

(j) *Control technology review.* (1) A major stationary source or major modification shall meet each applicable emissions limitation under the State Implementation Plan and each applicable emissions standard and standard of performance under 40 CFR Parts 60 and 61.

(2) A new major stationary source shall apply best available control technology for each pollutant subject to regulation under the Act that it would have the potential to emit in significant amounts.

(3) A major modification shall apply best available control technology for each pollutant subject to regulation under the Act for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit.

(4) For phased construction projects, the determination of best available control technology shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source.

(k) *Source impact analysis.* The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of:

(1) Any national ambient air quality standard in any air quality control region; or

(2) Any applicable maximum allowable increase over the baseline concentration in any area.

(l) *Air quality models.* (1) All estimates of ambient concentrations required under this paragraph shall be based on the applicable air quality models, data bases, and other requirements specified in the "Guideline on Air Quality Models (Revised)" (1986) and Supplement A (1987) which are incorporated by reference. The guideline (EPA publication No. 450/2-78-027R) and Supplement A (1987) are for sale from the U.S. Department of Commerce, National Technical Information Service, 5825 Port Royal Road, Springfield, Virginia 22161. They are also available for inspection at the Office of the Federal Register Information Center, Room 8301, 1100 L Street, NW., Washington, DC 20408. This incorporation by reference was approved by the Director of the Federal Register on February 5, 1988. These materials are incorporated as they exist on the date of approval and a notice of any change will be published in the FEDERAL REGISTER.

(2) Where an air quality impact model specified in the "Guideline on Air Quality Models (Revised)" (1986) and Supplement A (1987) are inappropriate, the model may be modified or another model substituted. Such a modification or substitution of a model may be made on a case-by-case basis or, where appropriate, on a generic basis for a specific state program. Written approval of the Administrator must be obtained for any modification or substitution. In addition, use of a modified or substituted model must be subject to notice and opportunity for public comment under procedures developed in accordance with paragraph (q) of this section.

(m) *Air quality analysis*—(1) *Preapplication analysis.* (i) Any application for a permit under this section shall contain an analysis of ambient air quality in the area that the major stationary source or major modification would affect for each of the following pollutants:

(*a*) For the source, each pollutant that it would have the potential to emit in a significant amount;

(*b*) For the modification, each pollutant for which it would result in a significant net emissions increase.

(ii) With respect to any such pollutant for which no National Ambient Air Quality Standard exists, the analysis shall contain such air quality monitoring data as the Administrator determines is necessary to assess ambient air quality for that pollutant in any area that the emissions of that pollutant would affect.

(iii) With respect to any such pollutant (other than nonmethane hydrocarbons) for which such a standard does exist, the analysis shall contain continuous air quality monitoring data gathered for purposes of determining whether emissions of that pollutant would cause or contribute to a violation of the standard or any maximum allowable increase.

(iv) In general, the continuous air quality monitoring data that is required shall have been gathered over a period of at least one year and shall represent at least the year preceding receipt of the application, except that, if the Administrator determines that a complete and adequate analysis can be accomplished with monitoring data gathered over a period shorter than one year (but not to be less than four months), the data that is required shall have been gathered over at least that shorter period.

(v) For any application which becomes complete, except as to the requirements of paragraphs (m)(1) (iii) and (iv) of this section, between June 8, 1981, and February 9, 1982, the data that paragraph (m)(1)(iii) of this section, requires shall have been gathered over at least the period from February 9, 1981, to the date the application becomes otherwise complete, except that:

(*a*) If the source or modification would have been major for that pollutant under 40 CFR 52.21 as in effect on June 19, 1978, any monitoring data shall have been gathered over at least the period required by those regulations.

(*b*) If the Administrator determines that a complete and adequate analysis can be accomplished with monitoring data over a shorter period (not to be less than four months), the data that paragraph (m)(1)(iii) of this section, requires shall have been gathered over at least that shorter period.

(*c*) If the monitoring data would relate exclusively to ozone and would not have been required under 40 CFR 52.21 as in effect on June 19, 1978, the Administrator may waive the otherwise applicable requirements of this paragraph (v) to the extent that the applicant shows that the monitoring data would be unrepresentative of air quality over a full year.

(vi) The owner or operator of a proposed stationary source or modification of violatile organic compounds who satisfies all conditions of 40 CFR Part 51 Appendix S, section IV may provide post-approval monitoring data for ozone in lieu of providing preconstruction data as requried under paragraph (m)(1) of this section.

(vii) For any application that becomes complete, except as to the requirements of paragraphs (m)(1) (iii) and (iv) pertaining to PM_{10}, after December 1, 1988 and no later than August 1, 1989 the data that paragraph (m)(1)(iii) requires shall have been gathered over at least the period from August 1, 1988 to the date the application becomes otherwise complete, except that if the Administrator determines that a complete and adequate analysis can be accomplished with monitoring data over a shorter period (not to be less than 4 months), the data that paragraph (m)(1)(iii) requires shall have been gathered over that shorter period.

(viii) With respect to any requirements for air quality monitoring of PM_{10} under paragraphs (i)(11) (i) and (ii) of this sectionm the owner or operator of the source or modification shall use a monitoring method approved by the Administrator and shall estimate the ambient concentrations of PM_{10} using the data collected by such approved monitoring method in accordance with estimating procedures approved by the Administrator.

(2) *Post-construction monitoring.* The owner or operator of a major stationary source or major modification shall, after construction of the stationary source or modification, conduct such ambient monitoring as the Administrator determines is necessary to determine the effect emissions from the stationary source or modification may have, or are having, on air quality in any area.

(3) *Operations of monitoring stations.* The owner or operator of a major stationary source or major modification shall meet the requirements of Appendix B to Part 58 of this chapter during the operation of monitoring stations for purposes of satisfying paragraph (m) of this section.

(n) *Source information.* The owner or operator of a proposed source or modification shall submit all information necessary to perform any analysis or make any determination required under this section.

(1) With respect to a source or modification to which paragraphs (j), (l), (n) and (p) of this section apply, such information shall include:

(i) A description of the nature, location, design capacity, and typical operating schedule of the source or modification, including specifications and drawings showing its design and plant layout;

(ii) A detailed schedule for construction of the source or modification;

(iii) A detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine that best available control technology would be applied.

(2) Upon request of the Administrator, the owner or operator shall also provide information on:

(i) The air quality impact of the source or modification, including meteorological and topographical data necessary to estimate such impact; and

(ii) The air quality impacts, and the nature and extent of any or all general commercial, residential, industrial, and other growth which has occurred since August 7, 1977, in the area the source or modification would affect.

(o) *Additional impact analyses.* (1) The owner or operator shall provide an analysis of the impairment to visibility, soils and vegetation that would occur as a result of the source or modification and general commercial, residential, industrial and other growth associated with the source or modification. The owner or operator need not provide an analysis of the impact on vegetation having no significant commercial or recreational value.

(2) The owner or operator shall provide an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial and other growth associated with the source or modification.

(3) *Visibility monitoring.* The Administrator may require monitoring of visibility in any Federal class I area near the proposed new stationary source for major modification for such purposes and by such means as the Administrator deems necessary and appropriate.

(p) *Sources impacting Federal Class I areas—additional requirements*—(1) *Notice to Federal land managers.* The Administrator shall provide written notice of any permit application for a proposed major stationary source or major modification, the emissions from which may affect a Class I area, to the Federal land manager and the Federal official charged with direct responsibility for management of any lands within any such area. Such notification shall include a copy of all information relevant to the permit application and shall be given within 30 days of receipt and at least 60 days prior to any public hearing on the application for a permit to construct. Such notification shall include an analysis of the proposed source's anticipated impacts on visibility in the Federal Class I area. The Administrator shall also provide the Federal land manager and such Federal officials with a copy of the preliminary determination required under paragraph (q) of this section, and shall make available to them any materials used in making that determination, promptly after the Administrator makes such determination. Finally, the Administrator shall also notify all affected Federal land managers within 30 days of receipt of any advance notification of any such permit application.

(2) *Federal Land Manager.* The Federal Land Manager and the Federal official charged with direct responsibility for management of such lands have an affirmative responsibility to protect the air quality related values (including visibility) of such lands and to consider, in consultation with the Administrator, whether a proposed source or modification will have an adverse impact on such values.

(3) *Visibility analysis.* The Administrator shall consider any analysis performed by the Federal land manager, provided within 30 days of the notification required by paragraph (p)(1) of this section, that shows that a proposed new major stationary source or major modification may have an adverse impact on visibility in any Federal Class I area. Where the Administrator finds that such an analysis does not demonstrate to the satisfaction of the Administrator that an adverse impact on visibility will result in the Federal Class I area, the Administrator must, in the notice of public hearing on the permit application, either explain his decision or give notice as to where the explanation can be obtained.

(4) *Denial—impact on air quality related values.* The Federal Land Manager of any such lands may demonstrate to the Administrator that the emissions from a proposed source or modification would have an adverse impact on the air quality-related values (including visibility) of those lands, notwithstanding that the change in air quality resulting from emissions from such source or modification would not cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the Administrator concurs with such demonstration, then he shall not issue the permit.

(5) *Class I variances.* The owner or operator of a proposed source or modification may demonstrate to the Federal Land Manager that the emissions from such source or modification would have no adverse impact on the air quality related values of any such lands (including visibility), notwithstanding that the change in air quality resulting from emissions from such source or modification would cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the Federal Land Manager concurs with such demonstration and he so certifies, the State may authorize the Administrator: *Provided,* That the applicable requirements of this section are otherwise met, to issue the permit with such emission limitations as may be necessary to assure that emissions of sulfur dioxide and particulate matter would not exceed the followng maximum allowable increases over baseline concentration for such pollutants:

MAXIMUM ALLOWABLE INCREASE

	Micrograms per cubic meter
Particulate matter:	
TSP, annual geometric mean	19
TSP, 24-hr maximum	37
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	325

(6) *Sulfur dioxide variance by Governor with Federal Land Manager's concurrence.* The owner or operator of a proposed source or modification which cannot be approved under paragraph (q)(4) of this section may demonstrate to the Governor that the source cannot be constructed by reason of any maximum allowable increase for sulfur dioxide for a period of twenty-four hours or less applicable to any Class I area and, in the case of Federal mandatory Class I areas, that a variance under this clause would not adversely affect the air quality related values of the area (including visibility). The Governor, after consideration of the Federal Land Manager's recommendation (if any) and subject to his concurrence, may, after notice and public hearing, grant a variance from such maximum allowable increase. If such variance is granted, the Administrator shall issue a permit to such source or modification pursuant to the requirements of paragraph (q)(7) of this section: *Provided,* That the applicable requirements of this section are otherwise met.

(7) *Variance by the Governor with the President's concurrence.* In any case where the Governor recommends a variance in which the Federal Land Manager does not concur, the recommendations of the Governor and the Federal Land Manager shall be transmitted to the President. The President may approve the Governor's recommendation if he finds that the variance is in the national interest. If the variance is approved, the Administrator shall issue a permit pursuant to the requirements of paragraph (q)(7) of this section: *Provided,* That the applicable requirements of this section are otherwise met.

(8) *Emission limitations for Presidential or gubernatorial variance.* In the case of a permit issued pursuant to paragraph (q) (5) or (6) of this section the source or modification shall comply with such emission limitations as may be necessary to assure that emissions of sulfur dioxide from the source or modification would not (during any day on which the otherwise applicable maximum allowable increases are exceeded) cause or contribute to concentrations which would exceed the following maximum allowable increases over the baseline concentration and to assure that such emissions would not cause or contribute to concentrations which exceed the otherwise applicable maximum allowable increases for periods of exposure of 24 hours or less for more than 18 days, not necessarily consecutive, during any annual period:

MAXIMUM ALLOWABLE INCREASE

[Micrograms per cubic meter]

Period of exposure	Terrain areas	
	Low	High
24-hr maximum	36	62
3-hr maximum	130	221

(q) *Public participation.* The Administrator shall follow the applicable procedures of 40 CFR Part 124 in processing applications under this section. The Administrator shall follow the procedures at 40 CFR 52.21(r) as in effect on June 19, 1979, to the extent that the procedures of 40 CFR Part 124 do not apply.

(r) *Source obligation.* (1) Any owner or operator who constructs or operates a source or modification not in accordance with the application submitted pursuant to this section or with the terms of any approval to construct, or any owner or operator of a source or modification subject to this section who commences construction after the effective date of these regulations without applying for and receiving approval hereunder, shall be subject to appropriate enforcement action.

(2) Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Administrator may extend the 18-month period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date.

(3) Approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the State implementation plan and any other requirements under local, State, or Federal law.

(4) At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements or paragraphs (j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification.

(s) *Environmental impact statements.* Whenever any proposed source or modification is subject to action by a Federal Agency which might necessitate preparation of an environmental impact statement pursuant to the National Environmental Policy Act (42 U.S.C. 4321), review by the Administrator conducted pursuant to this section shall be coordinated with the broad environmental reviews under that Act and under section 309 of the Clean Air Act to the maximum extent feasible and reasonable.

(t) *Disputed permits or redesignations.* If any State affected by the redesignation of an area by an Indian Governing Body, or any Indian Governing Body of a tribe affected by the redesignation of an area by a State, disagrees with such redesignation, or if a permit is proposed to be issued for any major stationary source or major modification proposed for construction in any State which the Governor of an affected State or Indian Governing Body of an affected tribe determines will cause or contribute to a cumulative change in air quality in excess of that allowed in this part within the affected State or Indian Reservation, the Governor or Indian Governing Body may request the Administrator to enter into negotiations with the parties involved to resolve such dispute. If requested by any State or Indian Governing Body involved, the Administrator shall make a recommendation to resolve the dispute and protect the air quality related values of the lands involved. If the parties involved do not reach agreement, the Administrator shall resolve the dispute and his determination, or the results of agreements reached through other means, shall become part of the applicable State implementation plan and shall be enforceable as part of such plan. In resolving such disputes relating to area redesignation, the Administrator shall consider the extent to which the lands involved are of sufficient size to allow effective air quality management or have air quality related values of such an area.

(u) *Delegation of authority.* (1) The Administrator shall have the authority to delegate his responsibility for conducting source review pursuant to this section, in accordance with paragraphs (v) (2) and (3) of this section.

(2) Where the Administrator delegates the responsibility for conducting source review under this section to any agency other than a Regional Office of the Environmental Protection Agency, the following provisions shall apply:

(i) Where the delegate agency is not an air pollution control agency, it shall consult with the appropriate State and local air pollution control agency prior to making any determina-

tion under this section. Similarly, where the delegate agency does not have continuing responsibility for managing land use, it shall consult with the appropriate State and local agency primarily responsible for managing land use prior to making any determination under this section.

(ii) The delegate agency shall send a copy of any public comment notice required under paragraph (r) of this section to the Administrator through the appropriate Regional Office.

(3) The Administrator's authority for reviewing a source or modification located on an Indian Reservation shall not be redelegated other than to a Regional Office of the Environmental Protection Agency, except where the State has assumed jurisdiction over such land under other laws. Where the State has assumed such jurisdiction, the Administrator may delegate his authority to the States in accordance with paragraph (v)(2) of this section.

(4) In the case of a source or modification which proposes to construct in a class III area, emissions from which would cause or contribute to air quality exceeding the maximum allowable increase applicable if the area were designated a class II area, and where no standard under section 111 of the act has been promulgated for such source category, the Administrator must approve the determination of best available control technology as set forth in the permit.

(v) *Innovative control technology.* (1) An owner or operator of a proposed major stationary source or major modification may request the Administrator in writing no later than the close of the comment period under 40 CFR 124.10 to approve a system of innovative control technology.

(2) The Administrator shall, with the consent of the governor(s) of the affected state(s), determine that the source or modification may employ a system of innovative control technology, if:

(i) The proposed control system would not cause or contribute to an unreasonable risk to public health, welfare, or safety in its operation or function;

(ii) The owner or operator agrees to achieve a level of continuous emissions reduction equivalent to that which would have been required under paragraph (j)(2) of this section, by a date specified by the Administrator. Such date shall not be later than 4 years from the time of startup or 7 years from permit issuance;

(iii) The source or modification would meet the requirements of paragraphs (j) and (k) of this section, based on the emissions rate that the stationary source employing the system of innovative control technology would be required to meet on the date specified by the Administrator;

(iv) The source or modification would not before the date specified by the Administrator:

(a) Cause or contribute to a violation of an applicable national ambient air quality standard; or

(b) Impact any Class I area; or

(c) Impact any area where an applicable increment is known to be violated; and

(v) All other applicable requirements including those for public participation have been met.

(3) The Administrator shall withdraw any approval to employ a system of innovative control technology made under this section, if:

(i) The proposed system fails by the specified date to achieve the required continuous emissions reduction rate; or

(ii) The proposed system fails before the specified date so as to contribute to an unreasonable risk to public health, welfare, or safety; or

(iii) The Administrator decides at any time that the proposed system is unlikely to achieve the required level of control or to protect the public health, welfare, or safety.

(4) If a source or modification fails to meet the required level of continuous emission reduction within the specified time period or the approval is withdrawn in accordance with paragraph (v)(3) of this section, the Administrator may allow the source or modification up to an additional 3 years to meet the requirement for the application of best available control technology through use of a demonstrated system of control.

(w) *Permit rescission.* (1) Any permit issued under this section or a prior version of this section shall remain in effect, unless and until it expires under paragraph (s) of this section or is rescinded.

(2) Any owner or operator of a stationary source or modification who holds a permit for the source or modification which was issued under 40 CFR 52.21 as in effect on July 30, 1987, or any earlier version of this section, may request that the Administrator rescind the permit or a particular portion of the permit.

(3) The Administrator shall grant an application for rescission if the application shows that this section would not apply to the source or modification.

(4) If the Administrator rescinds a permit under this paragraph, the public shall be given adequate notice of the rescission. Publication of an announcement of rescission in a newspaper of general circulation in the affected region within 60 days of the rescission shall be considered adequate notice.

[43 FR 26403, June 19, 1978, as amended at 44 FR 27571, May 10, 1979; 45 FR 52735, Aug. 7, 1980; 47 FR 27561, June 25, 1982; 49 FR 43209, Oct. 26, 1984; 50 FR 28550, July 12, 1985; 51 FR 40675, 40677, Nov. 7, 1986; 52 FR 24714, July 1, 1987; 52 FR 26401, July 14, 1987; 53 FR 396, Jan. 6, 1988]

§ 52.22 Maintenance of national standards.

(a) Subsequent to January 31, 1972, the Administrator reviewed again State implementation plan provisions for insuring the maintenance of the national standards. The review indicates that State plans generally do not contain regulations or procedures which adequately address this problem. Accordingly, all State plans are disapproved with respect to maintenance because such plans do not meet the requirements of § 51.12(g) of this chapter. The disapproval applies to all States listed in Subparts B through DDD of this part. Nothing in this section shall invalidate or otherwise affect the obligations of States, emission sources, or other persons with respect to all portions of plans approved or promulgated under this part.

(b) *Regulation for review of new or modified indirect sources.* (1) All terms used in this paragraph but not specifically defined below shall have the meaning given them in § 52.01 of this chapter.

(i) The term "indirect source" means a facility, building, structure, or installation which attracts or may attract mobile source activity that results in emissions of a pollutant for which there is a national standard. Such indirect sources include, but are not limited to:

(*a*) Highways and roads.

(*b*) Parking facilities.

(*c*) Retail, commercial and industrial facilities.

(*d*) Recreation, amusement, sports and entertainment facilities.

(*e*) Airports.

(*f*) Office and Government buildings.

(*g*) Apartment and condominium buildings.

(*h*) Education facilities.

(ii) The term "Administrator" means the Administrator of the Environmental Protection Agency or his designated agent.

(iii) The term "associated parking area" means a parking facility or facilities owned and/or operated in conjunction with an indirect source.

(iv) The term "aircraft operation" means an aircraft take-off or landing.

(v) The phrase "to commence construction" means to engage in a continuous program of on-site construction including site clearance, grading, dredging, or land filling specifically designed for an indirect source in preparation for the fabrication, erection, or installation of the building components of the indirect source. For the purpose of this paragraph, interruptions resulting from acts of God, strikes, litigation, or other matters beyond the control of the owner shall be disregarded in determining whether a construction or modification program is continuous.

(vi) The phrase "to commence modification" means to engage in a continuous program of on-site modification, including site clearance, grading, dredging, or land filling in preparation for a specific modification of the indirect source.

(vii) The term "highway section" means the development proposal of a highway of substantial length between logical termini (major crossroads, population centers, major traffic generators, or similar major highway control elements) as normally included in a single location study or multi-year highway improvement program as set forth in 23 CFR 770.201 (38 FR 31677).

(viii) The term "highway project" means all or a portion of a highway section which would result in a specific construction contract.

(ix) The term "Standard Metropolitan Statistical Area (SMSA)" means such areas as designated by the U.S. Bureau of the Budget in the following publication: "Standard Metropolitan Statistical Area," issued in 1967, with subsequent amendments.

(2) The requirements of this paragraph are applicable to the following:

(i) In an SMSA:

(*a*) Any new parking facility, or other new indirect source with an associated parking area, which has a new parking capacity of 1,000 cars or more; or

(*b*) Any modified parking facility, or any modification of an associated parking area, which increases parking capacity by 500 cars or more; or

(*c*) Any new highway project with an anticipated average annual daily traffic volume of 20,000 or more vehicles per day within ten years of construction; or

(*d*) Any modified highway project which will increase average annual daily traffic volume by 10,000 or more vehicles per day within ten years after modification.

(ii) Outside an SMSA:

(*a*) Any new parking facility, or other new indirect source with an associated parking area, which has a parking capacity of 2,000 cars or more; or

(*b*) Any modified parking facility, or any modification of an associated parking area, which increases parking capacity by 1,000 cars or more.

(iii) Any airport, the construction or general modification program of which is expected to result in the following activity within ten years of construction or modification:

(*a*) New airport: 50,000 or more operations per year by regularly scheduled air carriers, or use by 1,600,000 or more passengers per year.

(*b*) Modified airport: Increase of 50,000 or more operations per year by regularly scheduled air carriers over the existing volume of operations, or increase of 1,600,000 or more passengers per year.

(iv) Where an indirect source is constructed or modified in increments which individually are not subject to review under this paragraph, and which are not part of a program of construction or modification in planned incremental phases approved by the Administrator, all such increments commenced after December 31, 1974, or after the latest approval hereunder, whichever date is most recent, shall be added together for determining the applicability of this paragraph.

(3) No owner or operator of an indirect source subject to this paragraph shall commence construction or modification of such source after December 31, 1974, without first obtaining approval from the Administrator. Application for approval to construct or modify shall be by means prescribed by the Administrator, and shall include a copy of any draft or final environmental impact statement which has been prepared pursuant to the National Environmental Policy Act (42 U.S.C. 4321). If not included in such environmental impact statement, the Administrator may request the following information:

(i) For all indirect sources subject to this paragraph, other than highway projects:

(*a*) The name and address of the applicant.

(*b*) A map showing the location of the site of indirect source and the topography of the area.

(*c*) A description of the proposed use of the site, including the normal hours of operation of the facility, and the general types of activities to be operated therein.

(*d*) A site plan showing the location of associated parking areas, points of motor vehicle ingress and egress to and from the site and its associated parking areas, and the location and height of buildings on the site.

(*e*) An identification of the principal roads, highways, and intersections that will be used by motor vehicles moving to or from the indirect source.

WORKSHOP ON IMPLEMENTING THE STACK HEIGHT REGULATIONS (REVISED)

OCTOBER 29 TO 30, 1985

by

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U.S. ENVIRONMENTAL PROTECTION AGENCY
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October 1985

estimated amounts of emissions and the amounts of such emissions allowable under the applicable emission limitations or other measures.

§ 51.117 Additional provisions for lead.

In addition to other requirements in §§ 51.100 through 51.116 the following requirements apply to lead. To the extent they conflict, there requirements are controlling over those of the proceeding sections.

(a) *Control strategy demonstration.* Each plan must contain a demonstration showing that the plan will attain and maintain the standard 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 2,000 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 ambient air quality standard concentration for lead, measured since January 1, 1974.

(b) *Time perio for emonstration of a equacy.* The demonstration of adequacy of the control strategy required under § 51.112 may cover a longer period if allowed by the appropriate EPA Regional Administrator.

(c) *Special modeling provisions.* (1) For urbanized areas with measured lead concentrations in excess of 4.0 $\mu g/m^3$, 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. If a proportional model is used, the air quality data should be the same year as the emissions inventory required under the paragraph e.

(2) For each point source listed in § 51.117(a), that plan must employ an atmospheric dispersion model for demonstration of attainment.

(3) 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.

(d) *Air quality data and projections.* (1) Each State must submit to the appropriate EPA Regional Office with the plan, but not 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.

(3) 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.

(e) *Emissions data.* (1) The point source inventory on which the summary of the baseline lead emissions inventory is based must contain all sources that emit five or more tons of lead per year.

(2) Each State must submit lead emissions data to the appropriate EPA Regional Office with the original plan. The submission must be made with the plan, but not as part of the plan, and must include emissions data and information related to point and area source emissions. The emission data and information should include the information identified in the Hazardous and Trace Emissions System (HATREMS) point source coding forms for all point sources and the area source coding forms for all sources that are not point sources, but need not necessarily be in the format of those forms.

§ 51.118 Stack height provisions.

(a) The plan must provide that the degree of emission limitation required of any source for control of any air pollutant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in § 51.118(b). The plan must provide that before a State submits to EPA a new or revised emission limitation that is based on a good engineering practice stack height that exceeds the height allowed by § 51.100(ii) (1) or (2), the State must notify the public of the availablity of the demonstration study and must provide opportunity for a public hearing on it. This section does not require the plan to restrict, in any manner, the actual stack height of any source.

(b) The provisions of § 51.118(a) shall not apply to (1) stack heights in existence, or dispersion techniques implemented on or before December 31, 1970, except where pollutants are being emitted from such stacks or using such dispersion techniques by sources, as defined in section 111(a)(3) of the Clean Air Act, which were constructed, or reconstructed, or for which major modifications, as defined in §§ 51.165(a)(1)(v)(A), 51.166(b)(2)(i) and 52.21(b)(2)(i), were carried out after December 31, 1970; or (2) coal-fired steam electric generating units subject to the provisions of section 118 of the Clean Air Act, which commenced operation before July 1, 1957, and whose stacks were construced under a construction contract awarded before February 8, 1974.

§ 51.119 Intermittent control systems.

(a) The use of an intermittent control system (ICS) may be taken into account in establishing an emission limitation for a pollutant under a State implementation plan, provided:

(1) The ICS was implemented before December 31, 1970, according to the criteria specified in § 51.119(b).

(2) The extent to which the ICS is taken into account is limited to reflect emission levels and associated ambient pollutant concentrations that would result if the ICS was the same as it was before December 31, 1970, and was operated as specified by the operating system of the ICS before December 31, 1970.

(3) The plan allows the ICS to compensate only for emissions from a source for which the ICS was implemented before December 31, 1970, and, in the event the source has been modified, only to the extent the emissions correspond to the maximum capacity of the source before December 31, 1970. For purposes of this paragraph, a source for which the ICS was implemented is any particular structure or equipment the emissions from which were subject to the ICS operating procedures.

(4) The plan requires the continued operation of any constant pollution control system which was in use before December 31, 1970, or the equivalent of that system.

(5) The plan clearly defines the emission limits affected by the ICS and the manner in which the ICS is taken into account in establishing those limits.

(6) The plan contains requirements for the operation and maintenance of the qualifying ICS which, together with the emission limitations and any other necessary requirements, will assure that the national ambient air quality standards and any applicable prevention of significant deterioration increments will be attained and maintained. These requirements shall include, but not necessarily be limited to, the following:

(i) Requirements that a source owner or operator continuously operate and maintain the components of the ICS specified at § 51.119(b)(3) (ii)-(iv) in a manner which assures that the ICS is at least as effective as it was before December 31, 1970. The air quality monitors and meteorological instrumentation specified at § 51.119(b) may be operated by a local authority or other entity provided the source has ready access to the data from the monitors and instrumentation.

(ii) Requirements which specify the circumstances under which, the extent to which, and the procedures through which, emissions shall be curtailed through the activation of ICS.

(iii) Requirements for recordkeeping which require the owner or operator

REFERENCES FOR SECTION 5.2

EPA-450/4-80-023R

Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations)

(Revised)

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

June 1985

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

AUTHORITY: This rulemaking is promulgated under authority of sections 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act 42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a).

SOURCE: 36 FR 22398, Nov. 25, 1971, unless otherwise noted.

EDITORIAL NOTE: Nomenclature changes affecting Part 51 appear at 44 FR 8237, Feb. 8, 1979 and 51 FR 40661, Nov. 7, 1986.

Subparts A–C—[Reserved]

Subpart D—Maintenance of National Standards

SOURCE: 41 FR 18388, May 3, 1976, unless otherwise noted.

§ 51.40 Scope.

(a) *Applicability.* The requirements of this subpart apply to air quality maintenance areas (AQMAs) identified under § 51.110(i) and to any areas identified under § 51.110(l).

(b) *AQMA Analysis.* Under this subpart, procedures are given for the analysis of the air quality impact of specified pollutant emissions from existing sources and emissions associated with projected growth and development in areas identified under paragraphs (i) and (l) of § 51.110. This analysis is referred to in this subpart as an AQMA analysis.

(c) *AQMA Plan.* Under this subpart, the Administrator will require a revision to the State implementation plan for areas identified under § 51.110(i) or § 51.110(l) when necessary to prevent a national ambient air quality standard

§ 51.62 AQMA analysis and plan: Data availability.

(a) The State shall retain all detailed data and calculations used in the preparation of AQMA analyses and plans, 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 AQMA analyses and plans shall not be considered a part of the AQMA plan.

§ 51.63 AQMA analysis and plan: Alternative procedures.

(a) At the request of a State, or under his own initiative, the Administrator, where he determines it appropriate, may approve alternative AQMA analysis and plan development procedures as allowed under §§ 51.42, 51.44, 51.45, 51.46, 51.48(b), and 51.60(a). He may consider all relevant factors including but not limited to air quality problems, financial and manpower limitations, administrative feasibility, and existing commitments by the State.

(b) The Administrator shall act upon a request for modification within 45 days after receipt of a properly prepared and filed request. Unless a State is notified of a denial, or the Administrator requests additional information, such a request is automatically approved on the forty-sixth day.

(c) The Administrator shall publish in the FEDERAL REGISTER a description of each modification made.

(d) A public hearing on an AQMA plan does not fulfill the public hearing requirements of this part if, subsequent to the hearing, any alternative procedures are approved under this section.

(Secs. 110, 121, 174(a), 301(a), Clean Air Act, as amended (42 U.S.C. 7410, 7421, 7504, and 7601(a)))

[41 FR 18388, May 3, 1976, as amended at 44 FR 35179, June 18, 1979]

Subpart E—[Reserved]

Subpart F—Procedural Requirements

SOURCE: 51 FR 40661, Nov. 7, 1986, unless otherwise noted.

§ 51.100 Definitions.

As used in this part, all terms not defined herein will have the meaning given them in the Act:

(a) "Act" means the Clean Air Act (42 U.S.C. 7401 *et seq.*, as amended by Pub. L. 91-604, 84 Stat. 1676 Pub. L. 95-95, 91 Stat., 685 and Pub. L. 95-190, 91 Stat., 1399.)

(b) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or an authorized representative.

(c) "Primary standard" means a national primary ambient air quality standard promulgated pursuant to section 109 of the Act.

(d) "Secondary standard" means a national secondary ambient air quality standard promulgated pursuant to section 109 of the Act.

(e) "National standard" means either a primary or secondary standard.

(f) "Owner or operator" means any person who owns, leases, operates, controls, or supervises a facility, building, structure, or installation which directly or indirectly result or may result in emissions of any air pollutant for which a national standard is in effect.

(g) "Local agency" means any local government agency other than the State agency, which is charged with responsibility for carrying out a portion of the plan.

(h) "Regional Office" means one of the ten (10) EPA Regional Offices.

(i) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(j) "Plan" means an implementation plan approved or promulgated under section 110 of 172 of the Act.

(k) "Point source" means the following:

(1) For particulate matter, sulfur oxides, carbon monoxide, volatile organic compounds (VOC) 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 1980 "urban place" population, as defined by the U.S. Bureau of the Census, was equal to or greater than 1 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 1980 "urban place" population, as defined by the U.S. Bureau of the Census, was less than 1 million; or

(2) For lead or lead compounds measured as elemental lead, any stationary source that actually emits a total of 4.5 metric tons (5 tons) per year or more.

(l) "Area source" means any small residential, governmental, institutional, commercial, or industrial fuel combustion operations; onsite solid waste disposal facility; motor vehicles, aircraft vessels, or other transportation facilities or other miscellaneous sources identified through inventory techniques similar to those described in the "AEROS Manual series, Vol. II AEROS User's Manual," EPA-450/2-76-029 December 1976.

(m) "Region" means an area designated as an air quality control region (AQCR) under section 107(c) of the Act.

(n) "Control strategy" means a combination of measures designated to achieve the aggregate reduction of emissions necessary for attainment and maintenance of national standards including, but not limited to, measures such as:

(1) Emission limitations.

(2) Federal or State emission charges or taxes or other economic incentives or disincentives.

(3) Closing or relocation of residential, commercial, or industrial facilities.

(4) Changes in schedules or methods of operation of commercial or industrial facilities or transportation systems, including, but not limited to, short-term changes made in accordance with standby plans.

(5) Periodic inspection and testing of motor vehicle emission control systems, at such time as the Administrator determines that such programs are feasible and practicable.

(6) Emission control measures applicable to in-use motor vehicles, including, but not limited to, measures such as mandatory maintenance, installation of emission control devices, and conversion to gaseous fuels.

(7) Any transportation control measure including those transportation measures listed in section 108(f) of the Clean Air Act as amended.

(8) Any variation of, or alternative to any measure delineated herein.

(9) 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 seconary air quality standard and is approved by the Administrator under section 211(c)(4)(C) of the Act.

(o) "Reasonably available control technology" (RACT) means devices, systems process modifications, or other apparatus or techniques that are reasonably available taking into account (1) the necessity of imposing such controls in order to attain and maintain a national ambient air quality standard, (2) the social, environmental and economic impact of such controls, and (3) alternative means of providing for attainment and maintenance of such standard. (This provision defines RACT for the purposes of §§ 51.110(c)(2) and 51.341(b) only.)

(p) "Compliance schedule" means the date or dates by which a source or category of sources is required to comply with specific emission limitations contained in an implementation plan and with any increments of progress toward such compliance.

(q) "Increments of progress" means steps toward compliance which will be taken by a specific source, including:

(1) Date of submittal of the source's final control plan to the appropriate air pollution control agency;

(2) Date by which contracts for emission control systems or process modifications will be awarded; or date by which orders will be issued for the purchase of component parts to accomplish emission control or process modification;

(3) Date of initiation of on-site construction or installation of emission control equipment or process change;

(4) Date by which on-site construction or installation of emission control equipment or process modification is to be completed; and

(5) Date by which final compliance is to be achieved.

(r) "Transportation control measure" means any measure that is directed toward reducing emissions of air pollutants from transportation sources. Such measures include, but are not limited to, those listed in section 108(f) of the Clean Air Act.

(s)-(w) [Reserved]

(x) "Time period" means any period of time designated by hour, month, season, calendar year, averaging time, or other suitable characteristics, for which ambient air quality is estimated.

(y) "Variance" means the temporary deferral of a final compliance date for an individual source subject to an approved regulation, or a temporary change to an approved regulation as it applies to an individual source.

(z) "Emission limitation" and "emission standard" mean a requirement established by a State, local government, or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission reduction.

(aa) "Capacity factor" means the ratio of the average load on a machine or equipment for the period of time considered to the capacity rating of the machine or equipment.

(bb) "Excess emissions" means emissions of an air pollutant in excess of an emission standard.

(cc) "Nitric acid plant" means any facility producing nitric acid 30 to 70 percent in strength by either the pressure or atmospheric pressure process.

(dd) "Sulfuric acid plant" means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, or acid sludge, but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.

(ee) "Fossil fuel-fired steam generator" means a furnance or bioler used in the process of burning fossil fuel for the primary purpose of producing steam by heat transfer.

(ff) "Stack" means any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct but not including flares.

(gg) "A stack in existence" means that the owner or operator had (1) begun, or caused to begin, a continuous program of physical on-site construction of the stack or (2) entered into binding agreements or contractual obligations, which could not be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the stack to be completed within a reasonable time.

(hh)(1) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by:

(i) Using that portion of a stack which exceeds good engineering practice stack height:

(ii) Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or

(iii) Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.

(2) The preceding sentence does not include:

(i) The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;

(ii) The merging of exhaust gas streams where:

(A) The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

(B) After July 8, 1985 such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or

(C) Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the reviewing agency shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the reviewing agency shall deny credit for the effects of such merging in calculating the allowable emissions for the source;

(iii) Smoke management in agricultural or silvicultural prescribed burning programs;

(iv) Episodic restrictions on residential woodburning and open burning; or

(v) Techniques under § 51.100(hh)(1)(iii) which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed 5,000 tons per year.

(ii) "Good engineering practice" (GEP) stack height means the greater of:

(1) 65 meters, measured from the ground-level elevation at the base of the stack:

(2)(i) For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable permits or approvals required under 40 CFR Parts 51 and 52.

$$H_g = 2.5H,$$

provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation:

(ii) For all other stacks,

$$H_g = H + 1.5L,$$

where

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack,

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = lesser dimension, height or projected width, of nearby structure(s)

provided that the EPA, State or local control agency may require the use of a field study or fluid model to verify GEP stack height for the source; or

(3) The height demonstrated by a fluid model or a field study approved by the EPA State or local control agency, which ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features.

(jj) "Nearby" as used in § 51.100(ii) of this part is defined for a specific structure or terrain feature and

(1) For purposes of applying the formulae provided in § 51.100(ii)(2) means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than 0.8 km (½ mile), and

(2) For conducting demonstrations under § 51.100(ii)(3) means not greater than 0.8 km (½ mile), except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to 10 times the maximum height (H_t) of the feature, not to exceed 2 miles if such feature achieves a height (H_t) 0.8 km from the stack that is at least 40 percent of the GEP stack height determined by the formulae provided in § 51.100(ii)(2)(ii) of this part or 26 meters, whichever is greater, as measured from the ground-level elevation at the base of the stack. The height of the structure or terrain feature is measured from the ground-level elevation at the base of the stack.

(kk) "Excessive concentration" is defined for the purpose of determining good engineering practice stack height under § 51.100(ii)(3) and means.

(1) For sources seeking credit for stack height exceeding that established under § 51.100(ii)(2) a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of

the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard. For sources subject to the prevention of significant deterioration program (40 CFR 51.166 and 52.21), an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and greater than a prevention of significant deterioration increment. The allowable emission rate to be used in making demonstrations under this part shall be prescribed by the new source performance standard that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible. Where such demonstrations are approved by the authority administering the State implementation plan, an alternative emission rate shall be established in consultation with the source owner or operator.

(2) For sources seeking credit after October 11, 1983, for increases in existing stack heights up to the heights established under § 51.100(ii)(2), either (i) a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects as provided in paragraph (kk)(1) of this section, except that the emission rate specified by any applicable State implementation plan (or, in the absence of such a limit, the actual emission rate) shall be used, or (ii) the actual presence of a local nuisance caused by the existing stack, as determined by the authority administering the State implementation plan; and

(3) For sources seeking credit after January 12, 1979 for a stack height determined under § 51.100(ii)(2) where the authority administering the State implementation plan requires the use of a field study or fluid model to verify GEP stack height, for sources seeking stack height credit after November 9, 1984 based on the aerodynamic influence of cooling towers, and for sources seeking stack height credit after December 31, 1970 based on the aerodynamic influence of structures not adequately represented by the equations in § 51.100(ii)(2), a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects that is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

(ll)-(mm) [Reserved]

(nn) *Intermittent control system* (ICS) means a dispersion technique which varies the rate at which pollutants are emitted to the atmosphere according to meteorological conditions and/or ambient concentrations of the pollutant, in order to prevent ground-level concentrations in excess of applicable ambient air quality standards. Such a dispersion technique is an ICS whether used alone, used with other dispersion techniques, or used as a supplement to continuous emission controls (i.e., used as a supplemental control system).

(oo) "Particulate matter" means any airborne finely divided solid or liquid material with an aerodynamic diameter smaller than 100 micrometers.

(pp) "Particulate matter emissions" means all finely divided solid or liquid material, other than uncombined water, emitted to the ambient air as measured by applicable reference methods, or an equivalent or alternative method, specified in this chapter, or by a test method specified in an approved State implementation plan.

(qq) "PM_{10}" means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by a reference method based on Appendix J of Part 50 of this chapter and designated in accordance with Part 53 of this chapter or by an equivalent method designated in accordance with Part 53 of this chapter.

(rr) "PM_{10} emissions" means finely divided solid or liquid material, with an aerodynamic diameter less than or equal to a nominal 10 micrometers emitted to the ambient air as measured by an applicable reference

method, or an equivalent or alternative method, specified in this chapter or by a test method specified in an approved State implementation plan.

(ss) "Total suspended particulate" means particulate matter as measured by the method described in Appendix B of Part 50 of this chapter.

[51 FR 40661, Nov. 7, 1986, as amended at 52 FR 24712, July 1, 1987]

§ 51.101 Stipulations.

Nothing in this part will be construed in any manner:

(a) To encourage a State to prepare, adopt, or submit a plan which does not provide for the protection and enhancement of air quality so as to promote the public health and welfare and productive capacity.

(b) To encourage a State to adopt any particular control strategy without taking into consideration the cost-effectiveness of such control strategy in relation to that of alternative control strategies.

(c) To preclude a State from employing techniques other than those specified in this part for purposes of estimating air quality or demonstrating the adequacy of a control strategy, provided that such other techniques are shown to be adequate and appropriate for such purposes.

(d) To encourage a State to prepare, adopt, or submit a plan without taking into consideration the social and economic impact of the control strategy set forth in such plan, including, but not limited to, impact on availability of fuels, energy, transportation, and employment.

(e) To preclude a State from preparing, adopting, or submitting a plan which provides for attainment and maintenance of a national standard through the application of a control strategy not specifically identified or described in this part.

(f) To preclude a State or political subdivision thereof from adopting or enforcing any emission limitations or other measures or combinations thereof to attain and maintain air quality better than that required by a national standard.

(g) To encourage a State to adopt a control strategy uniformly applicable throughout a region unless there is no satisfactory alternative way of providing for attainment and maintenance of a national standard throughout such region.

§ 51.102 Public hearings.

(a) Except as otherwise provided in paragraph (c) of this section, States must conduct one or more public hearings on the following prior to adoption and submission to EPA of:

(1) Any plan or revision of it required by § 51.104(a).

(2) Any individual compliance schedule under (§ 51.260).

(3) Any revision under § 51.104(d).

(b) Separate hearings may be held for plans to implement primary and secondary standards.

(c) No hearing will be required for any change to an increment of progress in an approved individual compliance schedule unless such change is likely to cause the source to be unable to comply with the final compliance date in the schedule. The requirements of §§ 51.104 and 51.105 will be applicable to such schedules, however.

(d) Any hearing required by paragraph (a) of this section will be held only after reasonable notice, which will be considered to include, at least 30 days prior to the date of such hearing(s):

(1) Notice given to the public by prominent advertisement in the area affected announcing the date(s), time(s), and place(s) of such hearing(s);

(2) Availability of each proposed plan or revision for public inspection in at least one location in each region to which it will apply, and the availability of each compliance schedule for public inspection in at least one location in the region in which the affected source is located;

(3) Notification to the Administrator (through the appropriate Regional Office);

(4) Notification to each local air pollution control agency which will be significantly impacted by such plan, schedule or revision;

(5) In the case of an interstate region, notification to any other States included, in whole or in part, in

REFERENCES FOR SECTION 5.3

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

Subparts A-C—[Reserved]

Sec.

AUTHORITY: This rulemaking is promulgated under authority of sections 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act 42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a).

SOURCE: 36 FR 22398, Nov. 25, 1971, unless otherwise noted.

EDITORIAL NOTE: Nomenclature changes affecting Part 51 appear at 44 FR 8237, Feb. 8, 1979 and 51 FR 40661, Nov. 7, 1986.

Subparts A-C—[Reserved]

Subpart D—Maintenance of National Standards

SOURCE: 41 FR 18388, May 3, 1976, unless otherwise noted.

§ 51.40 Scope.

(a) *Applicability.* The requirements of this subpart apply to air quality maintenance areas (AQMAs) identified under § 51.110(i) and to any areas identified under § 51.110(l).

(b) *AQMA Analysis.* Under this subpart, procedures are given for the analysis of the air quality impact of specified pollutant emissions from existing sources and emissions associated with projected growth and development in areas identified under paragraphs (i) and (l) of § 51.110. This analysis is referred to in this subpart as an AQMA analysis.

(c) *AQMA Plan.* Under this subpart, the Administrator will require a revision to the State implementation plan for areas identified under § 51.110(i) or § 51.110(l) when necessary to prevent a national ambient air quality standard

§ 51.62 AQMA analysis and plan: Data availability.

(a) The State shall retain all detailed data and calculations used in the preparation of AQMA analyses and plans, 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 AQMA analyses and plans shall not be considered a part of the AQMA plan.

§ 51.63 AQMA analysis and plan: Alternative procedures.

(a) At the request of a State, or under his own initiative, the Administrator, where he determines it appropriate, may approve alternative AQMA analysis and plan development procedures as allowed under §§ 51.42, 51.44, 51.45, 51.46, 51.48(b), and 51.50(a). He may consider all relevant factors including but not limited to air quality problems, financial and manpower limitations, administrative feasibility, and existing commitments by the State.

(b) The Administrator shall act upon a request for modification within 45 days after receipt of a properly prepared and filed request. Unless a State is notified of a denial, or the Administrator requests additional information, such a request is automatically approved on the forty-sixth day.

(c) The Administrator shall publish in the FEDERAL REGISTER a description of each modification made.

(d) A public hearing on an AQMA plan does not fulfill the public hearing requirements of this part if, subsequent to the hearing, any alternative procedures are approved under this section.

(Secs. 110, 121, 174(a), 301(a), Clean Air Act, as amended (42 U.S.C. 7410, 7421, 7504, and 7601(a)))

[41 FR 18388, May 3, 1976, as amended at 44 FR 35179, June 18, 1979]

Subpart E—[Reserved]

Subpart F—Procedural Requirements

SOURCE: 51 FR 40661, Nov. 7, 1986, unless otherwise noted.

§ 51.100 Definitions.

As used in this part, all terms not defined herein will have the meaning given them in the Act:

(a) "Act" means the Clean Air Act (42 U.S.C. 7401 *et seq.*, as amended by Pub. L. 91-604, 84 Stat. 1676 Pub. L. 95-95, 91 Stat., 685 and Pub. L. 95-190, 91 Stat., 1399.)

(b) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or an authorized representative.

(c) "Primary standard" means a national primary ambient air quality standard promulgated pursuant to section 109 of the Act.

(d) "Secondary standard" means a national secondary ambient air quality standard promulgated pursuant to section 109 of the Act.

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(f) "Owner or operator" means any person who owns, leases, operates, controls, or supervises a facility, building, structure, or installation which directly or indirectly result or may result in emissions of any air pollutant for which a national standard is in effect.

(g) "Local agency" means any local government agency other than the State agency, which is charged with responsibility for carrying out a portion of the plan.

(h) "Regional Office" means one of the ten (10) EPA Regional Offices.

(i) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(j) "Plan" means an implementation plan approved or promulgated under section 110 of 172 of the Act.

(k) "Point source" means the following:

(1) For particulate matter, sulfur oxides, carbon monoxide, volatile organic compounds (VOC) 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 1980 "urban place" population, as defined by the U.S. Bureau of

the Census, was equal to or greater than 1 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 1980 "urban place" population, as defined by the U.S. Bureau of the Census, was less than 1 million; or

(2) For lead or lead compounds measured as elemental lead, any stationary source that actually emits a total of 4.5 metric tons (5 tons) per year or more.

(l) "Area source" means any small residential, governmental, institutional, commercial, or industrial fuel combustion operations; onsite solid waste disposal facility; motor vehicles, aircraft vessels, or other transportation facilities or other miscellaneous sources identified through inventory techniques similar to those described in the "AEROS Man[illegible] series, Vol. II AEROS User's Manual," EPA-450/2-76-029 December 1976.

(m) "Region" means an area designated as an air quality control region (AQCR) under section 107(c) of the Act.

(n) "Control strategy" means a combination of measures designated to achieve the aggregate reduction of emissions necessary for attainment and maintenance of national standards including, but not limited to, measures such as:

(1) Emission limitations.

(2) Federal or State emission charges or taxes or other economic incentives or disincentives.

(3) Closing or relocation of residential, commercial, or industrial facilities.

(4) Changes in schedules or methods of operation of commercial or industrial facilities or transportation systems, including, but not limited to, short-term changes made in accordance with standby plans.

(5) Periodic inspection and testing of motor vehicle emission control systems, at such time as the Administrator determines that such programs are feasible and practicable.

(6) Emission control measures applicable to in-use motor vehicles, including, but not limited to, measures such as mandatory maintenance, installation of emission control devices, and conversion to gaseous fuels.

(7) Any transportation control measure including those transportation measures listed in section 108(f) of the Clean Air Act as amended.

(8) Any variation of, or alternative to any measure delineated herein.

(9) 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 seconary air quality standard and is approved by the Administrator under section 211(c)(4)(C) of the Act.

(o) "Reasonably available control technology" (RACT) means devices, systems process modifications, or other apparatus or techniques that are reasonably available taking into account (1) the necessity of imposing such controls in order to attain and maintain a national ambient air quality standard, (2) the social, environmental and economic impact of such controls, and (3) alternative means of providing for attainment and maintenance of such standard. (This provision defines RACT for the purposes of §§ 51.110(c)(2) and 51.341(b) only.)

(p) "Compliance schedule" means the date or dates by which a source or category of sources is required to comply with specific emission limitations contained in an implementation plan and with any increments of progress toward such compliance.

(q) "Increments of progress" means steps toward compliance which will be taken by a specific source, including:

(1) Date of submittal of the source's final control plan to the appropriate air pollution control agency;

(2) Date by which contracts for emission control systems or process modifications will be awarded; or date by which orders will be issued for the purchase of component parts to accomplish emission control or process modification;

(3) Date of initiation of on-site construction or installation of emission control equipment or process change;

(4) Date by which on-site construction or installation of emission control equipment or process modification is to be completed; and

(5) Date by which final compliance is to be achieved.

(r) "Transportation control measure" means any measure that is directed toward reducing emissions of air pollutants from transportation sources. Such measures include, but are not limited to, those listed in section 108(f) of the Clean Air Act.

(s)-(w) [Reserved]

(x) "Time period" means any period of time designated by hour, month, season, calendar year, averaging time, or other suitable characteristics, for which ambient air quality is estimated.

(y) "Variance" means the temporary deferral of a final compliance date for an individual source subject to an approved regulation, or a temporary change to an approved regulation as it applies to an individual source.

(z) "Emission limitation" and "emission standard" mean a requirement established by a State, local government, or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission reduction.

(aa) "Capacity factor" means the ratio of the average load on a machine or equipment for the period of time considered to the capacity rating of the machine or equipment.

(bb) "Excess emissions" means emissions of an air pollutant in excess of an emission standard.

(cc) "Nitric acid plant" means any facility producing nitric acid 30 to 70 percent in strength by either the pressure or atmospheric pressure process.

(dd) "Sulfuric acid plant" means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, or acid sludge, but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.

(ee) "Fossil fuel-fired steam generator" means a furnance or bioler used in the process of burning fossil fuel for the primary purpose of producing steam by heat transfer.

(ff) "Stack" means any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct but not including flares.

(gg) "A stack in existence" means that the owner or operator had (1) begun, or caused to begin, a continuous program of physical on-site construction of the stack or (2) entered into binding agreements or contractual obligations, which could not be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the stack to be completed within a reasonable time.

(hh)(1) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by:

(i) Using that portion of a stack which exceeds good engineering practice stack height:

(ii) Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or

(iii) Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.

(2) The preceding sentence does not include:

(i) The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;

(ii) The merging of exhaust gas streams where:

(A) The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

(B) After July 8, 1985 such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or

(C) Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the reviewing agency shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the reviewing agency shall deny credit for the effects of such merging in calculating the allowable emissions for the source;

(iii) Smoke management in agricultural or silvicultural prescribed burning programs;

(iv) Episodic restrictions on residential woodburning and open burning; or

(v) Techniques under § 51.100(hh)(1)(iii) which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed 5,000 tons per year.

(ii) "Good engineering practice" (GEP) stack height means the greater of:

(1) 65 meters, measured from the ground-level elevation at the base of the stack:

(2)(i) For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable permits or approvals required under 40 CFR Parts 51 and 52.

$H_g = 2.5H$,

provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation:

(ii) For all other stacks,

$H_g = H + 1.5L$

where

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack,

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = lesser dimension, height or projected width, of nearby structure(s)

provided that the EPA, State or local control agency may require the use of a field study or fluid model to verify GEP stack height for the source; or

(3) The height demonstrated by a fluid model or a field study approved by the EPA State or local control agency, which ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features.

(jj) "Nearby" as used in § 51.100(ii) of this part is defined for a specific structure or terrain feature and

(1) For purposes of applying the formulae provided in § 51.100(ii)(2) means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than 0.8 km (½ mile), and

(2) For conducting demonstrations under § 51.100(ii)(3) means not greater than 0.8 km (½ mile), except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to 10 times the maximum height (H_t) of the feature, not to exceed 2 miles if such feature achieves a height (H_t) 0.8 km from the stack that is at least 40 percent of the GEP stack height determined by the formulae provided in § 51.100(ii)(2)(ii) of this part or 26 meters, whichever is greater, as measured from the ground-level elevation at the base of the stack. The height of the structure or terrain feature is measured from the ground-level elevation at the base of the stack.

(kk) "Excessive concentration" is defined for the purpose of determining good engineering practice stack height under § 51.100(ii)(3) and means.

(1) For sources seeking credit for stack height exceeding that established under § 51.100(ii)(2) a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of

the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard. For sources subject to the prevention of significant deterioration program (40 CFR 51.166 and 52.21), an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and greater than a prevention of significant deterioration increment. The allowable emission rate to be used in making demonstrations under this part shall be prescribed by the new source performance standard that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible. Where such demonstrations are approved by the authority administering the State implementation plan, an alternative emission rate shall be established in consultation with the source owner or operator.

(2) For sources seeking credit after October 11, 1983, for increases in existing stack heights up to the heights established under § 51.100(ii)(2), either (i) a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects as provided in paragraph (kk)(1) of this section, except that the emission rate specified by any applicable State implementation plan (or, in the absence of such a limit, the actual emission rate) shall be used, or (ii) the actual presence of a local nuisance caused by the existing stack, as determined by the authority administering the State implementation plan; and

(3) For sources seeking credit after January 12, 1979 for a stack height determined under § 51.100(ii)(2) where the authority administering the State implementation plan requires the use of a field study or fluid model to verify GEP stack height, for sources seeking stack height credit after November 9, 1984 based on the aerodynamic influence of cooling towers, and for sources seeking stack height credit after December 31, 1970 based on the aerodynamic influence of structures not adequately represented by the equations in § 51.100(ii)(2), a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects that is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

(ll)-(mm) [Reserved]

(nn) Intermittent control system (ICS) means a dispersion technique which varies the rate at which pollutants are emitted to the atmosphere according to meteorological conditions and/or ambient concentrations of the pollutant, in order to prevent ground-level concentrations in excess of applicable ambient air quality standards. Such a dispersion technique is an ICS whether used alone, used with other dispersion techniques, or used as a supplement to continuous emission controls (i.e., used as a supplemental control system).

(oo) "Particulate matter" means any airborne finely divided solid or liquid material with an aerodynamic diameter smaller than 100 micrometers.

(pp) "Particulate matter emissions" means all finely divided solid or liquid material, other than uncombined water, emitted to the ambient air as measured by applicable reference methods, or an equivalent or alternative method, specified in this chapter, or by a test method specified in an approved State implementation plan.

(qq) "PM_{10}" means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by a reference method based on Appendix J of Part 50 of this chapter and designated in accordance with Part 53 of this chapter or by an equivalent method designated in accordance with Part 53 of this chapter.

(rr) "PM_{10} emissions" means finely divided solid or liquid material, with an aerodynamic diameter less than or equal to a nominal 10 micrometers emitted to the ambient air as measured by an applicable reference method, or an equivalent or alternative method, specified in this chapter or by a test method specified in an approved State implementation plan.

(ss) "Total suspended particulate" means particulate matter as measured by the method described in Appendix B of Part 50 of this chapter.

[51 FR 40661, Nov. 7, 1986, as amended at 52 FR 24712, July 1, 1987]

§ 51.101 Stipulations.

Nothing in this part will be construed in any manner:

(a) To encourage a State to prepare, adopt, or submit a plan which does not provide for the protection and enhancement of air quality so as to promote the public health and welfare and productive capacity.

(b) To encourage a State to adopt any particular control strategy without taking into consideration the cost-effectiveness of such control strategy in relation to that of alternative control strategies.

(c) To preclude a State from employing techniques other than those specified in this part for purposes of estimating air quality or demonstrating the adequacy of a control strategy, provided that such other techniques are shown to be adequate and appropriate for such purposes.

(d) To encourage a State to prepare, adopt, or submit a plan without taking into consideration the social and economic impact of the control strategy set forth in such plan, including, but not limited to, impact on availability of fuels, energy, transportation, and employment.

(e) To preclude a State from preparing, adopting, or submitting a plan which provides for attainment and maintenance of a national standard through the application of a control strategy not specifically identified or described in this part.

(f) To preclude a State or political subdivision thereof from adopting or enforcing any emission limitations or other measures or combinations thereof to attain and maintain air quality better than that required by a national standard.

(g) To encourage a State to adopt a control strategy uniformly applicable throughout a region unless there is no satisfactory alternative way of providing for attainment and maintenance of a national standard throughout such region.

§ 51.102 Public hearings.

(a) Except as otherwise provided in paragraph (c) of this section, States must conduct one or more public hearings on the following prior to adoption and submission to EPA of:

(1) Any plan or revision of it required by § 51.104(a).

(2) Any individual compliance schedule under (§ 51.260).

(3) Any revision under § 51.104(d).

(b) Separate hearings may be held for plans to implement primary and secondary standards.

(c) No hearing will be required for any change to an increment of progress in an approved individual compliance schedule unless such change is likely to cause the source to be unable to comply with the final compliance date in the schedule. The requirements of §§ 51.104 and 51.105 will be applicable to such schedules, however.

(d) Any hearing required by paragraph (a) of this section will be held only after reasonable notice, which will be considered to include, at least 30 days prior to the date of such hearing(s):

(1) Notice given to the public by prominent advertisement in the area affected announcing the date(s), time(s), and place(s) of such hearing(s);

(2) Availability of each proposed plan or revision for public inspection in at least one location in each region to which it will apply, and the availability of each compliance schedule for public inspection in at least one location in the region in which the affected source is located;

(3) Notification to the Administrator (through the appropriate Regional Office);

(4) Notification to each local air pollution control agency which will be significantly impacted by such plan, schedule or revision;

(5) In the case of an interstate region, notification to any other States included, in whole or in part, in

REFERENCES FOR SECTION 5.4

Attachment A

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

APR 22 1988

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Interim Policy on Stack Height Regulatory Actions

FROM: J. Craig Potter W. Ray Cunningham
for Assistant Administrator
for Air and Radiation (ANR-443)

TO: Director, Air Management Division
Regions I, III, IX
Director, Air and Waste Management Division
Region II
Director, Air, Pesticides, and Toxics Management Division
Regions IV, VI
Director, Air and Radiation Division
Region V
Director, Air and Toxics Division
Regions VII, VIII, X

On January 22, 1988, the U.S. Court of Appeals for the District of Columbia issued its decision in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988), regarding the Environmental Protection Agency's (EPA's) stack height regulations published on July 8, 1985 (50 FR 27892). Subsequent petitions for rehearing were denied. Although the court upheld most provisions of the rules, three portions were remanded to EPA for review:

1. Grandfathering pre-October 11, 1983 within-formula stack height increases from demonstration requirements [40 CFR 51.100(kk)(2)];

2. Dispersion credit for sources originally designed and constructed with merged or multiflue stacks [40 CFR 51.100(hh)(2)(ii)(A)]; and

3. Grandfathering of pre-1979 use of the refined H + 1.5L formula [40 CFR 51.100(ii)(2)].

A number of pending State implementation plan (SIP) and other rulemaking actions may be affected by this decision in advance of EPA's promulgation of further revisions of the stack height regulations. This includes not only rulemaking packages developed to respond to the 1985 stack height regulations, but also such actions as issuance of new source review (NSR) and prevention of significant deterioration (PSD) permits, permit modifications, SIP revisions

dealing with specific source emission limitations, and redesignations under section 107 of the Clean Air Act. Consequently, until resolution of litigation and completion of any rulemaking activity to respond to the court decision, the following policy will be applied.

In general, actions to approve States' rules may proceed provided appropriate caveat language is inserted which notes that the action is potentially subject to review and modification as a result of the recent court decision. Actions addressing State permitting authority should require States to provide notice that permits are subject to review and modification if sources are later found to be affected by revisions to stack height regulations. Where States currently have the authority to issue permits under fully-approved or delegated NSR and PSD programs, any permits issued prior to EPA's promulgation of revised stack height regulations should provide notice as described above that they may be subject to review and modification. Regional Office staff are requested to contact their State officials and notify them accordingly. Where EPA has retained authority to issue permits, it should also insert appropriate cautionary language in the permit.

The EPA will try to avoid taking source-specific actions that may need to be retracted later. Such actions may include certain emission limitations and good engineering practice demonstrations which reflect dispersion credit affected by the remand. The EPA may approve these State submittals on a case-by-case basis, with the explicit caution that they and the sources affected by them may need to be evaluated for compliance with any later revisions to the stack height regulations, as a result of the litigation. The EPA will continue to process, under normal procedures, any source-specific actions which do not involve the remanded provisions.

Requests for redesignation of areas from nonattainment to attainment which are affected by any of the remanded provisions of the stack height regulations will be put on hold until EPA has completed any rulemaking necessary to comply with the court's remand. This is due to the issue of whether EPA has authority to unilaterally change attainment designations.

During this interim period, the Regional Office staff should review with their States all regulatory actions involving dispersion credits and identify those actions or sources affected by the remanded provisions. The Region should consult with their States on appropriate action for all such packages, consistent with this policy.

If you have any questions regarding the application of this policy, please contact Doug Grano at FTS 629-0870 or Janet Metsa at FTS 629-5313.

cc: D. Clay
A. Eckert
J. Emison
D. Grano
J. Metsa

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

MAY 17 1988

MEMORANDUM

SUBJECT: Application of the Interim Policy for Stack Height Regulatory Actions

FROM: John Calcagni, Director
Air Quality Management Division (MD-15)

TO: Chief, Air Branch
Regions I-X

On April 22, 1988, J. Craig Potter, Assistant Administrator for Air and Radiation, issued a memorandum entitled, "Interim Policy on Stack Height Regulatory Actions" (Attachment A). The memorandum requests that the Regional Offices review with their States all regulatory actions involving dispersion credits and determine the appropriate action consistent with the policy. The purpose of today's memorandum is to provide guidance in carrying out the interim policy.

In general, actions taken at this time to approve or disapprove statewide stack height rules which are affected by the remand must include the qualification that they are subject to review and modification on completion of EPA's response to the court decision. Permits issued under the prevention of significant deterioration or new source review programs should also contain caveat language for sources which may be affected by the remand. Attachment B contains example boilerplate language to be inserted into permits and regulatory packages. Note that States must commit to including the caveat before EPA will take final action on packages affecting permitting authority. Those actions not involving the remanded provisions may proceed as usual.

In contrast to our policy regarding the processing of stack height rules, our policy for source-specific State implementation plan (SIP) revisions is to avoid proceeding with actions which may need to be retracted later. You are advised to consult with my staff and the Office of General Counsel staff prior to submitting such rulemaking packages. Affected sources must be deleted from negative declaration packages prepared under the 1985 stack height regulations before EPA can proceed with action on them.

My staff has applied the policy when reviewing packages currently in Headquarters (Attachment C). While proposals to approve (or disapprove) State rules will remain on the Headquarters clock, the Regional Offices are requested to review these packages and provide appropriate boilerplate as soon as possible. Negative declaration packages and final actions on State rules are being returned to the Regional Office clock as more substantial revisions and commitments may be required. The redesignation packages currently in Headquarters which contain sources affected by the remand are being placed on formal hold.

If you have any questions regarding the April 22 policy, today's guidance, or disposition of the SIP's, please contact Janet Metsa (FTS 629-5313) or Doug Grano (FTS 629-0870).

Attachments

cc: R. Bauman
R. Campbell
C. Carter
G. McCutchen
J. Pearson
J. Sableski

bcc: B. Armstrong
P. Embrey
G. Foote
E. Ginsburg
D. Grano
N. Mayer
J. Metsa
S. Reinders
R. Roos-Collins
SO_2 SIP Contacts
Stack Height Contacts, Regions I-X

Attachment A

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

APR 22 1988

OFFICE OF
AIR AND RADIATI

MEMORANDUM

SUBJECT: Interim Policy on Stack Height Regulatory Actions

FROM: for J. Craig Potter W. Ray Cunningham
Assistant Administrator
for Air and Radiation (ANR-443)

TO: Director, Air Management Division
Regions I, III, IX
Director, Air and Waste Management Division
Region II
Director, Air, Pesticides, and Toxics Management Division
Regions IV, VI
Director, Air and Radiation Division
Region V
Director, Air and Toxics Division
Regions VII, VIII, X

On January 22, 1988, the U.S. Court of Appeals for the District of Columbia issued its decision in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988), regarding the Environmental Protection Agency's (EPA's) stack height regulations published on July 8, 1985 (50 FR 27892). Subsequent petitions for rehearing were denied. Although the court upheld most provisions of the rules, three portions were remanded to EPA for review:

1. Grandfathering pre-October 11, 1983 within-formula stack height increases from demonstration requirements [40 CFR 51.100(kk)(2)];

2. Dispersion credit for sources originally designed and constructed with merged or multiflue stacks [40 CFR 51.100(hh)(2)(ii)(A)]; and

3. Grandfathering of pre-1979 use of the refined H + 1.5L formula [40 CFR 51.100(ii)(2)].

A number of pending State implementation plan (SIP) and other rulemaking actions may be affected by this decision in advance of EPA's promulgation of further revisions of the stack height regulations. This includes not only rulemaking packages developed to respond to the 1985 stack height regulations, but also such actions as issuance of new source review (NSR) and prevention of significant deterioration (PSD) permits, permit modifications, SIP revisions

dealing with specific source emission limitations, and redesignations under section 107 of the Clean Air Act. Consequently, until resolution of litigation and completion of any rulemaking activity to respond to the court decision, the following policy will be applied.

In general, actions to approve States' rules may proceed provided appropriate caveat language is inserted which notes that the action is potentially subject to review and modification as a result of the recent court decision. Actions addressing State permitting authority should require States to provide notice that permits are subject to review and modification if sources are later found to be affected by revisions to stack height regulations. Where States currently have the authority to issue permits under fully-approved or delegated NSR and PSD programs, any permits issued prior to EPA's promulgation of revised stack height regulations should provide notice as described above that they may be subject to review and modification. Regional Office staff are requested to contact their State officials and notify them accordingly. Where EPA has retained authority to issue permits, it should also insert appropriate cautionary language in the permit.

The EPA will try to avoid taking source-specific actions that may need to be retracted later. Such actions may include certain emission limitations and good engineering practice demonstrations which reflect dispersion credit affected by the remand. The EPA may approve these State submittals on a case-by-case basis, with the explicit caution that they and the sources affected by them may need to be evaluated for compliance with any later revisions to the stack height regulations, as a result of the litigation. The EPA will continue to process, under normal procedures, any source-specific actions which do not involve the remanded provisions.

Requests for redesignation of areas from nonattainment to attainment which are affected by any of the remanded provisions of the stack height regulations will be put on hold until EPA has completed any rulemaking necessary to comply with the court's remand. This is due to the issue of whether EPA has authority to unilaterally change attainment designations.

During this interim period, the Regional Office staff should review with their States all regulatory actions involving dispersion credits and identify those actions or sources affected by the remanded provisions. The Region should consult with their States on appropriate action for all such packages, consistent with this policy.

If you have any questions regarding the application of this policy, please contact Doug Grano at FTS 629-0870 or Janet Metsa at FTS 629-5313.

cc: D. Clay
A. Eckert
J. Emison
D. Grano
J. Metsa

Attachment B

The following boilerplate, or variations tailored to suit particular situations, should be used in rulemaking actions affected by the stack height remand.

General Addition

"The EPA's stack height regulations were challenged in NRDC v. Thomas, 838 F.2d 1224 (D.C. Cir. 1988). On January 22, 1988, the U.S. Court of Appeals for the D.C. Circuit issued its decision affirming the regulations in large part, but remanding three provisions to the EPA for reconsideration. These are:

1. Grandfathering pre-October 11, 1983 within-formula stack height increases from demonstration requirements [40 CFR 51.100(kk)(2)];

2. Dispersion credit for sources originally designed and constructed with merged or multiflue stacks [40 CFR 51.100(hh)(2)(ii)(A)]; and

3. Grandfathering pre-1979 use of the refined H + 1.5L formula [40 CFR 51.100(ii)(2)]."

Addition for Stack Heights Rules Packages

"Although the EPA generally approves [State's] stack height rules on the grounds that they satisfy 40 CFR Part 51, the EPA also provides notice that this action may be subject to modification when EPA completes rulemaking to respond to the decision in NRDC v. Thomas, 838 F.2d 1224 (D.C. Cir. 1988). If the EPA's response to the NRDC remand modifies the July 8, 1985 regulations, the EPA will notify the State of [__] that its rules must be changed to comport with the EPA's modified requirements. This may result in revised emission limitations or may affect other actions taken by [State] and source owners or operators."

Additions for Stack Negative Declaration Packages

"The EPA is not acting on ____ sources (identified in table form or by asterisk) because they currently receive credit under one of the provisions remanded to the EPA in NRDC v. Thomas, 838 F.2d 1224 (D.C. Cir 1988). The [State] and EPA will review these sources for compliance with any revised requirements when the EPA completes rulemaking to respond to the NRDC remand."

Additions for Stack Height Emission Limitation Changes or Good Engineering Practice Demonstration

The OAQPS and OGC will provide language on a case-by-case basis when the EPA is acting on a source-specific package which is affected by the remand.

Language for Proposed NSR and PSD SIP Approvals

"Under this program, [State] will be issuing permits and establishing emission limitations that may be affected by the court-ordered reconsideration of the stack height regulations promulgated on July 8, 1985 (50 FR 27892). For this reason, EPA requires that the State include the following caveat in all potentially affected permit approvals until the EPA completes its reconsideration of remanded portions of the regulations and promulgates any necessary revisions:

> 'In approving this permit, [name of agency] has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F.2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators.'

[State] must make an enforceable commitment to include this caveat in all affected permits before the EPA can take final action approving the [NSR or PSD] program."

Language for Final NSR and PSD SIP Approvals

"Under this program, [State] will be issuing permits and establishing emission limitations that may be affected by the court-ordered reconsideration of the stack height regulations promulgated on July 8, 1985 (50 FR 27892). For this reason, the EPA has required that the State include the following caveat in all potentially affected permit approvals until the EPA completes its reconsideration of remanded portions of the regulations and promulgates any necessary revisions:

> 'In approving this permit, [name of agency] has determined that the application complies with the applicable provisions of the stack height regulations as revised by the EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F.2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when the EPA revises the regulations in

response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators.'

[State] has made an enforceable commitment to include this caveat in all affected permits by letter dated [__]. This commitment is being incorporated into the Code of Federal Regulations for the State of [__] as part of EPA's approval action."

See Attachment D for sample CFR amendment.

The Regional Offices are requested to contact those States that currently have permitting authority and request that they include similar language in any permits issued until EPA has completed its reconsideration of the stack height regulations and has promulgated any necessary revisions.

Attachment C

State	AQMD #	Description	Disposition
AZ/CA/NV	3059	Promulgation of Stack Height Regs.	HQ
AZ/CA/NV	3210	App. and Disapp. of Stack Height Req.	RO
SC	3243	Negative Declaration	RO
MS	3330	Mississippi's Negative Declaration	RO
NJ/NY/VI	3418	Stack Height Revisions	RO
WA	3480	Stack Height Rules	HQ
MD	3543	Negative Declaration	RO
AR	3548	Stack Height Rules	HQ
OH	3570	Stack Height Regulations	HQ
TX	3572	Stack Height Regulations	HQ
LA	3592	Revisions to Stack Height Rules	HQ
DE	3600	Stack Height Regulations	HQ
OH	3334	Redesignation of Galia County to Attainment	Hold
SD	3618	Administrative Rules	RO
CO	3623	Negative Declaration	RO

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

12 NOV 1987

MEMORANDUM

SUBJECT: Incorporation by Reference

FROM: G. T. Helms, Chief
Control Programs Operations Branch

TO: Chief, Air Branch
Regions I-X

The Office of the Federal Register (OFR) has recently advised us that commitment letters are not acceptable for incorporation by reference because they are not regulatory in nature.

Instead, the OFR has informed us that the Code of Federal Regulations (CFR) can be amended by adding a new section or amending an existing section to add the commitment; the "Identification of Plan" paragraph should not be amended.

Attached is an example of a CFR page that the OFR has reviewed and approved and the commitment letter from the State of Minnesota that was the basis for this sample regulatory text. Please note that the core paragraph from the letter should be quoted in the new section that is being added to the CFR.

If you have any questions on incorporation by reference procedures, call Denise Gerth at 629-5550. Thank you for your cooperation.

Attachments

cc: Betty Abramson
Walter Bishop
Ted Creekmore
Tom Diggs
Pat Embrey
Greg Foote
Denise Garth
Dean Gillam
Laurie Kral
Carol LeValley
Sandy McLean
Bob Miller
Rich Ossias
Carolyn Payne
Sharon Reinders
Julie Rose
John Silvasi
Marcia Spink
Rebecca Taggart
Paul Truchan

40 CFR Part 52, Subpart Y, is amended as follows:

1. The authority citation for Part 52 continues to read as follows

   AUTHORITY: 42 U.S.C. 7401-7642

2. A new Section 52.1237 is added as follows:

   §52.1237 Stack Height Regulations

The State of Minnesota has committed to conform to the Stack Height Regulations as set forth in 40 CFR Part 51. In a letter to Mr. David Kee, EPA, dated January 14, 1987, Mr. Thomas J. Kalitowski of the Minnesota Pollution Control Agency stated:

> Minnesota does not currently have a stack height rule, nor do we intend to adopt such a rule. Instead, we will conform with the Stack Height Regulation as set forth in the July 8, 1985 Federal Register in issuing permits for new or modified sources. In cases where that rule is not clear, we will contact U.S. EPA Region V and conform to the current federal interpretation of the item in question.

REFERENCES FOR SECTION 5.5

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 51

[AD-FRL 2010-1; Docket No. A-79-01]

Stack Height Regulations

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rulemaking.

SUMMARY: Section 123 of the Clean Air Act requires EPA to promulgate regulations to assure that the degree of emission limitation required for the control of any air pollutant under an applicable State Implementation Plan (SIP) is not affected by that portion of any stack height which exceeds good engineering practice (GEP) or by any other dispersion technique. Regulations to implement Section 123 were proposed on January 12, 1979 at 44 FR 2608 and reproposed October 7, 1981 at 46 FR 49814. Today's action incorporates changes to the reproposal and finalizes these regulations.

DATE: These rules are effective March 10, 1982.

ADDRESS: Docket A-79-01, containing material relevant to this action, is located in the Central Docket Section (A-130), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, D.C. 20460.

FOR FURTHER INFORMATION CONTACT: Mr. Bruce Polkowsky, MD-15, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711. Telephone: (919) 541-5540.

SUPPLEMENTARY INFORMATION:

Docket Statement

All pertinent information concerning the development of these regulations is included in Docket No. A-79-01. The Docket is open for inspection by the public between the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday, at the EPA Central Docket Section, West Tower Lobby, Gallery One, 401 M Street, SW., Washington, D.C. Background documents normally available to the public, such as Federal Register notices and Congressional reports, are not included in the docket. A reasonable fee may be charged for copying documents.

I. Background

A. Statute

Section 123 was added to the Clean Air Act by the 1977 Clean Air Act Amendments. It prohibits stacks taller than good engineering practice (GEP) height and other dispersion techniques from affecting the emission limitations required to meet the national ambient air quality standards (NAAQS) or prevention of significant deterioration air quality increments (PSD increments). Section 123 requires EPA to promulgate regulations which define GEP stack height, and which restrict the use of other dispersion techniques, including intermittent or supplemental control techniques. This rulemaking fulfills this requirement. In the near future, EPA also intends to propose rules on the use of intermittent control techniques.

B. Rulemaking

On January 12, 1979 (44 FR 2608), EPA published a notice proposing limitations on stack height credit and other dispersion techniques. The notice proposed specific rules to be used in determining GEP stack height for any source and specific requirements for State Implementation Plan (SIP) revisions. EPA provided an extended period for the submission of public comments on these proposed regulations. EPA held a public hearing on May 31, 1979 followed by a 30-day period for the submission of additional comments (44 FR 24329, April 25, 1979). EPA provided for comments on additional technical information (44 FR 40359, July 11, 1979 and 46 FR 24596, May 1, 1981). Finally, EPA recently reproposed the regulations with changes made in response to the comments received (46 FR 49814, October 7, 1981).

Forty individuals and groups commented on the October 1981 proposal. EPA has considered all comments and has made a number of changes in the regulations in response to these comments. Most of these changes simply clarify the proposed rules. The revisions are outlined in Section IV: "Changes in the Regulations from the October 1981 Proposal." In addition, EPA has prepared a document entitled "Summary of Comments and Responses on the October 7, 1981 Proposal of the Stack Height Regulations." This document has been placed in Docket A-79-01, and, depending upon available supplies, copies may also be obtained from: EPA Library (MD-35), U.S. Environmental Protection Agency, Research Triangle Park, N.C. 27711. A copy of this document will be sent to all persons who submitted comments on the October 1981 proposal.

C. Documents

In conjunction with the regulations, EPA developed several technical and guidance documents. These served as background information for the regulations and all are included in Docket No. A-79-01. The following documents have been placed in the National Technical Information Service (NTIS) system and may be obtained by contacting NTIS at 5285 Port Royal Rd., Springfield, Virginia 22161.

(1) "Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for Stack Height Regulations)," July 1981. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, EPA-450/4-80-023. (NTIS PB82 145301)

(2) "Guideline for Use of Fluid Modeling to Determine Good Engineering Practice Stack Height," July 1981. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, EPA-450/4-81-003. (NTIS PB82 145327)

(3) "Guideline for Fluid Modeling of Atmospheric Diffusion," April 1981. U.S. Environmental Protection Agency, Environmental Sciences Research Laboratory, EPA-600/8-81-009. (NTIS PB81 201410)

II. Program Overview

A. The Problem

There are two general methods for preventing violations of the NAAQS and PSD increments. Emission controls reduce, on a continuous basis, the quantity, rate, or concentrations of pollutants released into the atmosphere from a source. In contrast, dispersion techniques rely on the dispersive effects of the atmosphere to carry pollutant emissions away from a source and to prevent high concentrations of pollutants near the source. The Clean Air Act requires pollution sources to meet the NAAQS and PSD increments by complying with emission limitations instead of relying on dispersion techniques.[1] Section 123 defines stack height exceeding GEP as a dispersion technique.

Tall stacks and intermittent or supplemental control systems (ICS or SCS) are the two basic types of dispersion techniques. Tall stacks enhance dispersion by releasing pollutants into the air at elevations high above ground level, increasing the volume of air through which pollutants must travel to reach the ground. Releasing pollutants from a tall stack allows a source to reduce the ambient levels of its pollution as measured at ground level without reducing the amount of pollution it releases. Intermittent and supplemental control systems vary a source's rate of emissions to take advantage of

[1] See Sections 110(a)(2)(B), 123, 302(k), and 302(m) of the Act, 42 U.S.C. 7410(a)(2)(B), 7423, 7602(k), and 7602(m). The Notice of Proposed Rulemaking contains a more detailed discussion of the Act's prohibition of the use of dispersion techniques. See 44 FR 2608-2610.

meteorological conditions. When atmospheric conditions do not favor dispersion and an NAAQS may be violated, the source temporarily reduces its pollutant emissions. When conditions favor rapid dispersion, the source emits pollutants at higher rates.

Use of dispersion techniques instead of constant emission controls can result in additional atmospheric loadings which may contribute to undesirable environmental effects. The use of tall stacks increases the possibility that pollution will travel long distances before it settles to the ground.

Although dispersion techniques may produce adverse effects, some stack height is needed to prevent excessive concentrations of pollutant emissions created by airflow disruptions caused by structures, terrain features, and ground-level meteorological phenomena. These excessive concentrations result from interference with the plume. Section 123 responds to this problem by allowing EPA to give a source credit for that portion of its stack height needed to prevent excessive concentrations near the source. This height is called GEP stack height.

The regulations promulgated today define "excessive concentrations," "nearby," and other important concepts. They also establish methods for determining the GEP stack height for all stationary sources to which these regulations apply.

B. The Program

These regulations do not limit the physical stack height of any source, nor require any specific stack height for any source. Instead, they set limits on the maximum stack height credit to be used in ambient air quality modeling for the purpose of setting an emission limitation and calculating the air quality impact of a source. Sources are modeled at the physical stack height unless that height exceeds their GEP stack height. The regulations apply to all stacks constructed and all dispersion techniques implemented since December 31, 1970.

1. Methods of Determining GEP Stack Height. The regulations establish three basic methods of calculating a source's GEP stack height.

(a) De minimis height—EPA is adopting 65 meters as the minimum GEP stack height for all sources regardless of the size or location of any structures or terrain features. Sixty-five meters represents a reasonable estimate of the height needed to insure that emissions will not be affected by common ground-level meteorological phenomena which may produce excessive pollutant concentrations. Typical causes of these phenomena include surface roughness and the temperature changes caused by the solar heating and terrestrial cooling cycle (see page 26 of the Technical Support Document).

Virtually all significant sources of SO_2 can justify stack height credits greater than 65 meters. Accordingly, this de minimis height will have little effect on atmospheric loadings of sulfur dioxide.

(b) Mathematical Formulas—Excessive concentrations may be produced by downwash, wakes, and eddies caused by structures located near the stack. EPA is adopting two formulas with which to calculate the GEP stack height: One for stacks in existence on January 12, 1979 (the date of publication of EPA original proposed rules), and one for stacks constructed after that date.

For stacks in existence on January 12, 1979, EPA has adopted the traditional engineering formula of two and one-half times the height of the nearby structure ($H_g = 2.5H$) as the formula for determining the GEP stack height. For stacks constructed after January 12, 1979, EPA has established a refined formula of the height of the nearby structure plus one and one-half times the height or width of the structure, whichever is less ($H_g = H + 1.5L$) as the formula for determining the GEP stack height.

(c) Physical Demonstration—In some cases, a source may need a stack taller than the height predicted by the formulas to prevent excessive concentrations of a pollutant due to downwash, wakes, or eddies created by structures or terrain obstacles. In such cases, Section 123 provides that a source may obtain credit for all of the stack height necessary to avoid excessive concentrations provided it demonstrates to the satisfaction of the reviewing authority that the additional height is necessary.

EPA is requiring such a source to demonstrate that maximum concentrations caused by the source's emissions from its proposed stack height, without consideration of nearby structures or terrain obstacles, will increase by at least 40 percent when the effects of the structures or terrain obstacles are considered. This difference in concentrations must be shown either by a fluid model study conducted in accordance with guidelines published by EPA or by a field study which has been approved by the reviewing authority.

Before a source can obtain credit for a GEP stack height determined by a fluid model or field study demonstration, Section 123(c) requires that the reviewing authority must notify the public of the availability of the source's demonstration study and must provide an opportunity for a public hearing.

2. Method of Adjusting GEP Stack Height for Elevated Terrain Areas. As traditionally defined, plume impaction occurs when a plume emitted from a stack interacts with terrain that is taller than the stack. The contact between the plume and the terrain can produce high pollutant concentrations. EPA is establishing a procedure which will allow sources to adjust their GEP stack height to avoid modeled plume impaction on elevated terrain causing one to predict violations of the NAAQS or applicable PSD increments which will not occur. (This procedure is explained in Section IV.C.) The predicted violations will not occur because the physical stack height is sufficient to ensure that the plume passes over the elevated terrain.

Before a source can obtain credit for a GEP stack height based on allowances for terrain impaction, the reviewing authority must notify the public of the availability of the source's demonstration study and must provide an opportunity for a public hearing.

3. Grandfathered Stack Height. The 1970 Clean Air Act became effective on December 31, 1970. Prior to that date some sources had constructed stacks taller than their GEP height. In Section 123, Congress recognized this and exempted those sources' stack heights. Section 123 allows credit for stack height in existence on December 31, 1970. A source's stack is considered to be "in existence" if that stack was part of the design of a facility on which construction commenced prior to December 31, 1970.

4. Other Dispersion Techniques. The regulations prohibit the use of other dispersion techniques to attain or maintain any NAAQS or protect a PSD increment. Those techniques include major alteration of plume characteristics such as the manipulation of exhaust flow rates or temperatures for the purpose of enhancing plume rise. The regulation defines three types of dispersion techniques: (1) tall stacks, (2) use of ICS or SCS, and (3) addition of a fan or reheater to obtain a less stringent emission limitation. However, the regulations exempt (1) reheating of a gas stream following the use of a pollutant control system, (2) smoke management in agricultural or silvicultural programs, and (3) combining exhaust gases from several stacks into one stack.

III. State Implementation Plan Requirements

EPA is establishing a two-stage process for the implementation of these regulations. All States must review and revise, as necessary, their SIPs to include provisions that limit stack height credits and dispersion techniques in accordance with these regulations. Section 406(d)(2) of the Clean Air Act Amendments of 1977 requires that these SIP revisions be submitted within nine months of promulgation of these regulations.

After EPA approves a State's stack height rules, the State must review existing limitations to determine whether these limitations have been affected by stack height credit above GEP levels or any other dispersion technique. If so, the State must revise the emission limitations to be consistent with its revised SIP.

IV. Changes in the Regulations From the October 7, 1981 Proposal

EPA has made several changes in the proposed regulations as a result of the public comments on the reproposed regulations. These changes are noted below.

A. Prospective Application of the New GEP Formula

On February 18, 1976 (41 FR 7450), EPA published the "Stack Height Increase Guideline" which provided guidance on its policy for the use of tall stacks. The guideline permitted credit for stacks up to two and one-half times the height of the facility it served. On November 3, 1977, after passage of the Clean Air Act Amendments of 1977, EPA promulgated a final rule on some changes to its prevention of significant deterioration (PSD) program (42 FR 57459). As part of the preamble to that notice, EPA defined GEP as "two and one-half times the height of the source" (2.5H).

On January 12, 1979 (44 FR 2608), EPA proposed regulations to implement Section 123 which refined the two and one-half times rule by defining GEP stack height as the height of a nearby structure plus one and one-half times the lesser of the height or width of the nearby structure (H+1.5L). That proposal and the reproposal of that regulation on October 7, 1981 (46 FR 49814) would have made the new formula retroactive to December 31, 1970.

Four commenters argued that EPA's definition of GEP, until January 12, 1979, had been based on two and one-half times the building height and that sources in good faith had constructed stacks in accordance with that definition. Applying the new formula retroactively would be unfair to those sources. The commenters argued that the new formula should be applied prospectively.

In response to these comments, EPA has developed two formulas for determining GEP stack height: (1) For stacks in existence on January 12, 1979, the formula is $H_g = 2.5H$; (2) for all other stacks, the formula is $H_g = H + 1.5L$.

B. Definition of "in existance"

Section 123 does not affect stack heights "in existence" on December 31, 1970. In October 1981, EPA proposed to define "in existence" to mean that the owner or operator of a stack had obtained all necessary preconstruction permits or approvals required by Federal, State or local air pollution control agencies, and either (1) actually commenced construction, or (2) entered into a binding commitment for construction.

Comments on the reproposed definition stated that this new definition would discriminate unfairly against sources located in the few States or local jurisdictions which required construction permits for air pollution sources in 1970. (There were no Federal permit programs in 1970.) EPA agrees that the reproposed definition might operate unfairly. EPA has deleted the requirement for such approvals or permits in determining whether a source's stack is "in existence" as of December 31, 1970.

However, the regulations now apply the two and one-half times formula for determining GEP only to stacks "in existance" on January 12, 1979. Federal requirements for preconstruction permits for air pollution sources were effective well before 1979. Accordingly, EPA is retaining the permit requirement for sources which want to claim credit for stacks "in existence" as of January 12, 1979. EPA has changed § 51.1(ii), which defines GEP, to require sources wishing to use the two and one-half times formula to show that they had obtained, prior to January 12, 1979, all preconstuction permits required by 40 CFR Parts 51 and 52.

The remaining portions of the definition of "in existence" are identical to the October 1981 proposal.

C. Impaction Credit

Many comments on the January 1979 proposal asked EPA to provide stack height credit for a source which experiences plume impaction. Plume impaction occurs when a plume emitted from a stack interacts with a terrain feature that is taller than the stack. The contact between the plume and the terrain feature can produce high pollutant concentrations, especially under stable atmospheric conditions in which the plume disperses slowly.

EPA decided that sources should receive stack height credit when impaction produces concentrations high enough to violate an NAAQS or applicable PSD increment. EPA included in its October 1981 reproposal a procedure for determining the amount of credit needed to prevent plume impaction.

EPA has received three types of comments on the proposed impaction credit. Environmental groups claimed that Section 123 does not authorize impaction credits. Several industrial commenters asked EPA to clarify the proposed procedures for impaction credits. Finally, some industrial commenters asked EPA to modify a portion of its proposed procedures. To respond to these comments, EPA is presenting below a brief description of its rationale and procedures for impaction credits. EPA is also providing a brief explanation of its reason for declining to make procedural modifications.

(1) Rationale

Plume impaction resembles downwash, wakes, and eddies. In all of these events, structures or terrain features interfere with plume dispersion. If the interference occurs relatively close to the stack, before the plume has had adequate opportunity to disperse, high concentrations of pollutants can occur.

In enacting Section 123, Congress decided that sources should be allowed sufficient stack height credit to prevent high pollutant concentrations caused by downwash, wakes, and eddies. Congress called this height "good engineering practice." Any additional stack height was to be regarded as a dispersion technique that might allow a source to relax its emissions limitations. Section 123 does not mention impaction. However, neither the language of the statute nor the legislative history show that this omission was deliberate. EPA considers impaction to be enough like downwash that the same rationale should apply. GEP stack height should include credit needed to avoid high concentrations caused by impaction. Accordingly, EPA has decided to exercise general rulemaking authority to establish stack height credit needed to prevent high concentrations caused by plume impaction.

EPA recognizes Congress did not want the stack height rules to grant too much credit to sources locating in complex terrain, for "the result could be an open invitation to raise stack heights to unreasonably high elevations." H.R.

Rep. No. 95–294, 95th Cong., 1st Sess. at 93 (1977). Therefore, EPA has carefully tailored impaction credit procedures to provide only the minimum stack height credit needed to avoid high concentrations [3] produced by impaction. These procedures are described in more detail below.

EPA is convinced that its narrowly drawn rules represent a reasonable solution for a plume effect that closely resembles the phenomena of downwash, wakes, and eddies. Credits for plume impaction, when carefully limited, should not be regarded as a dispersion technique. Although the promulgated procedure allows for the use of some stack height to avoid high pollutant concentrations on elevated terrain, it does not permit excessive dispersion credits.

(2) Explanation of Procedures

EPA has developed a three-step procedure for determining the amount of stack height credit appropriate for a source with a predicted impaction concentration violating an NAAQS or applicable PSD increment.

First, a source must determine its downwash GEP height—the amount of stack height that can be justified based on downwash, wakes, or eddies—using any of the three methods described in Section II.B. above. Using this GEP height, the source must show that its plume would come into contact with elevated terrain (defined as terrain taller than this GEP height) and together with background concentrations cause a violation of an NAAQS or applicable PSD increment. If the source cannot show that a violation would occur, it cannot claim any impaction credit. Its stack height credit would be limited to the GEP height already calculated.

If a violation is modeled, the second step is to determine the source's maximum allowable emission limitation. In this step the source would model its air quality impact using the previously determined GEP height and assuming that the terrain feature(s) causing impaction is no taller than its downwash GEP height. Using the appropriate maximum concentration from this modeling scenario, the source would calculate an emission limitation which would become its maximum allowable emission limitation.

The third step allows the source to adjust its GEP stack height to account for the plume impaction on actual terrain features above the downwash GEP stack height. The source cannot adjust its maximum allowable emission limitation. The source would model its air quality impact again, this time using actual terrain elevations, but limiting its emissions to the rate fixed by the emission limitation developed in step two. The source would increase the height of the stack in the model to the height at which the maximum concentration predicted to occur on elevated terrain equaled the maximum concentration predicted to occur in step two. This increased stack height is the source's maximum GEP height to avoid high concentrations due to impaction.

Like the downwash GEP height, this stack height will represent maximum allowable credit. The source would not be able to claim this credit if its physical (actual or proposed) stack height were not as tall as its maximum creditable height. In that case, the source would be able to claim only its physical stack height. A source with physical stack height lower than its allowable GEP height would have to adjust its emission limitation downward to prevent a violation of an NAAQS or applicable PSD increment.

(3) Modification Requested by Commenters

The electric utilities requested that EPA assume, during the Step two modeling, that all terrain features are no taller than ground elevation at the base of the stack or, in other words, that the source is located in absolutely flat terrain. The utilities believe that this assumption is necessary to ensure equity between sources located in elevated terrain and sources in flat terrain.

EPA has decided not to make this change to its procedure. EPA's objective is to provide the minimum stack height credit needed to allow a source to avoid high concentrations caused by plume impaction. A source in assumed flat terrain would obtain a less restrictive emission limitation than a source in terrain assumed to be as tall as its downwash GEP height. The flat terrain assumption would thus allow a source to obtain more stack height credit than needed to prevent impaction. It would also have a greater negative impact on air quality by allowing taller stacks and more relaxed emission limits.

D. Dispersion Technique

EPA received numerous comments on the definition of the term "dispersion technique." Most of these comments stated that wording concerning the enhancement of plume rise was vague. Comments specifically mentioned that many changes in operation or equipment made for engineering purposes, to improve reliability or efficiency, could be construed as a disperison technique. This is not the intent of the definition. EPA has changed the definition of dispersion technique to prevent the addition of a fan or reheater to obtain a less stringent emission limitation. The purpose of this change is to prevent only the installation of equipment clearly intended to enchance plume rise. The new definition should not prevent equipment changes intended to improve reliability and efficiency.

E. Definition of "Stack"

Comments on the January 1979 proposal urged EPA to exempt "flares" from the definition of "stack." EPA agreed that flares, which are designed to dispense heat and vent emissions intermittently for safety purposes, do not serve the same purpose as stacks, which are typically a source's major and most constant emissions point. EPA announced that it would exempt flares from the stack height regulations in the preamble to the October 1981 reproposal. New comments urged EPA to include this exemption in the regulations themselves to eliminate any potential for confusion or misunderstanding. In response to these comments, EPA is incorporating a specific exemption for flares into the definition of "stack."

F. Section 123 and Physical Stack Height

EPA received several comments on the October 1981 reproposal which indicated that the commenters believed that the proposed regulations would give EPA authority to limit a source's actual stack height. EPA did not intend to create this impression. In fact, EPA stated in the preamble to the reproposal that Section 123 expressly prohibits the Agency from limiting physical stack height. Section 123 limits only the theoretical stack height used in determining a source's emission limitation. However, to eliminate this confusion, EPA is adding a statement to §§ 51.12(j) and 51.18(l) of the regulations stating that these regulations do not restrict in any manner the actual height of any stack at any source.

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[3] EPA considers "high concentrations" to be a violation of an NAAQS or applicable PSD increment. Unlike "excessive concentrations" caused by downwash, high concentrations caused by plume impaction occur in different meteorological conditions than downwash and are longer in duration. High concentrations due to plume impaction can be compared easily to an NAAQS or applicable PSD increment. Therefore, EPA has required that the concentration caused by plume impaction must be in excess of an NAAQS or applicable PSD increment before a source can adjust its GEP stack height.

G. Measurement of Stack Height

In the proposed definition of a "stack," EPA stated that the "stack height is the distance from the ground-level elevation of the plant to the elevation of the stack outlet." Several commenters requested clarification in the establishing the ground-level elevation of the plant. For instance, the commenters noted that where a plant was built on a slope the regulation could have varying interpretations. Also, some commenters asked whether the entire plant site should be included or just the portion of the plant site considered "nearby" the stack.

EPA is changing the regulations to clarify this point. EPA deleted from the definition of a "stack," the statement defining stack height. However, EPA clarified the methods for determining GEP stack height by stating that all stack and structure heights are measured from the ground-level elevation at the base of the stack.

If a stack is on top of a building, the ground-level elevation of the building is used as the base elevation. In order to appropriately assess the impact of nearby structures on this stack height, the height of structures is also determined relative to the ground-level elevation of the stack.

H. Minor Wording Changes

Several commenters identified typographical errors and areas where minor wording changes could clarify the regulations. These and other wording changes have been made to correct and to clarify the regulations. These changes did not have any significant effect on the regulations.

V. Impact Analysis

EPA has prepared a series of impact analyses on these regulations. These analyses are in Docket A-79-01. The analyses show that the expected "worst-case" national annual costs to fossil-fuel fired-power plants should be less than $45 million per year. These costs result from conservative estimates of required purchases of lower sulfur coal and estimates of required retrofit of electrostatic precipitators at some plants which purchase the lower sulfur coal. The worst-case analyses show that the expected reduction in SO_2 emissions is less than 200,000 tons per year. Nationally, these costs could increase electric utility rate charges approximately 0.1 to 0.2 percent. Increases for individual power company rates could range from 0.5 to 30 percent.

VI. Regulatory Flexibility Analysis

Pursuant to the provisions of 5 U.S.C. 605(b), I hereby certify that the attached rule will not have significant economic impact on a substantial number of small entities. This rule applies only to large sources. The impact assessment predicted that these regulations would not have significant impact on any small entities. Based upon our impact analysis, only electric utility plants and possibly one smelter will be significantly affected by these regulations.

VII. Executive Order 12291

Under Executive Order 12291, EPA must judge whether a regulation is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. This regulation is not "major" because it does not result in an annual effect on the economy of $100 million, nor does it result in a major increase in costs or prices for consumers, Federal, State, or local governments or individual industries, including the electric power industry.

VIII. Judicial Review

EPA believes that this rule is based on determinations of nationwide scope and effect. Nothing in Section 123 limits its applicability to a particular locality, State, or region. On the contrary, Section 123 applies to sources wherever located. Because of the rule's national applicability, Section 307(b) (42 U.S.C. 7607(b)) requires that any petition for review of the promulgated rule be filed only in the United States Court of Appeals for the District of Columbia and within 60 days of the date of publication.

(Secs. 110, 123, 301, Clean Air Act as amended (42 U.S.C. 7410, 7423, and 7601))

Dated: January 31, 1982.

John W. Hernandez, Jr.,

Acting Administrator.

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

Part 51 of Chapter I, Title 40 of the Code of Federal Regulations is amended as follows:

1. Section 51.1 is amended by revising paragraph (z) and by adding paragraphs (ff), (gg), (hh), (ii), (jj), (kk), (ll), and (mm) as follows:

§ 51.1 Definitions.

* * * * *

(z) "Emission limitation" and "emission standard" mean a requirement established by a State, local government, or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission reduction.

* * * * *

(ff) "Stack" means any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct but not including flares.

(gg) "A stack in existence" means that the owner or operator had (1) begun, or caused to begin, a continuous program of physical on-site construction of the stack or (2) entered into binding agreements or contractual obligations, which could not be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the stack to be completed in a reasonable time.

(hh) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by using that portion of a stack which exceeds good engineering practice stack height, varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant, or by addition of a fan or reheater to obtain a less stringent emission limitation. The preceding sentence does not include: (1) The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream; (2) the use of smoke management in agricultural or silvicultural programs; or (3) combining the exhaust gases from several stacks into one stack.

(ii) "Good engineering practice (GEP) stack height" means the greater of:

(1) 65 meters;

(2)(i) For stacks in existence on January 12, 1979 and for which the owner or operator had obtained all applicable preconstruction permits or approvals required under this Parts 51 and 52 of this Title 40, $H_g = 2.5H$

(ii) for all other stacks,

$H_g = H + 1.5L$, where

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack.

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = lesser dimension (height or projected width) of nearby structure(s);

(3) The height demonstrated by a fluid model or a field study approved by the

reviewing agency, which ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, structures, or terrain obstacles.

(jj) "Nearby" as used in § 51.1(ii)(2) is that distance up to five times the lesser of the height or the width dimension of a structure but not greater than 0.8 km (one-half mile). The height of the structure is measured from the ground-level elevation at the base of the stack.

(kk) "Excessive concentrations" for the purpose of determining good engineering practice stack height in a fluid model or field study means a maximum concentration due to downwash wakes, or eddy effects produced by structures or terrain features which is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

(ll) "Plume impaction" means concentrations measured or predicted to occur when the plume interacts with elevated terrain.

(mm) "Elevated terrain" means terrain which exceeds the elevation of the good engineering practice stack as calculated under paragraph (ii) of this section.

2. Section 51.12 is amended by adding paragraphs (j), (k), and (l) as follows:

§ 51.12 Control strategy: General.

* * * * *

(j) The plan must provide that the degree of emission limitation required of any source for control of any air pollutant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in § 51.12(k) and (l). The plan must provide that before a State submits to EPA a new or revised emission limitation that is based on a good engineering practice stack height that exceeds the height allowed by § 51.1(ii) (1) or (2), the State must notify the public of the availability of the demonstration study and must provide opportunity for public hearing on it. This Section does not require the plan to restrict, in any manner, the actual stack height of any source.

(k) The provisions of §§ 51.12(j) and 51.18(l) shall not apply to (1) stack heights in existence, or dispersion techniques implemented prior to December 31, 1970, or (2) coal-fired steam electric generating units, subject to the provisions of Section 118 of the Clean Air Act, which commenced operation before July 1, 1957, and whose stacks were constructed under a construction contract awarded before February 8, 1974.

(l) The good engineering practice (GEP) stack height for any source seeking credit because of plume impaction which results in concentrations in violation of national ambient air quality standards or applicable prevention of significant deterioration increments can be adjusted by determining the stack height necessary to predict the same maximum air pollutant concentration on any elevated terrain feature as the maximum concentration associated with the emission limit which results from modeling the source using the GEP stack height as determined in § 51.1(ii) and assuming the elevated terrain features to be equal in elevation to the GEP stack height. If this adjusted GEP stack height is greater than the stack height the source proposes to use, the source's emission limitation and air quality impact shall be determined using the proposed stack height and the actual terrain heights.

3. Section 51.18 is amended by adding paragraph (l) as follows:

§ 51.18 Review of new sources and modifications.

* * * * *

(l) Such procedures must provide that the degree of emission limitation required of any source for control of any air pollutant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in § 51.12(k) and (l). Such procedures must provide that before a State issues a permit to a source based on a good engineering practice stack height that exceeds the height allowed by § 51.1(ii) (1) or (2), the State must notify the public of the availability of the demonstration study and must provide opportunity for public hearing on it. This section does not require such procedures to restrict, in any manner, the actual stack height of any source.

[FR Doc. 82-3312 Filed 2-5-82; 8:45 am]

BILLING CODE 6560-50-M

EPA-450/2-89-019

SO_2 Guideline Appendices

by

Doug Grano (EPA)
Jill Vitas (EPA)
Susan Templeman (Radian)
Richard Pandullo (Radian)

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U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Air Quality Management Division
Research Triangle Park, North Carolina 27711

October 1989

APPENDIX A

SO_2 GUIDELINE REFERENCES

REFERENCES FOR SECTION 2.1

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

APR 21 1983

OFFICE OF
AIR, NOISE, AND RADIATION

MEMORANDUM

SUBJECT: Section 107 Designation Policy Summary

Sheldon Meyers

FROM: Sheldon Meyers, Director
Office of Air Quality Planning and Standards (ANR-443)

TO: Director, Air and Waste Management Division
Regions II-IV, VI-VIII, X

Director, Air Management Division
Regions I, V, IX

On February 3, 1983, the Agency published a Federal Register notice regarding the status of all areas designated nonattainment under Part D of the Clean Air Act. This notice indicated that for a significant number of nonattainment areas States are anticipated to be able to demonstrate attainment of the primary national ambient air quality standards. Accordingly, for those areas, States have been encouraged to update their Section 107 designations. In addition, a number of nonattainment areas were identified in the February 3, 1983, notice as "unlikely to attain standards." The Federal Register also stated that the basic existing policy will generally be continued for redesignation. This memorandum summarizes and clarifies existing policy for reviewing designations and provides new guidance on processing these actions.

Policy For Reviewing 107 Designations

1. Data: In general, all available information relative to the attainment status of the area should be reviewed. These data should include the most recent eight (8) consecutive quarters of quality assured, representative ambient air quality data plus evidence of an implemented control strategy that EPA had fully approved. Supplemental information, including air quality modeling emissions data, etc., should be used to determine if the monitoring data accurately characterize the worst case air quality in the area. Also, the following items can be considered in special situations.

An attainment designation can be made using only the most recent four (4) quarters of ambient data if an acceptable state of the art modeling analysis (such as city-specific EKMA for ozone) is provided showing that the basic SIP strategy is sound and that actual, enforceable emission reductions are responsible for the recent air quality improvement.

For nonattainment designations which were originally based solely on modeling, redesignation to attainment is possible even if less than four (4) quarters of ambient data are available provided that a reference modeling analysis considering the sources' legal emission limits shows attainment of the standards. Information must also be presented showing that the sources causing the problem are in compliance with the enforceable SIP measures.

Although the current ozone standard implies the need for three years of data for attainment designations, two years of data with no exceedances is an acceptable surrogate. As discussed previously, this should be accompanied by evidence of an implemented control strategy that EPA had fully approved.

2. Projected Future Violations: Projections of future violations can provide the basis for continuing nonattainment designations. This concept is particularly important because of the current economic downturn. Information submitted to support attainment redesignations must adequately and accurately reflect anticipated operating rates. Areas should remain nonattainment where such projections reveal air quality violations.

3. Modeling: In most SO_2 cases, monitoring data alone will not be sufficient for areas dominated by point sources. A small number of ambient monitors usually is not representative of the air quality for the entire area. Dispersion modeling employing the legally enforceable SO_2 SIP limits will generally be necessary to evaluate comprehensively the sources' impacts as well as to identify the areas of highest concentrations. If either the modeling or monitoring indicates that SO_2 air quality standards are being violated, the area should remain nonattainment.

4. Boundaries: Current policies on appropriate boundaries for designation of nonattainment areas by EPA remain in effect, i.e., generally political boundaries such as city or county for TSP and SO_2, county as a minimum for rural ozone, entire urbanized area and fringe areas of development for urban ozone, and urban core area for CO. When States redesignate, EPA will continue to accept reasonable boundaries which are supported by appropriate data, such as specific new monitoring and/or modeling data or evidence of improvement due to control strategy implementation. Nonattainment areas for ozone should include the significant VOC sources.

5. Dispersion Techniques: Areas which are projected to attain the TSP or SO_2 standards because of the use of unauthorized dispersion techniques should continue to be designated as nonattainment.

Policy for Processing 107 Redesignations

1. SIP Review Actions: Section 107 designations have generally been classified as minor actions, with only a few of the more significant ones being processed as moderate. In the future, redesignations of Tier II nonattainment areas should be classified as major actions so that they can receive a comprehensive review to help ensure regional consistency. Redesignation of Tier I nonattainment areas should continue to be handled as minor or moderate actions, as appropriate.

2. "Unclassifiable" Areas: Since EPA and the States have had nearly five years to resolve discrepancies for nonattainment designations, it is now inappropriate to redesignate any area from nonattainment to unclassifiable. There has been ample time since the first designations were made in 1978 to thoroughly study each nonattainment area. Sufficient data should now exist to either make a redesignation to attainment or to keep the nonattainment designation.

If you have any questions, please contact Tom Helms at (FTS) 629-5526.

cc: Regional Administrator, Regions I-X
Chief, Air Programs Branch, Regions I-X

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

23 DEC 1983

MEMORANDUM

Subject: Section 107 Questions and Answers

From: G. T. Helms, Chief
Control Programs Operations Branch (MD-15)

To: Air Branch Chief
Regions I-X

The April 21, 1983 memo from Sheldon Meyers on Section 107 Redesignation Policy has generally resulted in more consistent redesignation packages. However, a number of questions have developed since then and it seems worthwhile now to share with everyone the responses that have been developed. These questions have arisen in a number of areas.

1. Is air quality data alone sufficient for a redesignation from nonattainment to attainment?

Answer: No. Valid air quality data showing no NAAQS violations must be supplemented with a demonstration that the approved SIP control strategy which provides for attainment has been implemented. The April 21 memo describes the requirements in detail. In most cases the submittal will include the most recent eight quarters of data showing attainment and evidence of an implemented control strategy that EPA had approved. This demonstration need not necessarily be quantitative. Rather, it need simply confirm that the control strategy approved in the SIP to address the problem has indeed been implemented. Where only the most recent four quarters of data showing attainment are available, a state-of-the-art modeling analysis must be provided which quantifies that the SIP strategy is sound and that actual enforceable emission reductions are responsible for the air quality improvements.

2. Are the same requirements discussed in answer number 1 applicable to secondary TSP redesignations?

Answer: Yes. As for primary standards, some reason has to be shown for the improvement in air quality. This can consist of an implemented control strategy, some other Federally enforceable statewide regulations, or a well-documented explanation that the circumstances which resulted in the initial designation have changed or were incorrect. The integrity of the designation process should be preserved, for both primary and secondary pollutants. Further, it should be noted that States are not penalized by remaining secondary nonattainment. Therefore, a control strategy or other demonstration needs to be included with these redesignation requests.

3. Can a control strategy that has not been approved by EPA as part of the SIP be used to support a redesignation?

Answer: In general, no. However, an exception will be made if the physical circumstances and long-term economic factors are such that the implemented measures have the same weight as a SIP: for example, the permanent closing of the major emitting sources, road paving to eliminate fugitive emissions, or other irreversible measures. Submittals including such changes, even though not formally approved as SIP revisions, have the practical impact of an EPA approved strategy and can be the basis for approval of the redesignation.

4. Are the same criteria required to reduce the size of a nonattainment area as are required for redesignating the entire area?

Answer: In general, yes. However, if a sound case can be made that the State "overdesignated" initially -- that is, designated a larger area than EPA required -- then the area can be reduced. The remaining nonattainment area must be compatible with EPA boundary requirements (see April 21, 1983 memo) and it must be convincingly demonstrated that the area going from nonattainment to attainment should not have been designated nonattainment. Other than this specific kind of exception, however, boundary changes require the same analysis as any nonattainment to attainment redesignation. When a portion of a nonattainment area is redesignated attainment, it would help the public if a statement was included in the notice which explains that a nonattainment portion remains.

5. What criteria are used in redesignating from unclassifiable to attainment for TSP and SO_2?

Answer: Redesignations from unclassifiable to attainment generally require the most recent eight consecutive quarters of air quality data demonstrating attainment. No control strategy demonstration is required since there would have been no SIP requirement for an unclassifiable area. The SO_2 redesignations will generally continue to require dispersion modeling.

6. What is required for reclassifications from unclassifiable to attainment for ozone, carbon monoxide, and nitrogen oxides?

Answer: Redesignations from unclassifiable to attainment do not involve any regulatory change. If a State wishes to make such a redesignation, it should be sent forward as a brief explanatory Federal Register notice documenting the information. However, the formal table containing the designation status is not changed since the attainment and unclassifiable designations are combined for these pollutants.

7. Is there, or has there ever been, a 50 km policy for ozone nonattainment areas?

Answer: No, this was only discussed as an option some years ago but it never achieved the status of Agency policy.

These questions and answers highlight some of the significant issues that have come up since the April 21, 1983 memo. Please call Bill Beal or John Calcagni (FTS 629-5665) if you have further comments or questions on Section 107 issues.

cc: B. Bauman
D. White
R. Campbell
S. Meiburg
J. Ulfelder

EPA-450/2-78-027R

Guideline On Air Quality Models (Revised)

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

July 1986

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

SEP 03 1981

Mr. Ralph C. Pickard
Technical Secretary
Indiana Air Pollution Control Board
P. O. Box 1964
Indianapolis, Indiana 46206

Dear Mr. Pickard:

This is in response to your letter of July 9, 1981 to Mr. Valdas V. Adamkus regarding the use of ambient monitoring data in making Section 107 area designations. I am also providing comments on the use of modeling in setting of source emission limits.

I am in agreement with your position that, when available, adequate ambient monitoring data should be given preference over modeling results in designating areas as attainment/nonattainment under Section 107 of the Clean Air Act (CAA). EPA has always held this position and has promoted this approach in the guidance we have issued on the subject. A model letter prepared by my staff in October 1977 that was sent by the Regional Administrators of EPA to the various State governors or environmental agency heads emphasized the use of monitoring data for designation purposes.

A follow-up memorandum issued on January 12, 1978 from my staff to the EPA Regional Offices responded to various questions regarding Part D plan requirements. It contained the following response to the question of whether preference should be given to either monitored ambient data or dispersion modeling results in designating areas under Section 107. "If there is a conflict between adequate monitoring data and modeling results, monitored values should be used. However, if the monitoring data are inadequate, the modeling results should be used."

It is the desire of the Agency to base Section 107 designations on the best possible data that are reasonably obtainable. In most cases, especially for isolated point sources, it is difficult for a few ambient monitors to adequately reflect the true air quality conditions surrounding the source, especially the areas of maximum impact or hotspots. In many such situations, dispersion modeling would be an alternative to the total reliance upon a limited monitoring network.

With regard to the referenced Indiana designations, there is not, in an administrative sense, a significant difference between unclassified and attainment. However, as I understand it, there exists in these counties a more significant issue; that is, setting of new emission limitations for power plants.

The use of diffusion modeling is now the accepted way of establishing emission limits for individual sources such as power plants. Most air pollution control agencies have accepted modeling as the only practical alternative of establishing emission limits for large sources such as power plants. The courts have also recognized the validity of using modeling in setting emission limits even where monitoring data are also available. Recent data indicate that a number of models are proving to be reasonable predictors of ambient impact. One recent study has shown that the EPA reference model for rural power plants, CRSTER, appears to have no inherent bias; it neither over- nor underestimates air quality levels routinely.

It is EPA's belief that, in most cases, the use of models is the most effective and efficient way to properly represent the impact of varying meteorology. To properly evaluate a prospective emission limit solely by the use of monitoring, a very extensive and costly air quality and meteorological monitoring network would have to be established. This network may have to be operated for a long time to ensure that the various meteorological conditions were actually experienced during each of the various operating regimes. I do not believe the situation surrounding the Indiana power plant emission limit changes argues for an exception to the use for modeling contained in current EPA guidance.

I trust this response adequately explains EPA's considerations in both the Section 107 area designation process and the requirement for modeling when setting new emission limits.

Sincerely yours,

Walter C. Barber
Director
Office of Air Quality Planning
and Standards

Enclosure

cc: Mr. Harry D. Williams

PN 107-82-09-16-007

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

SEP 16 1982

OFFICE OF
AIR, NOISE, AND RADIATION

MEMORANDUM

SUBJECT: Milwaukee SO_2 Nonattainment Designation

FROM: Sheldon Meyers
Sheldon Meyers, Director
Office of Air Quality Planning and Standards (ANR-443)

TO: David Kee, Director
Air Management Division, Region V

Thank you for your August 9, 1982, memorandum to Assistant Administrator Bennett regarding Wisconsin's request for a redesignation to attainment of the sulfur dioxide (SO_2) standard for the Milwaukee area.

You asked four (4) separate questions in your memo. Those questions are repeated in full below along with my responses.

Q) In nonattainment areas with no emission limits, what is required to support a redesignation to attainment? (It does not appear to be sufficient to accept eight quarters of data showing no violations, even if the monitors were located in the expected high concentration areas.)

A) The fact that no Federally enforceable emission limits are in place does not affect the criteria applied in determining the area's attainment status. In general, Section 107 designation changes should utilize all available data, including both monitoring and modeling data. Whatever is available should certainly be used. Monitoring data should be used only within the limits of being representative for a specific geographic area. The object of any designation should be to make the best decision based upon the maximum amount of available information.

Q) What is the role of modeling in redesignations?

A) The need for dispersion modeling for Section 107 designation purposes is especially important when dealing with areas dominated by point sources of SO_2. In these cases, a small number of ambient air quality monitors will not be able to tell the whole story. Modeling is essential to evaluate comprehensively and thoroughly the sources' impacts as well as identify the areas of highest concentrations. It must be included in a redesignation analysis where feasible.

For all other areas, if modeling already exists, it should be considered. However, dispersion modeling is generally not required to be performed strictly for the purposes of Section 107 redesignation requests for such areas.

Q) Is a redesignation to attainment acceptable if there are eight quarters of monitored data showing no violations but there is modeling that predicts violations? (Note, this is not to say that the modeling contradicts the monitoring since the modeling shows attainment at the monitor locations, but nonattainment at other, nonmonitored locations.)

A) There is no answer that fits all possible situations. However, where valid dispersion modeling has been performed, such modeling results should set the designation status. When the appropriateness of the model is of some concern, Regional Offices must exercise judgment after considering such things as how many monitors are in the network; is complex terrain (terrain greater than stack height) involved; what model is being used; is it a guideline model, if not, has it been demonstrated to be appropriate; does the model tend to over- or under-predict for the situation at hand?

Again, it should be emphasized that the objective is to make the best determination possible using all relevant information as to what the attainment status of an area really is.

Q) Mr. Barber's letter says that adequate monitored data are necessary. How is "adequate" defined? (We suggest that a determination of adequate monitoring data involve reference modeling. That is, monitors must be located in the areas of expected high concentrations, based on a reference modeling analysis.)

A) Your suggestion is what ideally should be required. However, monitors are seldom sited at the locations shown by later dispersion modeling to be those of maximum impact.

Again, the responsibility lies with the Regional Office to make the necessary judgments as to whether or not the existing monitor locations are sufficient both in number and spatial arrangement to allow them to be representative of the air quality for the area. Some judgment as to whether the potential problem is of a localized or more general areawide nature should be made. This judgment will influence whether modeling or monitoring should be given preference in the particular situation in question. How much information is needed before such a judgment can be made is subject to the complexity of the situation.

I would like to add the following comments regarding the particular situation in Milwaukee, Wisconsin, as described in the background portion of your August 9, 1982, memo.

In a situation where an area was originally designated nonattainment based on measured violations but subsequently has air quality measurements less than the ambient air quality standard, common sense would recognize the need for a study of the situation, including modeling. It could not reasonably be expected that violations would disappear by themselves. If a source has voluntarily made some emission reduction changes that eliminate violations, these changes need to be embodied into regulation and then be made part of the approved State Implementation Plan (SIP) control strategy. The approval of such emission limits as part of a SIP must be based on an adequate demonstration that ambient air quality standards will be protected. Such a demonstration must include a dispersion modeling analysis under worst case conditions.

If you have any other questions, please let me know.

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

FEB 0 7 1985

OFFICE OF
GENERAL COUNSEL

MEMORANDUM

SUBJECT: Redesignations That Would Change the SIP

FROM: Darryl D. Tyler, Director
Control Programs Development Division

Darryl

Peter H. Wyckoff, Assistant General Counsel
Air and Radiation Division

Peter H. Wyckoff

TO: Air Division Directors, Regions I-X

Our staffs recently discovered, in reviewing a Federal Register package that embodied a redesignation from nonattainment to attainment, that the redesignation would have relaxed the relevant SIP, because the SIP specified one set of control requirements for "nonattainment" areas and a less stringent set for "attainment" areas. The package, however, treated the redesignation merely as a redesignation and not also as a SIP relaxation.

We therefore ask you in the future (1) to examine each redesignation to determine whether it would have a substantive effect on the stringency of the relevant SIP and (2) to state your conclusion in the Action Memorandum for the Federal Register package. If the redesignation would have such an effect, you should treat it as a SIP revision and draft the package in accordance with the relevant Agency guidance, including guidance on SIP relaxations and attainment demonstrations. Please forewarn your state counterparts that EPA will be treating redesignations that would affect SIP stringency as SIP revisions. Thank you.

cc: Air Branch Chiefs, Regions I-X
Regional Counsel, Regions I-X

Bill Beal
Gerry Emison
Tom Helms
Betsy Horne
Joan La Rock
Bill Pedersen
John Topping
John Ulfelder

REFERENCES FOR SECTION 2.2

PN-123-80-12-19-001

DEC 19 1980

Honorable Jennings Randolph
Chairman, Committee on Environment
and Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

Thank you for your letter of October 23, 1980 expressing your continued interest in the Agency's definition of "ambient air." During the time since David Hawkins, my Assistant Administrator for Air, Noise, and Radiation, met with you last February, the definition has been extensively reviewed and debated.

After reviewing the issues and alternatives, I have determined that no change from the existing policy is necessary. We are retaining the policy that the exemption from ambient air is available only for the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers. EPA will continue to review individual situations on a case-by-case basis to ensure that the public is adequately protected and that there is no attempt by sources to circumvent the requirement of Section 123 of the Clean Air Act.

I hope that this has been responsive to your needs.

Sincerely yours,

/s/ Douglas M. Costle

Douglas M. Costle

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

27 JUL 1987

MEMORANDUM

SUBJECT: Ambient Air Issue from New Jersey Department of Environmental Protection (DEP)

FROM: G.T. Helms, Chief
Control Programs Operations Branch

TO: William S. Baker, Chief
Air Branch, Region II

In response to your request, we have reviewed your position with respect to a determination of ambient air applicability in the vicinity of the proposed EF Kenilworth, Inc. (EFKI) cogeneration unit in Union County, New Jersey. As we understand it, EFKI will build and operate the plant on property leased (long-term lease) from Schering Corporation. As we see it the EFKI operator will be completely separate from the Schering operation and except for the land owned and operated by a different Company. The fact that EFKI has entered into a contract to supply electricity/steam to Schering is not really relevant to the ambient air issue.

We agree with your position that all property outside of the property leased and controlled by EFKI would be considered ambient air. The word "controlled" is emphasized since nothing is said in either your memorandums or New Jersey's letter to Region II about what, if any, fence or other physical barrier would be installed to prevent public access to the EFKI leased property. If such physical barrier is not erected, then all land including the leased site would have to be considered as ambient air.

If you have any questions, please contact Sharon Reinders, at 629-5255.

cc: D. Tyler
J. Tikvart
D. Wilson
G. McCutchen

MAR 18 1983

Mr. Harry H. Hovey, Jr. P.E.
Director, Division of Air
New York State Dept. of
Environmental Conservation
50 Wolf Road
Albany, New York 12233

Dear Mr. Hovey:

In response to your letter of January 11, please be advised that there has been no major change in EPA policy with regard to ambient air and the associated requirements of a SIP demonstration. We have defined "ambient air" at 40 CFR §50.1(e) to include "that portion of the atmosphere, external to buildings, to which the general public has access." Our general policy is that the only exemption to compliance with the provisions of ambient air is for the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers.

The national ambient air quality standards are designed to protect the public health and welfare and apply to all ambient air which does include the rooftops and balconies of buildings accessible by the public. While EPA has the responsibility to develop the air quality standards, the States have the initial responsibility to implement them. In effect, the States have the prime responsibility to protect public health and welfare.

While EPA considers ambient air to include elevated building receptor sites, it is not practical to analyze the air quality at every such existing location. Therefore, both EPA and the States must exercise their best technical judgment as to when such sites must be evaluated so as to protect public health and welfare. Thus, we do not expect States, in most circumstances, to evaluate the impact on elevated building receptors. However, if the State has reason to believe that such an evaluation is necessary to protect public health and welfare, then it is incumbent upon the State to conduct such an analysis.

I appreciate your interest in this issue and am willing to discuss it further if you desire.

Sincerely yours,

Kathleen M. Bennett
Assistant Administrator
for Air, Noise, and Radiation

cc: R. Campbell
J. Schafer

ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460
OFFICE OF THE GENERAL COUNSEL

Date: September 27, 1972

Reply to Attn of: Michael A. James, Attorney
Air Quality and Radiation Division

Subject: Attainment of National Standards in Open Air Parking Lots

To: Conrad Simon, Chief
Air Programs Branch
Region II

MEMORANDUM OF LAW

FACTS

Your memorandum of September 1, 1972 raises the issue of the air pollution impact of a proposed sports complex to be constructed in the Hackensack Meadowlands in New Jersey. You state that the analysis of available data indicates that the national one-hour standard for carbon monoxide may be exceeded in the parking lot of the complex each time it is used for a major event.

QUESTION

Is the atmosphere above an open-air parking lot which is part of a sports complex "ambient air" under the Clean Air Act and EPA regulations?

ANSWER

Yes. Under the definition of "ambient air" in EPA regulations, national ambient air quality standards would apply to that portion of the atmosphere since it is external to buildings and the general public has access to it.

DISCUSSION

1. EPA has prescribed the applicability of the national primary and secondary ambient air quality standards by defining the term "ambient air." Section 40 CFR 50.1(e) of EPA regulations defines "ambient air" to mean "that portion of the atmosphere, external to buildings, to which the general public has access." There is no question that the

air which is the subject of your inquiry is a portion of the atmosphere external to buildings. A somewhat more difficult question is who the general public is and whether it can be said to have access to this facility.

2. The dictionary defines "public" to mean "the people as a whole", and notes that the term may contemplate "a group of people distinguished by common interests or characteristics" (Webster's Third New International Dictionary (1966)). Since §50.1(e) attaches the modifier "general", it indicates that the broader definition was intended by the regulation. The term "access" is defined as meaning "Permission, liberty, or ability to enter...." (Webster's Third New International Dictionary (1966)). While the parking lot in question may be fenced and/or guarded so as to prevent the entrance of the general public during all times except those immediately preceding, during, and immediately following athletic events, it is clear that the general public may readily enter the lot on foot or by vehicle during the period of highest pollution levels. The essential character of this complex is public, and it is difficult to imagine that the entrance of members of the community at large would be restricted on "game days", whether persons who seek entry do so to purchase tickets, watch crowds, or pick pockets. This situation may be contrasted with that of private property outdoors where only persons having some special relationship with the property owner, or his agents or lessees, are able to gain entrance to the property, while the general public's entrance is physically barred in some way.

3. Having concluded that the air above the parking lot is ambient air, we see no basis for excluding it from coverage by the State's implementation plan. There seems to be no logical difference between making the implementation plan applicable to the parking lot and making it apply to congested downtown areas where carbon monoxide concentrations due to heavy traffic are also a problem. As your memorandum suggests, even if the atmosphere above the parking lot were not "ambient air" it would be necessary for the State's implementation plan to consider the impact of emissions at the facility upon the atmosphere beyond the lot's fence line.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: MAY 16 1985

SUBJECT: Ambient Air

FROM: Michael Koerber for
Regional Meteorologists, Regions I-X

TO: Joseph Tikvart, Chief (MD-14)
Source Receptor Analysis Branch

At the recent Regional Meteorologists' meeting in Dallas, we identified inconsistencies among the Regional Offices on what areas are to be considered as ambient air for regulatory purposes. The existing inconsistency on ambient air is due to both the lack of clear National guidance and the allowed Regional Office discretion. A standardized approach is necessary both to satisfy the consistency requirements of Section 301 of the Clean Air Act and in order for those responsible for Regional modeling activities to provide effective and efficient review of and guidance on modeling analyses. Accordingly, the Regional Meteorologists have decided to address the problem at the working level through the use of a consistent modeling approach.

40 CFR Part 50.1(e) defines ambient air as "... that portion of the atmosphere, external to buildings, to which the general public has access." A letter dated December 19, 1980, from Douglas Costle to Senator Jennings Randolph, clarified this definition by stating that the exemption from ambient air is available only for the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers." The codified definition plus the 1980 clarification essentially constitute the National policy on ambient air.

The Regional Meteorologists propose that for modeling purposes the air everywhere outside of contiguous plant property to which public access is precluded by a fence or other effective physical barrier should be considered in locating receptors. Specifically, for stationary source modeling, receptors should be placed anywhere outside inaccessible plant property. For example, receptors should be included over bodies of water, over unfenced plant property, on buildings, over roadways, and over property owned by other sources. For mobile source modeling (i.e., CO modeling), receptors should continue to be sited in accordance with Volume 9 of the "Guidelines for Air Quality Maintenance Planning".

Unless you disagree with our position, we will require new actions with modeling analyses submitted to EPA after January 1, 1986, to conform to this modeling policy. Please note that all 10 Regional Meteorologists have reviewed and concur with this memo.

cc: Regional Meteorologists, Regions I-X

PN 110-87-04-30-08

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

3 0 APR 1987

MEMORANDUM

SUBJECT: Ambient Air

FROM: G. T. Helms, Chief
Control Programs Operations Branch (MD-15)

TO: Steve Rothblatt, Chief
Air Branch, Region V

My staff and I have discussed the five ambient air cases which you submitted for our review on January 16, 1987. The following comments are our interpretation of the ambient air policy . However, this memorandum is not a discussion of the technical issues involved in the placement of receptors for modeling.

Our comments on each of the cases follow:

Case 1 (Dakota County, MN): This case involves two noncontiguous pieces of fenced property owned by the same source, divided by a public road. We agree that the road is clearly ambient air and that both fenced pieces of plant property are not.

Case 2 (Warrick County, IN): This case involves two large sources on both sides of the Ohio River. We agree that receptors should be located over the river since this is a public waterway, not controlled by the sources. We also agree that the river does indeed form a sufficient natural boundary/barrier and that fencing is not necessary, since the policy requires a fence or other physical barrier. However, some conditions must be met. The riverbank must be clearly posted and regularly patrolled by plant security. It must be very clear that the area is not public. Any areas where there is any question--i.e., grassy areas, etc.--should be fenced and marked, even if there is only a very remote possibility that the public would attempt to use this property.

However, we also feel that current policy requires that receptors should be placed in ALCOA and SIGECO property for modeling the contribution of each source's emissions to the other's ambient air. Thus, ALCOA's property--regardless of whether it is fenced--is still "ambient air" in relation to SIGECO's emissions and vice-versa.

Case 3 (Wayne County, MI): This case involves the air over the Detroit River, the Rouge River and the Short-cut Canal. We agree that the air over all three of these is ambient air, since none of the companies owns them or controls public access to them. Note, however, that one source's property--regardless of whether it is fenced--is the "ambient air" relative to another source's emissions.

Case 4 (Cuyahoga County, OH): This case involves LTV Steel's iron and steel mill located on both sides of the Cuyahoga River.

We do not feel that LTV Steel "controls" the river traffic in that area sufficiently to exclude the public from the river, whether it be recreational or industrial traffic. The fact that there is little or no recreational traffic in that area is not sufficient to say that all river traffic there is LTV traffic. The public also includes other industrial users of the river that are not associated with LTV.

It is difficult to tell from the map whether the railroad line is a through line or not. If the railroad yard serves only the plant then it would not be ambient air but the railroad entrance to the plant would have to be clearly marked and patrolled. However, if the line is a through line then that would be ambient air. We would need additional information to make a final determination.

The unfenced river boundaries should meet the same criteria as in Case 2 above.

Case 5 (involves the placement of receptors on another source's fenced-property): As mentioned above in Case 2, we feel that present policy does require that receptors be placed over another source's property to measure the contribution of the outside source to its neighbor's ambient air. To reiterate, Plant A's property is considered "ambient air" in relation to Plant B's emissions.

I hope that these comments are helpful to you and your staff. This memorandum was also reviewed by the Office of General Counsel.

cc: S. Schneeberg
P. Wyckoff
R. Rhoads
D. Stonefield
Air Branch Chiefs, Region I-X

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

22 JAN 1986

William F. O'Keefe, Vice President
American Petroleum Institute
1220 L Street Northwest
Washington, D. C. 20005

Dear Mr. O'Keefe:

Mr. Elkins has asked me to respond to your letter of December 18, 1985, in which you perceive a change in our policy with regard to the location of receptors for air quality dispersion modeling.

Let me assure you there is no change in our long-standing national policy with regard to the definition of ambient air. That policy is based on 40 CFR Part 50.1 (e) which defines ambient air as ". . . that portion of the atmosphere, external to buildings, to which the general public has access." A letter dated December 19, 1980, from Douglas Costle to Senator Jennings Randolph, reaffirmed and clarified this definition by stating the exemption from ambient air is available only for the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers. A copy of Mr. Costle's letter is enclosed. The codified definition plus the 1980 clarification essentially constitute the national policy on ambient air.

The Regional Meteorologists' memorandum to which you refer does not imply any change in this national policy and simply harmonizes modeling procedures with our long-standing policy. It is intended to ensure consistent Regional implementation of that policy and to dispel any questions about pollutant concentrations at locations where the general public has access.

Thus, since the Regional Meteorologists' memorandum does not imply any change in our policy, I do not believe there is any need for policy review at this time.

Sincerely,

Gerald A. Emison
Director
Office of Air Quality Planning and Standards

Enclosure

cc: W. Quanstrom
C. Elkins

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

30 APR 1987

MEMORANDUM

SUBJECT: Ambient Air

FROM: G. T. Helms, Chief
Controlled Programs Operations Branch (MD-15)

TO: Bruce Miller, Chief
Air Programs Branch, Region IV

My staff and I have discussed the five situations involving the definition of ambient air that you sent on December 18, 1986. The following comments represent our interpretation of the ambient air policy. However, this memorandum is not a discussion of the technical issues involved in the placement of receptors for modeling. Our comments on each scenario follow:

Scenario One: We agree with you that the road and the unfenced property are ambient air and could be locations for the controlling receptor.

Scenario Two: We agree with your determination in this case also.

Scenario Three: We agree with you that the road is ambient air. However, Area B is not ambient air; it is land owned or controlled by the company and to which public access is precluded by a fence or other physical boundary.

Scenario Four: We do not think that any of the barriers mentioned here are sufficient to preclude public access so as to allow the source to dispense with a fence. An example of an unfenced boundary that would qualify is a property line along a river that is clearly posted and regularly patrolled by security guards. Any area, such as grassy areas that might even remotely be used by the public, would have to be fenced even in this situation. We would not think that a drainage ditch would meet these criteria.

Scenario Five: Both fenced pieces of plant property, even though noncontiguous, would not be considered ambient air (see Scenario Three). The road, of course, would be ambient air. Again, ownership and/or control of the property and public access are the keys to ambient air determination.

I hope that these comments are helpful to you and your staff. This memorandum was also reviewed by the Office of General Counsel. Please call me if you have any comments.

cc: S. Schneeberg
P. Wyckoff
R. Rhoads
D. Stonefield
Air Branch Chiefs, Regions I-X

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE 26 MAY 1983

SUBJECT Definition of Ambient Air for Lead

FROM Darryl D. Tyler, Director
Control Programs Development Division (MD-15)

TO Allyn Davis, Director
Air & Waste Management Division, Region VI

This is in response to your memorandum of May 23, 1983, to Sheldon Meyers. In that memorandum, you indicated that the Texas Air Control Board (TACB) believes that an ambient lead monitor in El Paso is not located in the ambient air, and therefore the data from that monitor should not be used to develop a control strategy for lead.

The monitor is located at the International Boundary Water Commission's (IBWC) property, about 1000 feet from the edge of the property of ASARCO's primary lead smelter. TACB believes that the monitor is not in the ambient air because public exposure at the IBWC property would at most be only daily for a period of not more than eight hours, and therefore no one person is expected to be at the IBWC site continuously for a full three months, the exposure time inherent in the lead standard.

TACB's logic runs counter to EPA's policy on ambient air. In 40 CFR 50.1(e), ambient air includes "that portion of the atmosphere, external to buildings, to which the general public has access." That definition does not account for any time limitation or averaging time. Regardless of whether any member of the public is expected to remain at a particular place for a specific period of time, ambient air is defined in terms of public access, not frequency of access, length of stay, age of the person or other limitations. The only exemption in EPA policy to compliance with the provisions of ambient air is for the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers. Since ASARCO does not own the site of the IBWC monitor, it clearly falls within our definition of ambient air.

Furthermore, any monitor can give only an estimate of the actual maximum concentration of a pollutant in the vicinity of the monitor. There may actually be higher concentrations of lead in the area between ASARCO's boundary and the IBWC monitor, such as on the highway that runs between the ASARCO smelter property and the IBWC property. The general public may have more frequent or longer access to this location than to the IBWC property itself. Therefore, the fact that the general public may not be expected to remain at the IBWC site itself continuously for three months is no reason to disallow the use of the monitor's data for developing a control strategy.

Please feel free to call me or G. T. Helms in this Division if you have any further questions on this matter.

cc: J. Calcagni
J. Divita
K. Greer
T. Helms
J. Silvasi
D. Stonefield
J. Ulfelder

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: DEC 18 1986

SUBJECT: EPA Definition of Ambient Air

FROM: Bruce P. Miller, Chief Bruce P. Miller
Air Programs Branch
Air, Pesticides & Toxics Management Division

TO: Tom Helms, Chief
Control Programs Operation Branch (MD-15)

SUMMARY

The North Carolina Division of Environmental Management has asked for a clarification of ambient air in regards to a certain source located in North Carolina. The Regional Meteorologist's memorandum dated May 16, 1985, provides that for modeling purposes receptors are located everywhere outside of the contiguous property of a plant to which the public is precluded due to a fence or other effective physical barriers. Attached are a number of scenarios for the source where we request a response on whether the receptors at certain locations are considered ambient air and whether the calculated modeling result at these receptors are to be considered in establishing an emission limit if one or more of these receptors is controlling. The Region IV opinion for each scenario is provided.

Most of the scenarios we believe are dealt with adequately in the May 16, 1985 memorandum, however, there is a major concern on our part about how to interpret the modeling results in scenario numbers three, four and five.

Please provide us with a written response by January 27, 1987. Please contact me or Mr. Lewis Nagler of my staff at FTS 257-2864 if you require additional information.

Enclosure (1)

cc: Joseph Tikvart (MD-14)
RTP, NC

NORTH CAROLINA AMBIENT AIR SCENARIOS

Scenario One

The plant property is divided by a public road. The portion of the property on which a point source is located (Area A) is completely fenced. The property on the other side of the road (Area B) is unfenced.

The Region IV position is that the road and the unfenced property are ambient air and if air quality modeling locates the controlling receptor in Area B, the emission limit will be determined based on the calculated concentration at that receptor.

Scenario Two

This scenario is the same as scenario one except that Area B is fenced except for the property along the public road.

The Region IV position is identical to that provided in scenario one.

Scenario Three

This scenario is the same as scenario one except that all of Area B is fenced.

The Region IV position is that the road is ambient air and that Area B should have receptors located there for modeling purposes. We also believe that since Area B is not contiguous to that property that is needed for plant operation, even though fenced, Area B is ambient air. We further believe that if a receptor located in Area B is found to contain the controlling receptor for establishing the source emission rate then that receptor value must be used.

There is a concern on our part that the May 16, 1985 memorandum could be interpreted to allow the Air Quality Management officials to discard the calculated concentrations within Area B. We believe a clarification of the ambient air policy on this point is needed.

Scenario Four

Area A is fenced except for the property along the public road.

The Region IV position is that Area A is ambient air unless the source can demonstrate that the public is precluded to entry by an effective physical barrier. However, since a physical barrier other than a fence is subject to various interpretation, we are seeking advise on what we can accept as meeting that requirement. For instance, a drainage ditch alongside a road with no shoulder for parking or the use of "NO PARKING" signs could be considered an effective barrier. As you can see, the concept can be quite subjective and we require additional guidance in this area.

For this actual situation, would you concur or non concur that no parking signs in association with no shoulder to park upon constitute a physical barrier? The Region IV position is that this situation does not constitute an effective physical barrier, but the addition of a drainage ditch would constitute an effective barrier.

Scenario Five (Hypothetical)

The entire plant is fenced. As a result of the county or state's power of eminent domain, a road is built through the property. Does the area that is no longer contiguous to the plant operation area lose its exemption from the ambient air definition even if the source fences off the area taken by the road?

The Region IV position is that the area should be grandfathered in that situation.

PN 165-84-06-11-014

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

JUN 11 1984

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Applicability of PSD Increments to Building Rooftops

FROM: Joseph A. Cannon
Assistant Administrator
for Air and Radiation

TO: Charles R. Jeter
Regional Administrator, Region IV

The following is in response to your letter of November 10, 1983, concerning issues which you felt required review for national consistency relating to a new source review for an Alabama Power facility in downtown Birmingham, Alabama.

On September 29, 1983, your office informed the State of Alabama that a new source's compliance with the PSD increments must be measured on the tops of buildings, as well as at ground level. Since then we have discussed the question extensively among ourselves and with representatives of the State of Alabama and the company. For the reasons that follow, I do not believe we are in a position to definitively assert that PSD increments apply to rooftops without further information as to the consequences for the PSD system as a whole. Accordingly, I recommend that we inform Alabama that we do not now require that compliance with PSD increments be measured at the tops of buildings. A State may, of course, adopt such an approach if it so desires.

Between 1970 and 1983, it appears to have been general EPA practice to determine compliance with both NAAQS and PSD increments at ground level, not at roof level. On March 18, 1983, however, Kathleen Bennett, in a letter to the State of New York, determined that the "national ambient air quality standards are designed to protect the public health and welfare and apply to all ambient air which does include the rooftops and balconies of buildings accessible by the public."

I believe this conclusion was correct. Apartment balconies, rooftop restaurants, and the like present a potential for human exposure that the primary ambient air quality standards should be interpreted to address.

Given this conclusion, one could argue, based on the text of the relevant regulations and the Clean Air Act, that the PSD increments apply wherever the NAAQS apply, and that both must apply throughout the "ambient air." However, the PSD system, unlike the NAAQS system, does not aim at achieving one single goal. Rather it represents a balance struck first by Congress between a given level of protection against degradation and a given potential for economic growth. It appears that the calculations on which that balancing judgment was based all assumed that PSD increments would be measured at ground level.

A number of state officials who are now administering PSD have argued to me that by measuring PSD increments on rooftops as well as at ground level, EPA would make the PSD system appreciably more stringent than Congress contemplated. Although major urban areas are all Class II areas, this approach, it is argued, could result in constraints on growth comparable to those that apply in Class I areas - national parks and wilderness areas. Such an outcome would not, it is argued, be consistent with Congressional intent.

In these circumstances, I think that preserving the status quo is particularly advisable because:

- It is likely that Alabama did not contemplate adopting a "rooftops" approach to PSD when it took over the PSD program. That expectation, though not decisive, does provide some reason not to change the situation without formal rulemaking.

- The consequences of an erroneous decision to consider increment consumption on rooftops will be more severe than those of an erroneous decision not to consider them. The adoption of such an approach will present at least a procedural, and, probably a substantive obstacle to development in urban areas, while in its absence air quality will still be protected by the NAAQS, by the PSD increments applied at ground level, and by the other aspects of PSD review such as Best Available Control Technology.

Therefore, I have concluded that since the State of Alabama has authority under an approved implementation plan for administering the PSD program within Alabama, it is their responsibility to apply this principle of maintaining the status quo to this case, taking all the relevant facts into account.

Please advise the State of Alabama of the Agency's position on these points as our response to the issues which they raised in meetings with both of us.

cc: A. Alm
P. Angell
T. Devine
G. Emison
W. Pedersen
P. Wyckoff
S. Meiburg

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

APR 7 1987

MEMORANDUM

SUBJECT: Wyoming--Definition of Ambient Air

FROM: Darryl D. Tyler, Director
Control Programs Development Division (MD-15)

Darryl

TO: Irwin Dickstein, Director
Air and Toxics Division, Region VIII

This memorandum confirms and clarifies our recent conversation on Wyoming's proposed change to their definition of ambient air. After our conversation, my staff further reviewed the proposal and your office's assessment of it. While we agree with the final position you take--viz., opposition to the change--my staff believes that several other points should be made in comments to Wyoming.

1. In Christine Phillips' memorandum of March 20, 1987, two reasons are given to oppose the revision. While we agree with the thrust of the first reason (ineffectiveness of exterior fencing to exclude public access because of the public highway and towns in the enclosed area), there may be a problem in boldly stating the second reason. We have never either flatly stated that land acquisition in general is acceptable or unacceptable under section 123 of the Clean Air Act. As the memorandum points out, the December 19, 1980, letter from Douglas Costle to the Honorable Jennings Randolph indicates that we will review individual situations on a case-by-case basis. Therefore, I believe we should not automatically categorize land acquisition as proposed in Wyoming as a dispersion technique prohibited by section 123, although further analysis may in fact lead us to that conclusion. In at least two instances, we have tolerated land acquisition to "contain" modeled violations of national ambient air quality standards. We have, however, avoided formulating criteria for acceptability of land acquisition, although such criteria (such as size of area and relevance to operation) were at one time considered.

REFERENCES FOR SECTION 3.1

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/4-87-007
May 1987

Air

EPA

Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)

SCHEDULE D.6—PERMANENT WAIVER FROM INTERIM CONTROLS TEST—Continued

[Smelter identification]

	Line	1984	1985	1986	1987	1988	1989	1990	Total
6 Current salvage value	17	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
7 Net present value	18	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

SCHEDULE D.7—HORIZON VALUE OF CASH FLOWS

[Smelter identification]

	Line	Final forecast years		Horizon years					Total
		1989	1990	1991	1992	1993	1994	1995	
A. Depreciation-free horizon value:									
1. Net cash flow projections	01	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2. Depreciation tax savings:									
a. Depreciation and amortization	02	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. Marginal tax rate	03	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Tax savings	04	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
3. Depreciation-free net cash flows:									
a. Nominal dollar values	05	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. 1990 dollar values	06	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Average	07	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
4. Horizon factor	08	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
5. Depreciation-free horizon value	09	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
B. Depreciation tax savings over the horizon period:									
1. Depreciation and amortization	10	XXXX	XXXX	....	....	....	....	....	XXXX
2. Marginal tax rate	11	XXXX	XXXX	....	....	....	....	....	XXXX
3. Tax savings	12	XXXX	XXXX	....	....	....	....	....	XXXX
4. Discount factors	13	XXXX	XXXX	....	....	....	....	....	XXXX
5. Present value of tax savings	14	XXXX	XXXX	....	....	....	....	....	XXXX
6. Total present value of tax savings	15	ÅXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
C. Horizon Value	16	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

AUTHORITY: Secs. 110, 301(a), 313, and 319 of the Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

SOURCE: 44 FR 27571, May 10, 1979, unless otherwise noted.

Subpart A—General Provisions

§ 58.1 Definitions.

As used in this part, all terms not defined herein have the meaning given them in the Act:

(a) "Act" means the Clean Air Act as amended (42 U.S.C. 7401, et seq.).

(b) "SLAMS" means State or Local Air Monitoring Station(s). The SLAMS make up the ambient air quality monitoring network which is required by § 58.20 to be provided for in the State's implementation plan. This definition places no restrictions on the use of the physical structure or facility housing the SLAMS. Any combination of SLAMS and any other monitors (Special Purpose, NAMS, PSD) may occupy the same facility or structure without affecting the respective definitions of those monitoring station.

(c) "NAMS" means National Air Monitoring Station(s). Collectively the NAMS are a subset of the SLAMS ambient air quality monitoring network.

(d) "PSD station" means any station operated for the purpose of establishing the effect on air quality of the emissions from a proposed source for purposes of prevention of significant deterioration as required by § 51.24(n) of Part 51 of this chapter.

(e) "SO_2" means sulfur dioxide.

(f) "NO_2" means nitrogen dioxide.

(g) "CO" means carbon monoxide.

(h) "O_3" means ozone.

(i) "Plan" means an implementation plan, approved or promulgated pursuant to section 110 of the Clean Air Act.

(j) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or his or her authorized representative.

(k) "Regional Administrator" means the Administrator of one of the ten EPA Regional Offices or his or her authorized representative.

(l) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(m) "Local agency" means any local government agency, other than the State agency, which is charged with the responsibility for carrying out a portion of the plan.

(n) "Indian Reservation" means any Federally recognized reservation established by treaty, agreement, executive order, or act of Congress.

(o) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

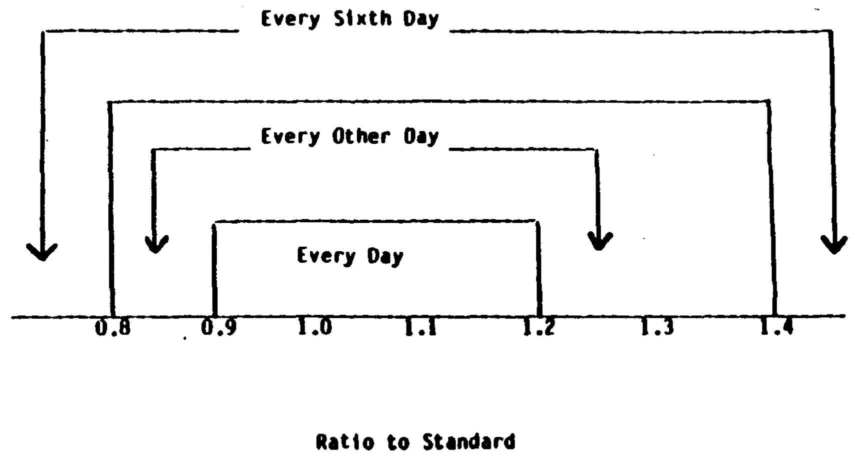
(p) "Storage and Retrieval of Aerometric Data (SAROAD) system" is a computerized system which stores and reports information relating to ambient air quality.

(q) "SAROAD site identification form" is one of the several forms in the SAROAD system. It is the form which provides a complete description of the site (and its surroundings) of an ambient air quality monitoring station.

(r) "Traceable" means that a local standard has been compared and certified, either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM) or a USEPA/NBS-approved Certified Reference Material (CRM).

(s) "Urban area population" means the population defined in the most

level of that monitoring site concentration with respect to the level of the controlling standard. For those areas in which the short term (24-hour) standard is controlling i.e., has the highest ratio, the selective sampling requirements are illustrated in Figure 1. If the operating agency were able to demonstrate, by a combination of historical TSP data and at least one year of PM_{10} data that there were certain periods of the year where conditions preclude violation of the PM_{10} 24-hour standard, the increased sampling frequency for those periods or seasons may be exempted by the Regional Administrator and revert back to once in six days. The minimum sampling schedule for all other sites in the area would be once every six days. For those areas in which the annual standard is the controlling standard, the minimum sampling schedule for all monitors in the area would be once every six days. During the annual review of the SLAMS network, the most recent year of data must be considered to estimate the air quality status for the controlling air quality standard (24-hour or annual). Statistical models such as analysis of concentration frequency distributions as described in "Guideline for the Interpretation of Ozone Air Quality Standards," EPA-450/479-003, U.S. Environmental Protection Agency, Research Triangle Park, N.C., January 1979, should be used. Adjustments to the monitoring schedule must be made on the basis of the annual review. The site having the highest concentration in the most current year must be given first consideration when selecting the site for the more frequent sampling schedule. Other factors such as major change in sources of PM_{10} emissions or in sampling site characteristics could influence the location of the expected maximum concentration site. Also, the use of the most recent three years of data might in some cases, be justified in order to provide a more representative data base from which to estimate current air quality status and to provide stability to the network. This multiyear consideration would reduce the possibility of an anamalous year biasing a site selected for accelerated sampling. If the maximum concentration site based on the most current year is not selected for the more frequent operating schedule, documentation of the justification for selection of an alternate site must be submitted to the Regional Office for approval during the annual review process. It should be noted that minimum data completeness critieria, number of years of data and sampling frequency for judging attainment of the NAAQS are discussed in Appendix K of Part 50.



[44 FR 27571, May 10, 1979, as amended at 52 FR 24730, July 1, 1987]

§ 58.14 Special purpose monitors.

(a) Any ambient air quality monitoring station other than a SLAMS or PSD station from which the State intends to use the data as part of a demonstration of attainment or nonattainment or in computing a design value for control purposes of the National Ambient Air Quality Standards (NAAQS) must meet the requirements for SLAMS described in § 58.22 and, after January 1, 1983, must also meet the requirements for SLAMS as described in § 58.13 and Appendices A and E to this part.

(b) Any ambient air quality monitoring station other than a SLAMS or PSD station from which the State intends to use the data for SIP-related functions other than as described in paragraph (a) of this section is not necessarily required to comply with the requirements for a SLAMS station under paragraph (a) but must be operated in accordance with a monitoring schedule, methodology, quality assurance procedures, and probe or instrument-siting specifications approved by the Regional Administrator.

[46 FR 44164, Sept. 3, 1981]

Subpart C—State and Local Air Monitoring Stations (SLAMS)

§ 58.20 Air quality surveillance: Plan content.

By January 1, 1980, the State shall adopt and submit to the Administrator a revision to the plan which will:

(a) Provide for the establishment of an air quality surveillance system that consists of a network of monitoring stations designated as State and Local Air Monitoring Stations (SLAMS) which measure ambient concentrations of those pollutants for which standards have been established in Part 50 of this chapter.

(b) Provide for meeting the requirements of Appendices A, C, D, and E to this part.

(c) Provide for the operation of at least one SLAMS per pollutant except Pb during any stage of an air pollution episode as defined in the contingency plan.

(d) Provide for the review of the air quality surveillance system on an annual basis to determine if the system meets the monitoring objectives defined in Appendix D to this part. Such review must identify needed modifications to the network such as termination or relocation of unnecessary stations or establishment of new stations which are necessary.

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/4-87-013
June 1987

Air

EPA

On-Site Meteorological Program Guidance for Regulatory Modeling Applications

REFERENCES FOR SECTION 3.2

SCHEDULE D.6—PERMANENT WAIVER FROM INTERIM CONTROLS TEST—Continued

[Smelter identification]

	Line	1984	1985	1986	1987	1988	1989	1990	Total
6 Current salvage value	17	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
7 Net present value	18	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

SCHEDULE D.7—HORIZON VALUE OF CASH FLOWS

[Smelter identification]

	Line	Final forecast years		Horizon years					Total
		1989	1990	1991	1992	1993	1994	1995	
A. Depreciation-free horizon value									
1. Net cash flow projections	01	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2. Depreciation tax savings:									
a. Depreciation and amortization	02	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. Marginal tax rate	03	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Tax savings	04	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
3. Depreciation-free net cash flows:									
a. Nominal dollar values	05	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. 1990 dollar values	06	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Average	07	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
4. Horizon factor	08	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
5. Depreciation-free horizon value	09	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
B. Depreciation tax savings over the horizon period:									
1. Depreciation and amortization	10	XXXX	XXXX	....	....	....	....	....	XXXX
2. Marginal tax rate	11	XXXX	XXXX	....	....	....	....	....	XXXX
3. Tax savings	12	XXXX	XXXX	....	....	....	....	....	XXXX
4. Discount factors	13	XXXX	XXXX	....	....	....	....	....	XXXX
5. Present value of tax savings	14	XXXX	XXXX	....	....	....	....	....	XXXX
6. Total present value of tax savings	15	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
C. Horizon Value	16	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

AUTHORITY: Secs. 110, 301(a), 313, and 319 of the Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

SOURCE: 44 FR 27571, May 10, 1979, unless otherwise noted.

Subpart A—General Provisions

§ 58.1 Definitions.

As used in this part, all terms not defined herein have the meaning given them in the Act:

(a) "Act" means the Clean Air Act as amended (42 U.S.C. 7401, et seq.).

(b) "SLAMS" means State or Local Air Monitoring Station(s). The SLAMS make up the ambient air quality monitoring network which is required by § 58.20 to be provided for in the State's implementation plan. This definition places no restrictions on the use of the physical structure or facility housing the SLAMS. Any combination of SLAMS and any other monitors (Special Purpose, NAMS, PSD) may occupy the same facility or structure without affecting the respective definitions of those monitoring station.

(c) "NAMS" means National Air Monitoring Station(s). Collectively the NAMS are a subset of the SLAMS ambient air quality monitoring network.

(d) "PSD station" means any station operated for the purpose of establishing the effect on air quality of the emissions from a proposed source for purposes of prevention of significant deterioration as required by § 51.24(n) of Part 51 of this chapter.

(e) "SO_2" means sulfur dioxide.

(f) "NO_2" means nitrogen dioxide.

(g) "CO" means carbon monoxide.

(h) "O_3" means ozone.

(i) "Plan" means an implementation plan, approved or promulgated pursuant to section 110 of the Clean Air Act.

(j) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or his or her authorized representative.

(k) "Regional Administrator" means the Administrator of one of the ten EPA Regional Offices or his or her authorized representative.

(l) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(m) "Local agency" means any local government agency, other than the State agency, which is charged with the responsibility for carrying out a portion of the plan.

(n) "Indian Reservation" means any Federally recognized reservation established by treaty, agreement, executive order, or act of Congress.

(o) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

(p) "Storage and Retrieval of Aerometric Data (SAROAD) system" is a computerized system which stores and reports information relating to ambient air quality.

(q) "SAROAD site identification form" is one of the several forms in the SAROAD system. It is the form which provides a complete description of the site (and its surroundings) of an ambient air quality monitoring station.

(r) "Traceable" means that a local standard has been compared and certified, either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM) or a USEPA/NBS-approved Certified Reference Material (CRM).

(s) "Urban area population" means the population defined in the most

NAMS design criteria contained in Appendix D to this part.

§ 58.33 NAMS methodology.

Each NAMS must meet the monitoring methodology requirements of Appendix C to this part applicable to NAMS at the time the station is put into operation as a NAMS.

§ 58.34 NAMS network completion.

By January 1, 1981, with the exception of Pb, which shall be by July 1, 1982 and PM_{10} samplers, which shall be by 1 year after the effective date of promulgation:

(a) Each NAMS must be in operation, be sited in accordance with the criteria in Appendix E to this part, and be located as described in the station's SAROAD site identification form; and

(b) The quality assurance requirements of Appendix A to this part must be fully implemented for all NAMS.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 52 FR 24740, July 1, 1987]

§ 58.35 NAMS data submittal.

(a) The requirements of this section apply only to those stations designated as NAMS by the network description required by § 58.30.

(b) The State shall report quarterly to the Administrator (through the appropriate Regional Office) all ambient air quality data and information specified by AEROS Users Manual (EPA-450/2-76-029, OAQPS No. 1.2-039) to be coded into the SAROAD Air Quality Data forms. Such air quality data and information must be submitted on either paper forms, punched cards, or magnetic tape in the format of the SAROAD Air Quality Data forms.

(c) The quarterly reporting periods are January 1-March 31, April 1-June 30, July 1-September 30, and October 1-December 31. The quarterly report must:

(1) Be received by the National Aerometric Data Bank within 120 days of the end of each reporting period, after being submitted by the States to the Regional Offices for review;

(2) Contain all data and information gathered during the reporting period.

(d) For TSP, CO, SO_2, O_3, and NO_2, the first quarterly report will be due on or before June 30, 1981, for data collected during the first quarter of 1981. For Pb, the first quarterly report will be due on December 31, 1982, for data collected during the third quarter of 1982. For PM_{10} samplers, the first quarterly report will be due 120 days after the first quarter of operation.

(e) Air quality data submitted in the quarterly report must have been edited and validated so that such data are ready to be entered into the SAROAD data files. Procedures for editing and validating data are described in AEROS Users Manual (EPA-450/2-76-029, OAQPS No. 1.2-039).

(f) This section does not permit a State to exempt those SLAMS which are also designated as NAMS from all or any of the reporting requirements applicable to SLAMS in § 58.26.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 51 FR 9586, Mar. 19, 1986; 52 FR 24740, July 1, 1987]

§ 58.36 System modification.

During the annual SLAMS Network Review specified in § 58.20, any changes to the NAMS network identified by the EPA and/or proposed by the State and agreed to by the EPA will be evaluated. These modifications should address changes invoked by a new census and changes to the network due to changing air quality levels, emission patterns, etc. The State shall be given one year (until the next annual evaluation) to implement the appropriate changes to the NAMS network.

[51 FR 9586, Mar. 19, 1986]

Subpart E—Air Quality Index Reporting

§ 58.40 Index reporting.

(a) The State shall report to the general public on a daily basis through prominent notice an air quality index in accordance with the requirements of Appendix G to this part.

(b) Reporting must commence by January 1, 1981, for all urban areas with a population exceeding 500,000, and by January 1, 1983, for all urban areas with a population exceeding 200,000.

(c) The population of an urban area for purposes of index reporting is the most recent U.S. census population figure as defined in § 58.1 paragraph (s).

[44 FR 27571, May 10, 1979, as amended at 51 FR 9586, Mar. 19, 1986]

Subpart F—Federal Monitoring

§ 58.50 Federal monitoring.

The Administrator may locate and operate an ambient air monitoring station if the State fails to locate, or schedule to be located, during the initial network design process or as a result of the annual review required by § 58.20(d):

(a) A SLAMS at a site which is necessary in the judgment of the Regional Administrator to meet the objectives defined in Appendix D to this part, or

(b) A NAMS at a site which is necessary in the judgment of the Administrator for meeting EPA national data needs.

§ 58.51 Monitoring other pollutants.

The Administrator may promulgate criteria similar to that referenced in Subpart B of this part for monitoring a pollutant for which a National Ambient Air Quality Standard does not exist. Such an action would be taken whenever the Administrator determines that a nationwide monitoring program is necessary to monitor such a pollutant.

Appendix A—Quality Assurance Requirements for State and Local Air Monitoring Stations (SLAMS)

1. *General Information.*

This Appendix specifies the minimum quality assurance requirements applicable to SLAMS air monitoring data submitted to EPA. States are encouraged to develop and maintain quality assurance programs more extensive than the required minimum.

Quality assurance of air monitoring systems includes two distinct and important interrelated functions. One function is the control of the measurement process through the implementation of policies, procedures, and corrective actions. The other function is the assessment of the quality of the monitoring data (the product of the measurement process). In general, the greater the effort effectiveness of the control of a given monitoring system, the better will be the resulting quality of the monitoring data. The results of data quality assessments indicate whether the control efforts need to be increased.

Documentation of the quality assessments of the monitoring data is important to data users, who can then consider the impact of the data quality in specific applications (see Reference 1). Accordingly, assessments of SLAMS data quality are required to be reported to EPA periodically.

To provide national uniformity in this assessment and reporting of data quality for all SLAMS networks, specific assessment and reporting procedures are prescribed in detail in sections 3, 4, and 5 of this Appendix.

In contrast, the control function encompasses a variety of policies, procedures, specifications, standards, and corrective measures which affect the quality of the resulting data. The selection and extent of the quality control activities—as well as additional quality assessment activities—used by a monitoring agency depend on a number of local factors such as the field and laboratory conditions, the objectives of the monitoring, the level of the data quality needed, the expertise of assigned personnel, the cost of control procedures, pollutant concentration levels, etc. Therefore, the quality assurance requirements, in section 2 of this Appendix, are specified in general terms to allow each State to develop a quality assurance system that is most efficient and effective for its own circumstances.

2. *Quality Assurance Requirements*

2.1 Each State must develop and implement a quality assurance program consisting of policies, procedures, specifications, standards and documentation necessary to:

(1) Provide data of adequate quality to meet monitoring objectives, and

(2) Minimize loss of air quality data due to malfunctions or out-of-control conditions.

This quality assurance program must be described in detail, suitably documented, and approved by the appropriate Regional Administrator, or his designee. The Quality Assurance Program will be reviewed during the annual system audit described in section 2.4.

2.2 Primary guidance for developing the quality assurance program is contained in References 2 and 3, which also contain many suggested procedures, checks, and control specifications. Section 2.0.9 of Reference 3 describes specific guidance for the de-

velopment of a Quality Assurance Program for SLAMS automated analyzers. Many specific quality control checks and specifications for manual methods are included in the respective reference methods described in Part 50 of this chapter or in the respective equivalent method descriptions available from EPA (see Reference 4). Similarly, quality control procedures related to specifically designated reference and equivalent analyzers are contained in the respective operation and instruction manuals associated with those analyzers. This guidance, and any other pertinent information from appropriate sources, should be used by the States in developing their quality assurance programs.

As a minimum, each quality assurance program must include operational procedures for each of the following activities:

(1) Selection of methods, analyzers, or samplers;

(2) Training;

(3) Installation of equipment;

(4) Selection and control of calibration standards;

(5) Calibration;

(6) Zero/span checks and adjustments of automated analyzers;

(7) Control checks and their frequency;

(8) Control limits for zero, span and other control checks, and respective corrective actions when such limits are surpassed;

(9) Calibration and zero/span checks for multiple range analyzers (see Section 2.6 of Appendix C of this part);

(10) Preventive and remedial maintenance;

(11) Quality control procedures for air pollution episode monitoring;

(12) Recording and validating data;

(13) Data quality assessment (precision and accuracy);

(14) Documentation of quality control information.

2.3 *Pollutant Concentration and Flow Rate Standards.*

2.3.1 Gaseous pollutant concentration standards (permeation devices or cylinders of compressed gas) used to obtain test concentration for CO, SO_2, and NO_2 must be traceable to either a National Bureau of Standards (NBS) Standard Reference Material (SRM) or an NBS/EPA-approved commercially available Certified Reference Material (CRM). CRM's are described in Reference 5, and a list of CRM sources is available from the Quality Assurance Division (MD-77), Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

General guidance and recommended techniques for certifying gaseous working standards against an SRM or CRM are provided in section 2.0.7 of Reference 3. Direct use of a CRM as a working standard is acceptable, but direct use of an NBS SRM as a working standard is discouraged because of the limited supply and expense of SRMs.

2.3.2 Test concentrations for O_3 must be obtained in accordance with the UV photometric calibration procedure specified in Appendix D of Part 50 of this chapter, or by means of a certified ozone transfer standard. Consult References 6 and 7 for guidance on primary and transfer standards for O_3.

2.3.3 Flow rate measurements must be made by a flow measuring instrument that is traceable to an authoritative volume or other standard. Guidance for certifying some types of flowmeters is provided in Reference 3.

2.4 National Performance and System Audit Programs

Agencies operating SLAMS network stations shall be subject to annual EPA systems audits of their ambient air monitoring program and are required to participate in EPA's National Performance Audit Program. These audits are described in section 1.4.16 of Reference 2 and section 2.0.11 of Reference 3. For instructions, agencies should contact either the appropriate EPA Regional Quality Assurance Coordinator or the Quality Assurance Division (MD-77B), Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

3. *Data Quality Assessment Requirements*

All ambient monitoring methods or analyzers used in SLAMS shall be tested periodically, as described in this section 3, to quantitatively assess the quality of the SLAMS data being routinely produced. Measurement accuracy and precision are estimated for both automated and manual methods. The individual results of these tests for each method or analyzer shall be reported to EPA as specified in section 4. EPA will then calculate quarterly integrated estimates of precision and accuracy applicable to the SLAMS data as described in section 5. Data assessment results should be reported to EPA only for methods and analyzers approved for use in SLAMS monitoring under Appendix C of this Part.

The integrated data quality assessment estimates will be calculated on the basis of "reporting organizations." A reporting organization is defined as a State, subordinate organization within a State, or other organization that is responsible for a set of stations that monitor the same pollutant and for which precision or accuracy assessments can be pooled. States must define one or more reporting organizations for each pollutant such that each monitoring station in the State SLAMS network is included in one, and only one, reporting organization.

Each reporting organization shall be defined such that precision or accuracy among all stations in the organization can be expected to be reasonably homogeneous, as a result of common factors. Common factors that should be considered by States in defining reporting organizations include: (1) operation by a common team of field operators, (2) common calibration facilities, and (3) support by a common laboratory or headquarters. Where there is uncertainty in defining the reporting organizations or in assigning specific sites to reporting organizations, States shall consult with the appropriate EPA Regional Office for guidance. All definitions of reporting organizations shall be subject to final approval by the appropriate EPA Regional Office.

Assessment results shall be reported as specified in section 4. Concentration and flow standards must be as specified in sections 2.3 or 3.4. In addition, working standards and equipment used for accuracy audits must not be the same standards and equipment used for routine calibration. Concentration measurements reported from analyzers or analytical systems (indicated concentrations) should be based on stable readings and must be derived by means of the same calibration curve and data processing system used to obtain the routine air monitoring data (see Reference 1, page 62, and Reference 3, section 2.0.9.1.3(d)). Table A-1 provides a summary of the minimum data quality assessment requirements, which are described in more detail in the following sections.

3.1 Precision of Automated Methods. A one-point precision check must be carried out at least once every two weeks on each automated analyzer used to measure SO_2, NO_2, O_3 and CO. The precision check is made by challenging the analyzer with a precision check gas of known concentration between 0.08 and 0.10 ppm for SO_2, NO_2, and O_3 analyzers, and between 8 and 10 ppm for CO analyzers. To check the precision of SLAMS analyzers operating on ranges higher than 0 to 1.0 ppm SO_2, NO_2, and O_3, or 0 to 100 ppm for CO, use precision check gases of appropriately higher concentration as approved by the appropriate Regional Administrator or his designee. However, the results of precision checks at concentration levels other than those shown above need not be reported to EPA. The standards from which precision check test concentrations are obtained must meet the specifications of section 2.3.

Except for certain CO analyzers described below, analyzers must operate in their normal sampling mode during the precision check, and the test atmosphere must pass through all filters, scrubbers, conditioners and other components used during normal ambient sampling and as much of the ambient air inlet system as is practicable. If permitted by the associated operation or instruction manual, a CO analyzer may be temporarily modified during the precision check to reduce vent or purge flows, or the test atmosphere may enter the analyzer at a point other than the normal sample inlet, *provided that* the analyzer's response is not likely to be altered by these deviations from the normal operational mode. If a precision check is made in conjunction with a zero or span adjustment, it must be made prior to such zero or span adjustments. Randomization of the precision check with respect to time of day, day of week, and routine service and adjustments is encouraged where possible.

Report the actual concentrations of the precision check gas and the corresponding concentrations indicated by the analyzer. The percent differences between these concentrations are used to assess the precision of the monitoring data as described in section 5.1.

3.2 Accuracy of Automated Methods. Each calendar quarter (during which analyzers are operated), audit at least 25 percent of the SLAMS analyzers that monitor for SO_2, NO_2, O_3, or CO such that each analyzer is audited at least once per year. If there are fewer than four analyzers for a pollutant within a reporting organization, randomly reaudit one or more analyzers so that at least one analyzer for that pollutant is audited each calendar quarter. Where possible, EPA strongly encourages more frequent auditing, up to an audit frequency of once per quarter for each SLAMS analyzer.

The audit is made by challenging the analyzer with at least one audit gas of known concentration from each of the following ranges that fall within the measurement range of the analyzer being audited:

Audit level	Concentration range, ppm		
	SO_2, O_3	NO_2	CO
1	0.03-0.08	0.03-0.08	3-8
2	0.15-0.20	0.15-0.20	15-20
3	0.35-0.45	0.35-0.45	35-45
4	0.80-0.90	....	80-90

NO_2 audit gas for chemiluminescence-type NO_2 analyzers must also contain at least 0.08 ppm NO.

NOTE: NO concentrations substantially higher than 0.08 ppm, as may occur when using some gas phase titration (GPT) techniques, may lead to audit errors in chemiluminescence analyzers due to inevitable minor NO-NO_x channel imbalance. Such errors may be atypical of routine monitoring errors to the extent that such NO concentrations exceed typical ambient NO concentrations at the site. These errors may be minimized by modifying the GPT technique

to lower the NO concentrations remaining in the NO_2 audit gas to levels closer to typical ambient NO concentrations at the site.

To audit SLAMS analyzers operating on ranges higher than 0 to 1.0 ppm for SO_2, NO_2, and O_3 or 0 to 100 ppm for CO, use audit gases of appropriately higher concentration as approved by the appropriate Regional Administrator or his designee. The results of audits at concentration levels other than those shown in the above table need not be reported to EPA.

The standards from which audit gas test concentrations are obtained must meet the specifications of section 2.3. Working or transfer standards and equipment used for auditing must not be the same as the standards and equipment used for calibration and spanning, but may be referenced to the same NBS SRM, CRM, or primary UV photometer. The auditor should not be the operator or analyst who conducts the routine monitoring, calibration, and analysis.

The audit shall be carried out by allowing the analyzer to analyze the audit test atmosphere in its normal sampling mode such that the test atmosphere passes through all filters, scrubbers, conditioners, and other sample inlet components used during normal ambient sampling and as much of the ambient air inlet system as is practicable. The exception given in section 3.1 for certain CO analyzers does not apply for audits.

Report both the audit test concentrations and the corresponding concentration measurements indicated or produced by the analyzer being tested. The percent differences between these concentrations are used to assess the accuracy of the monitoring data as described in section 5.2.

3.3 Precision of Manual Methods. For each network of manual methods, select one or more monitoring sites within the reporting organization for duplicate, collocated sampling as follows: for 1 to 5 sites, select 1 site; for 6 to 20 sites, select 2 sites; and for over 20 sites, select 3 sites. Where possible, additional collocated sampling is encouraged. For particulate matter, a network for measuring PM_{10} shall be separate from a TSP network. Sites having annual mean particulate matter concentrations among the highest 25 percent of the annual mean concentrations for all the sites in the network must be selected or, if such sites are impractical, alternate sites approved by the Regional Administrator may be selected.

In determining the number of collocated sites required, monitoring networks for Pb should be treated independently from networks for particulate matter, even though the separate networks may share one or more common samplers. However, a single pair of samplers collocated at a common-sampler monitoring site that meets the requirements for both a collocated lead site and a collocated particulate matter site may serve as a collocated site for both networks.

The two collocated samplers must be within 4 meters of each other, and particulate matter samplers must be at least 2 meters apart to preclude airflow interference. Calibration, sampling and analysis must be the same for both collocated samplers and the same as for all other samplers in the network.

For each pair of collocated samplers, designate one sampler as the primary sampler whose samples will be used to report air quality for the site, and designate the other as the duplicate sampler. Each duplicate sampler must be operated concurrently with its associated routine sampler at least once per week. The operation schedule should be selected so that the sampling days are distributed evenly over the year and over the seven days of the week. The every-6-day schedule used by many monitoring agencies is recommended. Report the measurements from both samplers at each collocated sampling site, including measurements falling below the limits specified in 5.3.1. The percent differences in measured concentration ($\mu g/m^3$) between the two collocated samplers are used to calculate precision as described in section 5.3.

3.4 Accuracy of Manual Methods. The accuracy of manual sampling methods is assessed by auditing a portion of the measurement process. For particulate matter methods, the flow rate during sample collection is audited. For SO_2 and NO_2 methods, the analytical measurement is audited. For Pb methods, the flow rate and analytical measurement are audited.

3.4.1 Particulate matter methods. Each calendar quarter, audit the flow rate of at least 25 percent of the samplers such that each sampler is audited at least once per year. If there are fewer than four samplers within a reporting organization, randomly reaudit one or more samplers so that one sampler is audited each calendar quarter. Audit each sampler at its normal operating flow rate, using a flow rate transfer standard as described in section 2.3.3. The flow rate standard used for auditing must not be the same flow rate standard used to calibrate the sampler. However, both the calibration standard and the audit standard may be referenced to the same primary flow rate standard. The flow audit should be scheduled so as to avoid interference with a scheduled sampling period. Report the audit flow rates and the corresponding flow rates indicated by the sampler's normally used flow indicator. The percent differences between these flow rates are used to calculate accuracy as described in section 5.4.1.

Great care must be used in auditing high-volume particulate matter samplers having flow regulators because the introduction of resistance plates in the audit flow standard device can cause abnormal flow patterns at the point of flow sensing. For this reason, the flow audit standard should be used with a normal filter in place and without resistance plates in auditing flow-regulated high-volume samplers, or other steps should be taken to assure that flow patterns are not perturbed at the point of flow sensing.

3.4.2 SO_2 Methods. Prepare audit solutions from a working sulfite-tetrachloromercurate (TCM) solution as described in section 10.2 of the SO_2 Reference Method (Appendix A of Part 50 of this chapter). These audit samples must be prepared independently from the standardized sulfite solutions used in the routine calibration procedure. Sulfite-TCM audit samples must be stored between 0 and 5 °C and expire 30 days after preparation.

Prepare audit samples in each of the concentration ranges of 0.2-0.3, 0.5-0.6, and 0.8-0.9 μg SO_2/ml. Analyze an audit sample in each of the three ranges at least once each day that samples are analyzed and at least twice per calendar quarter. Report the audit concentrations (in μg SO_2/ml) and the corresponding indicated concentrations (in μg SO_2/ml). The percent differences between these concentrations are used to calculate accuracy as described in section 5.4.2.

3.4.3 NO_2 Methods. Prepare audit solutions from a working sodium nitrite solution as described in the appropriate equivalent method (see Reference 4). These audit samples must be prepared independently from the standardized nitrite solutions used in the routine calibration procedure. Sodium nitrite audit samples expire in 3 months after preparation. Prepare audit samples in each of the concentration ranges of 0.2-0.3, 0.5-0.6, and 0.8-0.9 μg NO_2/ml. Analyze an audit sample in each of the three ranges at least once each day that samples are analyzed and at least twice per calendar quarter. Report the audit concentrations (in μg NO_2/ml) and the corresponding indicated concentrations (in μg NO_2/ml). The percent differences between these concentrations are used to calculate accuracy as described in section 5.4.2.

3.4.4 Pb Methods. For the Pb Reference Method (Appendix G of Part 50 of this chapter), the flow rates of the high-volume Pb samplers shall be audited as part of the TSP network using the same procedures described in Section 3.4.1. For agencies operating both TSP and Pb networks, 25 percent of the total number of high-volume samplers are to be audited each quarter.

Each calendar quarter, audit the Pb Reference Method analytical procedure using glass fiber filter strips containing a known quantity of Pb. These audit sample strips are prepared by depositing a Pb solution on 1.9 cm by 20.3 cm (¾ inch by 8 inch) unexposed glass fiber filter strips and allowing them to dry thoroughly. The audit samples must be prepared using batches of reagents different from those used to calibrate the Pb analytical equipment being audited. Prepare audit samples in the following concentration ranges:

Range	Pb concentration, μg/strip	Equivalent ambient Pb concentration,[1] $\mu g/m^3$
1	100-300	0.5-1.5
2	600-1000	3.0-5.0

[1] Equivalent ambient Pb concentration in $\mu g/m^3$ is based on sampling at 1.7 m^3/min for 24 hours on a 20.3 cm×25.4 cm (8 inch×10 inch) glass fiber filter.

Audit samples must be extracted using the same extraction procedure used for exposed filters.

Analyze three audit samples in each of the two ranges each quarter samples are analyzed. The audit sample analyses shall be distributed as much as possible over the entire calendar quarter. Report the audit concentrations (in μg Pb/strip) and the corresponding measured concentrations (in μg Pb/strip) using unit code 77. The percent differences between the concentrations are used to calculate analytical accuracy as described in section 5.4.2.

The accuracy of an equivalent Pb method is assessed in the same manner as for the reference method. The flow auditing device and Pb analysis audit samples must be compatible with the specific requirements of the equivalent method.

4. *Reporting Requirements*

For each pollutant, prepare a list of all monitoring sites and their SAROAD site identification codes in each reporting organization and submit the list to the appropriate EPA Regional Office, with a copy to the Environmental Monitoring Systems Laboratory (MD-75), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711 (EMSL/RTP). Whenever there is a change in this list of monitoring sites in a reporting organization, report this change to the Regional Office and to EMSL/RTP.

4.1 Quarterly Reports. Within 120 calendar days after the end of each calendar quarter, each reporting organization shall report to EMSL/RTP via the appropriate EPA Regional Office the results of all valid precision and accuracy tests it has carried out during the quarter. Report all collocated measurements including those falling below the levels specified in section 5.3.1. Do not report results from invalid tests, from tests carried out during a time period for which ambient data immediately prior or subsequent to the tests were invalidated for

appropriate reasons, or from tests of methods or analyzers not approved for use in SLAMS monitoring networks under Appendix C of this part.

Quarterly reports as specified herein shall commence not later than the report pertaining to the first calendar quarter of 1987, although such reports will be accepted beginning with the report pertaining to the third calendar quarter of 1986.

The information should be reported in a format similar to that shown in Figures A-1 and A-2. The data may be reported (1) via magnetic computer tape according to data format specifications provided by the Regional Offices, (2) by direct, interactive computer entry via a data terminal and the PARS data entry system, or (3) on the forms illustrated in Figures A-1 and A-2. Minor variations of these forms (to facilitate local use) or computer-generated (facsimile) forms may also be used, provided they follow the same general format, use the same block numbers, and are clear and completely legible. Instructions for using these forms are provided in section 4.3.

Within 240 days after the end of the reporting quarter, EPA will calculate integrated precision and accuracy assessments for each reporting organization as specified in section 5 and return, through the Regional Offices, reports of the respective assessments to each reporting organization.

4.2 Annual Reports. When precision and accuracy estimates for a reporting organization have been calculated for all four quarters of the calendar year, EPA will calculate the properly weighted probability limits for precision and accuracy for the entire calendar year. These limits will then be associated with the data submitted in the annual SLAMS report required by § 58.26.

Each reporting organization shall submit, along with its annual SLAMS report, a listing by pollutant of all monitoring sites in the reporting organization.

4.3 Instructions for Using Data Quality Assessment Reporting Forms. Suggested forms for reporting data quality assessment information are provided in Figure A-1 (for reporting accuracy data) and Figure A-2 (for reporting precision data). The forms may be used in a "universal" way to report data for different pollutants and for different sites on the same form. Or, either form may be used as a site-specific or pollutant-specific form (where all entries on the form are for a common site, a common pollutant, or both) by filling in the site or pollutant information in the appropriate box in the upper left corner of the form. Detailed instructions for individual blocks are as follows:

Instructions common to both forms:

Block No.	Description
1-2	State. The two digit SAROAD State code.
3-5	Reporting Organization. A unique 3 digit code assigned by each State to each of its respective reporting organizations.
6-7	Year. Last two digits of the calendar year corresponding to the quarter specified in block 8.
8	Quarter. Enter 1, 2, 3, or 4 to refer to the calendar quarter during which the data quality assessments were obtained.
9	Enter "1" for original assessment data, "2" to revise assessment data previously submitted, or "3" to delete previously submitted assessment data. When a "3" is entered, only blocks 1 to 28 need be completed.

Also enter the name of the reporting organization, the date the form is submitted, and (optionally) the name of the person who prepared the form on the blanks provided.

Block No.	Description
10-18	Site. Enter the SAROAD site identification code (first 9 digits only). If all entries on the form are for the same site, enter the site code and site identification in the upper left corner of the form. Also check the block in the corner of the box and leave the other blocks 10 to 18 on the form blank.
21-23	Method Code. Enter the measurement method code from the back of the form. Also enter the pollutant symbol (e.g., SO_2, CO, TSP, etc.) on the blank to the left of block No. 21. If all entries on the form are for the same method, enter the code, symbol, and method identification in the lower box in the upper left corner of the form. Also check the block in the corner of the box and leave the other blocks 21 to 23 on the form blank.
24	Precoded with an "A" or a "P".
25-28	Date. Enter the month and day of the test.

Additional instructions for Accuracy form (Figure A-1):

Block No.	Description
29	T. Enter "1" if the reporting organization conducted the audit and also certified the audit standard used, enter "2" if the reporting organization conducted the audit but did not certify the audit standard used, enter "3" if the audit was not conducted by the reporting organization.
30	S. Enter the code letter of the source of the local primary standard used, from the list on the form.
31-32	Unit code. Enter the unit code number from the unit code list on the form (use only the codes listed). Also write in the unit on the blank to the left of block 31.
33	Precoded with a "0" or a "1."

Block No.	Description
34-40	Level 1 Actual. Enter the actual concentration determined from the audit standard in the appropriate blocks with respect to the precoded decimal point.
41-47	Level 1 Indicated. Enter the concentration indicated by the analyzer, sampler, or method being audited in the appropriate blocks with respect to the precoded decimal point.
48-61	Level 2. Enter the actual and indicated concentrations for audit level 2, if applicable.
34-61	Levels 3 and 4 (if applicable). On the second line, enter the actual and indicated concentrations for audit level 3 and, if used, audit level 4.

Additional instructions for Precision form (Figure A-2):

Block No.	Description
31-32	Unit Code: Enter the unit code number from the unit code list on the form (use only the codes listed). Also write in the unit on the blank to the left of block 31.
34-40	Actual or Primary. Enter the value of the known test concentration or the concentration measurement associated with the sampler designated as the primary sampler in the appropriate blocks with respect to the precoded decimal point.
41-47	Indicated or Duplicate. Enter the value of the concentration measurement from the analyzer or the duplicate collected sampler in the appropriate blocks with respect to the precoded decimal point.

5. *Calculations for Data Quality Assessment*

Calculation of estimates of integrated precision and accuracy are carried out by EPA according to the following procedures. Reporting organizations should report the results of individual precision and accuracy tests as specified in sections 3 and 4 even though they may elect to carry out some or all of the calculations in this section on their own.

5.1 Precision of Automated Methods. Estimates of the precision of automated methods are calculated from the results of biweekly precision checks as specified in section 3.1. At the end of each calendar quarter, an integrated precision probability interval for all SLAMS analyzers in the organization is calculated for each pollutant.

5.1.1 Single Analyzer Precision. The percentage difference (d_i) for each precision check is calculated using equation 1, where Y_i is the concentration indicated by the analyzer for the i-th precision check and X_i is the known concentration for the i-th precision check.

$$d_i = \frac{Y_i - X_i}{X_i} \times 100 \qquad (1)$$

For each analyzer, the quarterly average (d_j) is calculated with equation 2, and the standard deviation (S_j) with equation 3, where n is the number of precision checks on the instrument made during the calendar quarter. For example, n should be 6 or 7 if precision checks are made biweekly during a quarter.

$$d_j = \frac{1}{n} \sum_{i=1}^{n} d_i \qquad (2)$$

$$S_j = \sqrt{\frac{1}{n-1}\left[\sum_{i=1}^{n} d_i^2 - \frac{1}{n}\left(\sum_{i=1}^{n} d_i\right)^2\right]} \qquad (3)$$

5.1.2 Precision for Reporting Organization. For each pollutant, the average of averages (D) and the pooled standard deviation (S_a) are calculated for all analyzers audited for the pollutant during the quarter, using either equations 4 and 5 or 4a and 5a, where k is the number of analyzers audited within the reporting organization for a single pollutant.

References

1. Rhodes, R.C. Guideline on the Meaning and Use of Precision and Accuracy Data Required by 40 CFR Part 58 Appendices A and B. EPA-600/4-83/023. U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, June, 1983.

2. "Quality Assurance Handbook for Air Pollution Measurement Systems, Volume I—Principles." EPA-600/9-76-005. March 1976. Available from U.S. Environmental Protection Agency, Environmental Monitoring Systems Laboratory (MD-77), Research Triangle Park, NC 27711.

3. "Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II—Ambient Air Specific Methods." EPA-600/4-77-027a. May 1977. Available from U.S. Environmental Protection Agency, Environmental Monitoring Systems Laboratory (MD-77), Research Triangle Park, NC 27711.

4. "List of Designated Reference and Equivalent Methods." Available from U.S. Environmental Protection Agency, Department E (MD-77), Research Triangle Park, NC 27711.

5. Hughes, E.E. and J. Mandel. A Procedure for Establishing Traceability of Gas Mixtures to Certain National Bureau of Standards SRM's. EPA-600/7-81-010. U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, May, 1981. (Joint NBS/EPA Publication)

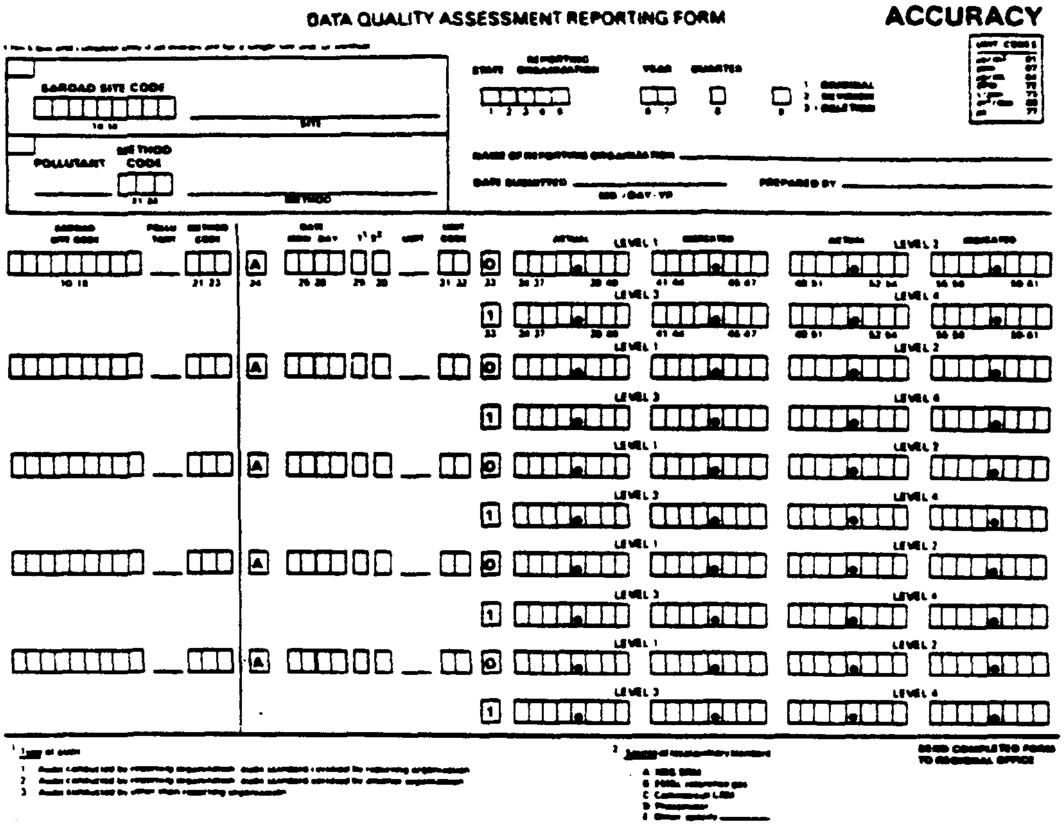
6. Paur, R.J. and F.F. McElroy. Technical Assistance Document for the Calibration of Ambient Ozone Monitors. EPA-600/4-79-057. U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, September, 1979.

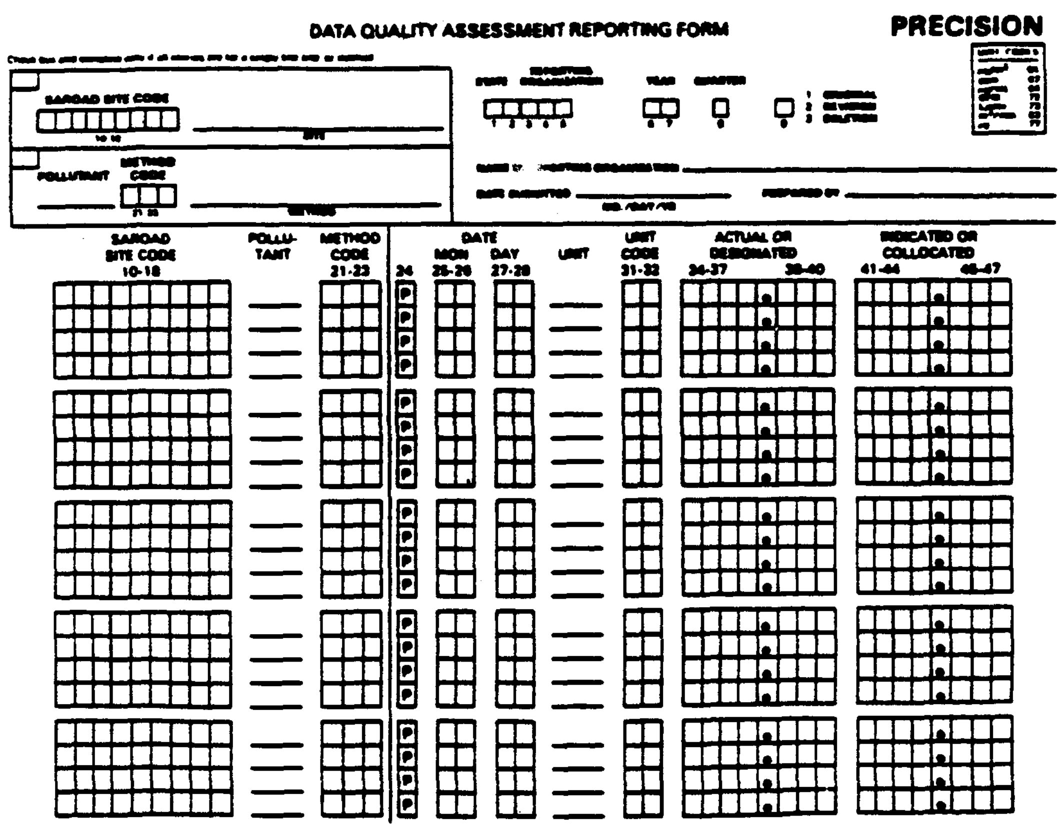
7. McElroy, F.F. Transfer Standards for the Calibration of Ambient Air Monitoring Analyzers for Ozone. EPA-600/4-79-056. U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, September, 1979.

TABLE A-1—MINIMUM DATA ASSESSMENT REQUIREMENTS

Method	Assessment method	Coverage	Minimum frequency	Parameters reported
Precision:				
Automated methods for SO_2, NO_2, O_3, and CO.	Response check at concentration between .08 and .10 ppm (8 & 10 ppm for CO).	Each analyzer	Once per 2 weeks	Actual concentration and measured concentration.
Manual methods including lead.	Collocated samplers	1 site for 1-5 sites; 2 sites 6-20 sites; 3 sites >20 sites; (sites with highest conc.).	Once per week	Two concentration measurements.
Accuracy:				
Automated methods for SO_2, NO_2, O_3, and CO.	Response check at .03-.08 ppm;[1] .15-.20 ppm;[1] .35-.45 ppm;[1] .80-.90 ppm[1] (if applicable).	1. Each analyzer; 2. 25% of analyzers (at least 1).	1. Once per year; 2. Each calendar quarter.	Actual concentration and measured (indicated) concentration for each level.
Manual methods for SO_2, and NO_2.	Check of analytical procedure with audit standard solutions.	Analytical system	Each day samples are analyzed, at least twice per quarter.	Actual concentration and measured (indicated) concentration for each audit solution.
TSP, PM_{10}	Check of sampler flow rate.	1. Each sampler; 2. 25% of samplers (at least 1).	1. Once per year; 2. Each calendar quarter.	Actual flow rate and flow rate indicated by the sampler.
Lead	1. Check sample flow rate as for TSP; 2. Check analytical system with Pb audit strips.	1. Each sampler; 2. Analytical system.	1. Include with TSP; 2. Each quarter.	1. Same as for TSP; 2. Actual cocentration and measured (indicated) concentration of audit samples (μg Pb/strip).

[1] Conc. times 100 for CO.


DATA QUALITY ASSESSMENT REPORTING FORM
ACCURACY
SAROAD SITE CODE
SITE
POLLUTANT
METHOD CODE
METHOD
LEVEL 1
LEVEL 2
LEVEL 3
LEVEL 4


DATA QUALITY ASSESSMENT REPORTING FORM
PRECISION
SAROAD SITE CODE
POLLUTANT
METHOD CODE
METHOD
SAROAD SITE CODE 10-18
POLLU-TANT
METHOD CODE 21-23
DATE MON 25-26 DAY 27-28
UNIT
UNIT CODE 31-32
ACTUAL OR DESIGNATED 34-37 38-40
INDICATED OR COLLOCATED 41-44 45-47

METHOD	DESIGNATION NUMBER	METHOD CODE
SO_2 Manual Methods		
Ref. method (pararosaniline)	--	001
Technicon I (pararosaniline)	EQS-0775-001	001
Technicon II (Pararosaniline)	EQS-0775-002	002
SO_2 Analyzers		
Asarco 500	EQSA-0877-024	024
Beckman 953	EQSA-0678-029	029
Bendix 8303	EQSA-1078-030	030
Lear Siegler AM2020	EQSA-1280-049	049
Lear Siegler SM1000	EQSA-1275-005	005
Meloy SA185-2A	EQSA-1275-006	006
Meloy SA285E	EQSA-1078-032	032
Meloy SA700	EQSA-0580-046	046
Monitor Labs 8450	EQSA-0876-013	013
Monitor Labs 8850	EQSA-0779-039	039
Philips PW9700	EQSA-0876-011	011
Philips PW9755	EQSA-0676-010	010
Thermo Electron 43	EQSA-0276-009	009
O_3 Analyzers		
Beckman 950A	RFOA-0577-020	020
Bendix 8002	RFOA-0176-007	007
CSI 2000	RFOA-0279-036	036
Dasibi 1003-AH,-PC,-RS	EQOA-0577-019	019
Dasibi 1008-AH	EQOA-0383-056	056
McMillan 1100-1	RFOA-1076-014	014
McMillan 1100-2	RFOA-1076-015	015
McMillan 1100-3	RFOA-1076-016	016
Meloy OA325-2R	RFOA-1075-003	003
Meloy OA350-2R	RFOA-1075-004	004
Monitor Labs 8410E	RFOA-1176-017	017
Monitor Labs 8810	EQOA-0881-053	053
PCI Ozone Corp. LC-12	EQOA-0382-055	055
Philips PW0771	EQOA-0777-023	023
Thermo Electron 49	EQOA-0880-047	047
TSP Manual Method		
Reference method (high-volume)		802

METHOD	DESIGNATION NUMBER	METHOD CODE
NO_2 Manual Methods		
Sodium arsenite	EQN-1277-026	[illegible]
Sodium arsenite/Technicon II	EQN-1277-027	[illegible]
TGS-ANSA	EQN-1277-028	[illegible]
NO_2 Analyzers		
Beckman 952A	RFNA-0179-034	034
Bendix 8101-B	RFNA-0479-038	038
Bendix 8101-C	RFNA-0777-022	022
CSI 1600	RFNA-0977-025	025
Meloy NA530R	RFNA-1078-031	031
Monitor Labs 8440E	RFNA-0677-021	021
Monitor Labs 8840	RFNA-0280-042	042
Philips PW9762/02	RFNA-0879-040	040
Thermo Electron 14B/E	RFNA-0179-035	035
Thermo Electron 14D/E	RFNA-0279-037	037
Pb Manual Methods		
Ref. method (hi-vol/AA spect.)	--	803
Hi-vol/AA spect. (alt. extr.)	EQL-0380-043	043
Hi-vol/Flameless AA (EMSL/EPA)	EQL-0380-044	044
Hi-vol/ICAP spect. (EMSL/EPA)	EQL-0380-045	045
Hi-vol/Wavelength disp. XRF	EQL-0581-052	052
Hi-vol/ICAP spect. (Kansas)	EQL-0483-057	057
Hi-vol/Energy-disp. XRF	EQL-0783-058	058
Hi-vol/Flameless AA (Omaha)	EQL-0785-059	059
CO Analyzers		
Beckman 866	RFCA-0876-012	012
Bendix 8501-5CA	RFCA-0276-008	008
Dasibi 3003	RFCA-0381-051	051
Horiba AQM-10, -11, -12	RFCA-1278-033	033
Horiba 300E/300SE	RFCA-1180-048	048
MASS - CO 1 (Massachusetts)	RFCA-1280-050	050
Monitor Labs 8310	RFCA-0979-041	041
MSA 202S	RFCA-0177-018	018
Thermo Electron 48	RFCA-0981-054	054

INFORMATION TO BE CONTAINED ON THE BACK OF THE DATA REPORTING FORMS

[51 FR 9587, Mar. 19, 1986, as amended at 52 FR 24741, July 1, 1987]

Appendix B—Quality Assurance Requirements for Prevention of Significant Deterioration (PSD) Air Monitoring

1. *General Information*

This Appendix specifies the minimum quality assurance requirements for the control and assessment of the quality of the PSD ambient air monitoring data submitted to EPA by an organization operating a network of PSD stations. Such organizations are encouraged to develop and maintain quality assurance programs more extensive than the required minimum.

Quality assurance of air monitoring systems includes two distinct and important interrelated functions. One function is the control of the measurement process through the implementation of policies, procedures, and corrective actions. The other function is the assessment of the quality of the monitoring data (the product of the measurement process). In general, the greater the effort and effectiveness of the control of a given monitoring system, the better will be the resulting quality of the monitoring data. The results of data quality assessments indicate whether the control efforts need to be increased.

Documentation of the quality assessments of the monitoring data is important to data users, who can then consider the impact of the data quality in specific applications (see Reference 1). Accordingly, assessments of PSD monitoring data quality are required to be made and reported periodically by the monitoring organization.

To provide national uniformity in the assessment and reporting of data quality among all PSD networks, specific assessment and reporting procedures are prescribed in detail in Sections 3, 4, 5, and 6 of this Appendix.

In contrast, the control function encompasses a variety of policies, procedures, specifications, standards, and corrective measures which affect the quality of the resulting data. The selection and extent of the quality control activities—as well as additional quality assessment activities—used by a monitoring organization depend on a number of local factors such as the field and laboratory conditions, the objectives of the monitoring, the level of the data quality needed, the expertise of assigned personnel, the cost of control procedures, pollutant concentration levels, etc. Therefore, the quality assurance requirements, in Section 2 of this Appendix, are specified in general terms to allow each organization to develop a quality control system that is most efficient and effective for its own circumstances.

For purposes of this Appendix, "organization" is defined as a source owner/operator, a government agency, or their contractor that operates an ambient air pollution monitoring network for PSD purposes.

2. *Quality Assurance Requirements*

2.1 Each organization must develop and implement a quality assurance program consisting of policies, procedures, specifications, standards and documentation necessary to:

(1) Provide data of adequate quality to meet monitoring objectives and quality assurance requirements of the permit-granting authority, and

(2) Minimize loss of air quality data due to malfunctions or out-of-control conditions.

This quality assurance program must be described in detail, suitably documented, and approved by the permit-granting authority. The Quality Assurance Program will be reviewed during the system audits described in Section 2.4.

2.2 Primary guidance for developing the Quality Assurance Program is contained in References 2 and 3, which also contain many suggested procedures, checks, and control specifications. Section 2.0.9 of Reference 3 describes specific guidance for the development of a Quality Assurance Program for automated analyzers. Many specific quality control checks and specifications for manual methods are included in the respective reference methods described in Part 50 of this chapter or in the respective equivalent method descriptions available from EPA (see Reference 4). Similarly, quality control procedures related to specifically designated reference and equivalent analyzers are contained in their respective operation and instruction manuals. This guidance, and any other pertinent information from appropriate sources, should be used by the organization in developing its quality assurance program.

As a minimum, each quality assurance program must include operational procedures for each of the following activities:

(1) Selection of methods, analyzers, or samplers;

(2) Training;

(3) Installation of equipment;

(4) Selection and control of calibration standards;

(5) Calibration;

(6) Zero/span checks and adjustments of automated analyzers;

20-137 0 - 89 - 6

REFERENCES FOR SECTION 3.3

SCHEDULE D.6—PERMANENT WAIVER FROM INTERIM CONTROLS TEST—Continued

[Smelter identification]

	Line	1984	1985	1986	1987	1988	1989	1990	Total
6. Current salvage value	17	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
7. Net present value	18	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

SCHEDULE D.7—HORIZON VALUE OF CASH FLOWS

[Smelter identification]

	Line	Final forecast years		Horizon years					Total
		1989	1990	1991	1992	1993	1994	1995	
A. Depreciation-free horizon value:									
1. Net cash flow projections	01	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2. Depreciation tax savings:									
a. Depreciation and amortization	02	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. Marginal tax rate	03	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Tax savings	04	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
3. Depreciation-free net cash flows:									
a. Nominal dollar values	05	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. 1980 dollar values	06	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Average	07	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
4. Horizon factor	08	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
5. Depreciation-free horizon value	09	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
B. Depreciation tax savings over the horizon period									
1. Depreciation and amortization	10	XXXX	XXXX	....	....	....	....	....	XXXX
2. Marginal tax rate	11	XXXX	XXXX	....	....	....	....	....	XXXX
3. Tax savings	12	XXXX	XXXX	....	....	....	....	....	XXXX
4. Discount factors	13	XXXX	XXXX	....	....	....	....	....	XXXX
5. Present value of tax savings	14	XXXX	XXXX	....	....	....	....	....	XXXX
6. Total present value of tax savings	15	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
C. Horizon Value	16	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

AUTHORITY: Secs. 110, 301(a), 313, and 319 of the Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

SOURCE: 44 FR 27571, May 10, 1979, unless otherwise noted.

Subpart A—General Provisions

§ 58.1 Definitions.

As used in this part, all terms not defined herein have the meaning given them in the Act:

(a) "Act" means the Clean Air Act as amended (42 U.S.C. 7401, et seq.).

(b) "SLAMS" means State or Local Air Monitoring Station(s). The SLAMS make up the ambient air quality monitoring network which is required by § 58.20 to be provided for in the State's implementation plan. This definition places no restrictions on the use of the physical structure or facility housing the SLAMS. Any combination of SLAMS and any other monitors (Special Purpose, NAMS, PSD) may occupy the same facility or structure without affecting the respective definitions of those monitoring station.

(c) "NAMS" means National Air Monitoring Station(s). Collectively the NAMS are a subset of the SLAMS ambient air quality monitoring network.

(d) "PSD station" means any station operated for the purpose of establishing the effect on air quality of the emissions from a proposed source for purposes of prevention of significant deterioration as required by § 51.24(n) of Part 51 of this chapter.

(e) "SO_2" means sulfur dioxide.

(f) "NO_2" means nitrogen dioxide.

(g) "CO" means carbon monoxide.

(h) "O_3" means ozone.

(i) "Plan" means an implementation plan, approved or promulgated pursuant to section 110 of the Clean Air Act.

(j) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or his or her authorized representative.

(k) "Regional Administrator" means the Administrator of one of the ten EPA Regional Offices or his or her authorized representative.

(l) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(m) "Local agency" means any local government agency, other than the State agency, which is charged with the responsibility for carrying out a portion of the plan.

(n) "Indian Reservation" means any Federally recognized reservation established by treaty, agreement, executive order, or act of Congress.

(o) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

(p) "Storage and Retrieval of Aerometric Data (SAROAD) system" is a computerized system which stores and reports information relating to ambient air quality.

(q) "SAROAD site identification form" is one of the several forms in the SAROAD system. It is the form which provides a complete description of the site (and its surroundings) of an ambient air quality monitoring station.

(r) "Traceable" means that a local standard has been compared and certified, either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM) or a USEPA/NBS-approved Certified Reference Material (CRM).

(s) "Urban area population" means the population defined in the most

NAMS design criteria contained in Appendix D to this part.

§ 58.33 NAMS methodology.

Each NAMS must meet the monitoring methodology requirements of Appendix C to this part applicable to NAMS at the time the station is put into operation as a NAMS.

§ 58.34 NAMS network completion.

By January 1, 1981, with the exception of Pb, which shall be by July 1, 1982 and PM_{10} samplers, which shall be by 1 year after the effective date of promulgation:

(a) Each NAMS must be in operation, be sited in accordance with the criteria in Appendix E to this part, and be located as described in the station's SAROAD site identification form; and

(b) The quality assurance requirements of Appendix A to this part must be fully implemented for all NAMS.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 52 FR 24740, July 1, 1987]

§ 58.35 NAMS data submittal.

(a) The requirements of this section apply only to those stations designated as NAMS by the network description required by § 58.30.

(b) The State shall report quarterly to the Administrator (through the appropriate Regional Office) all ambient air quality data and information specified by AEROS Users Manual (EPA-450/2-76-029, OAQPS No. 1.2-039) to be coded into the SAROAD Air Quality Data forms. Such air quality data and information must be submitted on either paper forms, punched cards, or magnetic tape in the format of the SAROAD Air Quality Data forms.

(c) The quarterly reporting periods are January 1-March 31, April 1-June 30, July 1-September 30, and October 1-December 31. The quarterly report must:

(1) Be received by the National Aerometric Data Bank within 120 days of the end of each reporting period, after being submitted by the States to the Regional Offices for review;

(2) Contain all data and information gathered during the reporting period.

(d) For TSP, CO, SO_2, O_3, and NO_2, the first quarterly report will be due on or before June 30, 1981, for data collected during the first quarter of 1981. For Pb, the first quarterly report will be due on December 31, 1982, for data collected during the third quarter of 1982. For PM_{10} samplers, the first quarterly report will be due 120 days after the first quarter of operation.

(e) Air quality data submitted in the quarterly report must have been edited and validated so that such data are ready to be entered into the SAROAD data files. Procedures for editing and validating data are described in AEROS Users Manual (EPA-450/2-76-029, OAQPS No. 1.2-039).

(f) This section does not permit a State to exempt those SLAMS which are also designated as NAMS from all or any of the reporting requirements applicable to SLAMS in § 58.26.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 51 FR 9586, Mar. 19, 1986; 52 FR 24740, July 1, 1987]

§ 58.36 System modification.

During the annual SLAMS Network Review specified in § 58.20, any changes to the NAMS network identified by the EPA and/or proposed by the State and agreed to by the EPA will be evaluated. These modifications should address changes invoked by a new census and changes to the network due to changing air quality levels, emission patterns, etc. The State shall be given one year (until the next annual evaluation) to implement the appropriate changes to the NAMS network.

[51 FR 9586, Mar. 19, 1986]

Subpart E—Air Quality Index Reporting

§ 58.40 Index reporting.

(a) The State shall report to the general public on a daily basis through prominent notice an air quality index in accordance with the requirements of Appendix G to this part.

(b) Reporting must commence by January 1, 1981, for all urban areas with a population exceeding 500,000, and by January 1, 1983, for all urban areas with a population exceeding 200,000.

(c) The population of an urban area for purposes of index reporting is the most recent U.S. census population figure as defined in § 58.1 paragraph (a).

[44 FR 27571, May 10, 1979, as amended at 51 FR 9586, Mar. 19, 1986]

Subpart F—Federal Monitoring

§ 58.50 Federal monitoring.

The Administrator may locate and operate an ambient air monitoring station if the State fails to locate, or schedule to be located, during the initial network design process or as a result of the annual review required by § 58.20(d):

(a) A SLAMS at a site which is necessary in the judgment of the Regional Administrator to meet the objectives defined in Appendix D to this part, or

(b) A NAMS at a site which is necessary in the judgment of the Administrator for meeting EPA national data needs.

§ 58.51 Monitoring other pollutants.

The Administrator may promulgate criteria similar to that referenced in Subpart B of this part for monitoring a pollutant for which a National Ambient Air Quality Standard does not exist. Such an action would be taken whenever the Administrator determines that a nationwide monitoring program is necessary to monitor such a pollutant.

Appendix A—Quality Assurance Requirements for State and Local Air Monitoring Stations (SLAMS)

1. General Information.

This Appendix specifies the minimum quality assurance requirements applicable to SLAMS air monitoring data submitted to EPA. States are encouraged to develop and maintain quality assurance programs more extensive than the required minimum.

Quality assurance of air monitoring systems includes two distinct and important interrelated functions. One function is the control of the measurement process through the implementation of policies, procedures, and corrective actions. The other function is the assessment of the quality of the monitoring data (the product of the measurement process). In general, the greater the effort effectiveness of the control of a given monitoring system, the better will be the resulting quality of the monitoring data. The results of data quality assessments indicate whether the control efforts need to be increased.

Documentation of the quality assessments of the monitoring data is important to data users, who can then consider the impact of the data quality in specific applications (see Reference 1). Accordingly, assessments of SLAMS data quality are required to be reported to EPA periodically.

To provide national uniformity in this assessment and reporting of data quality for all SLAMS networks, specific assessment and reporting procedures are prescribed in detail in sections 3, 4, and 5 of this Appendix.

In contrast, the control function encompasses a variety of policies, procedures, specifications, standards, and corrective measures which affect the quality of the resulting data. The selection and extent of the quality control activities—as well as additional quality assessment activities—used by a monitoring agency depend on a number of local factors such as the field and laboratory conditions, the objectives of the monitoring, the level of the data quality needed, the expertise of assigned personnel, the cost of control procedures, pollutant concentration levels, etc. Therefore, the quality assurance requirements, in section 2 of this Appendix, are specified in general terms to allow each State to develop a quality assurance system that is most efficient and effective for its own circumstances.

2. Quality Assurance Requirements

2.1 Each State must develop and implement a quality assurance program consisting of policies, procedures, specifications, standards and documentation necessary to:

(1) Provide data of adequate quality to meet monitoring objectives, and

(2) Minimize loss of air quality data due to malfunctions or out-of-control conditions.

This quality assurance program must be described in detail, suitably documented, and approved by the appropriate Regional Administrator, or his designee. The Quality Assurance Program will be reviewed during the annual system audit described in section 2.4.

2.2 Primary guidance for developing the quality assurance program is contained in References 2 and 3, which also contain many suggested procedures, checks, and control specifications. Section 2.0.9 of Reference 3 describes specific guidance for the de-

velopment of a Quality Assurance Program for SLAMS automated analyzers. Many specific quality control checks and specifications for manual methods are included in the respective reference methods described in Part 50 of this chapter or in the respective equivalent method descriptions available from EPA (see Reference 4). Similarly, quality control procedures related to specifically designated reference and equivalent analyzers are contained in the respective operation and instruction manuals associated with those analyzers. This guidance, and any other pertinent information from appropriate sources, should be used by the States in developing their quality assurance programs.

As a minimum, each quality assurance program must include operational procedures for each of the following activities:

(1) Selection of methods, analyzers, or samplers;

(2) Training;

(3) Installation of equipment;

(4) Selection and control of calibration standards;

(5) Calibration;

(6) Zero/span checks and adjustments of automated analyzers;

(7) Control checks and their frequency;

(8) Control limits for zero, span and other control checks, and respective corrective actions when such limits are surpassed;

(9) Calibration and zero/span checks for multiple range analyzers (see Section 2.6 of Appendix C of this part);

(10) Preventive and remedial maintenance;

(11) Quality control procedures for air pollution episode monitoring;

(12) Recording and validating data;

(13) Data quality assessment (precision and accuracy);

(14) Documentation of quality control information.

2.3 *Pollutant Concentration and Flow Rate Standards.*

2.3.1 Gaseous pollutant concentration standards (permeation devices or cylinders of compressed gas) used to obtain test concentration for CO, SO_2, and NO, must be traceable to either a National Bureau of Standards (NBS) Standard Reference Material (SRM) or an NBS/EPA-approved commercially available Certified Reference Material (CRM). CRM's are described in Reference 5, and a list of CRM sources is available from the Quality Assurance Division (MD-77), Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

General guidance and recommended techniques for certifying gaseous working standards against an SRM or CRM are provided in section 2.0.7 of Reference 3. Direct use of a CRM as a working standard is acceptable, but direct use of an NBS SRM as a working standard is discouraged because of the limited supply and expense of SRMs.

2.3.2 Test concentrations for O_3 must be obtained in accordance with the UV photometric calibration procedure specified in Appendix D of Part 50 of this chapter, or by means of a certified ozone transfer standard. Consult References 6 and 7 for guidance on primary and transfer standards for O_3.

2.3.3 Flow rate measurements must be made by a flow measuring instrument that is traceable to an authoritative volume or other standard. Guidance for certifying some types of flowmeters is provided in Reference 3.

2.4 National Performance and System Audit Programs

Agencies operating SLAMS network stations shall be subject to annual EPA systems audits of their ambient air monitoring program and are required to participate in EPA's National Performance Audit Program. These audits are described in section 1.4.16 of Reference 2 and section 2.0.11 of Reference 3. For instructions, agencies should contact either the appropriate EPA Regional Quality Assurance Coordinator or the Quality Assurance Division (MD-77B), Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

3. *Data Quality Assessment Requirements*

All ambient monitoring methods or analyzers used in SLAMS shall be tested periodically, as described in this section 3, to quantitatively assess the quality of the SLAMS data being routinely produced. Measurement accuracy and precision are estimated for both automated and manual methods. The individual results of these tests for each method or analyzer shall be reported to EPA as specified in section 4. EPA will then calculate quarterly integrated estimates of precision and accuracy applicable to the SLAMS data as described in section 5. Data assessment results should be reported to EPA only for methods and analyzers approved for use in SLAMS monitoring under Appendix C of this Part.

The integrated data quality assessment estimates will be calculated on the basis of "reporting organizations." A reporting organization is defined as a State, subordinate organization within a State, or other organization that is responsible for a set of stations that monitor the same pollutant and for which precision or accuracy assessments can be pooled. States must define one or more reporting organizations for each pollutant such that each monitoring station in the State SLAMS network is included in one, and only one, reporting organization.

Each reporting organization shall be defined such that precision or accuracy among all stations in the organization can be expected to be reasonably homogeneous, as a result of common factors. Common factors that should be considered by States in defining reporting organizations include: (1) operation by a common team of field operators, (2) common calibration facilities, and (3) support by a common laboratory or headquarters. Where there is uncertainty in defining the reporting organizations or in assigning specific sites to reporting organizations, States shall consult with the appropriate EPA Regional Office for guidance. All definitions of reporting organizations shall be subject to final approval by the appropriate EPA Regional Office.

Assessment results shall be reported as specified in section 4. Concentration and flow standards must be as specified in sections 2.3 or 3.4. In addition, working standards and equipment used for accuracy audits must not be the same standards and equipment used for routine calibration. Concentration measurements reported from analyzers or analytical systems (indicated concentrations) should be based on stable readings and must be derived by means of the same calibration curve and data processing system used to obtain the routine air monitoring data (see Reference 1, page 62, and Reference 3, section 2.0.9.1.3(d)). Table A-1 provides a summary of the minimum data quality assessment requirements, which are described in more detail in the following sections.

3.1 Precision of Automated Methods. A one-point precision check must be carried out at least once every two weeks on each automated analyzer used to measure SO_2, NO_2, O_3 and CO. The precision check is made by challenging the analyzer with a precision check gas of known concentration between 0.08 and 0.10 ppm for SO_2, NO_2, and O_3 analyzers, and between 8 and 10 ppm for CO analyzers. To check the precision of SLAMS analyzers operating on ranges higher than 0 to 1.0 ppm SO_2, NO_2, and O_3, or 0 to 100 ppm for CO, use precision check gases of appropriately higher concentration as approved by the appropriate Regional Administrator or his designee. However, the results of precision checks at concentration levels other than those shown above need not be reported to EPA. The standards from which precision check test concentrations are obtained must meet the specifications of section 2.3.

Except for certain CO analyzers described below, analyzers must operate in their normal sampling mode during the precision check, and the test atmosphere must pass through all filters, scrubbers, conditioners and other components used during normal ambient sampling and as much of the ambient air inlet system as is practicable. If permitted by the associated operation or instruction manual, a CO analyzer may be temporarily modified during the precision check to reduce vent or purge flows, or the test atmosphere may enter the analyzer at a point other than the normal sample inlet, *provided that* the analyzer's response is not likely to be altered by these deviations from the normal operational mode. If a precision check is made in conjunction with a zero or span adjustment, it must be made prior to such zero or span adjustments. Randomization of the precision check with respect to time of day, day of week, and routine service and adjustments is encouraged where possible.

Report the actual concentrations of the precision check gas and the corresponding concentrations indicated by the analyzer. The percent differences between these concentrations are used to assess the precision of the monitoring data as described in section 5.1.

3.2 Accuracy of Automated Methods. Each calendar quarter (during which analyzers are operated), audit at least 25 percent of the SLAMS analyzers that monitor for SO_2, NO_2, O_3, or CO such that each analyzer is audited at least once per year. If there are fewer than four analyzers for a pollutant within a reporting organization, randomly reaudit one or more analyzers so that at least one analyzer for that pollutant is audited each calendar quarter. Where possible, EPA strongly encourages more frequent auditing, up to an audit frequency of once per quarter for each SLAMS analyzer.

The audit is made by challenging the analyzer with at least one audit gas of known concentration from each of the following ranges that fall within the measurement range of the analyzer being audited:

Audit level	Concentration range, ppm		CO
	SO_2, O_3	NO_2	
1	0.03-0.08	0.03-0.08	3-8
2	0.15-0.20	0.15-0.20	15-20
3	0.35-0.45	0.35-0.45	35-45
4	0.80-0.90		80-90

NO_2 audit gas for chemiluminescence-type NO_2 analyzers must also contain at least 0.08 ppm NO.

NOTE: NO concentrations substantially higher than 0.08 ppm, as may occur when using some gas phase titration (GPT) techniques, may lead to audit errors in chemiluminescence analyzers due to inevitable minor NO-NO_x channel imbalance. Such errors may be atypical of routine monitoring errors to the extent that such NO concentrations exceed typical ambient NO concentrations at the site. These errors may be minimized by modifying the GPT technique

to lower the NO concentrations remaining in the NO_2 audit gas to levels closer to typical ambient NO concentrations at the site.

To audit SLAMS analyzers operating on ranges higher than 0 to 1.0 ppm for SO_2, NO_2, and O_3 or 0 to 100 ppm for CO, use audit gases of appropriately higher concentration as approved by the appropriate Regional Administrator or his designee. The results of audits at concentration levels other than those shown in the above table need not be reported to EPA.

The standards from which audit gas test concentrations are obtained must meet the specifications of section 2.3. Working or transfer standards and equipment used for auditing must not be the same as the standards and equipment used for calibration and spanning, but may be referenced to the same NBS SRM, CRM, or primary UV photometer. The auditor should not be the operator or analyst who conducts the routine monitoring, calibration, and analysis.

The audit shall be carried out by allowing the analyzer to analyze the audit test atmosphere in its normal sampling mode such that the test atmosphere passes through all filters, scrubbers, conditioners, and other sample inlet components used during normal ambient sampling and as much of the ambient air inlet system as is practicable. The exception given in section 3.1 for certain CO analyzers does not apply for audits.

Report both the audit test concentrations and the corresponding concentration measurements indicated or produced by the analyzer being tested. The percent differences between these concentrations are used to assess the accuracy of the monitoring data as described in section 5.2.

3.3 Precision of Manual Methods. For each network of manual methods, select one or more monitoring sites within the reporting organization for duplicate, collocated sampling as follows: for 1 to 5 sites, select 1 site; for 6 to 20 sites, select 2 sites; and for over 20 sites, select 3 sites. Where possible, additional collocated sampling is encouraged. For particulate matter, a network for measuring PM_{10} shall be separate from a TSP network. Sites having annual mean particulate matter concentrations among the highest 25 percent of the annual mean concentrations for all the sites in the network must be selected or, if such sites are impractical, alternate sites approved by the Regional Administrator may be selected.

In determining the number of collocated sites required, monitoring networks for Pb should be treated independently from networks for particulate matter, even though the separate networks may share one or more common samplers. However, a single pair of samplers collocated at a common-sampler monitoring site that meets the requirements for both a collocated lead site and a collocated particulate matter site may serve as a collocated site for both networks.

The two collocated samplers must be within 4 meters of each other, and particulate matter samplers must be at least 2 meters apart to preclude airflow interference. Calibration, sampling and analysis must be the same for both collocated samplers and the same as for all other samplers in the network.

For each pair of collocated samplers, designate one sampler as the primary sampler whose samples will be used to report air quality for the site, and designate the other as the duplicate sampler. Each duplicate sampler must be operated concurrently with its associated routine sampler at least once per week. The operation schedule should be selected so that the sampling days are distributed evenly over the year and over the seven days of the week. The every-6-day schedule used by many monitoring agencies is recommended. Report the measurements from both samplers at each collocated sampling site, including measurements falling below the limits specified in 5.3.1. The percent differences in measured concentration ($\mu g/m^3$) between the two collocated samplers are used to calculate precision as described in section 5.3.

3.4 Accuracy of Manual Methods. The accuracy of manual sampling methods is assessed by auditing a portion of the measurement process. For particulate matter methods, the flow rate during sample collection is audited. For SO_2 and NO_2 methods, the analytical measurement is audited. For Pb methods, the flow rate and analytical measurement are audited.

3.4.1 Particulate matter methods. Each calendar quarter, audit the flow rate of at least 25 percent of the samplers such that each sampler is audited at least once per year. If there are fewer than four samplers within a reporting organization, randomly reaudit one or more samplers so that one sampler is audited each calendar quarter. Audit each sampler at its normal operating flow rate, using a flow rate transfer standard as described in section 2.3.3. The flow rate standard used for auditing must not be the same flow rate standard used to calibrate the sampler. However, both the calibration standard and the audit standard may be referenced to the same primary flow rate standard. The flow audit should be scheduled so as to avoid interference with a scheduled sampling period. Report the audit flow rates and the corresponding flow rates indicated by the sampler's normally used flow indicator. The percent differences between these flow rates are used to calculate accuracy as described in section 5.4.1.

Great care must be used in auditing high-volume particulate matter samplers having flow regulators because the introduction of resistance plates in the audit flow standard device can cause abnormal flow patterns at the point of flow sensing. For this reason, the flow audit standard should be used with a normal filter in place and without resistance plates in auditing flow-regulated high-volume samplers, or other steps should be taken to assure that flow patterns are not perturbed at the point of flow sensing.

3.4.2 SO_2 Methods. Prepare audit solutions from a working sulfite-tetrachloromercurate (TCM) solution as described in section 10.2 of the SO_2 Reference Method (Appendix A of Part 50 of this chapter). These audit samples must be prepared independently from the standardized sulfite solutions used in the routine calibration procedure. Sulfite-TCM audit samples must be stored between 0° and 5 °C and expire 30 days after preparation.

Prepare audit samples in each of the concentration ranges of 0.2-0.3, 0.5-0.6, and 0.8-0.9 μg SO_2/ml. Analyze an audit sample in each of the three ranges at least once each day that samples are analyzed and at least twice per calendar quarter. Report the audit concentrations (in μg SO_2/ml) and the corresponding indicated concentrations (in μg SO_2/ml). The percent differences between these concentrations are used to calculate accuracy as described in section 5.4.2.

3.4.3 NO_2 Methods. Prepare audit solutions from a working sodium nitrite solution as described in the appropriate equivalent method (see Reference 4). These audit samples must be prepared independently from the standardized nitrite solutions used in the routine calibration procedure. Sodium nitrite audit samples expire in 3 months after preparation. Prepare audit samples in each of the concentration ranges of 0.2-0.3, 0.5-0.6, and 0.8-0.9 μg NO_2/ml. Analyze an audit sample in each of the three ranges at least once each day that samples are analyzed and at least twice per calendar quarter. Report the audit concentrations (in μg NO_2/ml) and the corresponding indicated concentrations (in μg NO_2/ml). The percent differences between these concentrations are used to calculate accuracy as described in section 5.4.2.

3.4.4 Pb Methods. For the Pb Reference Method (Appendix G of Part 50 of this chapter), the flow rates of the high-volume Pb samplers shall be audited as part of the TSP network using the same procedures described in Section 3.4.1. For agencies operating both TSP and Pb networks, 25 percent of the total number of high-volume samplers are to be audited each quarter.

Each calendar quarter, audit the Pb Reference Method analytical procedure using glass fiber filter strips containing a known quantity of Pb. These audit sample strips are prepared by depositing a Pb solution on 1.9 cm by 20.3 cm (¾ inch by 8 inch) unexposed glass fiber filter strips and allowing them to dry thoroughly. The audit samples must be prepared using batches of reagents different from those used to calibrate the Pb analytical equipment being audited. Prepare audit samples in the following concentration ranges:

Range	Pb concentration, μg/strip	Equivalent ambient Pb concentration,[1] $\mu g/m^3$
1	100-300	0.5-1.5
2	600-1000	3.0-5.0

[1] Equivalent ambient Pb concentration in $\mu g/m^3$ is based on sampling at 1.7 m^3/min for 24 hours on a 20.3 cm × 25.4 cm (8 inch × 10 inch) glass fiber filter.

Audit samples must be extracted using the same extraction procedure used for exposed filters.

Analyze three audit samples in each of the two ranges each quarter samples are analyzed. The audit sample analyses shall be distributed as much as possible over the entire calendar quarter. Report the audit concentrations (in μg Pb/strip) and the corresponding measured concentrations (in μg Pb/strip) using unit code 77. The percent differences between the concentrations are used to calculate analytical accuracy as described in section 5.4.2.

The accuracy of an equivalent Pb method is assessed in the same manner as for the reference method. The flow auditing device and Pb analysis audit samples must be compatible with the specific requirements of the equivalent method.

4. *Reporting Requirements*

For each pollutant, prepare a list of all monitoring sites and their SAROAD site identification codes in each reporting organization and submit the list to the appropriate EPA Regional Office, with a copy to the Environmental Monitoring Systems Laboratory (MD-75), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711 (EMSL/RTP). Whenever there is a change in this list of monitoring sites in a reporting organization, report this change to the Regional Office and to EMSL/RTP.

4.1 Quarterly Reports. Within 120 calendar days after the end of each calendar quarter, each reporting organization shall report to EMSL/RTP via the appropriate EPA Regional Office the results of all valid precision and accuracy tests it has carried out during the quarter. Report all collocated measurements including those falling below the levels specified in section 5.3.1. Do not report results from invalid tests, from tests carried out during a time period for which ambient data immediately prior or subsequent to the tests were invalidated for

appropriate reasons, or from tests of methods or analyzers not approved for use in SLAMS monitoring networks under Appendix C of this part.

Quarterly reports as specified herein shall commence not later than the report pertaining to the first calendar quarter of 1987, although such reports will be accepted beginning with the report pertaining to the third calendar quarter of 1986.

The information should be reported in a format similar to that shown in Figures A-1 and A-2. The data may be reported (1) via magnetic computer tape according to data format specifications provided by the Regional Offices, (2) by direct, interactive computer entry via a data terminal and the PARS data entry system, or (3) on the forms illustrated in Figures A-1 and A-2. Minor variations of these forms (to facilitate local use) or computer generated (facsimile) forms may also be used, provided they follow the same general format, use the same block numbers, and are clear and completely legible. Instructions for using these forms are provided in section 4.3.

Within 240 days after the end of the reporting quarter, EPA will calculate integrated precision and accuracy assessments for each reporting organization as specified in section 5 and return, through the Regional Offices, reports of the respective assessments to each reporting organization.

4.2 Annual Reports. When precision and accuracy estimates for a reporting organization have been calculated for all four quarters of the calendar year, EPA will calculate the properly weighted probability limits for precision and accuracy for the entire calendar year. These limits will then be associated with the data submitted in the annual SLAMS report required by § 58.26.

Each reporting organization shall submit, along with its annual SLAMS report, a listing by pollutant of all monitoring sites in the reporting organization.

4.3 Instructions for Using Data Quality Assessment Reporting Forms. Suggested forms for reporting data quality assessment information are provided in Figure A-1 (for reporting accuracy data) and Figure A-2 (for reporting precision data). The forms may be used in a "universal" way to report data for different pollutants and for different sites on the same form. Or, either form may be used as a site-specific or pollutant-specific form (where all entries on the form are for a common site, a common pollutant, or both) by filling in the site or pollutant information in the appropriate box in the upper left corner of the form. Detailed instructions for individual blocks are as follows:

Instructions common to both forms:

Block No	Description
1-2	State. The two digit SAROAD State code
3-5	Reporting Organization. A unique 3 digit code assigned by each State to each of its respective reporting organizations
6-7	Year. Last two digits of the calendar year corresponding to the quarter specified in block 8
8	Quarter. Enter 1, 2, 3, or 4 to refer to the calendar quarter during which the data quality assessments were obtained
9	Enter "1" for original assessment data, "2" to revise assessment data previously submitted, or "3" to delete previously submitted assessment data. When a "3" is entered, only blocks 1 to 28 need be completed

Also enter the name of the reporting organization, the date the form is submitted, and (optionally) the name of the person who prepared the form on the blanks provided.

Block No	Description
10-18	Site. Enter the SAROAD site identification code (first 9 digits only). If all entries on the form are for the same site, enter the site code and site identification in the upper left corner of the form. Also check the block in the corner of the box and leave the other blocks 10 to 18 on the form blank
21-23	Method Code. Enter the measurement method code from the back of the form. Also enter the pollutant symbol (e.g., SO_2, CO, TSP, etc.) on the blank to the left of block No. 21. If all entries on the form are for the same method, enter the code, symbol, and method identification in the lower box in the upper left corner of the form. Also check the block in the corner of the box and leave the other blocks 21 to 23 on the form blank
24	Precoded with an "A" or a "P".
25-28	Date. Enter the month and day of the test

Additional Instructions for Accuracy form (Figure A-1):

Block No	Description
29	T. Enter "1" if the reporting organization conducted the audit and also certified the audit standard used; enter "2" if the reporting organization conducted the audit but did not certify the audit standard used; enter "3" if the audit was not conducted by the reporting organization
30	S. Enter the code letter of the source of the local primary standard used, from the list on the form
31-32	Unit code. Enter the unit code number from the unit code list on the form (use only the codes listed). Also write in the unit on the blank to the left of block 31
33	Precoded with a "0" or a "1".

Block No	Description
34-40	Level 1 Actual. Enter the actual concentration determined from the audit standard in the appropriate blocks with respect to the precoded decimal point
41-47	Level 1 Indicated. Enter the concentration indicated by the analyzer, sampler, or method being audited in the appropriate blocks with respect to the precoded decimal point
48-61	Level 2. Enter the actual and indicated concentrations for audit level 2, if applicable.
34-61	Levels 3 and 4 (if applicable). On the second line, enter the actual and indicated concentrations for audit level 3 and, if used, audit level 4

Additional Instructions for Precision form (Figure A-2):

Block No	Description
31-32	Unit Code. Enter the unit code number from the unit code list on the form (use only the codes listed). Also write in the unit on the blank to the left of block 31.
34-40	Actual or Primary. Enter the value of the known test [illegible]ation or the concentration measurement associated with the sampler designated as the primary sampler in the appropriate blocks with respect to the precoded decimal point
41-47	Indicated or Duplicate. Enter the value of the concentration measurement from the analyzer or the duplicate collected sampler in the appropriate blocks with respect to the precoded decimal point

5. *Calculations for Data Quality Assessment*

Calculation of estimates of integrated precision and accuracy are carried out by EPA according to the following procedures. Reporting organizations should report the results of individual precision and accuracy tests as specified in sections 3 and 4 even though they may elect to carry out some or all of the calculations in this section on their own.

5.1 Precision of Automated Methods. Estimates of the precision of automated methods are calculated from the results of biweekly precision checks as specified in section 3.1. At the end of each calendar quarter, an integrated precision probability interval for all SLAMS analyzers in the organization is calculated for each pollutant.

5.1.1 Single Analyzer Precision. The percentage difference (d_i) for each precision check is calculated using equation 1, where Y_i is the concentration indicated by the analyzer for the i-th precision check and X_i is the known concentration for the i-th precision check.

$$d_i = \frac{Y_i - X_i}{X_i} \times 100 \qquad (1)$$

For each analyzer, the quarterly average (d_j) is calculated with equation 2, and the standard deviation (S_j) with equation 3, where n is the number of precision checks on the instrument made during the calendar quarter. For example, n should be 6 or 7 if precision checks are made biweekly during a quarter.

$$d_j = \frac{1}{n} \sum_{i=1}^{n} d_i \qquad (2)$$

$$S_j = \sqrt{\frac{1}{n-1}\left[\sum_{i=1}^{n} d_i^2 - \frac{1}{n}\left(\sum_{i=1}^{n} d_i\right)^2\right]} \qquad (3)$$

5.1.2 Precision for Reporting Organization. For each pollutant, the average of averages (D) and the pooled standard deviation (S_a) are calculated for all analyzers audited for the pollutant during the quarter, using either equations 4 and 5 or 4a and 5a, where k is the number of analyzers audited within the reporting organization for a single pollutant.

$$D = \frac{1}{k}\sum_{j=1}^{k} d_j \qquad (4)$$

$$D = \frac{n_1 d_1 + n_2 d_2 + \ldots + n_j d_j + \ldots + n_k d_k}{n_1 + n_2 + \ldots + n_j + \ldots + n_k} \qquad (4a)$$

$$S_a = \sqrt{\frac{1}{k}\sum_{j=1}^{k} S_j^2} \qquad (5)$$

$$S_a = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2 + \ldots + (n_j - 1)S_j^2 + \ldots + (n_k - 1)S_k^2}{n_1 + n_2 + \ldots + n_j + \ldots + n_k - k}} \qquad (5a)$$

Equations 4 and 5 are used when the same number of precision checks are made for each analyzer. Equations 4a and 5a are used to obtain a weighted average and a weighted standard deviation when different numbers of precision checks are made for the analyzers.

For each pollutant, the 95 Percent Probability Limits for the precision of a reporting organization are calculated using equations 6 and 7.

Upper 95 Percent Probability Limit $= D + 1.96\, S_a$ .... (6)

Lower 95 Percent Probability Limit $= D - 1.96\, S_a$ .... (7)

5.2 *Accuracy of Automated Methods.* Estimates of the accuracy of automated methods are calculated from the results of independent audits as described in section 3.2 At the end of each calendar quarter, an integrated accuracy probability interval for all SLAMS analyzers audited in the reporting organization is calculated for each pollutant. Separate probability limits are calculated for each audit concentration level in section 3.2.

5.2.1 *Single Analyzer Accuracy.* The percentage difference (d_i) for each audit concentration is calculated using equation 1, where Y_i is the analyzer's indicated concentration measurement from the i-th audit check and X_i is the actual concentration of the audit gas used for the i-th audit check.

5.2.2 *Accuracy for Reporting Organization.* For each audit concentration level, the average (D) of the individual percentage differences (d_i) for all n analyzers measuring a given pollutant audited during the quarter is calculated using equation 8.

$$D = \frac{1}{n}\sum_{i=1}^{n} d_i \qquad (8)$$

For each concentration level, the standard deviation (S_a) of all the individual percentage differences for all analyzers audited during the quarter is calculated, for each pollutant, using equation 9.

$$S_a = \sqrt{\frac{1}{n-1}\left[\sum_{i=1}^{n} d_i^2 - \frac{1}{n}\left(\sum_{i=1}^{n} d_i\right)^2\right]} \qquad (9)$$

For reporting organizations having four or fewer analyzers for a particular pollutant, only one audit is required each quarter, and the average and standard deviation cannot be calculated. For such reporting organizations, the audit results of two consecutive quarters are required to calculate an average and a standard deviation, using equations 8 and 9. Therefore, the reporting of probability limits shall be on a semiannual (instead of a quarterly) basis.

For each pollutant, the 95 Percent Probability Limits for the accuracy of a reporting organization are calculated at each audit concentration level using equations 6 and 7.

5.3 *Precision of Manual Methods.* Estimates of precision of manual methods are calculated from the results obtained from collocated samplers as described in section 3.3. At the end of each calendar quarter, an integrated precision probability interval for all collocated samplers operating in the reporting organization is calculated for each manual method network.

5.3.1 *Single Sampler Precision.* At low concentrations, agreement between the measurements of collocated samplers, expressed as percent differences, may be relatively poor. For this reason, collocated measurement pairs are selected for use in the precision calculations only when both measurements are above the following limits:

TSP: 20 μg/m³,
SO_2: 45 μg/m³,
NO_2: 30 μg/m³,
Pb: 0.15 μg/m³, and
PM_{10}: 20 μg/m³.

For each selected measurement pair, the percent difference (d_i) is calculated, using equation 10.

$$d_i = \frac{Y_i - X_i}{(Y_i + X_i)/2} \times 100 \qquad (10)$$

Where y_i is the pollutant concentration measurement obtained from the duplicate sampler and X_i is the concentration measurement obtained from the primary sampler designated for reporting air quality for the site. For each site, the quarterly average percent difference (d_j) is calculated from equation 2 and the standard deviation (S_j) is calculated from equation 3, where n=the number of selected measurement pairs at the site.

5.3.2 *Precision for Reporting Organization.* For each pollutant, the average percentage difference (D) and the pooled standard deviation (S_a) are calculated, using equations 4 and 5, or using equations 4a and 5a if different numbers of paired measurements are obtained at the collocated sites. For these calculations, the k of equations 4, 4a, 5 and 5a is the number of collocated sites.

The 95 Percent Probability Limits for the integrated precision for a reporting organization are calculated using equations 11 and 12.

Upper 95 Percent Probability Limit $= D + 1.96\, S_a/\sqrt{2}$ .... (11)

Lower 95 Percent Probability Limit $= D - 1.96\, S_a/\sqrt{2}$ .... (12)

5.4 *Accuracy of Manual Methods.* Estimates of the accuracy of manual methods are calculated from the results of independent audits as described in Section 3.4. At the end of each calendar quarter, an integrated accuracy probability interval is calculated for each manual method network operated by the reporting organization.

5.4.1 *Particulate Matter Samplers (including reference method Pb samplers).*

(a) *Single Sampler Accuracy.* For the flow rate audit described in Section 3.4.1, the percentage difference (d_i) for each audit is calculated using equation 1, where X_i represents the known flow rate and Y_i represents the flow rate indicated by the sampler.

(b) *Accuracy for Reporting Organization.* For each type of particulate matter measured (e.g., TSP/Pb), the average (D) of the individual percent differences for all similar particulate matter samplers audited during the calendar quarter is calculated using equation 8. The standard deviation (S_a) of the percentage differences for all of the similar particulate matter samplers audited during the calendar quarter is calulated using equation 9. The 95 percent probability limits for the integrated accuracy for the reporting organization are calculated using equations 6 and 7. For reporting organizations having four or fewer particulate matter samplers of one type, only one audit is required each quarter, and the audit results of two consecutive quarters are required to calculate an average and a standard deviation. In that case, probability limits shall be reported semi-annually rather than quarterly.

5.4.2 *Analytical Methods for SO_2, NO_2, and Pb.*

(a) *Single Analysis-Day Accuracy.* For each of the audits of the analytical methods for SO_2, NO_2, and Pb described in section 3.4.2, 3.4.3, and 3.4.4, the percentage difference (d_i) at each concentration level is calculated using equation 1, where X_i represents the known value of the audit sample and Y_i represents the value of SO, NO_2, and Pb indicated by the analytical method.

(b) *Accuracy for Reporting Organization.* For each analytical method, the average (D) of the individual percent differences at each concentration level for all audits during the calendar quarter is calculated using equation 8. The standard deviation (S_a) of the percentage differences at each concentration level for all audits during the calendar quarter is calculated using equation 9. The 95 percent probability limits for the accuracy for the reporting organization are calculated using equations 6 and 7.

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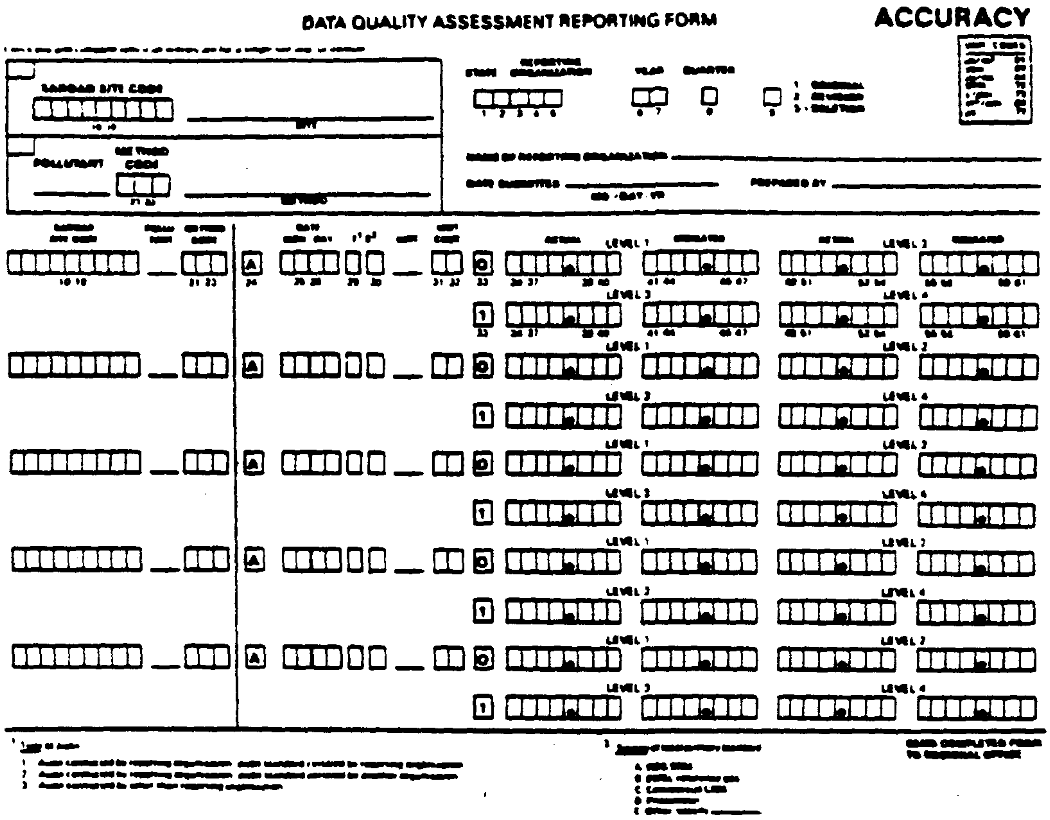
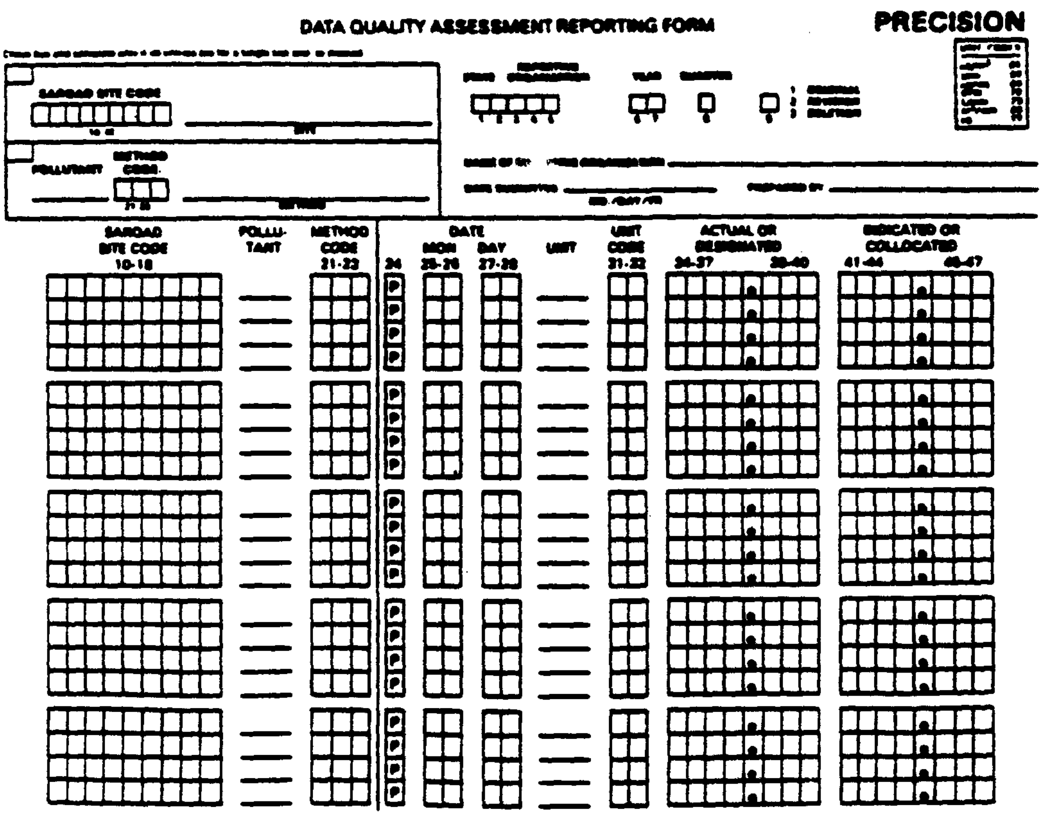
TABLE A-1—MINIMUM DATA ASSESSMENT REQUIREMENTS

Method	Assessment method	Coverage	Minimum frequency	Parameters reported
Precision:				
Automated methods for SO_2, NO_2, O_3, and CO.	Response check at concentration between .08 and .10 ppm (8 & 10 ppm for CO).	Each analyzer	Once per 2 weeks	Actual concentration and measured concentration.
Manual methods including lead.	Collocated samplers	1 site for 1-5 sites; 2 sites 6-20 sites; 3 sites >20 sites; (sites with highest conc.)	Once per week	Two concentration measurements.
Accuracy:				
Automated methods for SO_2, NO_2, O_3, and CO.	Response check at .03-.08 ppm;[1] .15-.20 ppm;[1] .35-.45 ppm;[1] .80-.90 ppm[1] (if applicable).	1. Each analyzer; 2. 25% of analyzers (at least 1).	1. Once per year; 2. Each calendar quarter.	Actual concentration and measured (indicated) concentration for each level.
Manual methods for SO_2, and NO_2.	Check of analytical procedure with audit standard solutions.	Analytical system	Each day samples are analyzed, at least twice per quarter.	Actual concentration and measured (indicated) concentration for each audit solution.
TSP, PM_{10}	Check of sampler flow rate.	1. Each sampler; 2. 25% of samplers (at least 1).	1. Once per year; 2. Each calendar quarter.	Actual flow rate and flow rate indicated by the sampler.
Lead	1. Check sample flow rate as for TSP; 2. Check analytical system with Pb audit strips.	1. Each sampler; 2. Analytical system.	1. Include with TSP; 2. Each quarter.	1. Same as for TSP; 2. Actual concentration and measured (indicated) concentration of audit samples (µg Pb/strip).

[1] Conc. times 100 for CO


DATA QUALITY ASSESSMENT REPORTING FORM
ACCURACY
LEVEL 1
LEVEL 2
LEVEL 3
LEVEL 4


DATA QUALITY ASSESSMENT REPORTING FORM
PRECISION
SAROAD SITE CODE
POLLUTANT
METHOD CODE
SAROAD SITE CODE 10-18
POLLU-TANT
METHOD CODE 21-22
DATE
24
MON 25-26
DAY 27-28
UNIT
UNIT CODE 31-32
ACTUAL OR DESIGNATED 34-37 38-40
INDICATED OR COLLOCATED 41-44 45-47

METHOD	DESIGNATION NUMBER	METHOD CODE
SO_2 Manual Methods		
Ref. method (pararosaniline)	--	[illegible]
Technicon I (pararosaniline)	EQS-0775-001	001
Technicon II (Pararosaniline)	EQS-0775-002	002
SO_2 Analyzers		
Asarco 500	EQSA-0877-024	024
Beckman 953	EQSA-0678-029	029
Bendix 8303	EQSA-1078-030	030
Lear Siegler AM2020	EQSA-1280-049	049
Lear Siegler SM1000	EQSA-1275-005	005
Meloy SA185-2A	EQSA-1275-006	006
Meloy SA285E	EQSA-1078-032	032
Meloy SA700	EQSA-0580-046	046
Monitor Labs 8450	EQSA-0876-013	013
Monitor Labs 8850	EQSA-0779-039	039
Philips PW9700	EQSA-0876-011	011
Philips PW9755	EQSA-0676-010	010
Thermo Electron 43	EQSA-0276-009	009
O_3 Analyzers		
Beckman 950A	RFOA-0577-020	020
Bendix 8002	RFOA-0176-007	007
CSI 2000	RFOA-0279-036	036
Dasibi 1003-AH,-PC,-RS	EQOA-0577-019	019
Dasibi 1008-AH	EQOA-0383-056	056
McMillan 1100-1	RFOA-1076-014	014
McMillan 1100-2	RFOA-1076-015	015
McMillan 1100-3	RFOA-1076-016	016
Meloy OA325-2R	RFOA-1075-003	003
Meloy OA350-2R	RFOA-1075-004	004
Monitor Labs 8410E	RFOA-1176-017	017
Monitor Labs 8810	EQOA-0881-053	053
PCI Ozone Corp. LC-12	EQOA-0382-055	055
Philips PW9771	EQOA-0777-023	023
Thermo Electron 49	EQOA-0880-047	047
TSP Manual Method		
Reference method (high-volume)		[illegible]
NO_2 Manual Methods		
Sodium arsenite	EQN-1277-026	026
Sodium arsenite/Technicon II	EQN-1277-027	027
TGS-ANSA	EQN-1277-028	028
NO_2 Analyzers		
Beckman 952A	RFNA-0179-034	034
Bendix 8101-B	RFNA-0479-038	038
Bendix 8101-C	RFNA-0777-022	022
CSI 1600	RFNA-0977-025	025
Meloy NA530R	RFNA-1078-031	031
Monitor Labs 8440E	RFNA-0677-021	021
Monitor Labs 8840	RFNA-0280-042	042
Philips PW9762/02	RFNA-0879-040	040
Thermo Electron 14B/E	RFNA-0179-035	035
Thermo Electron 14D/E	RFNA-0279-037	037
Pb Manual Methods		
Ref. method (hi-vol/AA spect.)	--	[illegible]
Hi-vol/AA spect. (alt. extr.)	EQL-0380-043	043
Hi-vol/Flameless AA (EMSL/EPA)	EQL-0380-044	044
Hi-vol/ICAP spect. (EMSL/EPA)	EQL-0380-045	045
Hi-vol/Wavelength disp. XRF	EQL-0581-052	052
Hi-vol/ICAP spect. ([illegible])	EQL-0483-057	057
Hi-vol/Energy-disp. XRF	EQL-0783-058	058
Hi-vol/Flameless AA ([illegible])	EQL-0785-059	059
CO Analyzers		
Beckman 866	RFCA-0876-012	012
Bendix 8501-5CA	RFCA-0276-008	008
Dasibi 3003	RFCA-0381-051	051
Horiba AQM-10, -11, -12	RFCA-1278-033	033
Horiba 300E/300SE	RFCA-1180-048	048
MASS-CO 1 (Massachusetts)	RFCA-1280-050	050
Monitor Labs 8310	RFCA-0979-041	041
MSA 202S	RFCA-0177-018	018
Thermo Electron 48	RFCA-0981-054	054

INFORMATION TO BE CONTAINED ON THE BACK OF THE DATA REPORTING FORMS

[51 FR 9587, Mar. 19, 1986, as amended at 52 FR 24741, July 1, 1987]

Appendix B—Quality Assurance Requirements for Prevention of Significant Deterioration (PSD) Air Monitoring

1. *General Information*

This Appendix specifies the minimum quality assurance requirements for the control and assessment of the quality of the PSD ambient air monitoring data submitted to EPA by an organization operating a network of PSD stations. Such organizations are encouraged to develop and maintain quality assurance programs more extensive than the required minimum.

Quality assurance of air monitoring systems includes two distinct and important interrelated functions. One function is the control of the measurement process through the implementation of policies, procedures, and corrective actions. The other function is the assessment of the quality of the monitoring data (the product of the measurement process). In general, the greater the effort and effectiveness of the control of a given monitoring system, the better will be the resulting quality of the monitoring data. The results of data quality assessments indicate whether the control efforts need to be increased.

Documentation of the quality assessments of the monitoring data is important to data users, who can then consider the impact of the data quality in specific applications (see Reference 1). Accordingly, assessments of PSD monitoring data quality are required to be made and reported periodically by the monitoring organization.

To provide national uniformity in the assessment and reporting of data quality among all PSD networks, specific assessment and reporting procedures are prescribed in detail in Sections 3, 4, 5, and 6 of this Appendix.

In contrast, the control function encompasses a variety of policies, procedures, specifications, standards, and corrective measures which affect the quality of the resulting data. The selection and extent of the quality control activities—as well as additional quality assessment activities—used by a monitoring organization depend on a number of local factors such as the field and laboratory conditions, the objectives of the monitoring, the level of the data quality needed, the expertise of assigned personnel, the cost of control procedures, pollutant concentration levels, etc. Therefore, the quality assurance requirements, in Section 2 of this Appendix, are specified in general terms to allow each organization to develop a quality control system that is most efficient and effective for its own circumstances.

For purposes of this Appendix, "organization" is defined as a source owner/operator, a government agency, or their contractor that operates an ambient air pollution monitoring network for PSD purposes.

2. *Quality Assurance Requirements*

2.1 Each organization must develop and implement a quality assurance program consisting of policies, procedures, specifications, standards and documentation necessary to:

(1) Provide data of adequate quality to meet monitoring objectives and quality assurance requirements of the permit-granting authority, and

(2) Minimize loss of air quality data due to malfunctions or out-of-control conditions.

This quality assurance program must be described in detail, suitably documented, and approved by the permit-granting authority. The Quality Assurance Program will be reviewed during the system audits described in Section 2.4.

2.2 Primary guidance for developing the Quality Assurance Program is contained in References 2 and 3, which also contain many suggested procedures, checks, and control specifications. Section 2.0.9 of Reference 3 describes specific guidance for the development of a Quality Assurance Program for automated analyzers. Many specific quality control checks and specifications for manual methods are included in the respective reference methods described in Part 50 of this chapter or in the respective equivalent method descriptions available from EPA (see Reference 4). Similarly, quality control procedures related to specifically designated reference and equivalent analyzers are contained in their respective operation and instruction manuals. This guidance, and any other pertinent information from appropriate sources, should be used by the organization in developing its quality assurance program.

As a minimum, each quality assurance program must include operational procedures for each of the following activities:

(1) Selection of methods, analyzers, or samplers;

(2) Training;

(3) Installation of equipment;

(4) Selection and control of calibration standards;

(5) Calibration;

(6) Zero/span checks and adjustments of automated analyzers;

29-131 0 - 88 - 6

recent decennial U.S. Census of Population Report.

(t) "TSP" (total suspended particulates) means particulate matter as measured by the method described in Appendix B of Part 50 of this chapter.

(u) "PM_{10}" means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by a reference method based on Appendix J of Part 50 of this chapter and designated in accordance with Part 53 of this chapter or by an equivalent method designated in accordance with Part 53 of this chapter.

(v) "Pb" means lead.

[44 FR 27571, May 10, 1979, as amended at 48 FR 2529, Jan. 20, 1983; 51 FR 9586, Mar. 19, 1986; 52 FR 24739, July 1, 1987]

§ 58.2 Purpose.

(a) This part contains criteria and requirements for ambient air quality monitoring and requirements for reporting ambient air quality data and information. The monitoring criteria pertain to the following areas:

(1) Quality assurance procedures for monitor operation and data handling.

(2) Methodology used in monitoring stations.

(3) Operating schedule.

(4) Siting parameters for instruments or instrument probes.

(b) The requirements pertaining to provisions for an air quality surveillance system in the State Implementation Plan are contained in this part.

(c) This part also acts to establish a national ambient air quality monitoring network for the purpose of providing timely air quality data upon which to base national assessments and policy decisions. This network will be operated by the States and will consist of certain selected stations from the States' SLAMS networks. These selected stations will remain as SLAMS and will continue to meet any applicable requirements on SLAMS. The stations, however, will also be designated as National Air Monitoring Stations (NAMS) and will be subject to additional data reporting and monitoring methodology requirements as contained in Subpart D of this part.

(d) Requirements for the daily reporting of an index of ambient air quality, to insure that the population of major urban areas are informed daily of local air quality conditions, are also included in this part.

§ 58.3 Applicability.

This part applies to:

(a) State air pollution control agencies.

(b) Any local air pollution control agency or Indian governing body to which the State has delegated authority to operate a portion of the State's SLAMS network.

(c) Owners or operators of proposed sources.

Subpart B—Monitoring Criteria

§ 58.10 Quality assurance.

(a) Appendix A to this part contains quality assurance criteria to be followed when operating the SLAMS network.

(b) Appendix B to this part contains the quality assurance criteria to be followed by the owner or operator of a proposed source when operating a PSD station.

§ 58.11 Monitoring methods.

Appendix C to this part contains the criteria to be followed in determining acceptable monitoring methods or instruments for use in SLAMS.

§ 58.12 Siting of instruments or instrument probes.

Appendix E to this part contains criteria for siting instruments or instrument probes for SLAMS.

§ 58.13 Operating schedule.

Ambient air quality data collected at any SLAMS must be collected as follows:

(a) For continuous analyzers—consecutive hourly averages except during:

(1) Periods of routine maintenance,

(2) Periods of instrument calibration, or

(3) Periods or seasons exempted by the Regional Administrator.

(b) For manual methods (excluding PM_{10} samplers)—at least one 24-hour sample every six days except during

periods or seasons exempted by the Regional Administrator.

(c) For PM_{10} samplers—a 24-hour sample must be taken from midnight to midnight (local time) to ensure national consistency. The sampling shall be conducted on the following schedules which are based on either the first year of PM_{10} monitoring or a long-term selective PM_{10} monitoring plan:

(1) *First year PM_{10} monitoring.* The sampling frequency for the first year (12 consecutive months) of ambient PM_{10} monitoring shall be based on the monitoring area's SIP area grouping (I, II, III) which is described in the PM_{10} SIP Development Guideline and the Preamble to Part 51 of this chapter. In general, the SIP groupings are defined in terms of the estimated probability of not attaining the PM_{10} NAAQS. Procedures to develop these probabilities are found in Pace, T., et al. "Procedures for Estimating Probability of Nonattainment of a PM_{10} NAAQS Using Total Suspended Particulate or Inhalable Particulate Data." OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, N. C. December 1986. The most recent 3 calendar years of air quality data must be used in this determination. The SIP area groupings are divided into three categories: Group I—areas whose probability is greater than or equal to 95 percent; Group II—areas whose probability is greater than or equal to 20 percent to less than 95 percent probability, and Group III—areas whose probability is less than 20 percent. The use of the term "monitoring area" as it applies to the required sampling frequencies of the "monitoring area" is as follows: First, any urbanized area as defined by the U.S. Bureau of Census; second, any incorporated place such as a city or town as defined by the U.S.Bureau of Census or group of cities or towns; and third, any "monitoring area" designated by the responsible air pollution control agency. In designating these latter "monitoring areas", the control agency should consider technical factors such as the types of emissions, their spatial distribution, meteorology, and topography and how these factors contribute to the uniqueness of the "monitoring area" thereby distinguishing it from other designated "monitoring areas". The starting date for this first year of PM_{10} monitoring may begin prior to the effective date of promulgation of this regulation.

(i) For Group I areas, everyday PM_{10} sampling is required for at least one PM_{10} site which must be located in the area of expected maximum concentration. The remainder require every sixth day sampling.

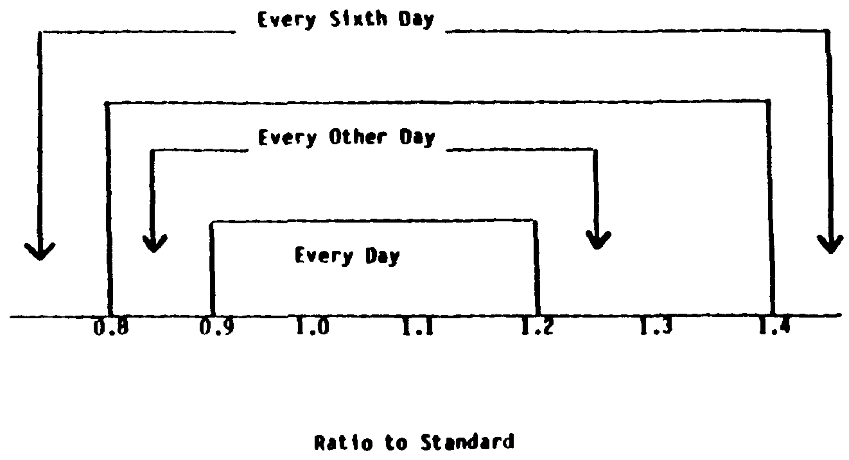
(ii) For Group II areas, every other day sampling is required for at least one PM_{10} site which must be located in the area of expected maximum concentration. The remainder require every sixth day sampling.

(iii) For Group III areas, a minimum of one in six day sampling is required.

If a monitoring site in a Group III or Group II area later records levels exceeding the short term (24-hour) PM_{10} NAAQS, as described in Part 50 Appendix K, and the monitoring frequency was less than everyday, then everyday sampling must be initiated in the area of expected maximum concentration no later than 90 days following the end of the calendar quarter in which the exceedance occurred and continue for the subsequent four calender quarters.

(2) *Long term monitoring selective sampling.* To be eligible for the long term selective sampling plan, the first year of PM_{10} sampling, or its equivalent, must be conducted. A complete year comprises all four calendar quarters with each quarter containing data from 75 percent of the scheduled sampling days. The equivalent to one year of PM_{10} sampling to be completed within one year of the effective date of promulgation is defined as follows: First, for everyday sampling: 2 years of every other day sampling or 2 years of every sixth day sampling and 1 year of every other day sampling or 3 years of every sixth day sampling; second, for every other day sampling: 3 years of every sixth day sampling. After one year of PM_{10} monitoring or it's equivalent has been obtained, the minimum monitoring schedule for the site in the area of expected maximum concentration shall be based on the relative

level of that monitoring site concentration with respect to the level of the controlling standard. For those areas in which the short-term (24-hour) standard is controlling i.e., has the highest ratio, the selective sampling requirements are illustrated in Figure 1. If the operating agency were able to demonstrate, by a combination of historical TSP data and at least one year of PM_{10} data that there were certain periods of the year where conditions preclude violation of the PM_{10} 24-hour standard, the increased sampling frequency for those periods or seasons may be exempted by the Regional Administrator and revert back to once in six days. The minimum sampling schedule for all other sites in the area would be once every six days. For those areas in which the annual standard is the controlling standard, the minimum sampling schedule for all monitors in the area would be once every six days. During the annual review of the SLAMS network, the most recent year of data must be considered to estimate the air quality status for the controlling air quality standard (24-hour or annual). Statistical models such as analysis of concentration frequency distributions as described in "Guideline for the Interpretation of Ozone Air Quality Standards," EPA-450/479-003, U.S. Environmental Protection Agency, Research Triangle Park, N.C., January 1979, should be used. Adjustments to the monitoring schedule must be made on the basis of the annual review. The site having the highest concentration in the most current year must be given first consideration when selecting the site for the more frequent sampling schedule. Other factors such as major change in sources of PM_{10} emissions or in sampling site characteristics could influence the location of the expected maximum concentration site. Also, the use of the most recent three years of data might in some cases, be justified in order to provide a more representative data base from which to estimate current air quality status and to provide stability to the network. This multiyear consideration would reduce the possibility of an anamalous year biasing a site selected for accelerated sampling. If the maximum concentration site based on the most current year is not selected for the more frequent operating schedule, documentation of the justification for selection of an alternate site must be submitted to the Regional Office for approval during the annual review process. It should be noted that minimum data completeness critieria, number of years of data and sampling frequency for judging attainment of the NAAQS are discussed in Appendix K of Part 50.



[44 FR 27571, May 10, 1979, as amended at 52 FR 24739, July 1, 1987]

§ 58.14 Special purpose monitors.

(a) Any ambient air quality monitoring station other than a SLAMS or PSD station from which the State intends to use the data as part of a demonstration of attainment or nonattainment or in computing a design value for control purposes of the National Ambient Air Quality Standards (NAAQS) must meet the requirements for SLAMS described in § 58.22 and, after January 1, 1983, must also meet the requirements for SLAMS as described in § 58.13 and Appendices A and E to this part.

(b) Any ambient air quality monitoring station other than a SLAMS or PSD station from which the State intends to use the data for SIP-related functions other than as described in paragraph (a) of this section is not necessarily required to comply with the requirements for a SLAMS station under paragraph (a) but must be operated in accordance with a monitoring schedule, methodology, quality assurance procedures, and probe or instrument-siting specifications approved by the Regional Administrator.

[46 FR 44164, Sept. 3, 1981]

Subpart C—State and Local Air Monitoring Stations (SLAMS)

§ 58.20 Air quality surveillance: Plan content.

By January 1, 1980, the State shall adopt and submit to the Administrator a revision to the plan which will:

(a) Provide for the establishment of an air quality surveillance system that consists of a network of monitoring stations designated as State and Local Air Monitoring Stations (SLAMS) which measure ambient concentrations of those pollutants for which standards have been established in Part 50 of this chapter.

(b) Provide for meeting the requirements of Appendices A, C, D, and E to this part.

(c) Provide for the operation of at least one SLAMS per pollutant except Pb during any stage of an air pollution episode as defined in the contingency plan.

(d) Provide for the review of the air quality surveillance system on an annual basis to determine if the system meets the monitoring objectives defined in Appendix D to this part. Such review must identify needed modifications to the network such as termination or relocation of unnecessary stations or establishment of new stations which are necessary.

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/4-87-007
May 1987

Air

EPA

Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)

REFERENCES FOR SECTION 3.4

SCHEDULE D.6—PERMANENT WAIVER FROM INTERIM CONTROLS TEST—Continued

[Smelter identification]

	Line	1984	1985	1986	1987	1988	1989	1990	Total
6 Current salvage value	17	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
7 Net present value	18	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	

SCHEDULE D.7—HORIZON VALUE OF CASH FLOWS

[Smelter identification]

	Line	Final forecast years		Horizon years					Total
		1989	1990	1991	1992	1993	1994	1995	
A. Depreciation-free horizon value									
1 Net cash flow projections	01			XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2. Depreciation tax savings:									
a. Depreciation and amortization	02			XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. Marginal tax rate	03			XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Tax savings	04			XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
3 Depreciation-free net cash flows:									
a. Nominal dollar values	05			XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. 1990 dollar values	06			XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Average	07	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
4 Horizon factor	08	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
5 Depreciation-free horizon value	09	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
B. Depreciation tax savings over the horizon period:									
1 Depreciation and amortization	10	XXXX	XXXX						XXXX
2 Marginal tax rate	11	XXXX	XXXX						XXXX
3 Tax savings	12	XXXX	XXXX						XXXX
4 Discount factors	13	XXXX	XXXX						XXXX
5 Present value of tax savings	14	XXXX	XXXX						XXXX
6 Total present value of tax savings	15	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
C. Horizon Value	16	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

Subpart A—General Provisions

AUTHORITY: Secs. 110, 301(a), 313, and 319 of the Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

SOURCE: 44 FR 27571, May 10, 1979, unless otherwise noted.

Subpart A—General Provisions

§ 58.1 Definitions.

As used in this part, all terms not defined herein have the meaning given them in the Act:

(a) "Act" means the Clean Air Act as amended (42 U.S.C. 7401, et seq.).

(b) "SLAMS" means State or Local Air Monitoring Station(s). The SLAMS make up the ambient air quality monitoring network which is required by § 58.20 to be provided for in the State's implementation plan. This definition places no restrictions on the use of the physical structure or facility housing the SLAMS. Any combination of SLAMS and any other monitors (Special Purpose, NAMS, PSD) may occupy the same facility or structure without affecting the respective definitions of those monitoring station.

(c) "NAMS" means National Air Monitoring Station(s). Collectively the NAMS are a subset of the SLAMS ambient air quality monitoring network.

(d) "PSD station" means any station operated for the purpose of establishing the effect on air quality of the emissions from a proposed source for purposes of prevention of significant deterioration as required by § 51.24(n) of Part 51 of this chapter.

(e) "SO_2" means sulfur dioxide.

(f) "NO_2" means nitrogen dioxide.

(g) "CO" means carbon monoxide.

(h) "O_3" means ozone.

(i) "Plan" means an implementation plan, approved or promulgated pursuant to section 110 of the Clean Air Act.

(j) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or his or her authorized representative.

(k) "Regional Administrator" means the Administrator of one of the ten EPA Regional Offices or his or her authorized representative.

(l) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(m) "Local agency" means any local government agency, other than the State agency, which is charged with the responsibility for carrying out a portion of the plan.

(n) "Indian Reservation" means any Federally recognized reservation established by treaty, agreement, executive order, or act of Congress.

(o) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

(p) "Storage and Retrieval of Aerometric Data (SAROAD) system" is a computerized system which stores and reports information relating to ambient air quality.

(q) "SAROAD site identification form" is one of the several forms in the SAROAD system. It is the form which provides a complete description of the site (and its surroundings) of an ambient air quality monitoring station.

(r) "Traceable" means that a local standard has been compared and certified, either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM) or a USEPA/NBS-approved Certified Reference Material (CRM).

(s) "Urban area population" means the population defined in the most

2.8.3.3 A brief statement of belief concerning the extent to which the modification will or may affect the performance characteristics of the method; and

2.8.3.4 Such further information as may be necessary to explain and support the statements required by sections 2.8.3.2 and 2.8.3.3.

2.8.4 Within 75 days after receiving a request for approval under this section (2.8) and such further information as he may request for purposes of his decision, the Administrator will approve or disapprove the modification in question by letter to the person or agency requesting such approval.

2.8.5 A temporary modification that will or might alter the performance characteristics of a reference, equivalent, or alternative method may be made without prior approval under this section (2.8) if the method is not functioning or is malfunctioning, provided that parts necessary for repair in accordance with the applicable operation manual cannot be obtained within 45 days. Unless such temporary modification is later approved under section 2.8.4, the temporarily modified method shall be repaired in accordance with the applicable operation manual as quickly as practicable but in no event later than 4 months after the temporary modification was made, unless an extension of time is granted by the Administrator. Unless and until the temporary modification is approved, air quality data obtained with the method as temporarily modified must be clearly identified as such when submitted in accordance with § 58.26 or § 58.35 of this chapter and must be accompanied by a report containing the information specified in section 2.8.3. A request that the Administrator approve a temporary modification may be submitted in accordance with sections 2.8.1 through 2.8.4. In such cases the request will be considered as if a request for prior approval had been made.

3.0 *National Air Monitoring Stations (NAMS)*

3.1 Methods used in those SLAMS which are also designated as NAMS to measure SO_2, CO, NO_2, or O_3 must be automated reference or equivalent methods (continuous analyzers).

4.0 *Particulate Matter Episode Monitoring*

4.1 For short-term measurements of PM_{10} during air pollution episodes (see § 51.152 of this chapter) the measurement method must be:

4.1.1 Either the "Staggered PM_{10}" method or the "PM_{10} Sampling Over Short Sampling Times" method, both of which are based on the reference method for PM_{10} and are described in reference 1, or

4.1.2 Any other method for measuring PM_{10}:

4.1.2.1 Which has a measurement range or ranges appropriate to accurately measure air pollution episode concentration of PM_{10},

4.1.2.2 Which has a sample period appropriate for short-term PM_{10} measurements, and

4.1.2.3 For which a quantitative relationship to a reference or equivalent method for PM_{10} has been established at the use site. Procedures for establishing a quantitative site-specific relationship are contained in reference 1.

4.2 Quality Assurance. PM_{10} methods other than the reference method are not covered under the quality assessment requirements of Appendix A. Therefore, States must develop and implement their own quality assessment procedures for those methods allowed under this section 4. These quality assessment procedures should be similar or analogous to those described in section 3 of Appendix A for the PM_{10} reference method.

5.0 *References*

5.1 Pelton, D.J. Guideline for Particulate Episode Monitoring Methods, GEOMET Technologies, Inc., Rockville, MD. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA Contract No. 68-02-3584. EPA 450/4-83-005. February 1983.

[44 FR 27571, May 10, 1979, as amended at 44 FR 37918, June 29, 1979; 44 FR 65070, Nov. 9, 1979; 51 FR 9597, Mar. 19, 1986; 52 FR 24741, 24742, July 1, 1987]

Appendix D—Network Design for State and Local Air Monitoring Stations (SLAMS) and National Air Monitoring Stations (NAMS)

1. *SLAMS Monitoring Objectives and Spatial Scales*

The purpose of this appendix is to describe monitoring objectives and general criteria to be applied in establishing the State and Local Air Monitoring Stations (SLAMS) networks and for choosing general locations for new monitoring stations. It also describes criteria for determining the number and location of National Air Monitoring Stations (NAMS). These criteria will also be used by EPA in evaluating the adequacy of SLAMS/NAMS networks.

The network of stations which comprise SLAMS should be designed to meet a minimum of four basic monitoring objectives. These basic monitoring objectives are: (1) To determine highest concentrations expected to occur in the area covered by the network; (2) to determine representative concentrations in areas of high population density; (3) to determine the impact on ambient pollution levels of significant sources or source categories; and (4) to determine general background concentration levels.

To a large extent, the existing State Implementation Plan (SIP) monitoring networks have been designed with these four objectives in mind. Thus, they can serve as the logical starting point for establishing the SLAMS network. This will, however, require a careful review of each existing SIP ambient network to determine the principal objectives of each station and the extent to which the location criteria presented herein are being met. It should be noted that this appendix contains no criteria for determining the total number of stations in SLAMS networks, except that a minimum number of lead SLAMS is prescribed. The optimum size of a particular SLAMS network involves trade offs among data needs and available resources which EPA believes can best be resolved during the network design process.

This appendix focuses on the relationship between monitoring objectives and the geographical location of monitoring stations. Included are a rationale and set of general criteria for identifying candidate station locations in terms of physical characteristics which most closely match a specific monitoring objective. The criteria for more specifically siting the monitoring station including spacing from roadways and vertical and horizontal probe placement, are described in Appendix E of this part.

To clarify the nature of the link between general monitoring objectives and the physical location of a particular monitoring station, the concept of spatial scale of representativeness of a monitoring station is defined. The goal in siting stations is to correctly match the spatial scale represented by the sample of monitored air with the spatial scale most appropriate for the monitoring objective of the station.

Thus, spatial scale of representativeness is described in terms of the physical dimensions of the air parcel nearest to a monitoring station throughout which actual pollutant concentrations are reasonably similar. The scale of representativeness of most interest for the monitoring objectives defined above are as follows:

Microscale—defines the concentrations in air volumes associated with area dimensions ranging from several meters up to about 100 meters.

Middle Scale—defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometer.

Neighborhood Scale—defines concentrations within some extended area of the city that has relatively uniform land use with dimensions in the 0.5 to 4.0 kilometers range.

Urban Scale—defines the overall, citywide conditions with dimensions on the order of 4 to 50 kilometers. This scale would usually require more than one site for definition.

Regional Scale—defines usually a rural area of reasonably homogeneous geography and extends from tens to hundreds of kilometers.

National and Global Scales—these measurement scales represent concentrations characterizing the nation and the globe as a whole.

Proper siting of a monitoring station requires precise specification of the monitoring objective which usually includes a desired spatial scale of representativeness. For example, consider the case where the objective is to determine maximum CO concentrations in areas where pedestrians may reasonably be exposed. Such areas would most likely be located within major street canyons of large urban areas and near traffic corridors. Stations located in these areas are most likely to have a microscale of representativeness since CO concentrations typically peak nearest roadways and decrease rapidly as the monitor is moved from the roadway. In this example, physical location was determined by consideration of CO emission patterns, pedestrian activity, and physical characteristics affecting pollutant dispersion. Thus, spatial scale of representativeness was not used in the selection process but was a *result* of station location.

In some cases, the physical location of a station is determined from joint consideration of both the basic monitoring objective, and a desired spatial scale of representativeness. For example, to determine CO concentrations which are typical over a reasonably broad geographic area having relatively high CO concentrations, a neighborhood scale station is more appropriate. Such a station would likely be located in a residential or commercial area having a high overall CO emission density but not in the immediate vicinity of any single roadway. Note that in this example, the desired scale of representativeness was an important factor in determining the physical location of the monitoring station.

In either case, classification of the station by its intended objective and spatial scale of representativeness is necessary and will aid in interpretation of the monitoring data.

Table 1 illustrates the relationship between the four basic monitoring objectives and the scales of representativeness that are generally most appropriate for that objective.

TABLE 1—RELATIONSHIP AMONG MONITORING OBJECTIVES AND SCALE OF REPRESENTATIVENESS

Monitoring objective	Appropriate siting scales
Highest concentration	Micro, middle, neighborhood (sometimes urban)
Population	Neighborhood, urban
Source impact	Micro, middle, neighborhood
General/background	Neighborhood, regional

Subsequent sections of this appendix describe in greater detail the most appropriate scales of representativeness and general monitoring locations for each pollutant.

2 *SLAMS Network Design Procedures*

The preceding section of this appendix has stressed the importance of defining the objectives for monitoring a particular pollutant. Since monitoring data are collected to "represent" the conditions in a section or subregion of a geographical area, the previous section included a discussion of the scale of representativeness of a monitoring station. The use of this physical basis for locating stations allows for an objective approach to network design.

The discussion of scales in Sections 2.2-2.6 does not include all of the possible scales for each pollutant. The scales which are discussed are those which are felt to be most pertinent for SLAMS network design.

In order to evaluate a monitoring network and to determine the adequacy of particular monitoring stations, it is necessary to examine each pollutant monitoring station individually by stating its monitoring objective and determining its spatial scale of representativeness. This will do more than insure compatibility among stations of the same type. It will also provide a physical basis for the interpretation and application of the data. This will help to prevent mismatches between what the data actually represent and what the data are interpreted to represent. It is important to note that SLAMS are not necessarily sufficient for completely describing air quality. In many situations, diffusion models must be applied to complement ambient monitoring, e.g., determining the impact of point sources or defining boundaries of nonattainment areas.

2.1 Background Information for Establishing SLAMS

Background information that must be considered in the process of selecting SLAMS from the existing network and in establishing new SLAMS includes emission inventories, climatological summaries, and local geographical characteristics. Such information is to be used as a basis for the judgmental decisions that are required during the station selection process. For new stations, the background information should be used to decide on the actual location considering the monitoring objective and spatial scale while following the detailed procedures in References 1 through 4.

Emission inventories are generally the most important type of background information needed to design the SLAMS network. The emission data provide valuable information concerning the size and distribution of large point sources. Area source emissions are usually available for counties but should be subdivided into smaller areas or grids where possible, especially if diffusion modeling is to be used as a basis for determining where stations should be located. Sometimes this must be done rather crudely, for example, on the basis of population or housing units. In general, the grids should be smaller in areas of dense population than in less densely populated regions.

Emission inventory information for point sources should be generally available for any area of the country for annual and seasonal averaging times. Specific information characterizing the emissions from large point sources for the shorter averaging times (diurnal variations, load curves, etc.) can often be obtained from the source. Area source emission data by season, although not available from the EPA, can be generated by apportioning annual totals according to degree days.

Detailed area source data are also valuable in evaluating the adequacy of an existing station in terms of whether the station has been located in the desired spatial scale of representativeness. For example, it may be the desire of an agency to have an existing CO station measuring in the neighborhood scale.

By examining the traffic data for the area and examining the physical location of the station with respect to the roadways, a determination can be made as to whether or

not the station is indeed measuring the air quality on the desired scale.

The climatological summaries of greatest use are the frequency distributions of wind speed and direction. The wind rose is an easily interpreted graphical presentation of the directional frequencies. Other types of useful climatological data are also available, but generally are not as directly applicable to the site selection process as are the wind statistics.

In many cases, the meteorological data originating from the most appropriate (not necessarily the nearest) national weather service (NWS) airport station in the vicinity of the prospective siting area will adequately reflect conditions over the area of interest, at least for annual and seasonal averaging times. In developing data in complex meteorological and terrain situations, diffusion meteorologists should be consulted. NWS stations can usually provide most of the relevant weather information in support of network design activities anywhere in the country. Such information includes joint frequency distributions of winds and atmospheric stability (stability-wind roses).

The geographical material is used to determine the distribution of natural features, such as forests, rivers, lakes, and manmade features. Useful sources of such information may include road and topographical maps, aerial photographs, and even satellite photographs. This information may include the terrain and land-use setting of the prospective monitor siting area, the proximity of larger water bodies, the distribution of pollutant sources in the area, the location of NWS airport stations from which weather data may be obtained, etc. Land use and topographical characteristics of specific areas of interest can be determined from U.S. Geological Survey (USGS) maps and land use maps. Detailed information on urban physiography (building/street dimensions, etc.) can be obtained by visual observations, aerial photography, and also surveys to supplement the information available from those sources. Such information could be used in determining the location of local pollutant sources in and around the prospective station locations.

2.2 [Reserved]

2.3 Sulfur Dioxide (SO_2) Design Criteria for SLAMS

The spatial scales for SO_2 SLAMS monitoring are the middle, neighborhood, urban, and regional scales. Because of the nature of SO_2 distributions over urban areas, the middle scale is the most likely scale to be represented by a single measurement in an urban area, but only if the undue effects from local sources (minor or major point sources) can be eliminated. Neighborhood scales would be those most likely to be represented by single measurements in suburban areas where the concentration gradients are less steep. Urban scales would represent areas where the concentrations are uniform over a larger geographical area. Regional scale measurements would be associated with rural areas.

Middle Scale—Some data uses associated with middle scale measurements for SO_2 include assessing the effects of control strategies to reduce urban concentrations (especially for the 3-hour and 24-hour averaging times) and monitoring air pollution episodes.

Neighborhood Scale—This scale applies in areas where the SO_2 concentration gradient is relatively flat (mainly suburban areas surrounding the urban center) or in large sections of small cities and towns. In general, these areas are quite homogeneous in terms of SO_2 emission rates and population density. Thus, neighborhood scale measurements may be associated with baseline concentrations in areas of projected growth and in studies of population responses to exposure to SO_2. Also concentration maxima associated with air pollution episodes may be uniformly distributed over areas of neighborhood scale, and measurements taken within such an area would represent neighborhood, and to a limited extent, middle scale concentrations.

Urban Scale—Data from this scale could be used for the assessment of air quality trends and the effect of control strategies on urban scale air quality.

Regional Scale—These measurements would be applicable to large homogeneous areas, particularly those which are sparsely populated. Such measurements could provide information on background air quality and interregional pollutant transport.

After the spatial scale has been selected to meet the monitoring objectives for each station location, the procedures found in reference 2 should be used to evaluate the adequacy of each existing SO_2 station and must be used to relocate an existing station or to locate any new SLAMS stations. The background material for these procedures should consist of emission inventories, meteorological data, wind roses, and maps for population and topographical characteristics of specific areas of interest. Isopleth maps of SO_2 air quality as generated by diffusion models[a] are useful for the general determination of a prospective area within which the station is eventually placed.

2.4 Carbon Monoxide (CO) Design Criteria for SLAMS

Micro, middle, and neighborhood scale measurements are necessary station classifications for SLAMS since most people are exposed to CO concentrations in these scales. Carbon monoxide maxima occur primarily in areas near major roadways and intersections with high traffic density and poor atmospheric ventilation. As these maxima can be predicted by ambient air quality modeling, a large fixed network of CO monitors is not required. Long-term CO monitoring should be confined to a limited number of micro and neighborhood scale stations in large metropolitan areas to measure maximum pollution levels and to determine the effectiveness of control strategies.

Microscale—Measurements on this scale would represent distributions within street canyons, over sidewalks, and near major roadways. The measurements at a particular location in a street canyon would be typical of one high concentration area which can be shown to be a representation of many more areas throughout the street canyon or other similar locations in a city. This is a scale of measurement that would provide valuable information for devising and evaluating "hot spot" control measures.

Middle Scale—This category covers dimensions from 100 meters to 0.5 kilometer. In certain cases discussed below, it may apply to regions that have a total length of several kilometers. In many cases of interest, sources and land use may be reasonably homogeneous for long distances along a street, but very inhomogeneous normal to the street. This is the case with strip development and freeway corridors. Included in this category are measurements to characterize the CO concentrations along the urban features just enumerated. When a location is chosen to represent conditions in a block of street development, then the characteristic dimensions of this scale are tens of meters by hundreds of meters. If an attempt is made to characterize street-side conditions throughout the downtown area or along an extended stretch of freeway, the dimensions may be tens of meters by kilometer.

The middle scale would also include the parking lots and feeder streets associated with indirect sources which attract significant numbers of pollutant emitters, particularly autos. Shopping centers, stadia, and office buildings are examples of indirect sources.

Neighborhood Scale—Measurements in this category would represent conditions throughout some reasonably homogeneous urban subregions, with dimensions of a few kilometers and generally more regularly shaped than the middle scale. Homogeneity refers to CO concentration, but it probably also applies to land use. In some cases, a location carefully chosen to provide neighborhood scale data, might represent not only the immediate neighborhood, but also neighborhoods of the same type in other parts of the city. These kinds of stations would provide information relating to health effects because they would represent conditions in areas where people live and work. Neighborhood scale data would provide valuable information for developing, testing, and revising concepts and models that describe the larger scale concentration patterns, especially those models relying on spatially smoothed emission fields for inputs. These types of measurements could also be used for interneighborhood comparisons within or between cities.

After the spatial scale has been determined to meet the monitoring objectives for each location, the location selection procedures, as shown in reference 3 should be used to evaluate the adequacy of each existing CO station and must be used to relocate an existing station or to locate any new SLAMS stations. The background material necessary for these procedures may include the average daily traffic on all streets in the area, wind roses for different hours of the day, and maps showing one-way streets, street widths, and building heights. If the station is to typify the area with the highest concentrations, the streets with the greatest daily traffic should be identified. If some streets are one-way, those streets that have the greatest traffic during the afternoon and evening hours should be selected as tentative locations, because the periods of high traffic volume are usually of greatest duration through the evening hours. However, the strength of the morning inversion has to be considered along with the traffic volume and pattern when seeking areas with the highest concentrations. Traffic counters near the stations will provide valuable data for interpreting the observed CO Concentrations.

Monitors should not be placed in the vicinity of possible anomalous source areas. Examples of such areas include toll gates on turnpikes, metered freeway ramps, and drawbridge approaches. Additional information on network design may be found in reference 3.

2.5 Ozone (O_3) Design Criteria for SLAMS

Ozone is not directly emitted into the atmosphere but results from complex photochemical reactions involving organic compounds, oxides of nitrogen, and solar radiation.

The relationships between primary emissions (precursors) and secondary pollutants (O_3) tend to produce large separations spatially and temporally between the major sources and the areas of high oxidant pollution. This suggests that the meteorological transport process and the relationships between sources and sinks need to be considered in the development of the network design criteria and placement of monitoring stations, especially in measuring peak concentration levels.

The principal spatial scales for SLAMS purposes based on the monitoring objectives are neighborhood, urban, regional, and to a lesser extent, middle scale. Since ozone requires appreciable formation time, the mixing of reactants and products occurs over large volumes of air, and this reduces the importance of monitoring small scale spatial variability.

Middle Scale—Measurement in this scale would represent conditions close to sources of NO_x such as roads where it would be expected that suppression of O_3 concentrations would occur. Trees also may have a strong scavenging effect on O_3 and may tend to suppress O_3 concentrations in their immediate vicinity. Measurements at these stations would represent conditions over relatively small portions of the urban area.

Neighborhood Scale—Measurements in this category represent conditions throughout some reasonably homogeneous urban subregion, with dimensions of a few kilometers. Homogeneity refers to pollutant concentrations. Neighborhood scale data will provide valuable information for developing, testing, and revising concepts and models that describe urban/regional concentration patterns. They will be useful to the understanding and definition of processes that take periods of hours to occur and hence involve considerable mixing and transport. Under stagnation conditions, a station located in the neighborhood scale may also experience peak concentration levels within the urban areas.

Urban Scale—Measurement in this scale will be used to estimate concentrations over large portions of an urban area with dimensions of several kilometers to 50 or more kilometers. Such measurements will be used for determining trends, and designing area-wide control strategies. The urban scale stations would also be used to measure high concentrations downwind of the area having the highest precursor emissions.

Regional Scale—This scale of measurement will be used to typify concentrations over large portions of a metropolitan area and even larger areas with dimensions of as much as hundreds of kilometers. Such measurements will be useful for assessing the ozone that is transported into an urban area. Data from such stations may be useful in accounting for the ozone that cannot be reduced by control strategies in that urban area.

The location selection procedure continues after the spatial scale is selected based on the monitoring objectives. The appropriate network design procedures as found in reference 4, should be used to evaluate the adequacy of each existing O_3 monitor and must be used to relocate an existing station or to locate any new O_3 SLAMS stations. The first step in the siting procedure would be to collect the necessary background material, which may consist of maps, emission inventories for nonmethane hydrocarbons and oxides of nitrogen (NO_x), climatological data, and existing air quality data for ozone, nonmethane hydrocarbons, and NO_2/NO.

For locating a neighborhood scale station to measure typical city concentrations, a reasonably homogeneous geographical area near the center of the region should be selected which is also removed from the influence of major NO_x sources. For an urban scale station to measure the high concentration areas, the emission inventories should be used to define the extent of the area of important nonmethane hydrocarbons and NO_x emissions. The most frequent wind speed and direction for periods of important photochemical activity should be determined. Then the prospective monitoring area should be selected in a direction from the city that is most frequently downwind during periods of photochemical activity. The distance from the station to the upwind edge of the city should be about equal to the distance traveled by air moving for 5 to 7 hours at wind speeds prevailing during periods of photochemical activity. Prospective areas for locating O_3 monitors should always be outside the area of major NO_x.

In locating a neighborhood scale station which is to measure high concentrations, the same procedures used for the urban scale are followed except that the station should be located closer to the areas bordering on the center city or slightly further downwind in an area of high density population.

For regional scale background monitoring stations, the most frequent wind associated with important photochemical activity should be determined. The prospective monitoring area should be upwind for the most frequent direction and outside the area of city influence.

Since ozone levels decrease significantly in the colder parts of the year in many areas, ozone is required to be monitored at NAMS and SLAMS monitoring sites only during the "ozone season" as designated in the SAROAD files on a State by State basis and described below:

OZONE MONITORING SEASON BY STATE

State	Begin month	End month
Alabama	March	November
Alaska	April	October
Arizona	January	December
Arkansas	March	November
California	January	December
Colorado	March	September
Connecticut	April	October
Delaware	April	October
District of Columbia	April	October
Florida	January	December
Georgia	March	November
Hawaii	January	December
Idaho	April	October
Illinois	April	October

OZONE MONITORING SEASON BY STATE—Continued

State	Begin month	End month
Indiana	April	October
Iowa	April	October
Kansas	April	October
Kentucky	April	October
Louisiana	January	December
Maine	April	October
Maryland	April	October
Massachusetts	April	October
Michigan	April	October
Minnesota	April	October
Mississippi	March	November
Missouri	April	October
Montana	June	September
Nebraska	April	October
Nevada	January	December
New Hampshire	April	October
New Jersey	April	October
New Mexico	January	December
New York	April	October
North Carolina	April	October
North Dakota	May	September
Ohio	April	October
Oklahoma	March	November
Oregon	April	October
Pennsylvania	April	October
Puerto Rico	January	December
Rhode Island	April	October
South Carolina	April	October
South Dakota	June	September
Tennessee	April	October
Texas	January	December
Utah	May	September
Vermont	April	October
Virginia	April	October
Washington	April	October
West Virginia	April	October
Wisconsin	April	October
Wyoming	April	October
American Samoa	January	December
Guam	January	December
Virgin Islands	January	December

Additional discussion on the procedures for siting ozone stations may be found in reference 4.

2.6 Nitrogen Dioxide (NO_2) Design Criteria for SLAMS

The typical spatial scales of representativeness associated with nitrogen dioxide monitoring based on monitoring objectives are middle, neighborhood, and urban. Since nitrogen dioxide is primarily formed in the atmosphere from the oxidation of NO, large volumes of air and mixing times usually reduce the importance of monitoring on small scale spatial variability especially for long averaging times. However, there may be some situations where NO_2 measurements would be made on the middle scale for both long- and short-term averages.

Middle Scale—Measurements on this scale would cover dimensions from about 100 meters to 0.5 kilometer. These measurements would characterize the public exposure to NO_2 in populated areas. Also monitors that are located closer to roadways than the minimum distances specified in Table 3 of Appendix E of this part, would be represented by measurements on this scale.

Neighborhood and Urban Scales—The same considerations as discussed in Section 2.5 for O_3 would also apply to NO_2.

After the spatial scale is selected based on the monitoring objectives, then the siting procedures as found in reference 4 should be used to evaluate the adequacy of each existing NO_2 station and must be used to relocate an existing station or to locate any new NO_2 SLAMS stations. The siting procedures begin with collecting the background material. This background information may include the characteristics of the area and its sources under study, climatological data to determine where concentration maxima are most likely to be found, and any existing monitoring data for NO_2.

For neighborhood or urban scales, the emphasis in site selection will be in finding those areas where long-term averages are expected to be the highest. Nevertheless, it should be expected that the maximum NO_2 concentrations will occur in approximately the same locations as the maximum total oxides of nitrogen concentrations. The best course would be to locate the station somewhat further downwind beyond the expected point of maximum total oxides of nitrogen to allow more time for the formation of NO_2. The dilution of the emissions further downwind from the source should be considered along with the need for reaction time for NO_2 formation in locating stations to measure peak concentration. If dispersion is favorable, maximum concentrations may occur closer to the emission sources than the locations predicted from oxidation of NO to NO_2 alone. This will occur downwind of sources based on winter wind direction or in areas where there are high ozone concentrations and high density NO_x emissions such as on the fringe of the central business district or further downwind. The distance and direction downwind would be based on ozone season wind patterns.

Once the major emissions areas and wind patterns are known, areas of potential maximum NO_2 levels can be determined. Nitrogen dioxide concentrations are likely to decline rather rapidly outside the urban area. Therefore, the best location for measuring NO_2 concentrations will be in neighborhoods near the edge of the city.

2.7 Lead (Pb) Design Criteria for SLAMS. Presently, about 90 percent of the lead concentration in air originates from automobile exhaust, while the remaining 10 percent comes from industrial processes and stationary combustion sources. (6) The most important spatial scales to effectively characterize the emissions from both mobile and stationary sources are the micro, middle, and neighborhood scales. For purposes of establishing monitoring stations to represent large homogeneous areas other than the above scales of representativeness, urban or regional scale stations would also be needed.

Microscale—This scale would typify areas such as downtown street canyons and traffic corridors where the general public would be exposed to maximum concentrations from mobile sources. Because of the very steep ambient Pb gradients resulting from Pb emissions from mobile sources, (7) the dimensions of the microscale for Pb generally would not extend beyond 15 meters from the roadway. Emissions from stationary sources such as primary and secondary lead smelters, and primary copper smelters may under fumigation conditions likewise result in high ground level concentrations at the microscale. In the latter case, the microscale would represent an area impacted by the plume with dimensions extending up to approximately 100 meters. Data collected at microscale stations provide information for evaluating and developing "hot-spot" control measures.

Middle Scale—This scale generally represents lead air quality levels in areas up to several city blocks in size with dimensions on the order of approximately 100 meters to 500 meters. However, the dimensions for middle scale roadway type stations would probably be on the order of 50-150 meters because of the exponential decrease in lead concentration with increasing distances from roadways. The middle scale may for example, include schools and playgrounds in center city areas which are close to major roadways. Pb monitors in such areas are desirable because of the higher sensitivity of children to exposures to Pb concentrations. (7) Emissions from point sources frequently impact on areas at which single sites may be located to measure concentrations representing middle spatial scales.

Neighborhood Scale—The neighborhood scale would characterize air quality conditions throughout some relatively uniform land use areas with dimensions in the 0.5 to 4.0 kilometer range. Stations of this scale would provide monitoring data in areas representing conditions where children live and play. Monitoring in such areas is important since this segment of the population is more susceptible to the effects of lead.

Urban Scale—Such stations would be used to present ambient Pb concentrations over an entire metropolitan area with dimensions in the 4 to 50 kilometer range. An urban scale station would be useful for assessing trends in city-wide air quality and the effectiveness of larger scale air pollution control strategies.

Regional Scale—Measurements from these stations would characterize air quality levels over areas having dimensions of 50 to hundreds of kilometers. This large scale of representativeness would be most applicable to sparsely populated areas and could provide information on background air quality and interregional pollutant transport.

Monitoring data for ambient Pb levels are required in major urbanized areas, particularly where Pb levels have been shown or are expected to be of significant concern such locations are to be expected in urban areas having high population densities and accompanying high traffic densities. The total number and type of stations for SLAMS are not prescribed but must be determined on a case-by-case basis. As a minimum there must be two stations in any urbanized area which has a population exceeding 500,000. Also, as a minimum, there must be two stations in any area where lead concentrations currently exceed or have exceeded 1.5 $\mu g/m^3$ quarterly arithmetic mean measured since January 1, 1974. For those areas less than 500,000 population where the lead concentrations have exceeded 1.5 $\mu g/m^3$ quarterly arithmetic mean, the Regional Administrator may waive the requirement for establishing SLAMS provided the State can demonstrate that measured lead concentrations have not exceeded the NAAQS for the eight quarters preceding the lead monitoring plan submission required by § 58.20. For locations where monitors are not being operated at the time of the Pb monitoring plan submission, data showing attainment during the final eight quarters of operation will generally provide the basis for the waiver. The EPA Regional Administrator may specify more than two monitoring stations if it is found that two stations are insufficient to adequately determine if the Pb standard is being attained and maintained. The Regional Administrator may also specify that stations be located in areas outside the boundaries of the urbanized areas.

Concerning the previously discussed required minimum of two stations, one of the stations must be a category (a) type station and the second a category (b) station. Both of these categories of stations are defined in section 3. For areas where the predominant lead levels come from automotive sources, the category (a) station must be a microscale or middle scale station located near a major roadway [>30,000 average daily traffic, (ADT)] in order to measure maximum Pb concentrations from mobile sources. In areas where there are no roadways exceeding 30,000 ADT, the station should be located near the roadway with the largest traffic volume. Studies (7, 8) indicate that lead levels decrease exponentially with distance from roadways. Thus, the higher concentrations are close to the roadway and stations located in such areas because of the steep concentration gradients, are most often found to represent the microscale and middle scale dimension. For areas where predominant lead levels come from point sources, the category (a) station generally represents the microscale or middle scale impact of the point source. However, in a few cases, sufficient mixing may occur during transport of the emissions from the source to the ground so that the category (a) station represents a neighborhood scale. The required category (b) station must be a neighborhood scale station since the microscale and middle scale station would not represent the air quality over large geographical areas and frequently may not be located in highly populated areas. It is recognized that in certain areas, a middle scale station may be located at schools or playgrounds near major roadways. However, in most cases, they are not located in such areas and since children (7) are the segment of the population most susceptible to the effects of lead and are more likely to live and play in the residential section of the urban area, the category (b) station should be located in residential areas having a combination of high population and traffic density. In the case where lead levels come primarily from point sources, the category (b) station generally represents a neighborhood scale impact of the point source.

To locate monitoring stations, it will be necessary to obtain background information such as stationary and mobile source emissions inventories, morning and evening traffic patterns, climatological summaries, and local geographical characteristics. Such information should be used to identify areas that are most suitable to the particular monitoring objective and spatial scale of representativeness desired. Reference 9 provides additional guidance on locating sites to meet specific urban area monitoring objectives and must be used in locating new stations or evaluating the adequacy of existing stations.

After locating each Pb station, and, to the extent practicable, taking into consideration the collective impact of all Pb sources and surrounding physical characteristics of the siting area, a spatial scale of representativeness must be assigned to each station.

Guidance on locating monitoring stations in the vicinity of stationary lead sources is given in reference 10. This reference provides assistance in designing a network to meet the monitoring objective of determining the impact of point sources on ambient Pb levels.

2.8 PM_{10} *Design Criteria for SLAMS*

As with other pollutants measured in the SLAMS network, the first step in designing the PM_{10} network is to collect the necessary background information. Various studies[11,12,13,14,15,16] have documented the major source categories of particulate matter and their contribution to ambient levels in various locations throughout the country. Because the sources for PM_{10} are similar to those for TSP, the procedures for collecting the necessary background information for PM_{10} are also similar. Sources of background information would be regional and traffic maps and aerial photographs showing topography, settlements, major industries and highways. These maps and photographs would be used to identify areas of the type that are of concern to the particular monitoring objective. After potentially suitable monitoring areas for PM_{10} have been identified on a map, modeling may be used to provide an estimate of PM_{10} concentrations throughout the area of interest. After completing the first step, existing TSP SLAMS or other particulate matter stations should be evaluated to determine their potential as candidates for SLAMS designation. Stations meeting one or more of the four basic monitoring objectives described in section 1 of this Appendix must be classified into one of the five scales of representativeness (micro, middle, neighborhood, urban and regional) if the stations are to become SLAMS. In siting and classifying PM_{10} stations, the procedures in reference 17 should be used.

If existing TSP samplers meet the quality assurance requirements of Appendix A, the PM_{10} siting requirements of Appendix E, and are located in areas of suspected maximum concentrations are described in section 3 of Appendix D, and if the TSP levels are below the ambient PM_{10} standards, TSP samplers may continue to be used as substitutes for PM_{10} SLAMS samplers under the provisions of Section 2.2 of Appendix C.

The most important spatial scales to effectively characterize the emissions of PM_{10} from both mobile and stationary sources are the micro, middle and neighborhood scales. For purposes of establishing monitoring stations to represent large homogenous areas other than the above scales of representativeness, urban or regional scale stations would also be needed.

Microscale—This scale would typify areas such as downtown street canyons and traffic corridors where the general public would be exposed to maximum concentrations from mobile sources. Because of the very steep ambient PM_{10} gradients resulting from mobile sources, the dimensions of the microscale for PM_{10} generally would not extend beyond 15 meters from the roadway, but could continue the length of the roadway which could be several kilometers. Microscale PM_{10} sites should be located near inhabited buildings or locations where the general public can be expected to be exposed to the concentration measured. Emissions from stationary sources such as primary and secondary smelters, power plants, and other large industrial processes may,

under certain plume conditions, likewise result in high ground level concentrations at the microscale. In the latter case, the microscale would represent an area impacted by the plume with dimensions extending up to approximately 100 meters. Data collected at microscale stations provide information for evaluating and developing "hotspot" control measures.

Middle Scale—Much of the measurement of short-term public exposure to PM_{10} is on this scale. People moving through downtown areas, or living near major roadways, encounter particles that would be adequately characterized by measurements of this spatial scale. Thus, measurements of this type would be appropriate for the evaluation of possible short-term public health effects of particulate matter pollution. This scale also includes the characteristic concentrations for other areas with dimensions of a few hundred meters such as the parking lot and feeder streets associated with shopping centers, stadia, and office buildings. In the case of PM_{10}, unpaved or seldom swept parking lots associated with these sources could be an important source in addition to the vehicular emissions themselves.

Neighborhood Scale—Measurements in this category would represent conditions throughout some reasonably homogeneous urban subregion with dimensions of a few kilometers and of generally more regular shape than the middle scale. Homogeneity refers to the PM_{10} concentrations, as well as the land use and land surface characteristics. In some cases, a location carefully chosen to provide neighborhood scale data would represent not only the immediate neighborhood but also neighborhoods of the same type in other parts of the city. Stations of this kind provide good information about trends and compliance with standards because they often represent conditions in areas where people commonly live and work for periods comparable to those specified in the NAAQS. This category also includes industrial and commercial neighborhoods, as well as residential.

Neighborhood scale data could provide valuable information for developing, testing, and revising models that describe the larger-scale concentration patterns, especially those models relying on spatially smoothed emission fields for inputs. The neighborhood scale measurements could also be used for neighborhood comparisons within or between cities. This is the most likely scale of measurements to meet the needs of planners.

Urban Scale—This class of measurement would be made to characterize the PM_{10} concentration over an entire metropolitan area. Such measurements would be useful for assessing trends in city-wide air quality, and hence, the effectiveness of large scale air pollution control strategies.

Regional Scale—These measurements would characterize conditions over areas with dimensions of as much as hundreds of kilometers. As noted earlier, using representative conditions for an area implies some degree of homogeneity in that area. For this reason, regional scale measurements would be most applicable to sparsely populated areas with reasonably uniform ground cover. Data characteristics of this scale would provide information about larger scale processes of PM_{10} emissions, losses and transport.

3. *Network Design for National Air Monitoring Stations (NAMS)*

The NAMS must be stations selected from the SLAMS network with emphasis given to urban and multisource areas. Areas to be monitored must be selected based on urbanized population and pollutant concentration levels. Generally, a larger number of NAMS are needed in more polluted urban and multisource areas. The network design criteria discussed below reflect these concepts. However, it should be emphasized that deviations from the NAMS network design criteria may be necessary in a few cases. Thus, these design criteria are not a set of rigid rules but rather a guide for achieving a proper distribution of monitoring sites on a national scale.

The primary objective for NAMS is to monitor in the areas where the pollutant concentration and the population exposure are expected to be the highest consistent with the averaging time of the NAAQS. Accordingly, the NAMS fall into two categories:

Category (a): Stations located in area(s) of expected maximum concentrations (generally microscale for CO, microscale or middle scale for Pb and PM_{10}, neighborhood scale for SO_2 and NO_2, and urban scale for O_3.

Category (b): Stations which combine poor air quality with a high population density but not necessarily located in an area of expected maximum concentrations (neighborhood scale, except urban scale for NO_2). Category (b) monitors would generally be representative of larger spatial scales than category (a) monitors.

For each urban area where NAMS are required, both categories of monitoring stations must be established. In the case of TSP and SO_2 if only one NAMS is needed, then category (a) must be used. The analysis and interpretation of data from NAMS should consider the distinction between these types of stations as appropriate.

The concept of NAMS is designed to provide data for national policy analyses/trends and for reporting to the public on major metropolitan areas. It is not the intent to monitor in every area where the NAAQS are violated. On the other hand, the data from SLAMS should be used primarily for nonattainment decisions/ analyses in specific geographical areas. Since the NAMS are stations from the SLAMS network, station locating procedures for NAMS are part of the SLAMS network design process.

3.1 [Reserved]

3.2 Sulfur Dioxide (SO_2) Design Criteria for NAMS

It is desirable to have a greater number of NAMS in the more polluted and densely populated urban and multisource areas. The data in Table 3 show the approximate number of permanent stations needed in urban areas to characterize the national and regional SO_2 air quality trends and geographical patterns. These criteria require that the number of NAMS in areas where urban populations exceed 1,000,000 and concentrations also exceed the primary NAAQS may range from 6 to 10 and that in areas where the SO_2 problem is minor, only one or two (or no) monitors are required. For those cases where more than one station is required for an urban area, there should be at least one station for category (a) and category (b) objectives as discussed in Section 3. Where three or more stations are required, the mix of category (a) and (b) stations is determined on a case-by-case basis. The actual number and location of the NAMS must be determined by EPA Regional Offices and the State agency, subject to the approval of EPA Headquarters (OANR).

TABLE 3—SO_2 National Air Monitoring Station Criteria

[Approximate number of stations per area][a]

Population category	High concentration[b]	Medium concentration[c]	Low concentration[d]
>1,000,000	6-10	4-8	2-4
500,000 to 1,000,000	4-8	2-4	1-2
250,000 to 500,000	3-4	1-2	0-1
100,000 to 250,000	1-2	0-1	0

[a] Selection of urban areas and actual number of stations per area will be jointly determined by EPA and the State agency.

[b] High concentration-exceeding level of the primary NAAQS.

[c] Medium concentration-exceeding 60 percent of the level of the primary or 100% of the secondary NAAQS.

[d] Low concentration-less than 60 percent of the level of the primary or 100% of the secondary NAAQS.

The estimated number of SO_2 NAMS which would be required nationwide ranges from approximately 200 to 300. This number of NAMS SO_2 monitors is sufficient for national trend purposes due to the low background SO_2 levels, and the fact that air quality is very sensitive to SO_2 emission changes. The actual number of stations in any specific area depends on local factors such as meteorology, topography, urban and regional air quality gradients, and the potential for significant air quality improvements or degradation. The greatest density of stations should be where urban populations are large and where pollution levels are high. Fewer NAMS are necessary in the western States since concentrations are seldom above the NAAQS in their urban areas. Exceptions to this are in the areas where an expected shortage of clean fuels indicates that ambient air quality may be degraded by increased SO_2 emissions. In such cases, a minimum number of NAMS is required to provide EPA with a proper national perspective on significant changes in air quality.

Like TSP, the worst air quality in an urban area is to be used as the basis for determining the required number of SO_2 NAMS (see Table 3). This includes SO_2 air quality levels within populated parts of urbanized areas, that are affected by one or two point sources of SO_2 if the impact of the source(s) extends over a reasonably broad geographic scale (neighborhood or larger). Maximum SO_2 air quality levels in remote unpopulated areas should be excluded as a basis for selecting NAMS regardless of the sources affecting the concentration levels. Such remote areas are more appropriately monitored by SLAMS or SPM networks and/or characterized by diffusion model calculations as necessary.

3.3 Carbon Monoxide (CO) Design Criteria for NAMS

Information is needed on ambient CO levels in major urbanized areas where CO levels have been shown or inferred to be a significant concern. At the national level, EPA will not routinely require data from as many stations as are required for TSP, and perhaps, SO_2, since CO trend stations are principally needed to assess the overall air quality progress resulting from the emission controls required by the Federal motor vehicle control program (FMVCP).

Although State and local air programs may require extensive monitoring to document and measure the local impacts of CO emissions and emission controls, an adequate national perspective is possible with as few as two stations per major urban area. The two categories for which CO NAMS would be required are: (a) Peak concentration areas such as are found around major traffic arteries and near heavily traveled streets in downtown areas (micro scale); and (b) neighborhoods where concentration exposures are significant (middle scale, neighborhood scale).

The peak concentration station (micro scale) is usually found near heavily traveled downtown streets (street canyons), but could be found along major arterials (corridors), either near intersections or at low elevations which are influenced by downslope drainage patterns under low inversion conditions. The peak concentration station should be located so that it is representative of several similar source configurations in the urban area, where the general population has access. Thus, it should reflect one of many potential peak situations which occur throughout the urban area. It is recognized that this does not measure air quality which represents large geographical areas. Thus, a second type of station on the neighborhood scale is necessary to provide data representative of the high concentration levels which exist over large geographical areas.

The category (b) (middle scale or neighborhood scale) should be located in areas with a stable, high population density, projected continuity of neighborhood character, and high traffic density. The stations should be located where no major zoning changes, new highways, or new shopping centers are being considered. The station should be where a significant CO pollution problem exists, but not be unduly influenced by any one line source. Rather, it should be more representative of the overall effect of the sources in a significant portion of the urban area.

Because CO is generally associated with heavy traffic and population clusters, an urbanized area with a population greater than 500,000 is the principal criterion for identifying the urban areas for which pairs of NAMS for this pollutant will be required. The criterion is based on judgment that stations in urban areas with greater than 500,000 population would provide sufficient data for national analysis and national reporting to Congress and the public. Also, it has generally been shown that major CO problems are found in areas greater than 500,000 population.

3.4 Ozone (O_3) Design Criteria for NAMS

The criterion for selecting locations for ozone NAMS is any urbanized area having a population of more than 200,000. This population cut off is used since the sources of hydrocarbons are both mobile and stationary and are more diverse. Also, because of local and national control strategies and the complex chemical process of ozone formation and transport, more sampling stations than for CO are needed on a national scale to better understand the ozone problem. This selection criterion is based entirely on population and will include those relatively highly populated areas where most of the oxidant precursors originate.

Each urban area will generally require only two ozone NAMS. One station would be representative of maximum ozone concentrations (category (a), urban scale) under the wind transport conditions as discussed in section 2.5. The exact location should balance local factors affecting transport and buildup of peak O_3 levels with the need to represent population exposure. The second station (category (b), neighborhood scale), should be representative of high density population areas on the fringes of the central business district along the predominant summer/fall daytime wind direction. This latter station should measure peak O_3 levels under light and variable or stagnant wind conditions. Two ozone NAMS stations will be sufficient in most urban areas since spatial gradients for ozone generally are not as sharp as for other criteria pollutants.

3.5 Nitrogen Dioxide (NO_2) Criteria for NAMS. Nitrogen dioxide NAMS will be required in those areas of the country which have a population greater than 1,000,000. These areas will have two NO_2 NAMS. It is felt that stations in these major metropolitan areas would provide sufficient data for a national analysis of the data, and also because NO_2 problems occur in areas of greater than 1,000,000 population.

Within urban areas requiring NAMS, two permanent monitors are sufficient. The first station (category (a), middle scale or neighborhood scale) would be to measure the photochemical production of NO_2 and would best be located in that part of the urban area where the emission density of NO_x is the highest. The second station (category (b) urban scale), would be to measure the NO_2 produced from the reaction of NO with O_3 and should be downwind of the area of peak NO_x emission areas.

3.6 Lead (Pb) Design Criteria for NAMS. In order to achieve the national monitoring objective, two of the SLAMS located in urbanized areas with populations greater than 500,000 will be designated as NAMS. One of the stations must be a microscale or middle scale category (a) station, located adjacent to a major roadway (>30,000 ADT) or near the roadway with the largest traffic volume if the volume is less than 30,000 ADT. A microscale location is preferred, but a middle scale is also acceptable if a suitable microscale location cannot be found.

The second station must be a neighborhood scale category (b) station located in a highly populated residential section of the urbanized area where traffic density is high, preferably (>30,000 ADT) or near the roadway with the largest traffic volume if the volume is less than 30,000 ADT.

In certain urbanized areas greater than 500,000 population, point sources may have a significant impact on air quality lead levels in populated areas. To measure the impact of such sources, other monitors in the SLAMS network would normally be used.

3.7 *PM_{10} Design Criteria for NAMS*.

Table 4 indicates the approximate number of permanent stations required in urban areas to characterize national and regional PM_{10} air quality trends and geographical patterns. The number of stations in areas where urban populations exceed 1,000,000 must be in the range from 2 to 10 stations, while in low population urban areas, no more than two stations are required. A range of monitoring stations is specified in Table 4 because sources of pollutants and local control efforts can vary from one part of the country to another and therefore, some flexibility is allowed in selecting the actual number of stations in any one locale.

It is recognized that no PM_{10} samplers will be designated as PM_{10} reference or equivalent methods until, at the earliest, approximately six months after promulgation of PM_{10} NAAQS and the reference and equivalent method requirements. Even though non-designated PM_{10} samplers will have been commercially available, and a small number of samplers will have been in use by EPA, other agencies, and industry, there will not be enough ambient PM_{10} data to determine ambient PM_{10} levels for all areas of the country. Accordingly, EPA has provided guidance[18] on converting ambient IP_{15} data to ambient PM_{10} data. Ambient IP_{15} data are data from high volume samplers utilizing quartz filters or dichotomous samplers, both with inlets designed to collect particles nominally 15 um and below. Also included in the guidance are procedures for calculating from ambient TSP data the probability that an area will be nonattainment for PM_{10}. For determining the appropriate number of NAMS per area, the converted IP_{15} data or the probabilities of PM_{10} nonattainment are used in Table 4, unless ambient PM_{10} data are available. If only one monitor is required in an urbanized area, it must be a category (a) type. Since emissions associated with the operation of motor vehicles contribute to urban area particulate matter levels, consideration of the impact of these sources must be included in the design of the NAMS network, particularly in urban areas greater than 500,000 population. In certain urban areas particulate emissions from motor vehicle diesel exhaust currently is or is expected to be a significant source of PM_{10} ambient levels. If an evaluation of the sources of PM_{10} as described in section 2.8 indicates that the maximum concentration area is predominantly influenced by roadway emissions, then the category (a) station should be located adjacent to a major road and should be a microscale or middle scale. A microscale is preferable but a middle scale is also acceptable if a suitable microscale location cannot be found. However, if the predominant influence in the suspected maximum concentration area is expected to be industrial emissions, and/or combustion products (from other than an isolated single source), the category (a) station should be a middle scale or neighborhood scale. A middle scale exposure is preferable to a neighborhood scale in representing the maximum concentration impact from multiple sources, other than vehicular, but a neighborhood scale is acceptable, especially in large residential areas that burn oil, wood, and/or coal for space heating.

For those cases where more than one station is required for an urban area, there should be at least one station for category (a) and one station for category (b) neighborhood scale objectives as discussed in Section 3. Where three or more stations are required, the mix of category (a) and (b) stations is to be determined on a case-by-case basis. The actual number of NAMS and their locations must be determined by EPA Regional Offices and the State agencies, subject to the approval of the Administrator as required by § 58.32. The Administrator's approval is necessary to insure that individual stations conform to the NAMS selection criteria and that the network as a whole is sufficient in terms of number and location for purposes of national analyses. As required under the provisions of section 2.2 of Appendix C, all PM_{10} NAMS that were previously designated as TSP NAMS must concurrently collect ambient TSP and PM_{10} data for a one-year period beginning when each NAMS PM_{10} sampler is put into operation.

TABLE 4—PM_{10} NATIONAL AIR MONITORING STATION CRITERIA

(Approximate Number of Stations per Area) [a]

Population category	High concentration [b] [e]	Medium concentration [c] [e]	Low concentration [d] [e]
>1,000,000	6-10	4-8	2-4
500,000-1,000,000	4-8	2-4	1-2
250,000-500,000	3-4	1-2	0-1
100,000-250,000	1-2	0-1	0

[a] Selection of urban areas and actual number of stations per area will be jointly determined by EPA and the State agency.

[b] High concentration areas are those for which: Ambient PM_{10} data or ambient IP_{15} data converted to PM_{10} show ambient concentrations exceeding either PM_{10} NAAQS by 20 percent or more, or the probability of PM_{10} nonattainment, calculated from TSP data, is 95 percent or greater.

[c] Medium concentration areas are those for which: Ambient PM_{10} data or ambient IP_{15} data converted to PM_{10} show ambient concentrations exceeding either 80 percent of the PM_{10} NAAQS, or the probability of PM_{10} nonattainment, calculated from TSP data, is >20 percent and <95 percent.

[d] Low concentration areas are those for which: Ambient PM_{10} data or ambient IP_{15} data converted to PM_{10} show ambient concentrations less than 80 percent of the PM_{10} NAAQS; or the probability of PM_{10} nonattainment, calculated from TSP data, is less than 20 percent.

[e] Procedures for estimating ambient PM_{10} concentrations from IP_{15} ambient air measurements or for estimating the probability of nonattainment for PM_{10} given observed TSP data are provided in reference 18.

4. *Summary*

Table 5 shows by pollutant, all of the spatial scales that are applicable for SLAMS and the required spatial scales for NAMS. There may also be some situations, as discussed later in Appendix E, where additional scales may be allowed for NAMS purposes.

TABLE 5—SUMMARY OF SPATIAL SCALES FOR SLAMS AND REQUIRED SCALES FOR NAMS

Spatial Scale	Scale Applicable for SLAMS						Scales Required for NAMS					
	SO_2	CO	O_3	NO_2	Pb	PM_{10}	SO_2	CO	O_3	NO_2	Pb	PM_{10}
Micro		✓			✓	✓		✓			✓	✓
Middle	✓	✓	✓	✓	✓	✓					✓	✓
Neighborhood	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Urban	✓		✓	✓	✓	✓			✓	✓		
Regional	✓		✓		✓	✓						

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Appendix E—Probe Siting Criteria for Ambient Air Quality Monitoring

1. *Introduction*

This appendix contains probe siting criteria to be applied to ambient air quality monitors or monitor probes after the general station location has been selected based on the monitoring objectives and spatial scale of representativeness as discussed in Appendix D of this part. Adherence to these siting criteria is necessary to ensure the uniform collection of compatible and comparable air quality data.

The probe siting criteria as discussed below must be followed to the maximum extent possible. It is recognized that there may be situations when the probe siting criteria cannot be followed. If the siting criteria cannot be met, this must be thoroughly documented with a written request for a waiver which describes how and why the siting criteria differs. This documentation should help to avoid later questions about the data. Conditions under which EPA would consider an application for waiver from these siting criteria are discussed in Section 10 of this appendix.

The spatial scales of representativeness used in this appendix, i.e., micro, middle, neighborhood, urban, and regional are defined and discussed in Appendix D of this part. The pollutant specific probe siting criteria generally apply to all spatial scales except where noted otherwise. Specific siting criteria that are prefaced with a "must" are defined as a requirement and exceptions must be approved through the waiver provisions. However, siting criteria that are prefaced with a "should" are defined as a goal to meet for consistency but are not a requirement.

2. [Reserved]

3. *Sulfur Dioxide (SO_2)*

3.1 Horizontal and Vertical Probe Placement. As with TSP monitoring, the most desirable height for an SO_2 monitor inlet probe is near the breathing height. Various factors enumerated before may require that the inlet probe be elevated. Therefore, the inlet probe must be located 3 to 15 meters above ground level. If the inlet probe is located on the side of a building, then it should be located on the windward side of the building relative to the prevailing winter wind direction. The inlet probe must also be located more than 1 meter vertically or horizontally away from any supporting structure and also away from dirty, dusty areas.

3.2 Spacing from Obstructions. No furnace or incineration flues, or other minor sources of SO_2 should be nearby. The separation distance is dependent on the height of the flues, type of waste or fuel burned, and the quality of the fuel (sulfur content). If the inlet probe is located on a roof or other structure, it must be at least 1 meter from walls, parapets, penthouses, etc.

The inlet probe must be located away from obstacles and buildings. The distance between the obstacles and the inlet probe must be at least twice the height that the obstacle protrudes above the inlet probe. Sampling stations that are located closer to obstacles than this criterion allows should not be classified as a neighborhood scale, since the measurements from such a station would closely represent middle scale stations. Therefore, stations not meeting the criterion should be classified as middle scale. Airflow must also be unrestricted in an arc of at least 270° around the inlet probe, and the predominant wind direction for the season of greatest pollutant concentration potential must be included in the 270° arc. If the probe is located on the side of a building, 180° clearance is required. Additional information on SO_2 probe siting criteria may be found in reference 11.

3.3 Spacing from trees and other considerations. Trees can provide surfaces for SO_2 adsorption and act as an obstruction to normal wind flow patterns. To minimize the possible effects of trees on the measured SO_2 levels, the sampler should be placed at least 20 meters from the drip line of trees. However, in situations where trees could be classified as an obstruction, i.e., the distance between the tree(s) and the sampler is less than twice the height that the tree(s) protrudes above the sampler, the sampler must be placed at least 10 meters from the drip line of the obstructing tree(s).

4. *Carbon Monoxide (CO)*

4.1 Horizontal and Vertical Probe Placement. Because of the importance of measuring population exposure to CO concentrations, air should be sampled at average breathing heights. However, practical factors require that the inlet probe be higher. The required height of the inlet probe for CO monitoring is therefore 3±½ meter for a microscale site, which is a compromise between representative breathing height and prevention of vandalism. The recommended 1 meter range of heights is also a compromise to some extent. For consistency and comparability, it would be desirable to have all inlets at exactly the same height, but practical considerations often prevent this. Some reasonable range must be specified and 1 meter provides adequate leeway to meet most requirements.

For the middle and neighborhood scale stations, the vertical concentration gradients are not as great as for the microscale station. This is because the diffusion from roads is greater and the concentrations would represent larger areas than for the microscale. Therefore, the required height of the inlet probe is 3 to 15 meters for middle and neighborhood scale stations. The inlet probe must be located more than 1 meter in the vertical or horizontal direction from any supporting structure.

4.2 Spacing from Obstructions. Airflow must also be unrestricted in an arc of at least 270° around the inlet probe, and the predominant wind direction for the season of greatest pollutant concentration potential must be included in the 270° arc. If the probe is located on the side of a building, 180° clearance is required.

4.3 Spacing from Roads. Street canyon and traffic corridor stations (microscale) are intended to provide a measurement of the influence of the immediate source on the pollution exposure of the population. In order to provide some reasonable consistency and comparability in the air quality data from such stations, a minimum distance of 2 meters and a maximum distance of 10 meters from the edge of the nearest traffic lane must be maintained for these CO monitor inlet probes. This should give consistency to the data, yet still allow flexibility of finding suitable locations.

Street canyon/corridor (microscale) inlet probes must be located at least 10 meters from an intersection and preferably at a midblock location. Midblock locations are preferable to intersection locations because intersections represent a much smaller portion of downtown space than do the streets between them. Pedestrian exposure is probably also greater in street canyon/corridors than at intersections. Also, the practical difficulty of positioning sampling inlets is less at midblock locations than at the intersection. However, the final siting of the monitor must meet the objectives and intent of Appendix D, Sections 2.4, 3, 3.3 and Appendix E, Section 4.

In determining the minimum separation between a neighborhood scale monitoring

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/4-87-007
May 1987

Air

EPA

Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)

REFERENCES FOR SECTION 3.5

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/4-87-007
May 1987

Air

EPA

Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)

SCHEDULE D.6—PERMANENT WAIVER FROM INTERIM CONTROLS TEST—Continued

[Smelter identification]

	Line	1984	1985	1986	1987	1988	1989	1990	Total
6 Current salvage value	17	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
7 Net present value	18	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

SCHEDULE D.7—HORIZON VALUE OF CASH FLOWS

[Smelter identification]

	Line	Final forecast years		Horizon years					Total
		1989	1990	1991	1992	1993	1994	1995	
A. Depreciation-free horizon value									
1 Net cash flow projections	01	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2 Depreciation tax savings									
a Depreciation and amortization	02	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b Marginal tax rate	03	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c Tax savings	04	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
3 Depreciation-free net cash flows									
a Nominal dollar values	05	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b 1990 dollar values	06	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c Average	07	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
4 Horizon factor	08	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
5 Depreciation free horizon value	09	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
B Depreciation tax savings over the horizon period									
1 Depreciation and amortization	10	XXXX	XXXX	....	....	....	....	....	XXXX
2 Marginal tax rate	11	XXXX	XXXX	....	....	....	....	....	XXXX
3 Tax savings	12	XXXX	XXXX	....	....	....	....	....	XXXX
4 Discount factors	13	XXXX	XXXX	....	....	....	....	....	XXXX
5 Present value of tax savings	14	XXXX	XXXX	....	....	....	....	....	XXXX
6 Total present value of tax savings	15	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
C Horizon Value	16	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

AUTHORITY: Secs. 110, 301(a), 313, and 319 of the Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

SOURCE: 44 FR 27571, May 10, 1979, unless otherwise noted.

Subpart A—General Provisions

§ 58.1 Definitions.

As used in this part, all terms not defined herein have the meaning given them in the Act:

(a) "Act" means the Clean Air Act as amended (42 U.S.C. 7401, et seq.).

(b) "SLAMS" means State or Local Air Monitoring Station(s). The SLAMS make up the ambient air quality monitoring network which is required by § 58.20 to be provided for in the State's implementation plan. This definition places no restrictions on the use of the physical structure or facility housing the SLAMS. Any combination of SLAMS and any other monitors (Special Purpose, NAMS, PSD) may occupy the same facility or structure without affecting the respective definitions of those monitoring station.

(c) "NAMS" means National Air Monitoring Station(s). Collectively the NAMS are a subset of the SLAMS ambient air quality monitoring network.

(d) "PSD station" means any station operated for the purpose of establishing the effect on air quality of the emissions from a proposed source for purposes of prevention of significant deterioration as required by § 51.24(n) of Part 51 of this chapter.

(e) "SO_2" means sulfur dioxide.

(f) "NO_2" means nitrogen dioxide.

(g) "CO" means carbon monoxide.

(h) "O_3" means ozone.

(i) "Plan" means an implementation plan, approved or promulgated pursuant to section 110 of the Clean Air Act.

(j) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or his or her authorized representative.

(k) "Regional Administrator" means the Administrator of one of the ten EPA Regional Offices or his or her authorized representative.

(l) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(m) "Local agency" means any local government agency, other than the State agency, which is charged with the responsibility for carrying out a portion of the plan.

(n) "Indian Reservation" means any Federally recognized reservation established by treaty, agreement, executive order, or act of Congress.

(o) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

(p) "Storage and Retrieval of Aerometric Data (SAROAD) system" is a computerized system which stores and reports information relating to ambient air quality.

(q) "SAROAD site identification form" is one of the several forms in the SAROAD system. It is the form which provides a complete description of the site (and its surroundings) of an ambient air quality monitoring station.

(r) "Traceable" means that a local standard has been compared and certified, either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM) or a USEPA/NBS-approved Certified Reference Material (CRM).

(s) "Urban area population" means the population defined in the most

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[44 FR 27571, May 10, 1979, 44 FR 72592, Dec. 14, 1979, as amended at 46 FR 44168, Sept. 3, 1981; 51 FR 9597, Mar. 19, 1986; 52 FR 24742–24744, July 1, 1987; 52 FR 27286, July 20, 1987]

Appendix E—Probe Siting Criteria for Ambient Air Quality Monitoring

1. *Introduction*

This appendix contains probe siting criteria to be applied to ambient air quality monitors or monitor probes after the general station location has been selected based on the monitoring objectives and spatial scale of representativeness as discussed in Appendix D of this part. Adherence to these siting criteria is necessary to ensure the uniform collection of compatible and comparable air quality data.

The probe siting criteria as discussed below must be followed to the maximum extent possible. It is recognized that there may be situations when the probe siting criteria cannot be followed. If the siting criteria cannot be met, this must be thoroughly documented with a written request for a waiver which describes how and why the siting criteria differs. This documentation should help to avoid later questions about the data. Conditions under which EPA would consider an application for waiver from these siting criteria are discussed in Section 10 of this appendix.

The spatial scales of representativeness used in this appendix, i.e., micro, middle, neighborhood, urban, and regional are defined and discussed in Appendix D of this part. The pollutant specific probe siting criteria generally apply to all spatial scales except where noted otherwise. Specific siting criteria that are prefaced with a "must" are defined as a requirement and exceptions must be approved through the waiver provisions. However, siting criteria that are prefaced with a "should" are defined as a goal to meet for consistency but are not a requirement.

2. [Reserved]

3. *Sulfur Dioxide (SO_2)*

3.1 Horizontal and Vertical Probe Placement. As with TSP monitoring, the most desirable height for an SO_2 monitor inlet probe is near the breathing height. Various factors enumerated before may require that the inlet probe be elevated. Therefore, the inlet probe must be located 3 to 15 meters above ground level. If the inlet probe is located on the side of a building, then it should be located on the windward side of the building relative to the prevailing winter wind direction. The inlet probe must also be located more than 1 meter vertically or horizontally away from any supporting structure and also away from dirty, dusty areas.

3.2 Spacing from Obstructions. No furnace or incineration flues, or other minor sources of SO_2 should be nearby. The separation distance is dependent on the height of the flues, type of waste or fuel burned, and the quality of the fuel (sulfur content). If the inlet probe is located on a roof or other structure, it must be at least 1 meter from walls, parapets, penthouses, etc.

The inlet probe must be located away from obstacles and buildings. The distance between the obstacles and the inlet probe must be at least twice the height that the obstacle protrudes above the inlet probe. Sampling stations that are located closer to obstacles than this criterion allows should not be classified as a neighborhood scale, since the measurements from such a station would closely represent middle scale stations. Therefore, stations not meeting the criterion should be classified as middle scale. Airflow must also be unrestricted in an arc of at least 270° around the inlet probe, and the predominant wind direction for the season of greatest pollutant concentration potential must be included in the 270° arc. If the probe is located on the side of a building, 180° clearance is required. Additional information on SO_2 probe siting criteria may be found in reference 11.

3.3 Spacing from trees and other considerations. Trees can provide surfaces for SO_2 adsorption and act as an obstruction to normal wind flow patterns. To minimize the possible effects of trees on the measured SO_2 levels, the sampler should be placed at least 20 meters from the drip line of trees. However, in situations where trees could be classified as an obstruction, i.e., the distance between the tree(s) and the sampler is less than twice the height that the tree(s) protrudes above the sampler, the sampler must be placed at least 10 meters from the drip line of the obstructing tree(s).

4. *Carbon Monoxide (CO)*

4.1 Horizontal and Vertical Probe Placement. Because of the importance of measuring population exposure to CO concentrations, air should be sampled at average breathing heights. However, practical factors require that the inlet probe be higher. The required height of the inlet probe for CO monitoring is therefore $3 \pm \frac{1}{2}$ meter for a microscale site, which is a compromise between representative breathing height and prevention of vandalism. The recommended 1 meter range of heights is also a compromise to some extent. For consistency and comparability, it would be desirable to have all inlets at exactly the same height, but practical considerations often prevent this. Some reasonable range must be specified and 1 meter provides adequate leeway to meet most requirements.

For the middle and neighborhood scale stations, the vertical concentration gradients are not as great as for the microscale station. This is because the diffusion from roads is greater and the concentrations would represent larger areas than for the microscale. Therefore, the required height of the inlet probe is 2 to 15 meters for middle and neighborhood scale stations. The inlet probe must be located more than 1 meter in the vertical or horizontal direction from any supporting structure.

4.2 Spacing from Obstructions. Airflow must also be unrestricted in an arc of at least 270° around the inlet probe, and the predominant wind direction for the season of greatest pollutant concentration potential must be included in the 270° arc. If the probe is located on the side of a building, 180° clearance is required.

4.3 Spacing from Roads. Street canyon and traffic corridor stations (microscale) are intended to provide a measurement of the influence of the immediate source on the pollution exposure of the population. In order to provide some reasonable consistency and comparability in the air quality data from such stations, a minimum distance of 2 meters and a maximum distance of 10 meters from the edge of the nearest traffic lane must be maintained for these CO monitor inlet probes. This should give consistency to the data, yet still allow flexibility of finding suitable locations.

Street canyon/corridor (microscale) inlet probes must be located at least 10 meters from an intersection and preferably at a midblock location. Midblock locations are preferable to intersection locations because intersections represent a much smaller portion of downtown space than do the streets between them. Pedestrian exposure is probably also greater in street canyon/corridors than at intersections. Also, the practical difficulty of positioning sampling inlets is less at midblock locations than at the intersection. However, the final siting of the monitor must meet the objectives and intent of Appendix D, Sections 2.4, 3, 3.3 and Appendix E, Section 4.

In determining the minimum separation between a neighborhood scale monitoring

station and a specific line source, the presumption is made that measurements should not be unduly influenced by any one roadway. Computations were made to determine the separation distances, and table 1 provides the required minimum separation distance between roadways and neighborhood scale stations. Sampling stations that are located closer to roads than this criterion allows should not be classified as a neighborhood scale, since the measurements from such a station would closely represent the middle scale. Therefore, stations not meeting this criterion should be classified as middle scale. Additional information on CO probe siting may be found in reference 12.

TABLE 1—MINIMUM SEPARATION DISTANCE BETWEEN NEIGHBORHOOD SCALE CO STATIONS AND ROADWAYS (EDGE OF NEAREST TRAFFIC LANE)

Roadway average daily traffic, vehicles per day	Minimum separation distance between stations and roadways, meters
<10 000	[1] <10
15 000	25
20 000	45
30 000	80
40 000	115
50 000	135
>60 000	>150

[1] Distances should be interpolated based on traffic flow.

4.4 Spacing from trees and other considerations. Since CO is relatively non-reactive, the major factor concerned trees is as obstructions to normal wind flow patterns. For middle and neighborhood scale stations, trees should not be located between the major sources of CO, usually vehicles on a heavily traveled road, and the sampler. The sampler must be at least 10 meters from the drip line of a tree which is between the sampler and the road and extends at least 5 meters above the sampler. For microscale stations, no trees or shrubs should be located between the sampling inlet probe and the road.

5. *Ozone* (O_3)

5.1 Vertical and Horizontal Probe Placement. The inlet probe for ozone monitors should be as close as possible to the breathing zone. The complicating factors discussed previously, however, require that the probe be elevated. The height of the inlet probe must be located 3 to 15 meters above ground level. The probe must also be located more than 1 meter vertically or horizontally away from any supporting structure.

5.2 Spacing from Obstructions. The probe must be located away from obstacles and buildings such that the distance between the obstacles and the inlet probe is at least twice the height that the obstacle protrudes above the sampler. Airflow must be unrestricted in an arc of at least 270° around the inlet probe, and the predominant wind direction for the season of greatest pollutant concentration potential must be included in the 270° arc. If the probe is located on the side of a building, 180° clearance is required.

5.3 Spacing from Roads. It is important in the probe siting process to minimize destructive interferences from sources of nitric oxide (NO) since NO readily reacts with ozone. Table 2 provides the required minimum separation distances between roadways and ozone monitoring stations. These distances were based on recalculations using the methodology in reference 13 and validated using more recent ambient data collected near a major roadway. Sampling stations that are located closer to roads than this criterion allows should not be classified as neighborhood or urban scale, since the measurements from such stations would more closely represent the middle scale. Accordingly, such stations should be classified as middle scale. Additional information on ozone probe siting criteria may be found in reference 13.

TABLE 2—MINIMUM SEPARATION DISTANCE BETWEEN NEIGHBORHOOD AND URBAN SCALE OZONE STATIONS AND ROADWAYS (EDGE OF NEAREST TRAFFIC LANE)

Roadway average daily traffic, vehicles per day	Minimum separation distance between roadways and stations, meters
<10,000	[1] >10
15,000	20
20,000	30
40,000	50
70,000	100
>110,000	>250

[1] Distances should be interpolated based on traffic flow.

5.4 Spacing from trees and other considerations. Trees can provide surfaces for O_3 adsorption and/or reactions and obstruct normal wind flow patterns. To minimize the possible effect of trees on measured O_3 levels, the probe should be placed at least 20 meters from the drip line of trees. Since the scavenging effect of trees is greater for ozone than for the other criteria pollutants, strong consideration of this effect must be given in locating the O_3 inlet probe to avoid this problem. Therefore, the sampler must be at least 10 meters from the drip line of trees that are located between the urban city core area and the sampler along the

predominant summer day-time wind direction.

6. *Nitrogen Dioxide* (NO_2)

6.1 Vertical and Horizontal Probe Placement. The height of the NO_2 inlet probe must be 3 to 15 meters above the ground. This is a compromise between measuring in the breathing zone and avoidance of vandalism, finding suitable sites, etc. For NO_2, the height does not appear to be a critical factor since the NO_2 should be fairly well mixed and somewhat uniform in the vertical direction. The distance of the inlet probe from any supporting structure must be greater than 1 meter vertically or horizontally.

6.2 Spacing from Obstructions. Buildings and other obstacles may possibly scavenge NO_2. In order to avoid this kind of interference, the station must be located well away from such obstacles so that the distance between obstacles and the inlet probe is at least twice the height that the obstacle protrudes above the probe. Sampling stations that are located closer to obstacles than this criterion allows should not be classified in the neighborhood or urban scales, since the measurements from such stations would more closely represent the middle scale. Such stations should be classified as middle scale. For similar reasons, a probe inlet along a vertical wall is undesirable because air moving along that wall may be subject to possible removal mechanisms. There must be unrestricted airflow in an arc of at least 270° around the inlet probe, and the predominant wind direction for the season of greatest pollutant concentration potential must be included in the 270° arc. If the probe is located on the side of the building, 180° clearance is required.

6.3 Spacing from Roads. It is important that the monitoring probe be removed from oxides of nitrogen sources to avoid measurements being dominated by any one source and to allow time for conversion (reactions) of NO emissions to NO_2. Further, the effects of roadway sources must be minimized by using separation distances for neighborhood and urban scale stations found in Table 3. These distances were based on recalculations using the methodology in reference 13 and validated using more recent ambient data collected near a major roadway. The minimum separation distance must also be maintained between an NO_2 probe and any other similar volume of automotive traffic such as parking lots. Sampling stations that are located closer to roads than this criterion allows should not generally be classified as neighborhood or urban scales, since the measurements from such stations would more closely represent middle scale stations. Such stations should generally be classified as middle scale. Additional information on NO_2 probe siting criteria may be found in reference 13.

TABLE 3—MINIMUM SEPARATION DISTANCE BETWEEN NEIGHBORHOOD AND URBAN SCALE NO_2 STATIONS AND ROADWAYS (EDGE OF NEAREST TRAFFIC LANE)

Roadway average daily traffic, vehicles per day	Minimum separation distance between roadways and station, meters
<10,000	[1] >10
15,000	20
20,000	30
40,000	50
70,000	100
<110,000	>250

[1] Distances should be interpolated based on traffic flow.

6.4 Spacing from trees and other considerations. Trees can provide surfaces for NO_2 adsorption and/or reactions and obstruct normal wind flow patterns. To minimize the possible scavenging effect of trees on the measured levels of NO_2 the probe should be placed at least 20 meters from the drip line. For trees that protrude above the height of the probe by 5 meters or more, the sampler must be at least 10 meters from the drip line of the trees.

7. *Lead* (*Pb*)

7.1 Vertical Placement. Several studies (*5, 14-15*) on the relationship between roadway placement of lead samplers and measured ambient concentrations do not typically indicate large gradients within the first 6 to 7 meters above ground level. Similar to monitoring for other pollutants, optimal placement of the sampler inlet for lead monitoring should be at breathing height level. However, practical factors such as prevention of vandalism, security, and safety precautions must also be considered when siting a lead monitor. Given these considerations, the sampler inlet for microscale lead monitors must be 2-7 meters above ground level. The lower limit was based on a compromise between ease of servicing the sampler and the desire to avoid unrepresentative conditions due to re-entrainment from dusty surfaces. The upper limit represents a compromise between the desire to have measurements which are most representative of population exposures and a consideration of the practical factors noted above.

For middle or larger spatial scales, increased diffusion results in vertical concentration gradients which are not as great as for the small scales. Thus, the required height of the air intake for middle or larger scales is 2-15 meters.

7.2 Spacing from Obstructions. The sampler must be located away from obstacles such as buildings, so that the distance between obstacles and the sampler is at least twice the height that the obstacle protrudes above the sampler.

A minimum of 2 meters of separation from walls, parapets, and penthouses is required for rooftop samplers. No furnace or incinerator flues should be nearby. The height and type of flues and the type, quality, and quantity of waste or fuel burned determine the separation distances. For example, if the emissions from the chimney have high lead content and there is a high probability that the plume would impact on the sampler during most of the sampling period, then other buildings/locations in the area that are free from the described sources should be chosen for the monitoring site.

There must be unrestricted airflow in an arc of at least 270° around the sampler. Since the intent of the category (a) site is to measure the maximum concentrations from a road or point source, there must be no significant obstruction between a road or point source and the monitor, even though other spacing from obstruction criteria are met. The predominant direction for the season with the greatest pollutant concentration potential must be included in the 270° arc.

7.3 Spacing from Roadways. Numberous studies have shown that ambient lead levels near mobile source are a function of the traffic volume and are most pronounced at ADT >30,000 within the first 15 meters, on the downwind side of the roadways. (1, 16-19) Therefore, stations to measure the peak concentration from mobile sources should be located at the distance most likely to produce the highest concentrations. For the microscale station, the location must be between 5 and 15 meters from the major roadway. For the middle scale station, a range of acceptable distances from the major roadway is shown in Table 4. This table also includes separation distances between a roadway and neighborhood or larger scale stations. These distances are based upon the data of reference 16 which illustrates that lead levels remain fairly constant after certain horizontal distances from the roadway. As depicted in the above reference, this distance is a function of the traffic volume.

TABLE 4—SEPARATION DISTANCE BETWEEN PB STATIONS AND ROADWAYS (EDGE OF NEAREST TRAFFIC LANE)

Roadway average daily traffic vehicles per day	Separation distance between roadways and stations, meters: Micro scale	Middle scale	Neighborhood urban regional scale
<10,000	5-15	[1] >15-50	[1] >50
20,000	5-15	>15-75	>75
>40,000	5-15	>15-100	>100

[1] Distances should be interpolated based on traffic flow

7.4. Spacing from trees and other considerations. Trees can provide surfaces for deposition or adsorption of lead particles and obstruct normal wind flow patterns. For microscale and middle scale category (a) roadway sites there must not be any tree(s) between the source of the lead, i.e., the vehicles on the roadway, and the sampler. For neighborhood scale category (b) sites, the sampler should be at least 20 meters from the drip line of trees. The sampler must, however, be placed at least 10 meters from the drip line of trees which could be classified as an obstruction, i.e., the distance between the tree(s) and the sampler is less than the height that the tree protrudes above the sampler.

8. *Particulate Matter* (PM_{10})

8.1 Vertical Placement—Although there are limited studies on the PM_{10} concentration gradients around roadways or other ground level sources, References 1, 2, 4, 18 and 19 of this Appendix show a distinct variation in the distribution of TSP and Pb levels near roadways. TSP, which is greatly affected by gravity, has large concentration gradients, both horizontal and vertical, immediately adjacent to roads. Lead, being predominately sub-micron in size, behaves more like a gas and exhibits smaller vertical and horizontal gradients than TSP. PM_{10}, being intermediate in size between these two extremes exhibits dispersion properties of both gas and settleable particulates and does show vertical and horizontal gradients.[20] Similar to monitoring for other pollutants, optimal placement of the sampler inlet for PM_{10} monitoring should be at breathing height level. However, practical factors such as prevention of vandalism, security, and safety precautions must also be considered when siting a PM_{10} monitor. Given these considerations, the sampler inlet for microscale PM_{10} monitors must be 2-7 meters above ground level. The lower limit was based on a compromise between ease of servicing the sampler and the desire to avoid re-entrainment from dusty surfaces. The upper limit represents a compromise between the desire to have measurements which are most representative of population exposures and a consideration of the practical factors noted above.

For middle or larger spatial scales, increased diffusion results in vertical concentration gradients that are not as great as for the microscale. Thus, the required height of the air intake for middle or larger scales is 2-15 meters.

8.2 Spacing from Obstructions—If the sampler is located on a roof or other structure, then there must be a minimum of 2 meters separation from walls, parapets, penthouses, etc. No furnace or incineration flues should be nearby. This separation distance from flues is dependent on the height of the flues, type of waste or fuel burned, and quality of the fuel (ash content). In the case of emissions from a chimney resulting from natural gas combustion, as a precautionary measure, the sampler should be placed at least 5 meters from the chimney. On the other hand, if fuel oil, coal, or solid waste is burned and the stack is sufficiently short so that the plume could reasonably be expected to impact on the sampler intake a significant part of the time, other buildings/locations in the area that are free from these types of sources should be considered for sampling. Trees provide surfaces for particulate desposition and also restrict airflow. Therefore, the sampler should be placed at least 20 meters from the dripline and must be 10 meters from the dripline when the tree(s) acts as an obstruction.

The sampler must also be located away from obstacles such as buildings, so that the distance between obstacles and the sampler is at least twice the height that the obstacle protrudes above the sampler except for street canyon sites. Sampling stations that are located closer to obstacles than this criterion allows should not be classified as neighborhood, urban, or regional scale, since the measurements from such a station would closely represent middle scale stations. Therefore, stations not meeting the criterion should be classified as middle scale.

There must be unrestricted airflow in an arc of at least 270° around the sampler except for street canyon sites. Since the intent of the category (a) site is to measure the maximum concentrations from a road or point source, there must be no significant obstruction between a road or point source and the monitor, even though other spacing from obstruction criteria are met. The predominant direction for the season with the greatest pollutant concentration potential must be included in the 270° arc.

8.3 Spacing from Roads—Since emissions associated with the operation of motor vehicles contribute to urban area particulate matter ambient levels, spacing from roadway criteria are necessary for ensuring national consistency in PM_{10} sampler siting.

The intent is to locate category (a) NAMS sites in areas of highest concentrations whether it be from mobile or multiple stationary sources. If the area is primarily affected by mobile sources and the maximum concentration area(s) is judged to be a traffic corridor or street canyon location, then the monitors should be located near roadways with the highest traffic volume and at separation distances most likely to produce the highest concentrations. For the microscale traffic corridor station, the location must be between 5 and 15 meters from the major roadway. For the microscale street canyon site the location must be between 2 and 10 meters from the roadway. For the middle scale station, a range of acceptable distances from the roadway is shown in Figure 2. This figure also includes separation distances between a roadway and neighborhood or larger scale stations by default. Any station, 2 to 15 meters high, and further back than the middle scale requirements will generally be neighborhood, urban or regional scale. For example, according to Figure 2, if a PM_{10} sampler is primarily influenced by roadway emissions and that sampler is set back 10 meters from a 30,000 ADT road, the station should be classified as a micro scale, if the sampler height is between 2 and 7 meters. If the sampler height is between 7 and 15 meters, the station should be classified as middle scale. If the sample is 20 meters from the same road, it will be classified as middle scale; if 40 meters, neighborhood scale; and if 110 meters, an urban scale.

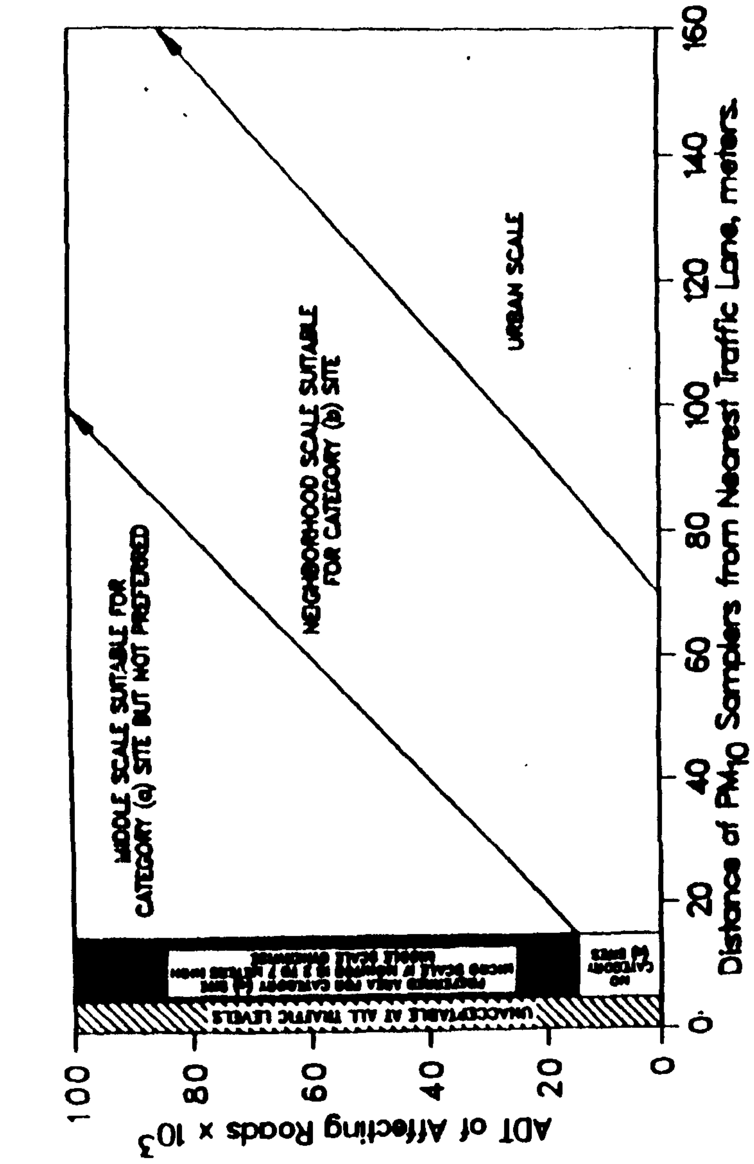

Figure 2. Acceptable Areas for PM_{10} Micro, Middle, Neighborhood, and Urban Samplers Except for Microscale Street Canyon Sites.

It is important to note that the separation distances shown in Figure 2 are measured from the edge of the nearest traffic lane of the roadway presumed to have the most influence on the site. In general, this presumption is an oversimplification of the usual urban settings which normally have several streets that impact a given site. The effects of surrounding streets, wind speed, wind direction and topography should be considered along with Figure 2 before a final decision is made on the most appropriate spatial scale assigned to the sampling station.

8.4 Other Considerations. For those areas that are primarily influenced by stationary source emissions as opposed to roadway emissions, guidance in locating these areas may be found in the guideline document Optimum Network Design and Site Exposure Criteria for Particulate Matter.[19]

Stations should not be located in an unpaved area unless there is vegetative ground cover year round, so that the impact of wind blown dusts will be kept to a minimum.

9. *Probe Material and Pollutant Sample Residence Time*

For the reactive gases, SO_2, NO_2, and O_3, special probe material must be used. Studies[20-34] have been conducted to determine the suitability of materials such as polypropylene, polyethylene, polyvinylchloride, tygon, aluminum, brass, stainless steel, copper, pyrex glass and teflon for use as intake sampling lines. Of the above materials, only pyrex glass and teflon have been found to be acceptable for use as intake sampling lines for all the reactive gaseous pollutants. Furthermore, EPA[25] has specified borosilicate glass or FEP teflon as the only acceptable probe materials for delivering test atmospheres in the determination of reference or equivalent methods. Therefore, borosilicate glass, FEP teflon, or their equivalent must be used for existing and new NAMS or SLAMS.

No matter how nonreactive the sampling probe material is initially, after a period of use reactive particulate matter is deposited on the probe walls. Therefore, the time it takes the gas to transfer from the probe inlet to the sampling device is also critical. Ozone in the presence of NO will show significant losses even in the most inert probe material when the residence time exceeds 20 seconds.[26] Other studies[27-28] indicate that a 10-second or less residence time is easily achievable. Therefore, sampling probes for reactive gas monitors at SLAMS or NAMS must have a sample residence time less than 20 seconds.

10. *Waiver Provisions*

It is believed that most sampling probes or monitors can be located so that they meet the requirements of this appendix. New stations with rare exceptions, can be located within the limits of this appendix. However, some existing stations may not meet these requirements and yet still produce useful data for some purposes. EPA will consider a written request from the State Agency to waive one or more siting criteria for some monitoring stations providing that the State can adequately demonstrate the need (purpose) for monitoring or establishing a monitoring station at that location. For establishing a new station, a waiver may be granted only if both of the following criteria are met:

The site can be demonstrated to be as representative of the monitoring area as it would be if the siting criteria were being met.

The monitor or probe cannot reasonably be located so as to meet the siting criteria because of physical constraints (e.g., inability to locate the required type of station the necessary distance from roadways or obstructions).

However, for an existing station, a waiver may be granted if either of the above criteria are met.

Cost benefits, historical trends, and other factors may be used to add support to the above, however, they in themselves, will not be acceptable reasons for granting a waiver. Written requests for waivers must be submitted to the Regional Administrator. For those SLAMS also designated as NAMS, the request will be forwarded to the Administrator.

11. *Discussion and Summary*

Table 5 presents a summary of the requirements for probe-siting criteria with respect to distances and heights. It is apparent from Table 5 that different elevation distances above the ground are shown for the various pollutants. The discussion in the text for each of the pollutants described reasons for elevating the monitor or probe. The differences in the specified range of heights are based on the vertical concentration gradients. For CO, the gradients in the vertical direction are very large for the microscale, so a small range of heights has been used. The upper limit of 15 meters was specified for consistency between pollutants and to allow the use of a single manifold for monitoring more than one pollutant.

[19-34] See References at end of this Appendix.

TABLE 5—SUMMARY OF PROBE SITING CRITERIA

Pollutant	Scale	Height above ground meters	Distance from supporting structure, meters		Other spacing criteria
			Vertical	Horizontal [a]	
SO_2	All	3-15	>1	>1	1 Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) act as an obstruction 2 Distance from inlet probe to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the inlet probe [b] 3. Must have unrestricted airflow 270° around the inlet probe, or 180° if probe is on the side of a building 4 No furnace or incinerator flues should be nearby [c]
CO	Micro	3 ± ½	>1	>1	1 Must be >10 meters from street intersection and should be at a midblock location 2 Must be 2-10 meters from edge of nearest traffic lane 3 Must have unrestricted airflow 180° around the inlet probe
	Middle Neighborhood	3-15	>1	>1	1. Must have unrestricted airflow 270° around the inlet probe, or 180° if probe is on the side of a building 2 Spacing from roads varies with traffic (see Table 1)
O_3	All	3-15	>1	>1	1 Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) act as an obstruction 2 Distance from inlet probe to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the inlet probe [b] 3 Must have unrestricted airflow 270° around the inlet probe, or 180° if probe is on the side of a building 4 Spacing from roads varies with traffic (see Table 2)
NO_2	All	3-15	>1	>1	1 Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) act as an obstruction 2 Distance from inlet probe to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the inlet probe [b] 3 Must have unrestricted airflow 270° around the inlet probe, or 180° if probe is on the side of a building 4 Spacing from roads varies with traffic (see Table 3)
Pb	Micro	2-7	—	>2	1 Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) act as an obstruction 2. Distance from sampler to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the sampler [b] 3 Must have unrestricted airflow 270° around the sampler except for street canyon sites 4 No furnace or incineration flues should be nearby [c] 5 Must be 5 to 15 meters from major roadway
	Middle neighborhood, urban and regional	2-15	—	>2	1 Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) act as an obstruction 2 Distance from sampler to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the sampler [b] 3 Must have unrestricted airflow 270° around the sampler 4 No furnace or incineration flues should be nearby [c] 5 Spacing from roads varies with traffic (see Table 4)
PM_{10}	Micro	2-7	—	>2	1. Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) acts as an obstruction 2 Distance from sampler to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the sampler except for street canyon sites [b] 3 Must have unrestricted airflow 270° around the sampler except for street canyon sites 4 No furnace or incineration flues should be nearby 5. Spacing from roads varies with traffic (see Figure 2) except for street canyon sites which must be from 2 to 10 meters from the edge of the nearest traffic lane.
	Middle, neighborhood urban and regional scale.	2-15	—	>2	1. Should be >20 meters from the dripline and must be 10 meters from the dripline when the tree(s) act as an obstruction 2 Distance from sampler to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the sampler [b] 3. Must have unrestricted airflow 270° around the sampler 4 No furnace or incineration flues should be nearby [c] 5 Spacing from roads varies with traffic (see Figure 2).

[a] When probe is located on rooftop, this separation distance is in reference to walls, parapets, or penthouses located on the roof.

[b] Sites not meeting this criterion would be classified as middle scale (see text)

[c] Distance is dependent on height of furnace or incineration flues, type of fuel or waste burned, and quality of fuel (sulfur, ash or lead content). This is to avoid undue influences from minor pollutant sources

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[44 FR 27571, May 10, 1979; 44 FR 72592, Dec. 14, 1979, as amended at 46 FR 44170, Sept. 3, 1981; 51 FR 9598, Mar. 19, 1986; 52 FR 24744-24748, July 1, 1987; 52 FR 27286, July 20, 1987]

Appendix F—Annual SLAMS Air Quality Information

1. *General*

This appendix describes information to be compiled and submitted annually to EPA for each ambient monitoring station in the SLAMS Network in accordance with § 58.26. The annual summary statistics that are described in section 2 below shall be construed as only the minimum necessary statistics needed by EPA to overview national air quality status. They will be used by EPA to convey information to a variety of interested parties including environmental groups, Federal agencies, the Congress, and private citizens upon request. As the need arises, EPA may issue modifications to these minimum requirements to reflect changes in EPA policy concerning the National Ambient Air Quality Standards (NAAQS).

As indicated in § 58.26(c), the contents of the SLAMS annual report shall be certified by the senior air pollution control officer in the State to be accurate to the best of his knowledge. In addition, the manner in which the data were collected must be certified to have conformed to the applicable quality assurance, air monitoring methodology, and probe siting criteria given in Appendices A, C, and E to this part. A certified statement to this effect must be included with the annual report. As required by § 58.26(a), the report must be submitted by July 1 of each year for data collected during the period January 1 to December 31 of the previous year.

EPA recognizes that most air pollution control agencies routinely publish air quality statistical summaries and interpretive reports. EPA encourages State and local agencies to continue publication of such reports and recommends that they be expanded, where appropriate, to include analysis of air quality trends, population exposure, and pollutant distributions. At their discretion, State and local agencies may wish to integrate the SLAMS report into routine agency publications.

2. *Required Information*

This paragraph describes air quality monitoring information and summary statistics which must be included in the SLAMS annual report. The required information is itemized below by pollutant. Throughout this appendix, the time of occurrence refers to the ending hour. For example, the ending hour of an 8-hour CO average from 12:01 a.m. to 8:00 a.m. would be 8:00 a.m.

For the purposes of range assignments the following rounding convention will be used. The air quality concentration should be rounded to the number of significant digits used in specifying the concentration intervals. The digit to the right of the last significant digit determines the rounding process. If this digit is greater than or equal to 5, the last significant digit is rounded up. The insignificant digits are truncated. For example, 100.5 ug/m³ rounds to 101 ug/m³ and 0.1245 ppm rounds to 0.12 ppm.

2.1 Sulfur Dioxide (SO_2)

2.1.1 Site and Monitoring Information. City name (when applicable), county name and street address of site location. SAROAD site code. SAROAD monitoring method code. Number of hourly observations. *(1)* Number of daily observations. *(2)*

2.1.2 Annual Summary Statistics. Annual arithmetic mean (ppm). Highest and second highest 24-hour averages *(3)* (ppm) and dates of occurrence. Highest and second highest 3-hour averages *(1, 3)* (ppm) and dates and times *(1)* (ending hour) of occurrence. Number of exceedances of the 24-hour primary NAAQS. *(3)* Number of exceedances of the 3-hour secondary NAAQS. *(3)* Number of 24-hour average concentrations *(4)* in ranges:

Range	Number of values
0.00 to 0.04 (ppm)	
0.05 to 0.08	
0.09 to 0.12	
0.13 to 0.16	
0.17 to 0.20	
0.21 to 0.24	
0.25 to 0.28	
Greater than .28	

2.2 Total Suspended Particulates (TSP)

2.2.1 Site and Monitoring Information. City name (when applicable), county name and street address of site location. SAROAD site code. Number of daily observations.

2.2.2 Annual Summary Statistics. Annual arithmetic mean ($\mu g/m^3$) as specified in Appendix K of Part 50. Daily TSP values exceeding the level of the 24-hour PM_{10} NAAQS and dates of occurrence. If more than 10 occurrences, list only the 10 highest daily values. Sampling schedule used such as once every six days, once every three days, etc. Number of additional sampling days beyond sampling schedule used. Number of 24-hour average concentrations in ranges:

20-137 O - 89 - 7

REFERENCES FOR SECTION 3.7

(e) Provide for having a SLAMS network description available for public inspection and submission to the Administrator upon request. The network description must be available at the time of plan revision submittal except for Pb which must be available by December 1, 1981 and for PM_{10} monitors which must be available by 6 months after the effective date of promulgation and must contain the following information for each SLAMS:

(1) The SAROAD site identification form for existing stations.

(2) The proposed location for scheduled stations.

(3) The sampling and analysis method.

(4) The operating schedule.

(5) The monitoring objective and spatial scale of representativeness as defined in Appendix D to this part.

(6) A schedule for: (i) Locating, placing into operation, and making available the SAROAD site identification form for each SLAMS which is not located and operating at the time of plan revision submittal, (ii) implementing quality assurance procedures of Appendix A to this part for each SLAMS for which such procedures are not implemented at the time of plan revision submittal, and (iii) resiting each SLAMS which does not meet the requirements of Appendix E to this part at the time of plan revision submittal.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 52 FR 24740, July 1, 1987]

§ 58.21 SLAMS network design.

The design criteria for SLAMS contained in Appendix D to this part must be used in designing the SLAMS network. The State shall consult with the Regional Administrator during the network design process. The final network design will be subject to the approval of the Regional Administrator.

§ 58.22 SLAMS methodology.

Each SLAMS must meet the monitoring methodology requirements of Appendix C to this part at the time the station is put into operation as a SLAMS.

§ 58.23 Monitoring network completion.

By January 1, 1983, with the exception of PM_{10} samplers whose probability of nonattainment of the PM_{10} ambient standard is greater than or equal to 20 percent which shall be by 1 year after the effective date of promulgation and the remaining PM_{10} samplers which shall be by 2 years after the effective date of promulgation:

(a) Each station in the SLAMS network must be in operation, be sited in accordance with the criteria in Appendix E to this part, and be located as described on the station's SAROAD site identification form, and

(b) The quality assurance requirements of Appendix A to this part must be fully implemented.

[44 FR 27571, May 10, 1979, as amended at 52 FR 24740, July 1, 1987]

§ 58.24 [Reserved]

§ 58.25 System modification.

The State shall annually develop and implement a schedule to modify the ambient air quality monitoring network to eliminate any unnecessary stations or to correct any inadequacies indicated by the result of the annual review required by § 58.20(d). The State shall consult with the Regional Administrator during the development of the schedule to modify the monitoring program. The final schedule and modifications will be subject to the approval of the Regional Administrator. Nothing in this section will preclude the State, with the approval of the Regional Administrator, from making modifications to the SLAMS network for reasons other than those resulting from the annual review.

§ 58.26 Annual SLAMS summary report.

(a) The State shall submit to the Administrator (through the appropriate Regional Office) an annual summary report of all the ambient air quality monitoring data from all monitoring stations designated State and Local Air Monitoring Stations (SLAMS). The annual report must be submitted by July 1 of each year for data collected from January 1 to December 31 of the previous year.

(b) The annual summary report must contain:

(1) The information specified in Appendix F.

(2) The location, date, pollution source, and duration of each incident of air pollution during which ambient levels of a pollutant reached or exceeded the level specified by § 51.16(a) of this chapter as a level which could cause significant harm to the health of persons.

(c) The senior air pollution control officer in the State or his designee shall certify that the annual summary report is accurate to the best of his knowledge.

[44 FR 27571, May 10, 1979, as amended at 51 FR 9586, Mar. 19, 1986]

§ 58.27 Compliance date for air quality data reporting.

The annual air quality data reporting requirements of § 58.26 apply to data collected after December 31, 1980. Data collected before January 1, 1981, must be reported under the reporting procedures in effect before the effective date of Subpart C of this part.

§ 58.28 Regional Office SLAMS data acquisition.

The State shall submit all or a portion of the SLAMS data to the Regional Administrator upon his request.

Subpart D—National Air Monitoring Stations (NAMS)

§ 58.30 NAMS network establishment.

(a) By January 1, 1980, with the exception of Pb, which shall be by December 1, 1981, and PM_{10} samplers, which shall be by 6 months after the effective date of promulgation, the State shall:

(1) Establish, through the operation of stations or through a schedule for locating and placing stations into operation, that portion of a National Ambient Air Quality Monitoring Network which is in that State, and

(2) Submit to the Administrator (through the appropriate Regional Office) a description of that State's portion of the network.

(b) Hereinafter, the portion of the national network in any State will be referred to as the NAMS network.

(c) The stations in the NAMS network must be stations from the SLAMS network required by § 58.20.

(d) The requirements of Appendix D to this part must be met when designing the NAMS network. The process of designing the NAMS network must be part of the process of designing the SLAMS network as explained in Appendix D to this part.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 52 FR 24740, July 1, 1987]

§ 58.31 NAMS network description.

The NAMS network description required by § 58.30 must contain the following for all stations, existing or scheduled:

(a) The SAROAD site identification form for existing stations.

(b) The proposed location for scheduled stations.

(c) Identity of the urban area represented.

(d) The sampling and analysis method.

(e) The operating schedule.

(f) The monitoring objective and spatial scale of representativeness as defined in Appendix D to this part.

(g) A schedule for:

(1) Locating, placing into operation, and submitting the SAROAD site identification form for each NAMS which is not located and operating at the time of network description submittal,

(2) Implementing quality assurance procedures of Appendix A to this part for each NAMS for which such procedures are not implemented at the time of network description submittal, and

(3) Resiting each NAMS which does not meet the requirements of Appendix E to this part at the time of network description submittal.

§ 58.32 NAMS approval.

The NAMS network required by § 58.30 is subject to the approval of the Administrator. Such approval will be contingent upon completion of the network description as outlined in § 58.31 and upon conformance to the

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

JUL 12 1989

MEMORANDUM

SUBJECT: Boilerplates for Block Averaging and Grandfathering Modeling Analyses

FROM: Robert D. Bauman, Chief Bob Bauman
SO_2/Particulate Matter Programs Branch (MD-15)

TO: Chief, Air Branch
Regions I-X

Based upon EPA's June 1, 1989 denial of NRDC's petition for reconsideration of the use of block averaging in an Ohio SIP revision (attached), we recommend that the Regional Offices use language similar to the following boilerplate in future Federal Register notices and/or TSD's in which the SO_2 averaging method is a relevant factor, and which involve otherwise approvable actions:

> The State based the SIP revision on a (block or running) interpretation of the national ambient air quality standards. Under the decision in NRDC v. Thomas, 845 F.2d 1088 (D.C. Cir. 1988), the D.C. Circuit determined that a State is free to submit a SIP revision using either block or running averages. As a result, EPA finds the State's choice to utilize (block or running) averaging to be fully acceptable.

The EPA policy for grandfathering modeling analyses is contained in a January 2, 1985 memorandum from Joseph Tikvart, Chief, Source Receptor Analysis Branch, to the Regional Modeling Contact, Regions I-X. Boilerplate to assist in implementing this policy has previously been informally distributed. However, at this time we request that where grandfathering occurs the Regional Office should incorporate language into the Federal Register and/or TSD similar to the following:

> The modeling techniques used in the demonstration supporting this revision are based on modeling guidance in place at the time that the analysis was performed (cite "old" guidance document). Since that time, the modeling guidance has been changed by EPA (cite "new" guidance document). Because the modeling analysis was substantially complete prior to issuance of the revised guidance, EPA accepts the analysis. If for some reason

this, or any other, analysis must be redone in the future, then it should be redone in accordance with current modeling guidance.

If you have any questions regarding these policies, please contact Doug Grano of my staff at 8-629-5255.

Attachment

cc: Ron Campbell, OAQPS
John Calcagni, AQMD
Pat Embrey, OGC
Eric Ginsburg, AQMD
Dean Wilson, TSD
Regional Modeling Contact, Regions I-X

bcc: D. Grano
J. Vitas

SCHEDULE D.6—PERMANENT WAIVER FROM INTERIM CONTROLS TEST—Continued

[Smelter identification]

	Line	1984	1985	1986	1987	1988	1989	1990	Total
6 Current salvage value	17	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
7 Net present value	18	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

SCHEDULE D.7—HORIZON VALUE OF CASH FLOWS

[Smelter identification]

	Line	Final forecast years		Horizon years					Total
		1989	1990	1991	1992	1993	1994	1995	
A Depreciation free horizon value.									
1. Net cash flow projections	01	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2 Depreciation tax savings.									
a. Depreciation and amortization	02	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. Marginal tax rate	03	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Tax savings	04	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
3 Depreciation-free net cash flows:									
a. Nominal dollar values	05	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
b. 1990 dollar values	06	....	....	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
c. Average	07	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
4 Horizon factor	08	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
5 Depreciation-free horizon value	09	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
B Depreciation tax savings over the horizon period.									
1 Depreciation and amortization	10	XXXX	XXXX	....	....	....	....	....	XXXX
2 Marginal tax rate	11	XXXX	XXXX	....	....	....	....	....	XXXX
3 Tax savings	12	XXXX	XXXX	....	....	....	....	....	XXXX
4 Discount factors	13	XXXX	XXXX	....	....	....	....	....	XXXX
5 Present value of tax savings	14	XXXX	XXXX	....	....	....	....	....	XXXX
6. Total present value of tax savings	15	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....
C. Horizon Value	16	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	....

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

AUTHORITY: Secs. 110, 301(a), 313, and 319 of the Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

SOURCE: 44 FR 27571, May 10, 1979, unless otherwise noted.

Subpart A—General Provisions

§ 58.1 Definitions.

As used in this part, all terms not defined herein have the meaning given them in the Act:

(a) "Act" means the Clean Air Act as amended (42 U.S.C. 7401, et seq.).

(b) "SLAMS" means State or Local Air Monitoring Station(s). The SLAMS make up the ambient air quality monitoring network which is required by § 58.20 to be provided for in the State's implementation plan. This definition places no restrictions on the use of the physical structure or facility housing the SLAMS. Any combination of SLAMS and any other monitors (Special Purpose, NAMS, PSD) may occupy the same facility or structure without affecting the respective definitions of those monitoring station.

(c) "NAMS" means National Air Monitoring Station(s). Collectively the NAMS are a subset of the SLAMS ambient air quality monitoring network.

(d) "PSD station" means any station operated for the purpose of establishing the effect on air quality of the emissions from a proposed source for purposes of prevention of significant deterioration as required by § 51.24(n) of Part 51 of this chapter.

(e) "SO_2" means sulfur dioxide.

(f) "NO_2" means nitrogen dioxide.

(g) "CO" means carbon monoxide.

(h) "O_3" means ozone.

(i) "Plan" means an implementation plan, approved or promulgated pursuant to section 110 of the Clean Air Act.

(j) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or his or her authorized representative.

(k) "Regional Administrator" means the Administrator of one of the ten EPA Regional Offices or his or her authorized representative.

(l) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(m) "Local agency" means any local government agency, other than the State agency, which is charged with the responsibility for carrying out a portion of the plan.

(n) "Indian Reservation" means any Federally recognized reservation established by treaty, agreement, executive order, or act of Congress.

(o) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

(p) "Storage and Retrieval of Aerometric Data (SAROAD) system" is a computerized system which stores and reports information relating to ambient air quality.

(q) "SAROAD site identification form" is one of the several forms in the SAROAD system. It is the form which provides a complete description of the site (and its surroundings) of an ambient air quality monitoring station.

(r) "Traceable" means that a local standard has been compared and certified, either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM) or a USEPA/NBS-approved Certified Reference Material (CRM).

(s) "Urban area population" means the population defined in the most

NAMS design criteria contained in Appendix D to this part.

§ 58.33 NAMS methodology.

Each NAMS must meet the monitoring methodology requirements of Appendix C to this part applicable to NAMS at the time the station is put into operation as a NAMS.

§ 58.34 NAMS network completion.

By January 1, 1981, with the exception of Pb, which shall be by July 1, 1982 and PM_{10} samplers, which shall be by 1 year after the effective date of promulgation:

(a) Each NAMS must be in operation, be sited in accordance with the criteria in Appendix E to this part, and be located as described in the station's SAROAD site identification form; and

(b) The quality assurance requirements of Appendix A to this part must be fully implemented for all NAMS.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 52 FR 24740, July 1, 1987]

§ 58.35 NAMS data submittal.

(a) The requirements of this section apply only to those stations designated as NAMS by the network description required by § 58.30.

(b) The State shall report quarterly to the Administrator (through the appropriate Regional Office) all ambient air quality data and information specified by AEROS Users Manual (EPA-450/2-76-029, OAQPS No. 1.2-039) to be coded into the SAROAD Air Quality Data forms. Such air quality data and information must be submitted on either paper forms, punched cards, or magnetic tape in the format of the SAROAD Air Quality Data forms.

(c) The quarterly reporting periods are January 1-March 31, April 1-June 30, July 1-September 30, and October 1-December 31. The quarterly report must:

(1) Be received by the National Aerometric Data Bank within 120 days of the end of each reporting period, after being submitted by the States to the Regional Offices for review;

(2) Contain all data and information gathered during the reporting period.

(d) For TSP, CO, SO_2, O_3, and NO_2, the first quarterly report will be due on or before June 30, 1981, for data collected during the first quarter of 1981. For Pb, the first quarterly report will be due on December 31, 1982, for data collected during the third quarter of 1982. For PM_{10} samplers, the first quarterly report will be due 120 days after the first quarter of operation.

(e) Air quality data submitted in the quarterly report must have been edited and validated so that such data are ready to be entered into the SAROAD data files. Procedures for editing and validating data are described in AEROS Users Manual (EPA-450/2-76-029, OAQPS No. 1.2-039).

(f) This section does not permit a State to exempt those SLAMS which are also designated as NAMS from all or any of the reporting requirements applicable to SLAMS in § 58.26.

[44 FR 27571, May 10, 1979, as amended at 46 FR 44164, Sept. 3, 1981; 51 FR 9586, Mar. 19, 1986; 52 FR 24740, July 1, 1987]

§ 58.36 System modification.

During the annual SLAMS Network Review specified in § 58.20, any changes to the NAMS network identified by the EPA and/or proposed by the State and agreed to by the EPA will be evaluated. These modifications should address changes invoked by a new census and changes to the network due to changing air quality levels, emission patterns, etc. The State shall be given one year (until the next annual evaluation) to implement the appropriate changes to the NAMS network.

[51 FR 9586, Mar. 19, 1986]

Subpart E—Air Quality Index Reporting

§ 58.40 Index reporting.

(a) The State shall report to the general public on a daily basis through prominent notice an air quality index in accordance with the requirements of Appendix G to this part.

(b) Reporting must commence by January 1, 1981, for all urban areas with a population exceeding 500,000, and by January 1, 1983, for all urban areas with a population exceeding 200,000.

(c) The population of an urban area for purposes of index reporting is the most recent U.S. census population figure as defined in § 58.1 paragraph (s).

[44 FR 27571, May 10, 1979, as amended at 51 FR 9586, Mar. 19, 1986]

Subpart F—Federal Monitoring

§ 58.50 Federal monitoring.

The Administrator may locate and operate an ambient air monitoring station if the State fails to locate, or schedule to be located, during the initial network design process or as a result of the annual review required by § 58.20(d):

(a) A SLAMS at a site which is necessary in the judgment of the Regional Administrator to meet the objectives defined in Appendix D to this part, or

(b) A NAMS at a site which is necessary in the judgment of the Administrator for meeting EPA national data needs.

§ 58.51 Monitoring other pollutants.

The Administrator may promulgate criteria similar to that referenced in Subpart B of this part for monitoring a pollutant for which a National Ambient Air Quality Standard does not exist. Such an action would be taken whenever the Administrator determines that a nationwide monitoring program is necessary to monitor such a pollutant.

Appendix A—Quality Assurance Requirements for State and Local Air Monitoring Stations (SLAMS)

1. General Information.

This Appendix specifies the minimum quality assurance requirements applicable to SLAMS air monitoring data submitted to EPA. States are encouraged to develop and maintain quality assurance programs more extensive than the required minimum.

Quality assurance of air monitoring systems includes two distinct and important interrelated functions. One function is the control of the measurement process through the implementation of policies, procedures, and corrective actions. The other function is the assessment of the quality of the monitoring data (the product of the measurement process). In general, the greater the effort effectiveness of the control of a given monitoring system, the better will be the resulting quality of the monitoring data. The results of data quality assessments indicate whether the control efforts need to be increased.

Documentation of the quality assessments of the monitoring data is important to data users, who can then consider the impact of the data quality in specific applications (see Reference 1). Accordingly, assessments of SLAMS data quality are required to be reported to EPA periodically.

To provide national uniformity in this assessment and reporting of data quality for all SLAMS networks, specific assessment and reporting procedures are prescribed in detail in sections 3, 4, and 5 of this Appendix.

In contrast, the control function encompasses a variety of policies, procedures, specifications, standards, and corrective measures which affect the quality of the resulting data. The selection and extent of the quality control activities—as well as additional quality assessment activities—used by a monitoring agency depend on a number of local factors such as the field and laboratory conditions, the objectives of the monitoring, the level of the data quality needed, the expertise of assigned personnel, the cost of control procedures, pollutant concentration levels, etc. Therefore, the quality assurance requirements, in section 2 of this Appendix, are specified in general terms to allow each State to develop a quality assurance system that is most efficient and effective for its own circumstances.

2. Quality Assurance Requirements

2.1 Each State must develop and implement a quality assurance program consisting of policies, procedures, specifications, standards and documentation necessary to:

(1) Provide data of adequate quality to meet monitoring objectives, and

(2) Minimize loss of air quality data due to malfunctions or out-of-control conditions.

This quality assurance program must be described in detail, suitably documented, and approved by the appropriate Regional Administrator, or his designee. The Quality Assurance Program will be reviewed during the annual system audit described in section 2.4.

2.2 Primary guidance for developing the quality assurance program is contained in References 2 and 3, which also contain many suggested procedures, checks, and control specifications. Section 2.0.9 of Reference 3 describes specific guidance for the de-

REFERENCES FOR SECTION 3.8

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

DATE: SEP 1 1981

SUBJECT: Ambient Monitoring Networks for Model Evaluations

FROM: Richard G. Rhoads, Director
Monitoring and Data Analysis Division

TO: Ronald C. Campbell, Assistant Director
for Program Operations, OAQPS

Under favorable conditions our available air quality models can provide errors of from ±10 to ±40 percent. Under unfavorable conditions the errors can be much worse. For these reasons, we have been considering how to use ambient monitoring data to supplement or improve model estimates on a case-by-case basis.

It is generally not feasible to establish emission limits for point sources based solely on monitoring data. This is because current programs require that emission limits be based upon a fairly rare event (i.e., the second maximum concentration anywhere in the area, at anytime, and with the facility operating at full capacity) and to capture that event on a monitor would normally require a prohibitively large and expensive network.

An alternative approach is to establish a monitoring network of reasonable size, use the resulting monitored data to evaluate the models for applicability to those particular conditions, and then use the resulting "best available" model to establish the emission limitation.

One problem with this approach is defining the "network of reasonable size" which would be used to evaluate the models. If the network is too small, the data would be inadequate to distinguish between models and the evaluation would have no validity. If the network is too large, the cost would be excessive.

Although our experience with evaluations of this nature is very limited, I have recently recommended to Region V that, for a variety of power plants in the Midwest, networks consisting of approximately 15 monitors each should be considered. This recommendation was based upon the following knowledge:

- My staff and the technical modeling staff of Region V estimate that, in moderate terrain, a network of 25-30 monitors would be desirable to obtain "reasonable scientific credibility."

- The Electric Power Research Institute has conducted one phase of a major model evaluation study (called Plume Model Validation) around the Kincaid Power Plant. The PMV network consisted of 30 ambient monitors supplemented by several hundred tracer monitors for special studies.

• The model evaluation program around the Westvaco Luke Mill in Maryland is using nine monitors. The issue at Luke Mill involves only one wind direction (quadrant): If all wind directions were pertinent, a larger network would have been necessary.

• The model evaluation program around the Ashland Oil facility in Kentucky used a network consisting of 18 monitors. The issue involved complex terrain in a valley situation.

• The model evaluation program around the Simplot acid plant in Idaho used a network consisting of five monitors. The issue at Simplot involved only one wind direction and one set of meteorological conditions.

• The model evaluation program around the Big Bend Power Plant on the coast of Florida used a network consisting of eight monitors supplemented by sophisticated plume measurements. The issue at Big Bend involved only a single wind direction.

Based on our experience with these programs (all of which were reasonably successful but, with the exception of EPRI, none of which were "data rich"), I believe that approximately 15 monitors operating for one year is probably the minimum network size to obtain a valid data base under normal circumstances. Fifteen would probably be too few in rugged, complex terrain; fifteen would probably be too many if the issue involved only a single specific location (e.g. a single isolated hilltop) or single meteorological condition.

It is necessary to minimize the number of monitors because the cost of a network of 15 monitors, plus an adequate meteorological station, plus emission monitoring, could range from $300K to over $1 million. The wide range in costs is influenced primarily by the availability of power at the monitoring sites, by the ease of servicing the monitors, and by the complexity of both the terrain and the meteorological conditions. Based on preliminary discussions between Region V staff and electric utility representatives, I believe that most large utilities would be willing and able to bear this cost if they perceive that the evaluation would result in a relaxation of stringent emission limitations.

In the past many utility representatives held a strong opinion that the CRSTER model (most commonly used to evaluate power plants in level to moderate terrain) tended to overestimate the magnitude of concentrations, i.e. that the model had a strong conservative bias. The preliminary data from the EPRI model evaluation disprove that opinion: the EPRI results indicate no significant bias (at least in level terrain).

Also the preliminary data from Westvaco (involving the SHORTZ model), the results from Ashland Oil (involving the VALLEY model), and the results from Big Bend (involving the CRSTER model), all tend to confirm the model predictions, although Ashland Oil showed VALLEY to be somewhat conservative as expected. I would classify the Simplot results as "inconclusive."

As this new information regarding bias (actually lack of bias in our models) becomes widely recognized, it is possible that the utilities may become less willing to gamble on an expensive evaluation which could result in more stringent emission limits rather than more lenient ones. However, I believe that it is to everyone's advantage to have at least a few scientifically valid model evaluation programs so that we can either improve the accuracy of the models or establish reasonable credibility with their results

cc: J. Tikvart
R. Neligan

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

DATE: AUG 7 1981

SUBJECT: Monitoring Around Mid-Western Power Plants

FROM: Richard G. Rhoads, Director
Monitoring and Data Analysis Division (MD-14)

TO: David Kee, Director
Air and Hazardous Materials Division, Region V

We have previously discussed the requests of several utilities to conduct air quality monitoring around their power plants located in Illinois, Indiana and Ohio. The purpose of the monitoring would be to provide a data base suitable for evaluating air quality models and to select the most reliable model for setting emission limits.

No widely accepted performance standards are available with which to judge the acceptability of a single model. Thus, to determine the best model for a specific application, we must rely on a comparison of the relative performance of two or more models using a variety of statistical tests. Such an approach has been recommended by the American Meteorological Society and is incorporated in an OAQPS report entitled "Interim Procedures for Evaluating Air Quality Models" that was provided to your staff last week (see attached memorandum).

These interim procedures are the best available basis for discussions with the utilities on the monitoring programs and subsequent analyses. The procedures involve (1) identification of applicable models; (2) selection and weighting of statistical performance measures; and (3) determination of an appropriate ambient monitoring program. I suggest that you forward this information to the utilities and set up meetings where these issues can be discussed.

At such meetings it will be necessary for the utility representatives to propose alternative models that they believe to be more reliable than the standard EPA models. Statistical tests and performance measures must be agreed upon to determine the relative performance of the models under consideration. These performance measures must be adequate to evaluate the entire range of meteorological conditions which affect the source area, as well as appropriate averaging times. While these meetings will involve highly technical issues, management personnel may be required to make decisions relative to the most important evaluation tests and the best measures of uncertainty.

It will be necessary to agree on an adequate air quality monitoring network composed of continuous monitors with quality assurance meeting the requirements of 40 CFR 58. Although our experience with networks for this purpose is limited, we believe that an appropriate balance between the technical requirements of the analyses and the costs would result in approximately 15 monitors, depending upon the type of terrain, meteorological conditions, prior knowledge of air quality in the area, etc. For the specific case of the Baldwin plant which you mentioned, it is likely that 11 monitors would be adequate if the monitors were carefully located at predicted points of maximum impact under the full range of meteorological conditions. (Location of the monitors at points of maximum impact only under unstable conditions would not provide adequate coverage.)

It will be necessary to agree on an adequate on-site meteorological data collection program. As a minimum, these measurements should be similar to those available from National Weather Service Stations and should be consistent with the PSD Monitoring Guideline requirements. It may be necessary to collect additional data in order to satisfy the input requirements of proposed alternative models.

It will be necessary to agree on an adequate program to collect plant operating data. Ideally, this would consist of continuous in-stack emission monitors supplemented by routine operating characteristics. Many plants are willing to install emission monitors for a variety of purposes. However, if continuous emission monitors are considered to be too expensive, it is usually possible to construct adequate emissions data from a carefully planned as-fired fuel sampling program.

We assume that the utility will be responsible for all data collection, data reduction, and quality assurance. Once a protocol for the specific statistical performance measures and their weighting are established, we further assume that the utility will also be responsible for all calculations and model evaluations. Once the analysis is complete, we can jointly review the results with the utility and come to a reasoned decision as to the most appropriate model for setting emission limits for that source. Thus, the crucial part of this exercise is establishing in a written protocol the data to be collected, the procedures to be followed, and the basis for judging the relative performance of the models being considered.

We must emphasize that the general procedures which are proposed are interim. They will evolve in future applications as we gain experience with developing protocols. We expect, though, that useful and meaningful protocols can result at this time from good faith negotiations between EPA and the utility and its consultants. My staff will be happy to provide you with technical support in developing protocols and in analyzing the model comparisons. Please contact Joe Tikvart or me if you desire further assistance.

Attachment

cc: W. Barber
T. Devine
R. Smith
E. Tuerk
S. Wassersug

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

DATE: 7/30/81

SUBJECT: Interim Procedures for Evaluating Air Quality Models

FROM: Joseph A. Tikvart, Chief J. Tikvart
Source Receptor Analysis Branch (MD-14)

TO: Chief, Air Programs Branch, Regions I - X

Attached is a report entitled "Interim Procedures for Evaluating Air Quality Models." The purpose of the report is to provide a general framework for the quantitative evaluation and comparison of air quality models. It is intended to help you decide whether a proposed model, not specifically recommended in the Guideline on Air Quality Models, is acceptable on a case-by-case basis for specific regulatory application. The need for such a report is identified in Section 7 of "Regional Workshops on Air Quality Modeling: A Summary Report."

An earlier draft (Guideline for Evaluation of Air Quality Models) was provided to you for comment in January 1981. We received comments from four Regional Offices and have incorporated many of the suggestions. These comments reflected a diversity of opinion on how rigid the procedures and criteria should be for demonstrating the acceptability of a nonguideline model. One Region maintained that EPA should establish minimum acceptable requirements on data bases, decision rationale, etc. Others felt that we should be more flexible in our approach. This report defines the steps that should be followed in evaluating a model but leaves room for considerable flexibility in details for each step.

The procedures and criteria presented in this new report are considered interim. They are an extension of recommendations resulting from the Woods Hole Workshop in Dispersion Model Performance held in Setpember 1980. That workshop was sponsored under a cooperative agreement between EPA and the American Meteorological Society. Thus, while some of the performance evaluation procedures may be resource intensive, they reflect most of the requirements identified by an appropriate scientific peer group. However, since the concepts are relatively new and untested, problems may be encountered in their initial application. Thus, the report provides suggested procedures; it is <u>not</u> a "guideline."

We recommend that you begin using the procedures on actual situations within the context of the caveats expressed in the Preface and in Section 5.3. Where suggestions are inappropriate, the use of alternative techniques to accomplish the desired goals is encouraged. Feedback on your experience and problems are important to us. After a period of time during which experience is gained and problems are identified, the report will be updated and guidance will gradually evolve. Questions on the use of the procedures and feedback on your experiences with their application should be directed to the Model Clearinghouse (Dean Wilson, 629-5681). An example of the procedures applied to a real data base is being developed under contract and should be completed in early 1982.

Attachment

cc: Regional Modeling Contacts, Region I - X
W. Barber
D. Fox
T. Helms
W. Keith
M. Muirhead
L. Niemeyer
R. Smith
F. White

EPA-450/4-84-023

Interim Procedures for Evaluating Air Quality Models (Revised)

U.S. ENVIRONMENTAL PROTECTION AGENCY
Monitoring and Data Analysis Division
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

September 1984

REFERENCES FOR SECTIONS 4.1 AND 4.2

Authority: Secs. 1–19, 48 Stat. 31, as amended; 7 U.S.C. 601–674.

2. Section 959.229 is added to read as follows:

§ 959.229 Expenses and assessment rate.

Expenses of $379,675 by the South Texas Onion Committee are authorized and an assessment rate of $0.055 per 50-pound container or equivalent quantity of regulated onions is established for the fiscal period ending July 31, 1989. Unexpended funds may be carried over as a reserve.

Dated: January 13, 1989.

William J. Doyle,

Associate Deputy Director, Fruit and Vegetable Division.

[FR Doc. 89–1250 Filed 1–18–89; 8:45 am]

BILLING CODE 3410–02–M

DEPARTMENT OF THE TREASURY

31 CFR Part 103

Extension of Time for Comments on Proposed Bank Secrecy Act Regulations

AGENCY: Departmental Offices, Treasury.

ACTION: Advance notice of proposed rulemaking, extension of comment period.

SUMMARY: Notice is hereby given that the Department of the Treasury is extending the comment period on the Advance Notice of Proposed Rulemaking Relating to Identification Requirements Required to Purchase Bank Checks, Cashier's Checks, Traveler's Checks and Money Orders, published in the **Federal Register** on December 23, 1988 (53 FR 51846). The Treasury Department has determined that more time is needed for the public to review and comment on the proposal.

DATE: Comments now will be accepted through February 15, 1989.

ADDRESS: Comments should be addressed to Amy G. Rudnick, Director, Office of Financial Enforcement, Department of the Treasury, Room 4320, 1500 Pennsylvania Avenue, NW., Washington, DC 20220.

FOR FURTHER INFORMATION CONTACT: Kathleen A. Scott, Attorney Advisor, Office of the Assistant General Counsel (Enforcement), (202) 566–9947.

Dated: January 13, 1989.

Salvatore R. Martoche,

Assistant Secretary (Enforcement).

[FR Doc. 89–1204 Filed 1–18–89; 8:45 am]

BILLING CODE 4810–25–M

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 51

[FRL–3428–2]

State Implementation Plan Completeness Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of Proposed Rulemaking.

SUMMARY: This notice describes the procedure for assessing whether a State implementation plan (SIP) submittal is adequate to trigger the Clean Air Act requirement that EPA review and take action the submittal. The notice describes, among other things, the criteria for determining the "completeness" of the submittal. EPA is concerned that uncertainty and excessive delays in reviewing SIPs frustrate the development of an optimum State/Federal partnership, cause confusion for sources regarding applicable regulations, and generally dampen initiative in State regulatory programs. Prompted by this concern, EPA is instituting a wide range of SIP processing reforms as described elsewhere in this Federal Register. The proposed rulemaking described below is one of these reforms.

EPA's previous SIP processing procedures provided no mechanism to reject or otherwise eliminate essentially unreviewable SIP submittals (i.e., those missing information necessary to make a reasonable decision as to their procedural and environmental adequacy). Heretofore, SIP submittals that lacked required basic information such as evidence of legal authority or of properly conducted public hearings, or technical support information sufficient to describe a proposed change, generally went through full notice and comment rulemaking (proposed and final) before being rejected. Today's proposal provides a procedure and screening criteria to enable States to prepare adequate SIP submittals, and to enable EPA reviewers to promptly screen SIP submittals, identify those that are incomplete, and return them to the State for corrective action without having to go through rulemaking.

EPA believes that this change, together with those described elsewhere in this **Federal Register**, should enable SIP submittals to be prepared and processed more efficiently and, overall, should improve the quality of SIP submittals.

DATE: All comments should be submitted to EPA at the address shown below by March 6, 1989.

ADDRESSES: Interested parties may submit written comments in duplicate to Public Docket No. A–88–18 at: Central Docket Section (A–130), South Conference Center, Room 4, U.S. Environmental Protection Agency, Attention: Docket No. A–88–18, 401 M. Street, SW., Washington, DC 20460.

Materials relevant to this rulemaking have been placed in Docket No. A–88–18 by EPA and are available for inspection at the above address between 8:00 a.m. and 3:30 p.m., Monday through Friday. The EPA may charge a reasonable fee for copying.

FOR FURTHER INFORMATION CONTACT: Mr. James Weigold, Office of Air Quality Planning and Standards (MD-11), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; Telephone (919) 541–5642 or (FTS) 629–5642.

SUPPLEMENTARY INFORMATION:

Background

The 1970 Clean Air Act (CAA) established the air quality management process as a basic philosophy for air pollution control in this country. Under this system, EPA establishes air quality goals (National Ambient Air Quality Standards—NAAQS) for common pollutants. There are now standards for 6 pollutants: ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, particulate matter (PM_{10}), and lead. States then develop control programs to attain and maintain these NAAQS. These programs are defined by State Implementation Plans (SIPs) which are approved formally by EPA and are legally enforceable by the Agency. Under section 110(a)(2), a SIP must demonstrate attainment, describe a control strategy, contain legally enforceable regulations, include an emission inventory and procedures for new source review, outline a program for monitoring, and show adequate resources. In addition, there can be many other requirements specific to the pollutant being considered. Under section 110(a)(3), revisions to a SIP must not interfere with the SIPs ability to meet these requirements. The consequences of State failure to get SIP approval may be serious: they include Federal promulgation of control regulations and economic sanctions.

Affirmative action is required by EPA on essentially all aspects of every SIP and SIP revision. Since EPA's final decision comes after a regulation already is adopted and implemented at the State level, excessive delay in the review process often is a major source of friction in EPA's relations with State and local agencies. SIP processing at EPA has a schedule goal of 5/2–5/2 for final action. That is, the Regions nominally have 5 months to review submittals in both the proposal and promulgation phases; Headquarters nominally has 2 months in each phase. However, SIP actions often take considerably longer than the total 14 months allocated to publish a final decision.[1]

The lengthy decision process has resulted in strong criticism from sources both inside and outside the EPA. In response, the Deputy Administrator commissioned in July 1987 a senior level task group to assess the problems inherent in the process and to recommend solutions. The task group conducted its assessment and presented recommendations to the Deputy Administrator. The recommendations were approved fully and are described in a companion notice in today's **Federal Register**. One of these recommendations concerns a procedure and criteria for identifying a "complete" SIP package, thereby providing States with guidance on preparing adequate SIP revisions and EPA with a clearly defined mechanism to keep essentially unreviewable SIP revisions out of the review process.

This is important because if a State submits a SIP change without properly stated emission limits, legal authority or compliance schedules, or which contains other obvious deficiencies, it can enter the full EPA review system. Such a SIP either will be eventually disapproved, or languish while the State is required (perhaps months later) to supply essential data. Heretofore, EPA's procedures did not provide in any comprehensive way prompt rejection for incompleteness. Independently, however, some Regional Offices have tried to deal with this problem, and have developed procedures wherein SIP submittals are judged against a set of completeness criteria. The purpose of these procedures has been to keep incomplete packages out of the more extensive review system, thereby saving both EPA and the State valuable time and resources. Today, EPA is proposing to institute an EPA-wide procedure for completeness review of all SIP submittals.

Completeness Review

In order to free EPA resources that would otherwise be consumed in processing incomplete and inherently unapprovable SIPs, EPA has created a completeness review process. Under this process, EPA will review a SIP for completeness when it is initially submitted to determine if all the necessary components have been included to allow the agency to properly review and act on the substance of the SIP revision. This will be a quick screen that will assess the reviewability of a SIP submittal, not its ultimate approvability. EPA will then promptly inform the submitting State whether the agency will proceed to process the SIP revision or if it must be modified by the State because it is incomplete.

There are several benefits to an early determination of completeness. First, the State is informed promptly as to the reviewability of the submittal, a current source of uncertainty in the SIP process. Second, SIP submittals that are inadequate for processing are returned to the State to be corrected, rather than going through the review process only to be disapproved because of a lack of information. Third, unreviewable SIPs are removed from the process early so that resources at the Federal level are allocated to processing only SIPs that are adequate for review. Finally, the completeness criterial provide the States with guidelines on how to prepare reviewable SIPs. It is expected that once the agencies involved (State and local, EPA) become accustomed to the completeness review process, the number of unreviewable submittals will diminish sharply.

Screening criteria have been developed that define the essential elements of an acceptable package, that will avoid obvious inadequacies, and that can be applied uniformly with limited subjective judgement and review. The criteria were developed by EPA Regional Offices already using a list of criteria to determine completeness of SIP packages in an informal way. On March 18, 1988 a policy for determining completeness of SIP submittals was issued by Gerald A. Emison, Director, Office of Air Quality Planning and Standards (OAQPS), to the Regional Offices (a copy has been placed in the docket as item II–B–4). The policy includes basic criteria for determining completeness, and sample letters for accepting and rejecting SIP submittals. This policy will be followed by EPA until today's proposed regulation is made final.

As part of this action, the Administrator is proposing to add these criteria for determining the completeness of State submittals to 40 CFR Part 51 as Appendix V. In addition, EPA proposes to modify § 51.103(a) such that State submissions that do not meet the criteria are not considered official plan submissions for purposes of meeting the requirements of Part 51. In order to be considered as a complete SIP submission or an official submission for Part 51, each plan must meet the criteria described below and in Appendix V. The basic criteria are adaptable for use in parallel processing of State regulations by EPA.[2]

EPA is creating this completeness review process under the authority of Section 301 of the Clean Air Act, which authorizes the Administrator to prescribe such regulations as are necessary to carry out his functions under the Act. EPA is interpreting the terms "plan" in section 110(a)(1) and (2) and "revision" in Section 110(a)(3) to be only those plans and revisions that contain all of the components necessary to allow EPA to a adequately review and take action on such plan or revision under section 110 (and, where applicable, Part D). EPA believes that Congress would not have intended to require EPA to review and take action on SIP submittals that were simply not reviewable because they were lacking important components. Therefore, the Administrator concludes that Section 110(a) requires him to act only on complete State submittals.

Completeness Criteria

The criteria for determining whether a submittal by the State is complete have been separated into two categories: (a) Administrative information and (b) technical support information. Administrative information includes the documentation necessary to demonstrate that the basic administrative procedures have been adhered to by the State during the adoption process. Technical support information includes the documentation that adequately identifies all of the required technical components of the plan submission.

Administrative Information

The administrative information required by the criteria are those basic

[1] Note that section 110(a)(2) of the Clean Air Act requires that "The Administrator shall, within four months after the date required for submission of a [SIP] approve, or disapprove such [SIP] for each portion thereof." Under the Agency's present processing workload, such a time limit is literally impossible to meet for all but the most trivial of actions. EPA maintains that this deadline does not apply to SIP revisions, but rather only to the initial SIP's submitted after EPA promulgates a NAAQS. [illegible] courts have supported EPA's position, other [illegible] have held that a 4-month review period applies to a SIP revision.

[2] Parallel processing is a procedure by which EPA processes, as a proposal, State rules which have not yet been fully adopted by the State in order to expedite the final review process.

documents that demonstrate that the State has properly followed the administrative requirements called for by the Clean Air Act for the adoption of State implementation plans. These include a letter from the Governor or his designee requesting that EPA approve the SIP revision, and evidence that the revision has been adopted by the State in final form, either as part of the State code if the revision is a regulation, or as appropriate source specific documentation in the form of a permit, order, or a consent agreement. The State also must provide documentation that the necessary legal authority exists within the State to adopt and implement the plan revision, must include the requisite copies of the actual revision (regulation, permit, order, etc.), and must indicate that the revision is enforceable by the State. Finally, the State must submit information indicating that the program administrative procedures have been followed, including evidence of public notice and hearings, a compilation of the public comments, and the State's response to these comments.

Technical Support

The purpose of the technical support information is to identify the State's view of the impact of the revision on the environment. The components are intended to demonstrate that the applicable requirements, such as those for attainment and maintenance of ambient standards, increment consumption, and control technology, are in conformance with basic statutory and EPA requirements. In order for EPA to make a reasonable decision concerning the adequacy of a proposed SIP revision, certain information at a minimum must be included in each submittal. Therefore, for purposes of determining the completeness of a SIP submission the implementation plan revision must include an adequate description of the:

(a) Pollutants involved;

(b) Source location and attainment status of the area;

(c) Emissions changes;

(d) Demonstration that standards/increments are protected;

(e) Information used for any modeling demonstration;

(f) Evidence of continuous emissions controls;

(g) Evidence of emissions limitations and other restrictions necessary to ensure emission levels;

(h) Compliance strategies; and

(i) Technological and economic justification for the change where applicable.

Upon receipt of the plan revision, the Regional Office will objectively examine the revision for inclusion of the administrative and technical support information. When the revision is determined complete, the formal review of the adequacy of the information and the approvability of the revision will proceed. In those situations where the submission does not meet the basic criteria as discussed above and set forth in Part 51, Appendix V, the submission will be returned to the State with a letter indicating the deficiencies found. In accordance with the change proposed in 40 CFR 51.103(a), any submission that does not meet the criteria of Appendix V will not be considered an official submission triggering the Act's requirements for EPA review and action. The basic requirements are similar for sequential and parallel processing, varying only in form dictated by the method of processing. In order to be effective, the determination of completeness should be made expeditiously. The Regional Office generally will make a determination of completeness within 45 days of receiving a SIP revision, using the criteria to make an objective decision.

After the decision has been made on completeness, the Regional Offices will process the SIP revision if the submission is complete, or return the SIP revision to the State if it is incomplete. A letter will be sent to the State, informing the State of the completeness status of the SIP revision. If a SIP submittal is incomplete, the deficiencies will be detailed in the letter to the State. If a SIP submittal is complete, the Regional Office will include EPA's expected processing schedule in the letter to the State.

Administrative Requirements

The docket is an organized and complete file of all the information considered by EPA in the development of these SIP processing changes. The docket is a dynamic file because material is added throughout the notice preparation and comment process. The docketing system is intended to allow members of the public and industries involved to identify and locate documents so that they can effectively participate in the process. Along with the statement of basis and purpose of the SIP processing changes and EPA responses to significant comments, the contents of the docket, except for interagency review materials, will serve as the record in case of judicial review (see Clean Air Act, section 307(d)(7)(A), 42 U.S.C. 7607(d)(7)(A).

Section 317(a) of the Clean Air Act, 42 U.S.C. 7617(a), states that economic impact assessments are required for revisions to standards or regulations when the Administrator determines such revisions to be substantial. The changes described today do not change the substantive requirements for preparing and submitting an adequate SIP package. No increase in cost as a result of complying with the changes described today is expected; moreover, the monitoring, recordkeeping, and reporting requirements have been determined to be insubstantial. Because the expected economic effect of the changes is not substantial, no detailed economic impact assessment has been prepared.

The information collection requirements of these changes are considered to be no different than those currently required by the Clean Air Act and EPA procedures. Thus, the public reporting burden resulting from today's notice is estimated to be unchanged from existing requirements. The public is invited to send comments regarding the burden estimate or other aspect of information collection, including suggestions for reducing any burden, to the docket and the following: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA."

Under Executive Order 12291, EPA is required to judge whether an action is "major" and therefore subject to the requirement of a regulatory impact analysis (RIA). The Agency has determined that the SIP processing changes announced today would result in none of the significant adverse economic effects set forth in section 1(b) of the Order as grounds for a finding of "major." The Agency has, therefore, concluded that this action is not a "major" action under Executive Order 12291.

This rule was submitted to OMB for review consistent with section 307(d) of the Clean Air Act. A copy of the draft rule as submitted to OMB, any documents accompanying the draft, any written comment received from other agencies (including OMB), and any written responses to those comments have been included in the docket.

The Regulatory Flexibility Act of 1980, 5 U.S.C. 601-612, requires the identification of potentially adverse impacts of Federal actions upon small business entities. The Act requires the completion of a regulatory flexibility analysis for every action unless the Administrator certifies that the action will not have a significant economic impact on a substantial number of small

entities. For reasons described above, I hereby certify that the final rule will not have a significant impact on a substantial number of small entities.

Date: January 9, 1989.

Lee M. Thomas,

Administrator.

For the reasons set out in the preamble, 40 CFR Part 51 is proposed to be amended as follows:

PART 51—[AMENDED]

1. The authority citation for Part 51 continues to read as follows:

Authority: This rulemaking is promulgated under authority of Sections 101(b)(1), 110, 160–69, 171–178, and 301(a) of the Clean Air Act, 42 U.S.C. 7401(b)(1), 7410, 7420–7429, 7501–7508, and 7601(a).

2. Section 51.103 is proposed to be amended by revising paragraph (a) introductory text to read as follows:

§ 51.103 Submission of plans, preliminary review of plans.

(a) The State makes an official plan submission to EPA when the plan conforms to the requirements of Appendix V to this part, and the State delivers five copies of the plan to the appropriate Regional office, with a letter giving notice of such action. The State must adopt the plan and the Governor or his designee must submit it to EPA as follows:

* * * * *

3. Part 51 is proposed to be amended by adding Appendix V to read as follows:

Appendix V—Criteria for Determining the Completeness of Plan Submissions.

1.0. Purpose

This Appendix V sets forth the minimum criteria for determining whether a State implementation plan submitted for consideration by EPA is an official submission for purpose of review under § 51.103.

1.1. The EPA shall return to the submitting official any plan or revision thereof which fails to meet the criteria set forth in this Appendix V, or otherwise request corrective action, identifying the component(s) absent or insufficient to perform a review of the submitted plan.

1.2. The EPA shall inform the submitting official when a plan submission meets the requirements of this Appendix V, such determination resulting in the plan being an official submission for purposes of § 51.103.

2.0. Criteria

The following shall be included in plan submissions for review by EPA:

2.1. Administrative Materials

(a) A formal letter of submittal from the Governor or his designee, requesting EPA approval of the plan or revision thereof (hereafter "the plan").

(b) Evidence that the State has adopted the plan in the State code or body of regulations; or issued the permit, order, consent agreement (hereafter document) in final form. That evidence shall include the date of adoption or final issuance as well as the effective date of the plan if different from the adoption/issuance date.

(c) Evidence that the State has the necessary legal authority under State law to adopt and implement the plan.

(d) A copy of the actual regulation, or document submitted for approval and incorporation by reference into the plan, including indication of the changes made to the existing approved plan, where applicable. The submittal shall be a copy of the official State regulation/document signed, stamped, dated by the appropriate State official indicating that it is fully enforceable by the State. The effective date of the regulation/document shall, whenever possible, be indicated in the document itself.

(e) Evidence that the State followed all of the procedural requirements of the State's laws and constitution in conducting and completing the adoption/issuance of the plan.

(f) Evidence that public notice was given of the proposed change consistent with procedures approved by EPA, including the date of publication of such notice.

(g) Certification that public hearing(s) were held in accordance with the information provided in the public notice and the State's laws and constitution, if applicable.

(h) Compilation of public comments and the State's response thereto.

2.2. Technical Support

(a) Identification of all regulated pollutants affected by the plan.

(b) Identification of the locations of affected sources including the EPA attainment/nonattainment designation of the locations and the status of the attainment plan for the affected areas(s).

(c) Quantification of the changes in plan allowable emissions from the affected sources; estimates of changes in current actual emissions from affected sources or, where appropriate, quantification of changes in actual emissions from affected sources through calculations of the differences between certain baseline levels and allowable emissions anticipated as a result of the revision.

(d) The State's demonstration that the National Ambient Air Quality Standards, prevention of significant deterioration increments, reasonable further progress demonstration, and visibility, are protected if the plan is approved and implemented.

(e) Modeling information required to support the proposed revision, including input data, output data, models used, justification of model selections, ambient monitoring data used, meteorological data used, justification for use of offsite date (where used), modes of models used, assumptions, and other information relevant to the determination of adequacy of the modeling analysis.

(f) Evidence, where necessary, that emission limitations are based on continuous emission reduction technology.

(g) Evidence that the plan contains emission limitations, work practice standards and recordkeeping/reporting requirements, where necessary, to ensure emission levels.

(h) Compliance/enforcement strategies, including how compliance will be determined in practice.

(i) Special economic and technological justifications required by any applicable EPA policies.

2.3. Exceptions

2.3.1. The EPA, for the purposes of expediting the review of the plan, has adopted a procedure referred to as "parallel processing." Parallel processing allows a State to submit the plan prior to actual adoption by the State and provides an opportunity for the State to consider EPA comments prior to submission of a final plan for final review and action. Under these circumstances the plan submitted will not be able to meet all of the requirements of paragraph 2.1 (all requirements of paragraph 2.2 will apply). As a result, the following exceptions apply to plans submitted explicitly for parallel processing:

(a) The letter required by paragraph 2.1(a) shall request that EPA propose approval of the proposed plan by parallel processing.

(b) In lieu of paragraph 2.1(b) the State shall submit a schedule for final adoption or issuance of the plan.

(c) In lieu of paragraph 2.1(d) the plan shall include a copy of the proposed/draft regulation or document.

(d) The requirements of paragraphs 2.1(e)–2.1(h) shall not apply to plans submitted for parallel processing.

2.3.2. The exceptions granted in paragraph 2.3.1 shall apply only to EPA's determination of proposed action and all requirements of paragraph 2.1 shall be met prior to publication of EPA's final determination of plan approvability.

[FR Doc. 89-1001 Filed 1-18-89; 8:45 am]

BILLING CODE 6560-50-M

FEDERAL EMERGENCY MANAGEMENT AGENCY

Federal Insurance Administration

44 CFR Part 67

[Docket No. FEMA-6946]

Proposed Flood Elevation Determinations

AGENCY: Federal Emergency Management Agency.

ACTION: Proposed rule.

SUMMARY: Technical information or comments are solicited on the proposed base (100-year) flood elevations and proposed base flood elevation modifications listed below for selected locations in the nation. These base (100-year) flood elevations are the basis for the floodplain management measures that the community is required to either adopt or show evidence of being already in effect in order to qualify or remain qualified for participation in the

EPA-450/2-78-027R

Guideline On Air Quality Models (Revised)

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

July 1986

EPA-450/2-78-027R
SUPPLEMENT A
JULY 1987

SUPPLEMENT A

TO THE

GUIDELINE

ON

AIR QUALITY MODELS (REVISED)

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office Of Air And Radiation
Office Of Air Quality Planning And Standards
Research Triangle Park, North Carolina 27711

PN 110-85-01-02-07C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

January 2, 1985

MEMORANDUM

SUBJECT: Regional Implementation of Modeling Guidance

FROM: Joseph A. Tikvart, Chief J. Tikvart
Source Receptor Analysis Branch, MDAD (MD-14)

TO: Regional Modeling Contact, Regions I-X

Attached for your use is information on the implementation of modeling guidance. Attachment 1 is an excerpt of a memorandum from J. Wilburn to D. Tyler (dated November 13, 1984) which identifies several issues. Attachment 2 provides our response to these issues.

It is our intent that the response merely reiterate the way in which we understand modeling guidance to be routinely implemented by all Regional Offices. However, having formalized that understanding, we believe that its circulation is desirable. If you have any questions, please call me.

Attachments

cc: Chief, Air Programs Branch, Regions, I-X
B. Turner
✓ D. Wilson

Attachment 1

(Excerpt of Memorandum from J. Wilburn to D. Tyler, Dated November 13, 1984)

As discussed in this memo, we are quite concerned as to our credibility regarding the development and approval of SIP revisions and bubbles which consider complicated and involved modeling. While our Armco experience may be viewed by some as atypical, we feel that the problem is real enough to the point that we request guidance on the following three questions:

1. When do changes in EPA modeling procedures become official Agency policy? Do such forms as informal modeling protocols and consensus opinions developed at meteorologist meetings and workshops constitute official Agency policy? If so, how is management at the regional division and branch level informed of those decisions (i.e., are such decisions communicated by policy memorandum or must regional management be dependent upon regional participants at such meetings and workshops to accurately convey OAQPS's policy decisions)?

2. How do changes in Agency modeling policy affect in progress modeling analyses? Do policy changes in modeling procedures invalidate modeling protocols which accurately reflected modeling policy at the initiation of ongoing modeling analyses? If so, we would appreciate copies of all policy memorandums which communicated such policies.

3. Will it be necessary in order for Armco's bubble application to be concurred with by OAQPS, for Region IV to require Armco to submit a fourth revision to their modeling procedures which would provide an analysis of the 46 days with more than 6 hours of calm which have thus far been deleted for the submittal pursuant to the original protocol? If so, we would like an explanation of the rationale for this requirement in light of our discussion in this memo.

Attachment 2

(Excerpt of Memorandum from R. Rhoads to J. Wilburn, Dated December 24, 1984)

Regarding your first question: Changes in EPA modeling procedures become official Agency guidance when (1) they are published as regulations or guidelines, (2) they are formally transmitted as guidance to Regional Office managers, (3) they are formally transmitted to Regional Modeling Contacts as the result of a Regional consensus on technical issues, or (4) they are a result of decisions by the Model Clearinghouse that effectively set a national precedent. In the last case, such issues and decisions are routinely forwarded to all of the Regional Modeling Contacts. In order for this system to work, the Regional Modeling Contacts must be actively involved in all Regional modeling issues and they must be consulted on modeling guidance as necessary by other Regional personnel.

Regarding your second question: The time at which changes in modeling guidance affect on-going modeling analyses is a function of the type of agreement under which those analyses are being conducted. On-going analyses should normally be "grandfathered" if (1) there is a written protocol with a legal or regulatory basis (such as the Lovett Power Plant) or (2) the analysis is complete and regulatory action is imminent or underway. If the analysis is based on a less formal agreement and is underway, the Regional Office should inform the source operators of the change and determine whether the change can be implemented without serious disruption to the analysis. If for some reason any previous analysis must be redone, then it should be redone in accordance with current modeling guidance. In any event, consequences of failing to implement current guidance should be discussed with the OAQPS staff (Helms/Tikvart) to ensure that inappropriate commitments are not made by the Regional Office.

Regarding your third question: As previously discussed with your staff, the recent Armco modeling analysis is technically inadequate and not approvable so long as the approximately 46 days with calms are ignored. At the time the original protocol was developed, the deletion of calms was common practice because we had no consensus on technically valid procedures for addressing calms. However, (largely due to the assistance of RO IV staff in developing a technical solution to the calms issue) this practice was discontinued by consensus of the Regional Modeling Contacts who recommended immediate implementation of the new procedures (see Joe Tikvart's June 13, 1983, memo to Regional Modeling Contacts). The subsequent Armco analysis which ignored calms was, therefore, deficient since there is no rationale for "grandfathering" an analysis which was initiated after the new calms guidance was disseminated. This issue is no longer an issue since Armco has already submitted a reanalysis that addresses the calms issue.

June 7, 1988

MEMORANDUM

SUBJECT Revised Model Clearinghouse Operational Plan

FROM: Joseph A. Tikvart, Chief J. Tikvart
Source Receptor Analysis Branch (MD-14)

TO: Chief, Air Branch, Region VII
Chief, Technical Support Branch, Region I
Chief, Air and Radiation Branch, Region V
Chief, Air Programs Branch, Regions II, III, IV, VI, VIII, IX, X

On February 9, 1988 I notified you of the expansion of the Model Clearinghouse to include all criteria pollutants. That memorandum explained briefly how the expanded Clearinghouse would operate and identified individuals in the Technical Support Division and in the Air Quality Management Division who would be involved in resolving Agency regulatory modeling issues. The memorandum also promised that we would be revising the 1981 Operational Plan for the Model Clearinghouse to reflect the current operation. Attached is a copy of that revised plan.

To highlight major functions of the operational plan which you should become most familiar with, please note the structure of the Clearinghouse contained in Section 3, particularly Figure 1. Also you should become familiar with the procedures for referring modeling issues to the Clearinghouse, described in Section 4. Appendix B identifies the contacts in the Regions for various types of modeling problems. Please check over these lists for accuracy and keep us informed of any changes of these personnel in your Region.

It should be remembered that the Model Clearinghouse is a service we provide to the Regional Offices. We do not normally deal directly with the State/local agencies or with industry since this would compromise our function as second level reviewers and would interfere with your function. However we have discussed access by States to Clearinghouse expertise through the Regional Offices. Where a State wishes such a contact, we urge your staff to work closely with their State counterparts to establish a mutally agreed-upon position on the issue.

Finally, for purposes of responding to questions from States and local agencies about the Clearinghouse and its operation, we have no problem if you wish to furnish them with a copy of this plan. For questions from the public we would prefer that you instead provide them with a copy of Appendix C, a separate copy of which is attached. This Appendix is a revised version of a flyer we have distributed for a number of years at the EPA booth at the annual APCA meeting.

EPA Model Clearinghouse
Summary

The Model Clearinghouse is the single EPA focal point for reviewing the use of modeling techniques for criteria pollutants in specific regulatory applications. The Clearinghouse also serves to compile and periodically report for Regional Office benefit Agency decisions concerning deviations from the requirements of the "Guideline on Air Quality Models (Revised)."

Need for the Model Clearinghouse

The Guideline states that when a recommended model or data base is not used, the Regional Administrator may approve the use of other techniques that are demonstrated to be more appropriate. However, there is also a need to provide for a mechanism that promotes fairness and consistency in modeling decisions among the various Regional Offices and the States. The Model Clearinghouse promotes this fairness and uniformity and also serves as a focal point for technical review of "nonguideline" techniques proposed for use/approval by a Regional Administrator.

Functions of the Model Clearinghouse

The major function of the Clearinghouse is to review specific proposed actions which involve interpretation of modeling guidance, deviations from strict interpretation of such guidance and the use of options in the guidance, e.g., Regional Office acceptance of nonguideline models and data bases. This is handled in two ways: (1) the Clearinghouse, on request from the Regional Office, will review the Region's position on proposed (specific case) use of a nonguideline model for technical soundness and national consistency, and (2) the Clearinghouse will screen Federal Register regulatory packages for adherence to modeling policy and make recommendations for resolution of any issues identified.

A secondary function of the Model Clearinghouse is to communicate to regulatory model users in EPA significant decisions involving the interpretation of modeling guidance. This is accomplished through an annual "Clearinghouse Report" which itemizes the significant decisions that have been made and the circumstances involved. This report serves to improve consistency in future decisions and as a source of technical information for the Regional Offices. In addition to the annual report the Clearinghouse informs users on a contemporary basis of significant decisions through copies of written decisions and briefings at various meetings and workshops.

Structure of the Clearinghouse

The Clearinghouse is formally located in the Source Receptor Analysis Branch (SRAB) of OAQPS. However, the Air Quality Management Division (AQMD) also participates in Clearinghouse matters involving SIP attainment strategies and other regulatory functions.

The primary responsibility for managing the Clearinghouse and ensuring that all of its functions are carried out is performed by a person full-time within SRAB. The responsibility for responding to requests for review of modeling issues is assigned, on a pollutant/program basis to three SRAB individuals. In addition, AQMD supports the Clearinghouse with staff who are also knowledgeable in modeling policy. These individuals are responsible for screening SIP submittals and related documents, referring modeling issues to SRAB through the Clearinghouse and documenting the final (and any significant interim) decision on disposition of the issues.

Communication Chain

The Model Clearinghouse functions within the organizational structure of EPA. As such the Clearinghouse serves the EPA Regional Offices. It coordinates with and communicates decisions to the Regional Offices. Any coordination with State and local agencies and individual sources on Clearinghouse activities is a function of the EPA Regional Offices.

REFEF^NCES FOR SECTION 4.3

EPA-450/2-78-027R

Guideline On Air Quality Models
(Revised)

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

July 1986

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 51 and 52

[AH-FRL-3011-6, Docket No. A-80-46]

Requirements for Preparation, Adoption, and Submittal of Implementation Plans

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: On December 7, 1984 (49 FR 48018) EPA proposed to amend 40 CFR 51.24 and 52.21 to substitute by reference the "Guideline on Air Quality Models (Revised)," EPA 450/2-78-027R for the April 1978 version. The guideline lists the air quality models and data bases required to assess impact and to estimate ambient concentrations due to certain sources of air pollutants. Today's action establishes those revisions and incorporates changes as a result of public comment.

EFFECTIVE DATE: October 9, 1986. The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of October 30, 1986.

FOR FURTHER INFORMATION CONTACT: Joseph A. Tikvart, Chief, Source Receptor Analysis Branch, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone (919) 541-5561 or Jawad S. Touma, telephone (919) 541-5681.

ADDRESSES: All documents relevant to development of this rule have been placed in Docket A-80-46, located in the Central Docket Section (LE-131), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460. The docket is available for public inspection and copying between 8:00 a.m. and 4:00 p.m., Monday through Friday, at the address above. A reasonable fee may be charged for copying.

The "Guideline on Air Quality Models (Revised)" (1986), Publication No. EPA 450/2-78-027R is for sale from the U.S. Department of Commerce, National Technical Information Service, 5825 Port Royal Road, Springfield, Virginia, 22161. This document is also available for public inspection at the libraries of each of the ten EPA Regional Offices and at the EPA library at 401 M Street, SW., Washington, DC 20460.

SUPPLEMENTARY INFORMATION:

Background

Section 165(e)(3)(D) of the Clean Air Act (CAA) requires the Administrator to adopt regulations specifying with reasonable particularity each model or models to be used to comply with the Act's prevention of significant deterioration (PSD) requirements. To carry out these requirements, the Guideline on Air Quality Models was incorporated by reference in regulations promulgated for PSD (40 CFR 51.24). Because of its incorporation, revisions to the guideline must satisfy the rulemaking requirements of section 307(d) of the Act.

In March 1980, EPA issued a notice soliciting air quality models developed outside the Agency for potential inclusion in the planned revisions to the Guideline on Air Quality Models (45 FR 20157). EPA received nearly 30 air quality models from private model developers. These were reviewed for technical feasibility and for utility to potential users. In addition to a review by EPA for technical merit, documentation, validation, and coding, the submitted models are also subjected to public review and comment.

On December 7, 1984 (49 FR 48018), EPA proposed amendments to its regulations concerning air quality models and announced that it would hold a public hearing on these proposed amendments and on the revised guideline.

EPA also invited the public to participate and provide advice and comment on the proposed revisions to the Guideline on Air Quality Models. On December 20, 1984 (49 FR 49484), EPA announced the Third Conference on Air Quality Modeling to provide a forum for public review. A transcript of all oral comments received at the conference, as well as a record of all written comments, is maintained in Docket A-80-46. The written comment period was extended to April 1, 1985, and the rebuttal comment period was held open until April 30, 1985.

Response to Comments

Specific comments received can be found in Docket A-80-46, in items IV-D and IV-H. All comments were consolidated according to the issues raised and are discussed, along with full EPA responses in the "Summary of Comments and Responses on the December 1984 Proposed Revisions to the Guideline on Air Quality Models, January 1986," (Docket Item IV-C-26). Certain comments raised significant issues that are fundamental to the development of this guideline. These issues are summarized below, along with EPA responses.

A. Consistency and Accuracy

A number of commenters urged that use of the most accurate models should be promoted and that the need for consistency was overstated. They noted that: (1) The regulatory program should not require use of a single model, (2) use of a single model was based on an arbitrary selection process, and (3) this selection made the Agency inflexible in allowing use of nonguideline models.

EPA's position reflects Congressional concerns that permitting different requirements in different parts of the country could lead to the inequitable location of some industries. Section 165(e)(3)(D) of the CAA specifically requires that EPA ". . . shall specify with reasonable particularity each air quality model or models to be used under specified sets of conditions . . ." Also, section 301(a)(2)(A) of the CAA requires EPA "to assure fairness and uniformity in the criteria, procedures, and policies applied by the various regions in implementing and enforcing the Act." EPA uses the term "consistency" to mean that the same model is used in determining emission limitations for similar sources of air pollution. The result is a uniform approach to modeling-based decisions. Such consistency is not, however, promoted at the expense of model and data base accuracy. In selecting the models listed in Appendix A of the revised guideline, EPA conducted several evaluations of model performance using air quality monitoring data, and peer scientific reviews of modeling techniques. The findings lead to a conclusion that the models listed in Appendix A are at least as accurate as, if not better than, other available models, that these preferred models are statistically unbiased, and that they are familiar to the modeling community. Every effort has been made to ensure within the revised guideline that the realism, flexibility, accuracy and best technical judgments, sought by both regulatory agencies and the regulated community, can be provided. Suitable mechanisms have been provided to assure such accuracy, and flexibility, and to allow the use of alternate or new models.

B. Use of Non-Guideline Models in Particular Areas (The Texas Models)

Many commenters urged EPA to make provisions in the guideline for use of new models, for improvements to existing models, and for models that are otherwise more appropriate in specific cases. In particular, the Texas Models were cited as meeting EPA's criteria for selection and being more economical to run. Concern was also expressed that failure to include these as preferred models would have an adverse effect on the consistency of PSD permitting analyses in Texas where these models are currently used.

EPA has made provision in CFR 51.24 and 52.21 and the guideline for using alternative and improved models. The final rules provide that modification or substitution of an approved model may occur on either a case-by-case basis or on a generic basis within a state's regulatory program. However, EPA will only give generic approval where a state demonstrates that generic usage is appropriate under defined circumstances. For example, a state may be able to show that a model is appropriate for the entire state or some portion thereof based on geographic and meteorological characteristics. EPA encourages the use of these provisions and does not intend to place an undue burden on states that use alternative models, or to delay implementation of scientific advances that are appropriate for regulatory use. EPA has discussed these issues with representatives of the Texas Air Control Board and has indicated that it may be possible for them to demonstrate that certain versions of the Texas Models TEM and TCM (possibly with some modification and clarification in the way these models are applied) may be approvable for generic use in their program. EPA anticipates that these models will be tested by the State of Texas using a protocol developed by them and agreed to by EPA. If the demonstration requirements are satisfied, EPA will announce for public comment in the Federal Register its intention to approve these models for generic use by Texas. For a limited interim period, to be jointly agreed to by Texas and EPA, the Texas Models may continue to be used there because of long prior use based on approval under the previous version of the guideline.

C. Urban Airshed Model

Several commenters requested justification for selection of the Urban Airshed Model as the preferred model for photochemical or reactive pollutant modeling applications involving entire urban areas.

The Urban Airshed Model is the most widely applied and evaluated photochemical dispersion model in existence. EPA believes the evaluation studies referenced in Appendix A of the revised guideline represent sufficient justification for the selection of the Urban Airshed Model as the preferred model for the specified applications.

D. Bjorklund and Bowers Stack-tip Downwash Algorithm

EPA's proposed use of this algorithm was opposed by numerous commenters. Many of these commenters objected to the Bjorklund and Bowers algorithm on the grounds that it was semi-empirical and that it was insufficiently tested by EPA.

EPA is withdrawing its proposal to use the Bjorklund and Bowers stack-tip downwash algorithm pending further evaluation. In the interim, EPA continues to recommend the use of the Briggs stack-tip downwash correction for those cases when the use of stack-tip downwash is appropriate.

E. Definition of Emission Rates

Many commenters said that the use of maximum hourly emission rates is unrealistic and overestimates air quality impact. Alternatives such as using actual emissions, highest historical (e.g., three years), or system-wide limitations on load (for power plants) were suggested.

EPA is required, according to 40 CFR 51.22, to adopt "[e]mission limitations and other measures necessary for attainment and maintenance of any national standard." To achieve this, stationary source control strategies for State Implementation Plans (SIP's) must be determined using the maximum emission rate allowed under the federally enforceable permit. An actual emission rate based on past record may be used only if it is federally enforceable. This requirement applies to the source(s) subject to the SIP emission limit and to nearby sources that have a joint impact. The emission rate for "other sources," defined in the guideline, which generally contribute only to the background has been modified to indicate actual, instead of the maximum, rate to reflect real production or firing rate and hours of operations.

F. Length of Record

A number of commenters disagreed with the requirement for using five years of meteorological data from nearby National Weather Service (NWS) stations.

The Clean Air Act requires EPA to assure that the standards will be attained and maintained. The length of record must be sufficient to include the climatological variability needed to determine emission limitations used to meet the standards. EPA has previously presented its analysis on the length of record in the 1984 Summary of Comments and Responses document (II-G-5). Results from recent EPA research support the position that five years of meteorological data is appropriate. Moreover, commenters did not present factual information which would lead EPA to alter its position.

G. Use of On-site Meteorological Data

Some commenters recommended that if one year of quality assured on-site data is available, the guideline should require its use and eliminate the source's option of using the most beneficial result of either on-site or NWS data.

EPA agrees with these suggestions and recommends that if quality assured on-site data are available, they are preferable to NWS data and should be used.

H. Model Uncertainty

Commenters stated that EPA should incorporate model uncertainty when setting emission limitations based on estimated concentrations. Other factors such as the uncertainty in emissions and meteorological data inputs should also be considered. No viable recommendations on how to implement this concept were given.

EPA has sponsored research on improving methods to assess how uncertainty might be used to set emission limitations. However, this methodology is still being tested. Thus, it does not appear appropriate to extend the use of model uncertainty in the guideline at this time; such a method will be considered for proposal at a future date.

I. Additional Models

Many commenters recommended that the guideline include three new models, the Rough Terrain Diffusion Model (RTDM), a modified version of the building downwash algorithm in the Industrial Source Complex (ISC) model, and the Offshore and Coastal Dispersion Model (OCD).

EPA agrees with these recommendations; however, the application of these models has the potential to change emission limitations set for sources using current models. EPA, therefore, is preparing a supplemental notice of proposed rulemaking that seeks public comment on inclusion of these three new models in the guideline.

J. Other Comments

There was at least one comment on every section of the proposed revisions. Many comments have been incorporated in the revised guidance. EPA has complied with the request of model developers to withdraw their models from Appendix B of the guideline. The models are IMPACT (Sklarew), MESOPLUME, and RTDM (version 3.00). Issues not specifically addressed in the guideline, such as those associated with new methods or techniques will be investigated and future guidance issued, subject to public comment, as necessary.

K. Other Issues

Although the December 7 proposal solicited, in particular, advice and comment on eight issues, several of these topics received little or no comment. Both EPA and the commenters found it easier to include these comments under appropriate sections in the guideline instead of listing these issues separately. Responses to public comments on the eight issues are contained in the Summary of Comments and Responses document (IV–G–26) as follows:

(1) Specific changes to 40 CFR Parts 51 and 52 (no comment received);
(2) Revised format of the guideline (Chapters 1 and 3);
(3) Recommendations for ozone models (Chapter 6);
(4) Proposed changes to preferred models (Chapters 4, 5, and Appendices A and B);
(5) Improving performance evaluations (Chapters 3 and 10);
(6) Modeling uncertainty (Chapter 10);
(7) Degree to which State or local regulatory agencies can have authority to use nonguideline models (Chapters 1 and 3); and
(8) Degree of oversight or approval authority retained by EPA (Chapters 1 and 3).

E.O. 12291

Under Executive Order 12291, EPA must judge whether a rule is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. The Administrator finds this rule not major because it will not have an annual effect on the economy of $100 million or more; it will not result in a major increase in costs or prices; and there will be no significant adverse effects on competition, employment, investment, productivity, innovation or on the ability of U.S.-based enterprises to compete with foreign-based enterprises in domestic or export markets. This regulation will result in no significant environmental or energy impacts. Thus, no Regulatory Impact Analysis was conducted.

Regulatory Flexibility Act

Pursuant to the provisions of 5 U.S.C. 605(b), I hereby certify that the attached rule will not have a significant impact on a substantial number of small entities. This rule merely updates existing technical requirements for air quality modeling analyses required by other Clean Air Act programs (prevention of significant deterioration, new source review, SIP-revisions) and imposes no new regulatory burdens.

Economic Impact Assessment

The requirement for performing an economic impact assessment in section 317 of the Act, 42 U.S.C. 7617, does not apply to this action since the revisions included do not constitute a substantial change in the regulatory burden imposed by the regulation. However, since the guidance includes more sophisticated models, and addresses the use of site-specific data (required under a different section of the PSD regulations), an analysis of the relative costs of using some of the 1978 models and data bases versus the models and data bases specified in the 1980 updated guidance was prepared. This report, "Cost Analysis of Proposed Changes to the Air Quality Modeling Guideline" is available for inspection in Docket A–80–46 at the Central Docket Section whose address is given above, or from the National Technical Information Service as NTIS No. PB 83–112177.

Paperwork Reduction Act

This rule does not contain any information collection requirements subject to review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1980 U.S.C. 3501 *et seq.* EPA has submitted this regulation to OMB for review under Executive Order 12291 and their written comments on the revisions and any EPA responses have been placed in the docket for this proceeding.

List of Subjects

40 CFR Part 51

Administrative practice and procedure, Air pollution control, Intergovernmental relations, Reporting and recordkeeping requirements, Ozone, Sulfur oxides, Nitrogen dioxide, Lead, Particulate matter, Hydrocarbons, Carbon monoxide.

40 CFR Part 52

Air pollution control, Ozone, Sulfur oxides, Nitrogen dioxide, Lead.

This notice of final rulemaking is issued under the authority granted by sections 165(e) and 320 of the Clean Air Act, 42 U.S.C. 7475(e), 7620.

Dated: August 19, 1986.

Lee M. Thomas,

Administrator.

PART 51—REQUIREMENTS FOR PREPARATION ADOPTION AND SUBMITTAL OF IMPLEMENTATION PLANS

Part 51, Chapter I, Title 40 of the Code of Federal Regulations, is amended as follows:

1. The authority citation for Part 51 continues to read as follows:

Authority: 42 U.S.C. 7475(e), 7620.

2. Section 51.24 is amended by revising paragraph (l) to read as follows:

§ 51.24 Prevention of significant deterioration of air quality.

* * * * *

(l) *Air quality models.* The plan shall provide for procedures which specify that—

(1) All estimates of ambient concentrations required under this paragraph shall be based on the applicable air quality models, data bases, and other requirements specified in the "Guideline on Air Quality Models (Revised)" (1986) which is incorporated by reference. It is EPA Publication No. 450/2–78–027R and is for sale from the U.S. Department of Commerce, National Technical Information Service, 5825 Port Royal Road, Springfield, Virginia, 22161. It is also available for inspection at the Office of the Federal Register, Room 8301, 1100 L Street, NW., Washington, DC. This incorporation by reference was approved by the Director of the Federal Register on October 9, 1986. These materials are incorporated as they exist on the date of approval and a notice of any change will be published in the Federal Register.

(2) Where an air quality impact model specified in the "Guideline on Air Quality Models (Revised)" (1986) is inappropriate, the model may be modified or another model substituted. Such a modification or substitution of a model may be made on a case-by-case basis or, where appropriate, on a generic basis for a specific state program. Written approval of the Administrator must be obtained for any modification or substitution. In addition, use of a modified or substituted model must be subject to notice and opportunity for public comment under procedures developed in accordance with paragraph (q) of this section.

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

Part 52, Chapter I of Title 40 of the Code of Federal Regulations, is amended as follows:

1. The authority citation for Part 52 continues to read as follows:

Authority: 42 U.S.C. 7475(e), 7620.

2. Section 52.21 is amended by revising paragraph (l) to read as follows:

§ 52.21 Prevention of significant deterioration of air quality.

* * * * *

(l) *Air quality models.* (1) All estimates of ambient concentrations required under this paragraph shall be based on the applicable air quality models, data bases, and other requirements specified in the "Guideline on Air Quality Models (Revised)" (1986) which is incorporated by reference. It is EPA publication No. 450/2-78-027R and is for sale from the U.S. Department of Commerce, National Technical Information Service, 5825 Port Royal Road, Springfield, Virginia, 22161. It is also available for inspection at the Office of the Federal Register, Room 8301, 1100 L Street, NW., Washington, DC. This incorporation by reference was approved by the Director of the Federal Register on October 9, 1986. These materials are incorporated as they exist on the date of approval and a notice of any change will be published in the Federal Register.

(2) Where an air quality impact model specified in the "Guideline on Air Quality Models (Revised)" (1986) is inappropriate, the model may be modified or another model substituted. Such a modification or substitution of a model may be made on a case-by-case basis or, where appropriate, on a generic basis for a specific state program. Written approval of the Administrator must be obtained for any modification or substitution. In addition, use of a modified or substituted model must be subject to notice and opportunity for public comment under procedures developed in accordance with paragraph (q) of this section.

[FR Doc. 86-19498 Filed 9-8-86; 8:45 am]

BILLING CODE 6560-50-M

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

AUTHORITY: This rulemaking is promulgated under authority of sections 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act 42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a).

SOURCE: 36 FR 22398, Nov. 25, 1971, unless otherwise noted.

EDITORIAL NOTE: Nomenclature changes affecting Part 51 appear at 44 FR 8237, Feb. 8, 1979 and 51 FR 40661, Nov. 7, 1986.

Subparts A-C—[Reserved]

Subpart D—Maintenance of National Standards

SOURCE: 41 FR 18388, May 3, 1976, unless otherwise noted.

§ 51.40 Scope.

(a) *Applicability.* The requirements of this subpart apply to air quality maintenance areas (AQMAs) identified under § 51.110(i) and to any areas identified under § 51.110(l).

(b) *AQMA Analysis.* Under this subpart, procedures are given for the analysis of the air quality impact of specified pollutant emissions from existing sources and emissions associated with projected growth and development in areas identified under paragraphs (i) and (l) of § 51.110. This analysis is referred to in this subpart as an AQMA analysis.

(c) *AQMA Plan.* Under this subpart, the Administrator will require a revision to the State implementation plan for areas identified under § 51.110(i) or § 51.110(l) when necessary to prevent a national ambient air quality standard

ternative control strategies, as well as the costs and benefits of each such alternative for attainment or maintenance of the national standard.

(h) The plan shall identify those areas (counties, urbanized areas, standard metropolitan statistical areas, et cetera) which, due to current air quality and/or projected growth rate, may have the potential for exceeding any national standard within the subsequent 10-year period.

(1) For each such area identified, the plan shall generally describe the intended method and timing for producing the analysis and plan required by paragraph (g) of this section.

(2) The area identification and description of method and timing required by this paragraph shall be submitted no later than May 10, 1974.

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

(i) Based on the information submitted by the State pursuant to paragraph (e) of this section, the Administrator will publish by August 31, 1975, a list of the areas which shall be subject to the requirements of paragraph (g) of this section.

(j) For each area identified by the Administrator pursuant to paragraph (i) of this section, the State shall submit an air quality analysis and, if called for by the Administrator, a plan revision following the procedures of Subpart D.

(k)(1) For all areas of the State, the State implementation plan shall, by May 3, 1978, provide for a procedure for the continual acquisition of information used in projecting emissions.

(2) The plan shall provide that at intervals of no more than 5 years, all areas of the State shall be assessed to determine if any areas are in need of plan revisions.

(3) The State shall retain the data gathered and the written assessment made under paragraphs (h)(1) and (2) of this section, and make them available for public inspection and submit them to the Administrator at his request.

(4) The State shall notify the Administrator if an area is undergoing an amount of development such that it presents the potential for a violation of national standards within a period of 20 years.

(l) Whenever the Administrator calls for a plan revision he may, without publishing the area in Part 52 of this chapter, require the revision be developed in accordance with the procedures of Subpart D.

[51 FR 40661 Nov. 7, 1986 as amended at 51 FR 40665, Nov. 7, 1986]

§ 51.111 Description of control measures.

Each plan must set forth a control strategy which includes the following:

(a) A description of each control measure that is incorporated into the plan, and a schedule for its implementation.

(b) Copies of the enforceable laws and regulations to implement the measures adopted in the plan.

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

(d) A description of enforcement methods including, but not limited to:

(1) Procedures for monitoring compliance with each of the selected control measures,

(2) Procedures for handling violations, and

(3) A designation of agency responsibility for enforcement of implementation.

§ 51.112 Demonstration of adequacy.

(a) Each plan must demonstrate that the measures, rules, and regulations contained in it are adequate to provide for the timely attainment and maintenance of the national standard that it implements. The adequacy of a control strategy shall be demonstrated by means of a proporational model or dispersion model or other procedure which is shown to be adequate and appropriate for such purposes.

(b) The demonstration must include the following:

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

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

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

(4) A description of the dispersion models used to project air quality and to evaluate control strategies.

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

§ 51.113 Time period for demonstration of adequacy.

(a) The demonstration of the adequacy of the control strategy to attain a primary standard required under § 51.112 must cover the following periods:

(1) At least three years from the date by which the Administrator must approve or disapprove the plan, if no extension under Subpart R is granted, or

(2) At least five years from the date by which the Administrator must approve or disapprove the plan. If an extension under Subpart R is granted.

(b) The demonstration of adequacy to attain a secondary standard required under § 51.112 must cover the period of time determined to be reasonable under § 51.110(c) for attainment of such secondary standard.

§ 51.114 Emissions data and projections.

(a) Except for lead, each plan must contain a detailed inventory of emissions from point and area sources. Lead requirements are specified in § 51.117. The inventory must be based upon measured emissions or, where measured emissions are not available, documented emission factors.

(b) Each plan must contain a summary of emission levels projected to result from application of the new control strategy.

(c) Each plan must identify the sources of the data used in the projection of emissions.

§ 51.115 Air quality data and projections.

(a) Each plan must contain a summary of data showing existing air quality.

(b) Each plan must:

(1) Contain a summary of air quality concentrations expected to result from application of the control strategy, and

(2) Identify and describe the dispersion model, other air quality model, or receptor model used.

(c) Actual measurements of air quality must be used where available if made by methods specified in Appendix C to Part 58 of this chapter. Estimated air quality using appropriate modeling techniques may be used to supplement measurements.

(d) For purposes of developing a control strategy, background concentration shall be taken into consideration with respect to particulate matter. As used in this subpart, background concentration is that portion of the measured ambient levels that cannot be reduced by controlling emissions from man-made sources.

(e) In developing an ozone control strategy for a particular area, background ozone concentrations and ozone transported into an area must be considered. States may assume that the ozone standard will be attained in upwind areas.

§ 51.116 Data availability.

(a) The State must retain all detailed data and calculations used in the preparation of each plan or each plan revision, and 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 plan revisions are not considered a part of the plan.

(c) Each plan must provide for public availability of emission data reported by source owners or operators or otherwise obtained by a State or local agency. Such emission data must be correlated with applicable emission limitations or other measures. As used in this paragraph, "correlated" means presented in such a manner as to show the relationship between measured or

EPA-450/4-84-023

Interim Procedures for Evaluating Air Quality Models (Revised)

U.S. ENVIRONMENTAL PROTECTION AGENCY
Monitoring and Data Analysis Division
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

September 1984

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/4-85-006
July 1985

Air

EPA

Interim Procedures For Evaluating Air Quality Models: Experience with Implementation

REFERENCES FOR SECTION 4.4

EPA-450/2-78-027R

Guideline On Air Quality Models (Revised)

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

July 1986

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/4-87-013
June 1987

Air

EPA

On-Site Meteorological Program Guidance for Regulatory Modeling Applications

United States
Environmental Protection
Agency

Environmental Monitoring Systems
Laboratory
Research Triangle Park NC 27711

EPA-600/4-82-060
Feb. 1983

Research and Development

EPA

Quality Assurance Handbook for Air Pollution Measurement Systems:

Volume IV. Meteorological Measurements

United States
Environmental Protection
Agency

Environmental Monitoring Systems
Laboratory
Research Triangle Park NC 27711

Research and Development

EPA-600/4-82-060 Feb. 1983

EPA

Quality Assurance Handbook for Air Pollution Measurement Systems:

Volume IV. Meteorological Measurements

Peter L. Finkelstein, Daniel A. Mazzarella, Thomas J. Lockhart, William J. King, and Joseph H. White

REFERENCES FOR SECTION 4.5

EPA-450/2-78-027R

Guideline On Air Quality Models (Revised)

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

July 1986

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

16 MAR 1988

MEMORANDUM

SUBJECT: Use of Allowable Emissions for National Ambient Air Quality Standards (NAAQS) Impact Analyses Under the Requirements for Prevention of Significant Deterioration (PSD)

FROM: John Calcagni, Director
Air Quality Management Division (MD-15)

William G. Laxton, Director
Technical Support Division (MD-14)

TO: Thomas J. Maslany, Director
Air Management Division, Region III

William B. Hathaway, Director
Air, Pesticides, & Toxics Div., Region VI

This memorandum is in response to recent requests from your offices for clarification of the Environmental Protection Agency's (EPA) policy concerning the implementation of the PSD air quality impact analysis under 40 CFR 51.166(k) [also §52.21(k)]. Of specific concern is the question of whether the required analysis for new major sources and major modifications is to be based on actual or allowable emissions from existing background sources. This memorandum sets forth the position that allowable emissions should generally be used. However, as explained below, certain allowances may be made, primarily with respect to the evaluation of impacts on the long term NAAQS, to consider an existing source's actual annual operations. This position best resolves the inconsistencies between previous written guidance for PSD and the guidance applicable to NAAQS attainment demonstrations for State implementation plans (SIP's).

The PSD regulations at 40 CFR 51.166(k) stipulate that "allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases... would not cause or contribute to air pollution in violation of [any national ambient air quality standard (NAAQS)]." (Emphasis added.) While this provision clearly requires the use of allowable emissions for the new or modified source, it offers no similarly explicit requirement regarding emissions to be used for existing source contributions.

Nationally, States and EPA Regional Offices have utilized several interpretations which have lead to a consistency problem in implementing the requirement for a NAAQS demonstration under 40 CFR 51.166(k). Some States presently accept the use of actual source emissions for existing background point sources, and reference EPA guidance to support their position. Regions, on the other hand, encourage the use of emissions estimates more closely reflecting legally allowable emissions.

Available EPA guidance for PSD, which dates back to 1980, supports the use of actual emissions to project the air quality impacts caused by existing point sources. Specifically, the "Prevention of Significant Deterioration Workshop Manual" (EPA-450/2-80-081, October 1980) states that "actual emissions should be used... to reflect the impact that would be detected by ambient air monitors" for the PSD NAAQS analysis. However, because many sources typically emit at rates well below their legally allowable emission rate on an annual basis, we now believe that the use of actual emissions to demonstrate NAAQS attainment could substantially underestimate the potential air quality impacts resulting from existing sources.

The EPA's policy for demonstrating stationary point source compliance with the NAAQS for SIP purposes clearly requires the use of emissions which are more closely tied to allowable emissions. The model emission input data requirements for such SIP demonstrations are contained in Table 9-1 of the "Guideline for Air Quality Models (Revised)" (GAQM), EPA-450/2-78-02R, July 1986. For "nearby background sources" an adjustment to the allowable emission rate[1] may be made only for determinations of compliance with the annual and quarterly NAAQS, and only with respect to the annual operating factor. For "other background sources" an adjustment to both the operating level and the operating factor, as explained in Table 9-1, could be made for determinations of compliance with the long term and short term NAAQS.

The referenced model emission input data requirements for existing point sources are contained in the GAQM which has undergone rulemaking and is incorporated by reference in EPA's PSD regulations under Parts 51 and 52. Although a footnote in Table 9-1 indicates that the model input data requirements may not apply to PSD NAAQS analyses, we now believe that such requirements should be applied to PSD rather than using actual emissions as indicated in the 1980 PSD guidance. Thus,

---

[1]Emission rates for model input consist of three components: 1) the emission limit, e.g., #/mmBtu; 2) the operating level, e.g., mmBtu/hour; and 3) the operating factor, e.g., hours/day, hours/year.

compliance demonstrations for PSD and for stationary source control strategies under SIP's will be accomplished in a consistent manner.

In order to apply Table 9-1 in the GAQM to PSD NAAQS analyses, certain clarifications need to be provided. First, the proposed major new source or major modification must be modeled at its maximum allowable emission rate. Second, the existing facility to which a major modification has been proposed, but whose actual emissions (not including emissions from the proposed modification) will remain unchanged, may be considered as the "stationary point source subject to SIP emission limit(s)..." to determine the model emission input requirements. Portions of the existing facility where the emission rate is expected to increase as a result of the proposed modification should be modeled at the allowable emission rate. Finally, background point sources 1) having already received their construction permit but not yet in operation, or 2) with less than two years of operational history, should also be modeled at their allowable emission rate.

Of course, an analysis which demonstrates no contravention of the standards, based entirely on maximum allowable emissions rates (including full operation for the entire year) for all modeled point sources is acceptable. If a violation of any NAAQS is revealed by this type of analysis, then the adjustments described above may be made in cases where it can be shown to the satisfaction of the permit granting agency that historical operating levels and/or operating factors will be representative of future conditions.

This use of Table 9-1 of the GAQM for accomplishing the required PSD NAAQS analysis will supersede the various procedural interpretations presently being applied. Since different procedures are currently in use, we believe that it is necessary to provide a grace period for implementing the required procedure. Consequently, modeling analyses for any PSD application submitted to the reviewing agency on or after October 1, 1989 should be based on legally allowable emissions or must use the model emission input data requirements contained in Table 9-1 of the GAQM as clarified above for PSD purposes.

cc: Air Branch Chief, Regions I-X
New Source Review Contacts
Regional Modeling Contacts
E. Lillis
J. Tikvart
T. Helms
B. Bauman

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

3 MAY 1989

MEMORANDUM

SUBJECT: **Identification of New Areas Exceeding the NAAQS**

FROM: **John Calcagni, Director**
Air Quality Management Division (MD-15)

TO: **William Laxton, Director**
Technical Support Division (MD-14)

This is in response to your earlier request for our consideration of two modeling related State implementation plan (SIP) issues. Specifically, the two issues are: (1) approval of a proposed SIP emission limit for a source under consideration when there are modeled violations of the national ambient air quality standards (NAAQS) due to nearby background sources in the surrounding area, and (2) the resource burden associated with assembling the data necessary for modeling the background sources. This memorandum restates the existing policy developed by the Model Clearinghouse and discusses limited exceptions to the policy.

SIP Approvals

Our general policy may be summarized as follows:

1. Background concentrations are an essential part of the total air quality concentration to be considered in determining source impacts. Nearby sources which are expected to cause a significant concentration gradient in the vicinity of the source under consideration should be explicitly modeled (as "background" sources).

2. Under section 110 of the Clean Air Act, each SIP must provide for attainment and maintenance of the NAAQS. Where background sources are found to cause or contribute to a violation, a SIP revision for the source under consideration generally should not be approved until each violation in the modeled Region is prevented or eliminated through the SIP rules. This policy avoids approval of a SIP revision which does not provide for attainment throughout the modeled area.

I also recognize that section 110 allows for approval of portions of SIPs. Therefore, exceptions to the general policy may be warranted in certain circumstances. Before any exception will be considered, it must be clearly shown that the SIP would be improved as a result of the partial approval. As a minimum, the following factors should be considered in determining exceptions to the general policy:

1. Approval would not interfere with expeditious attainment (i.e., emissions from the source under consideration do not cause or contribute to the modeled violation).

2. There would be an environmental benefit (i.e., the SIP revision would result in an actual emissions decrease and ambient air quality improvement).

3. Enforcement of the SIP would be improved (e.g., without approval there would be no federally enforceable measure for the source under consideration or ambiguities in the previous limit serve to frustrate enforcement efforts).

Where it is found that an exception should be made based on the above factors, we expect the proposed approval notice to specifically identify the background source violations and clearly state that the State retains an obligation to take action expeditiously to correct the background violations. The final approval notice for the source under consideration should not be promulgated before the State acknowledges the background violations and submits an acceptable schedule for corrective action. The schedule would then be included in the final notice as the State's response to EPA's identification of violations. A SIP call pursuant to section 110(a)(2)(H) should be issued where a State fails to acknowledge its obligation and submit a schedule for resolution of violations during the comment period.

<u>Resources</u>

The resource burden associated with assembling the necessary data and modeling the background sources has been extensively discussed through the Model Clearinghouse and annual modelers' workshops. I believe that the resource burden associated with modeling background sources using current modeling guidance need not be as great as it potentially appears.

The <u>Guideline on Air Quality Models</u> (<u>Guideline</u>) states that the nearby (background) source inventory should be determined in consultation with the local air pollution control agency. Specifically, the <u>Guideline</u> states that "The number of (background) sources is expected to be small except in unusual situations." In this and in other areas, the Guideline necessarily provides flexibility and requires judgment to be exercised by the reviewing agency. The resource burden may be mitigated somewhat by application of this judgement.

In investigating whether more explicit guidance is needed, my staff has coordinated with the Model Clearinghouse and the modeling and SO_2 contacts in each Regional Office. Given the flexibility that is provided by existing guidance and the tendency for more explicit policy to reduce this flexibility, no further guidance was judged necessary. The Regional Offices generally have been able to work with their States to collect sufficient data to support the necessary modeling. Consequently, there was little support for the suggestion to revise the current policy to more explicitly limit the number of sources that should be modeled for downwash.

Conclusion

I believe that an exception to the general policy regarding processing of SIP revisions may be warranted where it is in the best interests of air quality to approve certain SIP revisions notwithstanding the existence of violations due to background sources. However, the affected State retains an obligation to take corrective action in response to any properly conducted analyses which demonstrate a violation. This policy is consistent with the Guideline and Model Clearinghouse actions. My staff is available to assist in application of this policy on a case-by-case basis.

If you would like to discuss these issues further, please call me or have your staff contact Doug Grano at extension 5255.

cc: R. Bauman
R. Campbell
P. Embrey (OGC)
E. Ginsburg
D. Grano
J. Silvasi
D. Stonefield
J. Tikvart
D. Wilson
Air Division Directors, Regions I-X

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

OCT 10 1985

MEMORANDUM

SUBJECT: Questions and Answers on Implementing the Revised Stack Height Regulation

FROM: G. T. Helms, Chief
Control Programs Operations Branch (MD-15)

TO: Chief, Air Branch, Regions I-X

A number of questions have arisen in several areas of the revised stack height regulation since its promulgation on July 8. The following answers have been developed in response. The questions and answers are arranged under the general topic headings of interpretation of the regulation, State implementation plan (SIP) requirements, and modeling analyses. Please continue to call Sharon Reinders at 629-5526 if you have further comments or additional questions.

Interpretation of the Regulation

1. Q: What criteria should be used to determine when a stack was "in existence" with respect to the various grandfathering dates in the regulation?

A: The recent promulgation of revisions to the stack height regulation did not change the definition of "in existence." The definition is provided in 40 CFR 51.1(gg) and includes either the commencement of continuous construction on the stack or entering into a binding contract for stack construction, the cancellation of which would result in "substantial loss" to the source owner or operator. The definition of what constitutes a "substantial loss" will be the subject of future guidance.

2. Q: What "source" definition should be used in determining whether tie-ins to grandfathered stacks should be permitted or prohibited?

A: The term "source" in this instance means a single emitting unit. Thus, credit for tying a single post-1970 unit(s) into a grandfathered stack serving a number of old units is prohibited under the regulation.

3. Q: What is meant in the regulation by "facility"?

A: For purposes of this regulation, the definition contained in 40 CFR 51.301(d) should be used. That definition essentially defines the term as the entire complex of emitting activities on one property or contiguous properties controlled by a single owner or designee.

4. Q: Must good engineering practice (GEP) stack height be established separately for each pollutant? If not, how should it be determined?

A: It is not necessary to calculate a separate GEP stack height for each pollutant. Since "GEP" is defined by Section 123 of the Clean Air Act as the height necessary to ensure against excessive concentrations of any air pollutant, it follows that GEP should be established for each source based on the pollutant requiring the greatest height to avoid excessive concentrations.

5. Q: How should "reliance" on the 2.5H formula be determined?

A: First, "reliance" on the 2.5H formula applies only to stacks in existence before January 12, 1979. Credit for "reliance" on the 2.5H formula can be granted under the following cases: (a) Where the stack was actually built to a height less than or equal to 2.5H; (b) Where the stack was built taller than 2.5H and the emission limitation reflects the use of 2.5H in the SIP modeling analysis; or (c) Where evidence is provided to show "reliance" as discussed in the following paragraph. If no modeling was used to set the emission limitation for the source, then it cannot be argued that there was "reliance" on the formula, since EPA's guidance was specifically aimed at using stack height credit in establishing emission limitations. Once it is determined that the emission limitation was in fact based on estimates of dispersion from the stack, then the source can be said to have properly "relied" on the 2.5H formula. In the event that it cannot be determined that the emission limit is based on "reliance" on the 2.5H formula, then the refined H + 1.5L formula must be used.

Where a clear relationship between a 2.5H stack height and the emission limitation cannot be shown, where the emission limitation was not calculated based precisely on the 2.5H height, or where the stack height used in modeling cannot be verified, then additional evidence will be needed. Preferred would be written documentation, such as copies of the original engineering calculations or correspondence between the State or the emission source owner and EPA indicating that the 2.5H formula should be used to derive the emission limitation. However, recognizing that such evidence is often not retained for more than a few years, "reconstructed" documentation may be considered, but should only be used as a last resort. This evidence should include explanations by those individuals who were involved in designing the facility, calculating emission rates, and who represented the facility in dealings with the

State and EPA on how the emission limit was derived, including a discussion of how the formula was originally used in deriving the source emission limitation, a discussion of the analytical method applied, and a listing of any contacts or discussions with EPA during that period. This listing will aid EPA in searching its own files to find any records of communication or correspondence that may bear on the issue.

In no case should a source be allowed after January 12, 1979, to obtain a relaxation in the emission limitation by arguing that it "relied" on past EPA guidance endorsing the 2.5H formula. In cases where a relaxation based on GEP formula height is sought in the future, the refined H + 1.5L formula must be used.

6. Q: The preamble specifically discusses cooling towers as structures to which the formula should not be applied. Will the Office of Air Quality Planning and Standards be specifying other structures that are not well represented by the formula?

A: The discussion in the preamble and GEP guideline is not intended to be all-inclusive; judgment should be used in determining when fluid modeling should be used to estimate the effects of structures with rounded, domed, or tapered shapes. Water towers and storage tanks are additional examples of such structures. As additional information becomes available on the aerodynamic effects of specific building shapes and configurations, we will evaluate the need to revise the GEP guidance. However, at present, there are no plans to issue a "laundry list" of structures to which the formulas do not apply.

SIP Requirements

7. Q: Should a compliance averaging time be explicitly stated in a SIP revision for sulfur dioxide (SO_2) emission limits that are revised to meet the stack height regulation?

A: A compliance averaging time need not be specified as an enforceable SIP provision as long as a stack test compliance method is in place in the underlying federally approved SIP. EPA's current national policy requires that SIP's and permits contain enforceable "short-term" emission limits set to limit maximum emissions to a level which ensures protection of the short-term national ambient air quality standards (NAAQS) and prevention of significant deterioration (PSD) increments. EPA relies upon a short-term stack test provision in the SIP as the method of determining compliance with the emission limits. In lieu of a stack test, EPA has accepted fuel sampling and analysis and continuous emission in-stack monitors (CEM's). When compliance is to be determined from information obtained by fuel sampling and analysis and CEM's, short-term averaging times should be specified.

8. Q: Are all States required to have "stack height regulations"?

A: Limitations on creditable stack height and dispersion techniques impact the SIP program in two areas--SIP emission limits for existing sources and SIP provisions covering new source review (NSR)/PSD permitting procedures. For existing sources, State regulations limiting credit for stack height and other dispersion techniques (stack height regulations) are not necessary as long as the SIP emission limits are not affected in any manner by so much of the stack height as exceeds GEP, or any other dispersion technique. Where a State has stack height regulations, those regulations must be consistent with EPA's regulation. Where a SIP contains regulations that are inconsistent with EPA's regulation, the State must either adopt a stack height regulation that is consistent with EPA's or incorporate the EPA regulation by reference.

For the NSR/PSD programs, it is essential that the plan contain limitations on the amount of creditable stack height and other dispersion techniques. The following cases have been developed to illustrate what action(s) may be required of the State since promulgation of the stack height regulation.

CASE A(1): A fully or partially delegated PSD program that references but does not define GEP where the delegation agreement does not contain a date to define which version of the PSD rule is being delegated.

ACTION: Notify the State that all permits issued henceforth must be consistent with EPA's stack height regulation. All permits previously issued must be reviewed and revised as necessary within 9 months.

CASE A(2): A fully or partially delegated PSD program that references but does not define GEP where the delegation agreement does contain a date to define which version of the PSD rule is being delegated.

ACTION: Update the delegation agreement to reflect agreement with EPA's stack height regulation as of July 8, 1985. Notify the State that all permits issued henceforth must be consistent with EPA's stack height regulation. All permits previously issued must be reviewed and revised as necessary within 9 months.

CASE B: The current federally approved SIP for NSR/PSD does not contain a reference to GEP or dispersion techniques, i.e., provisions assuring that emission limitations will not be affected by stack height in excess of GEP or any prohibited dispersion techniques do not exist in the current SIP.

ACTION: Notify the State that such provisions must be adopted and submitted as a SIP revision within 9 months. This can be acccomplished by adopting stack height regulations at the State level or by adopting the appropriate reference and commitment to comply with EPA's stack height regulation as promulgated on July 8, 1985. Interim permitting should be consistent with EPA's stack height regulation.**

CASE C: The current federally approved SIP for NSR/PSD contains references to, but does not define, GEP or dispersion techniques.

ACTION: Notify the State that a commitment to comply with EPA's stack height regulation as promulgated on July 8, 1985, is required. If a State is unable to make such a commitment, State regulations must be revised to be consistent and submitted to EPA as a SIP revision within 9 months and interim permitting should be consistent with EPA's stack height regulation. No "grace period" will be allowed for sources receiving permits between July 1985 and April 1986.**

CASE D: The current federally approved SIP for NSR/PSD contains stack height regulations that are inconsistent with EPA's regulation.

ACTION: Notify the State that such regulations must be revised to be consistent and submitted as a SIP revision within 9 months and that interim permitting should be consistent with EPA's stack height regulation.**

CASE E(1): A SIP for NSR/PSD has been submitted to EPA, or will be submitted to EPA before the due date for stack height revisions. The submittal contains provisions that conflict with EPA's stack height regulation.

ACTION: Notify the State that EPA cannot approve the submittal until it is revised pursuant to EPA's July 8, 1985, regulation.

**In the event that a State does not have legal authority to comply with EPA's regulation in the interim (e.g., because it must enforce State rules that are inconsistent with EPA's regulation) and is compelled to issue a permit that does not meet the requirements of the EPA revised stack height regulation, then EPA should notify the State that such permits do not constitute authority under the Clean Air Act to commence construction.

CASE E(2): As in Case E(1), a SIP for NSR/PSD has been submitted to EPA or will be submitted to EPA before the due date for stack height revisions. The submittal is not inconsistent with EPA's stack height regulation, but portions of the existing approved SIP that relate to the submittal are inconsistent.

ACTION: Approve the SIP submittal based on a commitment by the State to correct the inconsistencies in its existing SIP to comport with EPA's July 8 regulation and submit the corrections as a SIP revision within 9 months. Interim permitting should be consistent with EPA's stack height regulation.** If the existing SIP is ambiguous, i.e., the SIP references but does not define terms relating to GEP or dispersion techniques, the action steps outlined in Case C above should be followed.

CASE F: In nonattainment areas, emission limits or permits do not always include modeling, but rather are based on lowest achievable emission rate (LAER) and offsets.

ACTION: If no modeling is used in the issuance of a permit, the emission requirements for the source are not "affected" by stack heights or dispersion techniques, and no action is needed. However, if modeling was used in the process of preparing and issuing a permit, such as cases where offsets were obtained offsite, that modeling must be reviewed for consistency with the stack height regulation.

9. Q: What must all States do now that EPA's stack height regulation is promulgated?

A: States must review and revise their SIP's as necessary to include or revise provisions to limit stack height credits and dispersion techniques to comport with the revised regulations, and, in addition, review and revise all emission limitations that are affected by stack height credit above GEP or any other dispersion techniques. In accordance with Section 406(d)(2) of the Clean Air Act, States have 9 months from promulgation to submit the revised SIP's and revised SIP emission limitations to EPA.

In an August 7, 1985, memo titled "Implementation of the Revised Stack Height Regulation--Request for Inventory and Action Plan to Revise SIP's," Regional Offices were requested to begin working with each of their States to develop States' Action Plans. Each Action Plan should include the following: (1) An inventory of (a) all stacks greater than 65 meters (m), (b) stacks at sources which exceed 5,000 tons per year total allowable SO_2 emissions; and (2) A reasonable schedule of dates for significant State actions to conform both State stack height rules and emission limitations to EPA's stack height regulation. Schedules should include increments of progress. Regional Offices should be satisfied that each of their States provide schedules for completion of the tasks

as outlined in the August memo and report the status of schedule commitments to them on a monthly basis. Regional Offices have been asked to forward monthly status reports to the Control Programs Development Division on the States' progress to meet scheduled commitments and also report the results of followup with the States on schedules that are not met. In order to facilitate tracking the States monthly progress, guidance on a standardized format will be issued shortly.

Modeling Analyses

10. Q: Is there any restriction or prohibition against, or demonstration required for, raising an existing (or replacing) stack up to 65 m?

A: No, as long as prohibited dispersion techniques are not employed.

11. Q: Are flares considered to be stacks?

A: No, flares are excluded from the regulation.

12. Q: What load should be used for a fluid modeling demonstration?

A: One hundred percent load should generally be used unless there is a compelling argument otherwise..

13. Q: Can new or modified sources who have agreed to a case-by-case best available control technology (BACT) emission rate be required to use this rate for fluid modeling rather than a less stringent new source performance standard (NSPS) emission rate?

A: As set forth in 40 CFR 51.1 (kk), the allowable emission rate to be used in making demonstrations under this part shall be prescribed by the NSPS that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible.

14. Q: Must the exceedance of NAAQS or PSD increment due to downwash, wakes, or eddies occur at a location meeting the definition of ambient air?

A: No, the exceedance may occur at any location, including that to which the general public does not have access.

15. Q: Is a source that meets NSPS or BACT emission limits subject to restrictions on plume merging?

A: Yes. However, in a majority of such cases, there will be no practical effect since BACT or NSPS limits will be sufficient to assure attainment without credit for plume rise enhancement.

Q: What stack parameters are to be used in modeling when the actual stack height is greater than GEP height?

A: Where it is necessary to reduce stack height credit below what is in existence, for modeling purposes, use existing stack gas exit parameters--temperature and flow rate--and existing stack top diameter and model at GEP height.

17. Q: How should a stack that is less than GEP height be modeled when dispersion techniques are employed?

A: In order to establish an appropriate emission limitation where a source desires to construct less than a GEP stack but use dispersion techniques to make up the difference in plume rise, two cases should be tested. First, conduct a modeling analysis inputting the GEP stack height without enhanced dispersion parameters, then conduct a second analysis inputting the less than GEP stack height with the increased plume rise. The more stringent emission limitation resulting from each of the two runs should be the one specified as the enforceable limitation.

18. Q: How are the effects of prohibited dispersion techniques to be excluded for modeling purposes?

A: Where prohibited dispersion techniques have been used, modeling to exclude their effects on the emission limitation will be accomplished by using the temperature and flow rates as the gas stream enters the stack, and recalculating stack parameters to exclude the prohibited techniques (e.g., calculate stack diameter without restrictions in place, determine exit gas temperatures before the use of prohibited reheaters, etc.).

19. Q: How are single flued merged stacks and multiflued stacks to be treated in a modeling analysis?

A: This is a multistep process. First, sources with allowable SO_2 emissions below 5,000 tons/year may be modeled accounting for any plume merging that has been employed. For larger sources, multiflued stacks are considered as prohibited dispersion techniques in the same way as single flued merged gas streams unless one of the three allowable conditions has been met; i.e., (1) the source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams; (2) after date of promulgation, demonstrate that such merging is associated with a change in operation at the facility that includes the installation of pollution controls and results in a net reduction in the allowable emissions of the pollutant for which credit is sought; or (3) before date of promulgation, demonstrate that such merging did not result in any increase in the allowable emissions (or, in the event that no emission limit existed, actual emission level) and was associated with a change in operation at the facility that included the installation of

emissions control equipment or was carried out for sound economic or engineering reasons, as demonstrated to EPA. Guidelines on what constitutes sound economic or engineering justification will be issued shortly.

If plume merging from multiflued stacks is not allowable, then each flue/liner must be modeled as a separate source and the combined impact determined. For single flued merged stacks where credit is not allowed, each unit should be modeled as a separate stack located at the same point. The exit parameters, i.e. velocity and temperature, would be the same as for the existing merged stack conditions and the volume flow rate based on an apportionment of the flow from the individual units.

20. Q: What stack height for point sources should be input to air quality dispersion modeling for the purpose of demonstrating protection of the NAAQS and PSD increments?

A: A discussion of the maximum stack height credit to be used in modeling analyses is provided in the "Guideline for Determination of Good Engineering Practice Stack Height" and provides that the GEP stack height should be used as input to the model assessment. If a source is operating with a less than GEP stack height, then the actual stack height should be input to the model.

21. Q: What stack height should be used for background sources in modeling analyses?

A: The GEP stack height for each background source should be input to the model assessment. If a background source is operating with a less than GEP stack height, then the actual stack height should be input to the model.

22. Q: Can credit for plume merging due to installation of control equipment for total suspended particulate (TSP) matter be allowed when setting the SO_2 limit?

A: To state the question another way, the concern is what impact the merging and installation of control equipment have on the emission limit for another pollutant, and whether the merging occurred before or after July 8, 1985. After July 8, 1985, any exclusion from the definition of "dispersion techniques" applies only to the emission limitation for the pollutant affected by such change in operation and is accompanied by a net reduction in allowable emissions of the pollutant. For example, a source tears down two old stacks and builds one new GEP stack with an electrostatic precipitator (ESP). This results in a net reduction in TSP emissions. This source could model using stack gas characteristics resulting from merging the two gas streams in setting the TSP emission limit, but may not so model and receive the credit for stack merging when evaluating the SO_2 emission limit.

Before July 8, 1985, installation of TSP pollution control equipment generally justifies the merging of the stacks for TSP. However, if a source's emission limitation for SO_2 increased after the merging, then credit would generally not be allowed since it is presumed that the merging was to increase dispersion.

A source with no previous SO_2 emission limit that merges stacks and installs an ESP for TSP control may consider the effects of merging on compliance with the TSP NAAQS but may not use merging to justify setting an SO_2 emission limit less stringent than its actual emission rate before the merging.

23. Q: If, after determining GEP stack height by fluid modeling, dispersion modeling under other than "downwash" meteorological conditions shows that a lower emission limit than that from the fluid model GEP analysis is necessary to meet ambient air quality constraints, should a new stack height be defined for the source?

A: No. GEP stack height is set. Ambient air quality problems predicted by dispersion modeling at the fluid modeled height means that a more stringent emission limit is necessary.

24. Q: Does EPA intend to issue additional guidance on fluid modeling demonstrations?

A: See the attached memo from Joseph A. Tikvart, Chief, Source Receptor Analysis Branch, to David Stonefield, Chief, Policy Development Section, on guidance for a discussion of existing and additional guidance on fluid model demonstrations.

Attachment

cc: Stack Height Contacts
Gerald Emison
Ron Campbell
B. J. Steigerwald

MAR 21 1989

MEMORANDUM

SUBJECT: Application of Building Downwash in Prevention of Significant Deterioration (PSD) Permit Analyses

FROM: John Calcagni, Director
Air Quality Management Division (MD-15)

TO: William B. Hathaway, Director
Air, Pesticides, and Toxics Division (6T)
Region VI

Thank you for your memorandum of March 8, 1989 in which you urge consideration of changes to EPA's current policy of applying building downwash to background sources in PSD modeling. Your memorandum describes problems associated with the collection of building dimension data necessary for downwash modeling, and you suggest that EPA might issue rules and provide funding to collect this building data. Alternatively, you believe that downwash modeling should not be required for any background sources.

Members of my staff are currently analyzing several approaches for handling background sources. This will be the subject of a future conference call with the Regional Offices. In the interim, some of our concerns regarding this issue and your specific suggestions are discussed below.

The Guideline on Air Quality Models notes that background concentrations are an essential part of the total air quality concentration to be considered in determining source impacts and therefore requires certain background sources to be fully modeled. The Guideline indicates that ". . . all sources expected to cause a significant concentration gradient in the vicinity of the source or sources under consideration for emission limit(s) should be explicitly modeled." This guidance provides considerable flexibility and requires judgment to be exercised by the reviewing agency in identifying which background sources should be fully modeled. The burden of collecting building dimension data may be mitigated somewhat by application of this judgment. We are exploring the development of additional guidance to better assist in this judgment. However, I caution that it may not be possible to establish many objective "bright line" tests that will eliminate the need for Regional Office judgment in individual cases.

I realize that information needed to model background sources is frequently not contained in the State's existing emission inventory. In some cases the applicant will need the reviewing agency to assist in collecting the data. However, I am not convinced that we must undertake a national effort to issue regulations or to fund the States/Regional Offices to collect the data. It is important to note that the PSD rules place this burden primarily on the proposed source, not the regulatory agencies.

Your memorandum suggests that the PSD analyses could ignore building downwash effects. I do not believe that the PSD rules and the Guideline allow this alternative. Further, since it is not unusual to find a national ambient air quality standards (NAAQS) violation caused by downwash, the PSD analysis must carefully consider that possibility. If a proposed source contributes to a NAAQS violation caused by downwash from a background source, the permit cannot be issued. On the other hand, not every source potentially subject to downwash must be evaluated. Therefore, we are pursuing alternatives to better define the range within which detailed modeling should be required.

In summary, please be assured that we are sensitive to the issues raised in your memorandum and that we will coordinate with Region VI in this effort. If you have any questions, please contact me or have your staff contact Doug Grano at 629-5255.

cc: R. Bauman
D. deRoeck
E. Ginsburg
D. Grano
W. Laxton
E. Lillis
J. Tikvart
D. Wilson
J. Yarbrough

AQMD:SDPMPB:DGrano:PFinch:RTP(MD-15):629-5255:3-29-89
DataTech/DOWNWASH.R6
Control Number AQMD-023 Due Date: 3-29-89

Response coordinated with New Source Review Section and Source Receptor Analysis Branch.

REFERENCES FOR SECTION 4.6

EPA-450/2-78-027R

Guideline On Air Quality Models (Revised)

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

July 1986

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

February 15, 1989

MEMORANDUM

SUBJECT: Modeling Requirements for Pennsylvania Power and Light (PP&L), Martins Creek, Pennsylvania

FROM: Robert D. Bauman, Chief
SO_2/Particulate Matter Programs Branch (MD-15)

TO: Joseph Tikvart, Chief
Source Receptor Analysis Branch (MD-14)

This is in response to a memorandum dated January 4, 1989 from Al Cimorelli, Region 3, to Dean Wilson of your branch. Since this appears to be more of a policy than a technical issue, my branch agreed to prepare a response.

Region 3 is asking if EPA policy would allow PP&L's modeling analysis to address only the designated nonattainment area in Warren County, New Jersey. If so, it might be possible to reclassify the Warren County area to attainment without an evaluation of PP&L's impact outside the Warren County nonattainment area. Additionally, the Region has asked if a redesignation for Warren County could proceed independent of any revision to the Pennsylvania SIP, in the event the modeling analysis shows Warren County to be attainment but shows a modeled violation in Pennsylvania.

The Guideline on Air Quality Models (Revised) (Guideline) on page 1-3 states that the current guidance should be followed in all air quality analyses relative to State implementation plans and in analyses required by EPA, State and local agency air programs. This policy is consistent with stack height implementation policy and general guidance found in a January 2, 1985 memorandum from SRAB to the regional modeling contacts. Guidance contained in the Guideline recommends on page 9-8 that "all sources expected to cause a significant concentration gradient in the vicinity of the source or sources under consideration for emission limit(s) should be explicitly modeled." On page 8-4, the Guideline states that "Receptor sites for refined modeling should be utilized in sufficient detail to estimate the highest concentrations and possible violations of a NAAQS or a PSD increment."

I believe that application of guidance noted above does not allow a partial modeling analysis. If a modeling analysis is required for any reason, that analysis must meet the requirements of the Guideline.

Redesignation policy is generally contained in the April 21, 1983 memorandum from Sheldon Meyers to the Regional Air Directors. That policy includes requirements for a modeling analysis demonstrating attainment and evidence of implementation of the approved SIP. As noted by Region 3, PP&L's analysis may show violations at locations outside of the designated nonattainment area, while demonstrating an absence of violations within the nonattainment area. In such an event, the existing SIP may be judged adequate to demonstrate attainment in Warren County and an action to redesignate the area to attainment could proceed before the State completes the necessary effort to resolve the violations outside the nonattainment area. While separate rulemaking actions are possible, it may be more efficient to consolidate the redesignation and SIP revision actions whenever possible.

I trust that this memorandum is responsive to Region 3's concerns. If you need any additional information, please call me.

cc: A. Cimorelli, Region 3
E. Ginsburg, OAQPS/AQMD
D. Grano, OAQPS/AQMD
S. Sambol, Region 2
D. Wilson, OAQPS/TSD

REFERENCES FOR SECTION 4.7

EPA-450/2-78-027R

Guideline On Air Quality Models (Revised)

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

July 1986

REFERENCES FOR SECTION 5.1

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 51

[AD-FRL-2847-6]

Stack Height Regulation

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rulemaking.

SUMMARY: Section 123 of the Clean Air Act, as amended, requires EPA to promulgate regulations to ensure that the degree of emission limitation required for the control of any air pollutant under an applicable State implementation plan (SIP) is not affected by that portion of any stack height which exceeds good engineering practice (GEP) or by any other dispersion technique. A regulation implementing section 123 was promulgated on February 8, 1982, at 47 FR 5864. Revisions to the regulation were proposed on November 9, 1984, at 49 FR 44878. Today's action incorporates changes to the proposal and adopts this regulation in final form.

EFFECTIVE DATE: This regulation becomes effective on August 7, 1985.

FOR FURTHER INFORMATION CONTACT: Eric O. Ginsburg, MD-15, Office of Air Quality Planning and Standards, EPA, Research Triangle Park, North Carolina 27711. Telephone (919) 541-5540.

SUPPLEMENTARY INFORMATION:

Docket Statement

Pertinent information concerning this regulation is included in Docket Number A-83-49. The docket is open for public inspection between the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday, at the EPA Central Docket Section, West Tower Lobby, Gallery One, 401 M Street, SW., Washington, D.C. Background documents normally available to the public, such as Federal Register notices and Congressional reports, are not included in the docket. A reasonable fee may be charged for copying documents.

Background

Statute

Section 123, which was added to the Clean Air Act by the 1977 Amendments, regulates the manner in which techniques for disperson of pollutants from a source may be considered in setting emission limitations. Specifically, section 123 requires that the degree of emission limitation shall not be affected by that portion of a stack which exceeds GEP or by "any other dispersion technique." It defines GEP, with respect to stack heights as:

> the height necessary to insure that emissions from the stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of atmospheric downwash, eddies or wakes which may be created by the source itself, nearby structures or nearby terrain obstacles . . . [Section 123(c)].

Section 123 further provides that GEP stack height shall not exceed two and one-half times the height of the source (2.5H) unless a demonstration is performed showing that a higher stack is needed to avoid "excessive concentrations." As the legislative history of section 123 makes clear, this reference to a two and one-half times test reflects the established practice of using a formula for determining the GEP stack height needed to avoid excessive downwash. Finally, section 123 provides that the Administrator shall regulate only stack height credits—that is, the portion of the stack height used in calculating an emission limitation—rather than actual stack heights.

With respect to "other dispersion techniques" for which emission limitation credit is restricted, the statute is less specific. It states only that the term shall include intermittent and supplemental control systems (ICS, SCS), but otherwise leaves the definition of that term to the discretion of the Administrator.

Thus the statute delegates to the Administrator the responsibility for defining key phrases, including "excessive concentrations" and "nearby," with respect to both structures and terrain obstacles, and "other dispersion techniques." The Administrator must also define the requirements of an adequate demonstration justifying stack height credits in excess of the 2.5H formula.

Rulemaking and Litigation

On February 8, 1982 (47 FR 5864), EPA promulgated final regulations limiting stack height credits and other dispersion techniques. Information concerning the development of the regulation was included in Docket Number A-79-01 and is available for inspection at the EPA Cantral Docket Section. This regulation was challenged in the U.S. Court of Appeals for the D.C. Circuit by the Sierra Club Legal Defense Fund, Inc.; the Natural Resources Defense Council, Inc.; and the Commonwealth of Pennsylvania in *Sierra Club* v. *EPA*, 719 F. 2d 436. On October 11, 1983, the court issued its decision ordering EPA to reconsider portions of the stack height regulation, reversing certain portions and upholding other portions. Further discussion of the court decision is provided later in this notice.

Administrative Proceedings Subsequent to the Court Decision

On December 19, 1983, EPA held a public meeting to take comments to assist the Agency in implementing the mandate of the court. This meeting was announced in the Federal Register on December 8, 1983, at 48 FR 54999. Comments received by EPA are included in Docket Number A-83-49. On February 28, 1984, the electric power industry filed a petition for a writ of certiorari with the U.S. Supreme Court. While the petition was pending before the court, the mandate from the U.S. Court of Appeals was stayed. On July 2, 1984, the Supreme Court denied the petition (104 S.Ct. 3571), and on July 18, 1984, the Court of Appeals' mandate was formally issued, implementing the court's decision and requiring EPA to promulgate revisions to the stack height regulations within 6 months. The promulgation deadline was ultimately extended to June 27, 1985, in order to provide additional opportunities for public comment, to allow EPA to hold a public hearing on January 8, 1985, and to provide additional time for EPA to complete its analysis of rulemaking alternatives.

Documents

In conjunction with the 1982 regulation and this revision, EPA developed several technical and guidance documents. These served as background information for the regulation, and are included in Dockets A-79-01 and A-83-49. The following documents have been or will be placed in the National Technical Information Service (NTIS) system and may be obtained by contacting NTIS at 5285 Port Royal Road, Springfield, Virginia 22161.

(1) "Guideline for Use of Fluid Modeling to Determine Good Engineering Stack Height," July 1981. EPA, Office of Air Quality Planning and Standards. EPA-450/4-81-003 (NTIS PB82 145327).

(2) "Guideline for Fluid Modeling of Atmospheric Diffusion," April 1981. EPA, Environmental Sciences Research Laboratory. EPA-600/8-81-009 (NTIS PB81 201410).

(3) "Guidance for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulation)," June 1985. EPA, Office of Air Quality Planning and Standards. EPA-450/4-80-023R.

(4) "Determination of Good Engineering Practice Stack Height—A

Fluid Model Demonstration Study for a Power Plant." April 1983. EPA. Environmental Sciences Research Laboratory. EPA-600/3-83-024 (NTIS PB83 207407).

(5) "Fluid Modeling Demonstration of Good-Engineering-Practice Stack Height in Complex Terrain." April 1985. EPA Atmospheric Sciences Research Laboratory. EPA/600/3-85/022 (NTIS PB85 203107).

In addition, the following documents are available in Docket A-83-49.

"Economic Impact Assessment for Revisions to the EPA Stack Height Regulation." June 1985.

"Effect of Terrain-Induced Downwash on Determination of Good-Engineering-Practice Stack Height." July 1984.

Program Overview

General

The problem of air pollution can be approached in either of two ways: through reliance on a technology-based program that mandates specific control requirements (either control equipment or control efficiencies) irrespective of ambient pollutant concentrations, or through an air quality based system that relies on ambient air quality levels to determine the allowable rates of emissions. The Clean Air Act incorporates both approaches, but the SIP program under section 110 uses an air quality-based approach to establish emission limitations for sources. Implicitly, this approach acknowledges and is based on the normal dispersion of pollutants from their points of origin into the atmosphere prior to measurements of ambient concentrations at ground level.

There are two general methods for preventing violations of the national ambient air quality standards (NAAQS) and prevention of significant deterioration (PSD) increments. Continuous emission controls reduce on a continuous basis the quantity, rate, or concentrations of pollutants released into the atmosphere from a source. In contrast, dispersion techniques rely on the dispersive effects of the atmosphere to carry pollutant emissions away from the source in order to prevent high concentrations of pollutants near the source. Section 123 of the Clean Air Act limits the use of dispersion techniques by pollution sources to meet the NAAQS or PSD increments.

Tall stacks, manipulation of exhaust gas parameters, and varying the rate of emissions based on atmospheric conditions (ICS and SCS) are the basic types of dispersion techniques. Tall stacks enhance dispersion by releasing pollutants into the air at elevations high above ground level, thereby providing greater mixing of pollutants into the atmosphere. The result is to dilute the pollutant levels and reduce the concentrations of the pollutant at ground level, without reducing the total amount of pollution released. Manipulation of exhaust gas parameters increases the plume rise from the source to achieve similar results. ICS and SCS vary a source's rate of emissions to take advantage of meteorologic conditions. When conditions favor rapid dispersion, the source emits pollutants at higher rates, and when conditions are adverse, emission rates are reduced. Use of dispersion techniques in lieu of constant emission controls results in additional atmospheric loadings of pollutants and can increase the possibility that pollution will travel long distances before reaching the ground.

Although overreliance on dispersion techniques may produce adverse effects, some use of the dispersive properties of the atmosphere has long been an important factor in air pollution control. For example, some stack height is needed to prevent excessive pollutant concentrations near a source. When wind meets an obstacle such as a hill or a building, a turbulent region of downwash, wakes, and eddies is created downwind of the obstacle as the wind passes over and around it. This can force a plume rapidly to the ground, resulting in excessive concentrations of pollutants near the source. As discussed previously, section 123 recognizes these phenomena and responds by allowing calculation of emission limitations with explicit consideration of that portion of a source's stack that is needed to ensure that excessive concentrations due to downwash will not be created near the source. This height is called GEP stack height.

Summary of the Court Decision

Petitions for review of EPA's 1982 regulation were filed in the D.C. Circuit within the statutory time period following promulgation of the regulation. On October 11, 1983, the court issued its decision ordering EPA to reconsider portions of the stack height regulation, reversing certain portions and upholding others. The following is a summary of the court decision.

The EPA's 1982 rule provided three ways to determine GEP stack height. One way was to calculate the height by using a formula based on the dimensions of nearby structures. The other two were a *de minimis* height of 65 meters, and the height determined by a fluid modeling demonstration or field study. The court endorsed the formula as a starting point to determine GEP height. However, it held that EPA has not demonstrated that the formula was an accurate predictor of the stack height needed to avoid "excessive concentrations of pollutants due to downwash. Accordingly, the court directed EPA to re-examine in three ways the conditions under which exceptions to the general rule of formula reliance could be justified.

First, the 1982 rule allowed a source to justify raising its stack above formula height by showing a 40-percent increase in concentrations due to downwash, wakes, or eddies, on the ground that this was the percentage increase that the formula avoided. The court found this justification insufficient, and remanded the definition to EPA with instructions to make it directly responsive to health and welfare considerations.

Similarly, the 1982 rule allowed a source that built a stack to less than formula height to raise it to formula height automatically. Once again, the court required more justification that such a step was needed to avoid adverse health or welfare effects.

Finally, the court directed EPA either to allow the authorities administering the stack height regulations to require modeling by sources in other cases as a check on possible error in the formula, or explain why the accuracy of the formula made such a step unnecessary.

The 1982 rule provided two formulae to calculate GEP stack height. For sources constructed on or before January 12, 1979, the date of initial proposal of the stack height regulations, the applicable formula was 2.5 times the height of the source or other nearby structure. For sources constructed after that date, the rule specified a newer, refined formula, the height of the source or other nearby structure plus 1.5 times the height or width of that structure, whichever is less (H+1.5L). The EPA based its decision to include two formulae on the unfairness of applying the new formula retroactively. In its examination of this issue, the court specified four factors that influence whether an agency has a duty to apply a rule retroactively. They are:

1. Whether the new rule represents an abrupt departure from well established practice or merely attempts to fill a void in an unsettled area of law.

2. The extent to which the party against whom the new rule is applied relied on the former rule.

3. The degree of burden which a retroactive order imposes on a party, and

4. The statutory interest in applying a new rule despite the reliance of a party on the old standard.

719 F.2d at 467 (citations omitted). Applying this analysis to the two formulae, the court upheld EPA's basic decision.

However, the court also held that sources constructed on or before January 12, 1979, should not be automatically entitled to full credit calculated under the 2.5H formula unless they could demonstrate reliance on that formula. The court remanded this provision for revision to take actual reliance on the 2.5H formula into account.

The statute limits stack height credit to that needed to avoid excessive concentrations due to downwash caused by "nearby" structures or terrain features. The 1982 regulation defined "nearby" for GEP formula applications as five times the lesser of either the height or projected width of the structure causing downwash, not to exceed one-half mile. No such distance limitation was placed on structures or terrain features whose effects were being considered in fluid modeling demonstrations or field studies. The court held that section 123 explicitly applies the "nearby" limitation to demonstrations and studies as well as formula applications, and remanded the rule to EPA to apply the limitation in both contexts.

The 1982 rule defined "dispersion techniques" as those techniques which attempt to affect pollutant concentrations by using that portion of a stack exceeding GEP, by varying emission rates according to atmospheric conditions or pollutant concentrations, or by the addition of a fan or reheater to obtain a less stringent emission limitation. The court found this definition too narrow because any technique "significantly motivated by an intent to gain emissions credit for greater dispersion" should be barred. 719 F.2d 462. As a result, the court directed EPA to develop rules disallowing credit for all such dispersion techniques unless the Agency adequately justified exceptions on the basis of administrative necessity or a *de minimis* result.

The GEP formulae established in the 1982 rule do not consider plume rise, on the ground that plume rise is not significant under downwash conditions. In its review of this provision, the court affirmed this judgment by EPA.

The 1982 rule addressed pollutant concentrations estimated to occur when a plume impacts elevated terrain by allowing credit for stack height necessary to avoid air quality violations in such cases. However, the court ruled that section 123 did not allow EPA to grant credit for plume impaction in setting emission limits, and reversed this part of the regulation.

The preamble to the 1982 regulation provided a 22 month process for State implementation of the regulation. The court found this period to be contrary to section 406(d)(2) of the Clean Air Act and reversed it.

The regulation, following the statute, excluded stacks "in existence" on or before December 31, 1970, from the GEP requirements. However, the regulation did not prohibit sources constructed after December 31, 1970, from receiving credit for tying into pre-1971 stacks. Although the court upheld EPA's definition of "in existence," it noted that EPA had failed to address the tie-in issue. Accordingly, the court remanded this issue to EPA for justification.

One other provision of the regulation was challenged in the *Sierra Club* suit: The exclusion of flares from the definition of "stack." In its review of this provision, the court held that EPA had acted properly.

Other provisions of the stack height regulation, such as the *de minimis* stack height established under § 51.1(ii)(1), were not challenged in the suit and thus remain in effect.

Summary of the November 9, 1984, Notice of Proposed Rulemaking

In the November 9, 1984, notice responding to the court decision, EPA proposed to redefine a number of specific terms, including "excessive concentrations," "dispersion techniques," "nearby," and other important concepts, and proposed to modify some of the bases for determining GEP stack height. The following is a summary of the revisions that were proposed.

Excessive Concentrations

The Court of Appeals held that EPA erred in defining "excessive concentrations" due to downwash, for purposes of justifying a stack greater than formula height, as nothing more than a 40-percent increase in pollutant concentrations over what would occur in the absence of downwash. It remanded this issue to EPA to relate the definition to some absolute level of air pollution that could be interpreted to endanger health and welfare, and thus to be "excessive."

The EPA proposed two alternative approaches to defining "excessive concentrations." First, EPA requested comment on whether the 40-percent approach adopted as part of the 1982 regulation in fact protects against the dangers to health and welfare envisioned by Congress when it enacted section 123. In the event that such a showing could not be made, EPA proposed a two-part definition of excessive concentrations, requiring that the downwash, wakes, or eddies induced by nearby structures or terrain features result in increases in ground-level pollutant concentrations that:

(a) Cause or contribute to an exceedance of a NAAQS or applicable PSD increment, and

(b) Are at least 40 percent in excess of concentrations projected to occur in the absence of such structures or terrain features.

Definition of GEP Stack Height

EPA proposed to find that the traditional (2.5H) and refined (H+1.5L) formulae remained proper methods for calculating GEP stack height except EPA proposed to revise its regulation to allow EPA, the State or local air pollution control agency discretion to require a further demonstration using a field study or fluid model to demonstrate GEP stack height for a source in a case where it was believed that the formula may not reliably predict GEP height. In the case of structures that are porous or aerodynamically smoother than block-shaped structures, it would require a source to demonstrate the downwash effects of such structures using a field study or fluid model before receiving credit for stack height based on the structures. EPA also proposed generally to allow sources to raise existing stacks up to formula GEP height without further demonstrations with the exception noted above for discretionary modeling.

Reliance on the 2.5H Formula

In its 1982 rules, EPA allowed sources built before January 12, 1979, the date on which it proposed the refined H+1.5L formulae, to calculate their emission limits based on the traditional 2.5H formula that existed previously. The court approved this distinction, but ruled that it should be limited to sources that "relied" on the traditional formula, suggesting, for example, that sources that had claimed credit for stacks far taller than the formula provided could not be said to have "relied" on it.

In response to the court decision, EPA proposed to revise its regulation to require that for stacks in existence on January 12, 1979, sources demonstrate that they actually relied on the 2.5H formula in the design of their stacks before receiving credit for that height in setting their emission limitations. In the proposal, EPA requested comment on what it should consider as acceptable evidence of such reliance.

Definition of "Nearby"

In its 1982 rules, EPA allowed sources that modeled the effects of terrain obstacles on downwash to include any terrain features in their model without limiting their distance from the stack. The court, though persuaded that this was a sensible approach, since it allowed the model to best approximate reality, ruled that Congress had intended a different result, namely that terrain features beyond ½ mile from the stack should not be included in the model.

In response, EPA proposed to revise § 51.1(ii)(3) of its regulation to limit the consideration of downwash, wakes, and eddy effects of structures and terrain features to those features classified as being "nearby" as defined in § 51.1(jj). Under this proposal, structures and terrain features would be considered to be "nearby" if they occur within a distance of not more than 0.8 km (½ mile); terrain features that extend beyond 0.8 km could be considered if, at a distance of 0.8 km, they achieved a height greater than or equal to 40-percent of the GEP stack height calculated by applying the GEP formula to actual nearby structures. In other words, a terrain feature would be said to "begin" within ½ mile if it reached at least the height of nearby buildings within that distance. Such features could be considered only out to a distance equal to 10 times the maximum height of the feature, not to exceed 2 miles.

The EPA proposed two options for distinguishing between sources constructed before and after the date of promulgation of these revisions. The first option would treat both categories of sources the same. The second option would limit the consideration of terrain for new sources to only those portions of terrain features that fall *entirely* within 0.8 km, thereby removing the possibility of including features extending beyond ½ mile.

Finally, EPA proposed three alternatives for conducting fluid modeling to evaluate the downwash effects or nearby terrain features. These alternatives described various ways of limiting terrain in the model beyond the proposed distance limitations.

To establish a baseline for comparison, two alternatives would initially model the stack on a flat plane with no structure or terrain influences. To analyze downwash effects, the first approach would then insert nearby terrain, with all terrain beyond the distance limit "cut off" horizontally. The second approach would gradually smooth and slope the terrain beyond the distance limit down to the elevation of the base of the stack.

The third approach would proceed in a somewhat different manner. A baseline would be established by modeling all terrain beyond the distance limit, smoothing and sloping nearby terrain to minimize its influence. To analyze downwash effects, the nearby terrain would then be inserted into the model and the difference in effect measured to determine appropriate downwash credit for stack height.

Definition of "Dispersion Techniques"

In the 1982 rules, EPA identified two practices, in addition to stacks above GEP and ICS/SCS, as having no purpose other than to obtain a less stringent emission limitation. In so doing, it allowed credit for any other practice that had the result of increasing dispersion. The court concluded that Congress had intended, at a minimum, to forbid any dispersion enhancement practice that was significantly motivated by an intent to obtain additional credit for greater dispersion, and remanded the question to EPA for reexamination.

The EPA proposed to revise its definition of "dispersion techniques" generally to include, in addition to ICS, SCS, and stack heights in excess of GEP, any techniques that have the effect of enhancing exhaust gas plume rise. Combining several existing stacks into one new stack can have such an effect. However, such combinations also often have independent economic and engineering justification. Accordingly, EPA requested comment on defining the circumstances under which the combining of gas streams should not be considered a dispersion technique, and proposed to allow sources to take credit in emission limitations for such merging where a facility was originally designed and constructed with merged gas streams or where the merging occurs with the installation of additional controls yielding a net reduction in total emissions of the affected pollutant. The EPA retained exclusions from its definition of prohibited dispersion techniques for smoke management in agricultural and silvicultural prescribed burning programs and also proposed to exclude episodic restrictions on residential woodburning and debris burning.

New Sources Tied into Pre-1971 Stacks

Section 123 exempts stacks "in existence" at the end of 1970 from its requirements. EPA's general approach to implementing this language was upheld by the court. However, in its 1982 rule EPA had also allowed this credit to sources built after that date that had tied into stacks built before that date. EPA failed to respond to comments objecting to this allowance, and so the court remanded the question to EPA for the agency to address.

Upon reexamination, EPA saw no convincing justification for granting credit to these sources. Consequently, for sources constructed after December 31, 1970, with emissions ducted into grandfathered stacks of greater than GEP height and for sources constructed before that date but for which major modifications or reconstruction have been carried out subsequently, EPA proposed to limit stack height credit to only so much of the actual stack height as conforms to GEP. Sources constructed prior to December 31, 1970, for which modifications are carried out that are not classified as "major" under 40 CFR 51.18(j)(i), 51.24(b)(2)(i), and 51.21(b)(2)(i) would be allowed to retain full credit for their existing stack heights.

Plume Impaction

In its 1982 rules, EPA allowed stack height credit for "plume impaction," a phenomenon that is distinct from downwash, wakes and eddies. The court, though sympathetic to EPA's policy position, reversed this judgment as beyond the scope of the statute. Accordingly, EPA proposed to delete the allowance of plume impaction credit from its regulation in compliance with the court decision. However, EPA also recognized that sources in complex terrain face additional analytical difficulties when attempting to conduct modeling to determine appropriate emission limitations. Consequently, EPA requested comment on whether any allowance should be made for implementation problems that may result from the application of revised GEP stack height assumptions and, if so, how such allowance should be made.

State Implementation Plan Requirements

EPA's 1982 rules gave states a total of 22 months to revise their rules and to establish source emission limitations based on new stack height credits. The court found this, too, to go beyond the language of the statute. In response, EPA stated in the proposal that States would be required, pursuant to section 406(d)(2)(b) of the Clean Air Act, to review their rules and existing emission limitations, revising them as needed to comply with the new regulation within 9 months of the date of its promulgation.

Response to Public Comments on the November 9, 1984, Proposal

The EPA received over 400 comments during the public comment period and at the public hearing, addressing a number of aspects of the proposed regulation. These comments have been consolidated according to the issues raised and are discussed, along with EPA's responses, in a "Response to Comments" document included in the rulemaking docket. Certain comments can be characterized as "major" in that they address issues that are fundamental to the development of the final regulation. These comments are summarized below, along with EPA's responses. Additional discussion of the issues raised and further responses by EPA can be found in the "Response to Comments" document.

I. Maximum Control of Emissions in Lieu of Dispersion

A central legal and policy question addressed in this rulemaking was raised in the comments of the Natural Resources Defense Council (NRDC) and the Sierra Club. They contend that section 123 requires all sources to install the maximum feasible control technology before receiving any credit for the dispersive effects of a stack of any height, or for other practices that may enhance pollutant dispersion.

The NRDC argument is summarized fully in the Response to Comments document together with EPA's response. Very briefly, NRDC contends that litigation prior to the 1977 Clean Air Act Amendments had established that dispersion can never be used as an alternative to emission control, and that this understanding was carried forward and strengthened in the 1977 Clean Air Act Amendments. Accordingly, no rule that does not require full control of emissions as a prerequisite to any stack height credit would be consistent with Congressional intent.

EPA disagrees. During the 8 years between 1977 and NRDC's comments, a period covering two Administrations and three Administrators, NRDC's position has never been either adopted by EPA or seriously advocated before it. The pre-1977 cases cited by NRDC do not bar all stack credit, but only credit for stacks beyond the historical norm. Finally, the text and legislative history of section 123 contain essentially no support for NRDC's "control first" position.

II. Discussion of Other Major Issues

The EPA's position on the "control first" comments provides the necessary background against which the remaining major issues in this rulemaking are discussed. These issues are: the definition of "excessive concentrations" due to downwash, wakes, and eddies; the definition of "nearby;" and the definition of "dispersion technique." A question that affects several of these decisions, and that is addressed where it arises, concerns the extent to which any changes made in the stack heights regulations should be applied prospectively rather than retroactively.

This discussion of "excessive concentrations" is in turn divided into a discussion of the physical characteristics of downwash, followed by a discussion of the significance of those characteristics as they pertain to the GEP formulae, to stacks above formula height, to stacks being raised to formula height, and to stacks at formula height being modeled at the choice of the administering authorities.

Definition of "Excessive Concentrations"

The Physical Nature of Downwash. A number of commenters, including the Utility Air Regulatory Group (UARG), have argued that the court decision does not obligate EPA to revise the definition adopted in the 1982 regulation, but only directs EPA to ensure that the 40-percent criterion protects against concentrations due to downwash that could be related to health and welfare concerns. They point out that when emissions from a source become trapped in the wake region produced by the source itself or upwind structures and terrain features, those emissions are brought rapidly to earth, with little dilution. This, the commenters argue, can produce short-term peak concentrations at groundlevel that are many times greater that the concentration levels of the NAAQS. Because their duration is relatively short, averaging these concentrations over the times specified by the NAAQS does not result in NAAQS violations. Nonetheless, the commenters argue that these concentrations should be regarded as nuisances that section 123 was specifically enacted to avoid. Accordingly, the commenters held that EPA would be justified in retaining the 40-percent criterion without requiring that such increases result in exceedances of the NAAQS.

These same commenters argued that severe hardships would result if EPA's second proposed definition of "excessive concentrations" is adopted, and that, by limiting stack height credit to that just necessary to avoid exceedance of NAAQS or PSD increments, the definition would act to limit actual stack design and construction in a way that would increase the likelihood of NAAQS or PSD exceedances. This would occur, they argue, because, by building only so tall a stack as they can receive credit for, sources would be eliminating a "margin of safety" that would normally be provided otherwise. Furthermore, it was argued that, due to the changing nature of background air quality, inclusion of absolute concentrations such as the NAAQS or PSD increments in the definition would render determinations of GEP stack height constantly subject to change.

NRDC argued on the other hand that only a violation of air quality standards can be considered the type of "excessive concentration" for which downwash credit can be justified, the EPA had failed to specify the health or welfare significance of the short-term peaks that it might consider as meeting this description, and that in any event UARG's attempt to show that short stacks could cause a large number of short-term peaks was technically flawed in several different ways.

Response. Extensive discussion of the downwash phenomenon, as well as the aerodynamic effects of buildings and terrain features on windflow patterns and turbulence, is contained in the technical and guidance documents previously listed in this notice. To summarize briefly, numerous studies have shown that the region of turbulence created by obstacles to windflow extends to a height of approximately 2.5 times the height of the obstacle. Pollutants emitted into this region can be rapidly brought to the ground, with limited dilution. Though this tendency decreases the higher vertically within the downwash region that the plume is released, because of the highly unpredictable nature of downwash and the lack of extensive quantitative data, it is extremely difficult to reliably predict plume behavior within the downwash region. As noted in the comments submitted, the distinguishing features of downwash do not show up well over an averaging time as long as 1 hour or more. Pollutant concentrations resulting from downwash can arise and subside very quickly as meteorological conditions, including wind speed and atmospheric stability vary. This can result in short-term peaks, lasting up to 2 minutes or so, recurring intermittently for up to several hours, that significantly exceed the concentrations of the 3- and 24-hour NAAQS. Little quantitative information is available on the actual levels of these peaks, or on the frequency of their occurrence since most stacks have been

designed to avoid downwash and because downwash monitoring is not typically conducted.

A number of modeling and monitoring studies in the record assess the significance of downwash when plumes are released into the downwash region. The most important of these are a number of studies cited in the November 9 proposal showing that for sources with sulfur dioxide (SO_2) emission rates of 4 to 5 pounds per million British Thermal Units (lb./mmBTU), stacks releasing the plume into the downwash region can significantly exceed the 3-hour NAAQS.

The utility industry submitted monitoring results from four sites showing that facilities with short stacks (ranging from 23 to 89 percent of formula height) generated many short-term peaks in the vicinity of the plant at concentrations at least 2 times the highest concentration of the 3-hour SO_2 standard, i.e., 1 ppm for up to 10 minutes. Those concentrations are the maximun that could be recorded by the monitors used. There is no way to determine from these data the true peak ground-level concentrations.

The NRDC, in commenting on this subject, has argued that downwash-related concentrations are largely theoretical, since stacks have generally been built to avoid downwash, and that actual concentrations occur under other meteorological conditions such as "inversion breakup fumigations" and "looping plums," that can equal these "theoretical" concentrations predicted under downwash.[1] The NRDC also criticized the utility data on numerous technical grounds.

EPA's studies indicate that, when stacks are significantly less than GEP formula height, high short-term concentrations can indeed occur due to downwash that are in the range of the values reported by the utility industry. Concentrations produced by the other conditions cited by NRDC, though high, may be lower by an order of magnitude, and occur less frequently by as much as two orders of magnitude, than those produced by downwash.[2] As stack height approaches the height determined by the GEP formula, the expected frequency and severity of short-term peaks due to downwash becomes less certain. This is to be expected, since it is the purpose of a formula height stack to avoid excessive downwash. While it might theoretically be possible for EPA to revise the GEP formula downward (e.g., from H+1.5L to H+1.2L or some other value), such a revision would have little purpose. By moving the release point further into the downwash region, such a change would increase the probability of high downwash-caused peaks. On the other hand, such relatively small changes in stack height are not likely to appreciably affect the emission limitation for the source. This is because emission limitations are calculated based on physical stack height and associated plume rise under atmospheric conditions judged most controling for the source. Increasing or decreasing stack height by a small fraction will not greatly change the rate or extent of dispersion and thus will not affect the ground-level concentration. Moreover, as EPA noted in its November 9 proposal, no data presently exist on which to base a revision to the formula.

The NRDC submitted data to EPA which it believed to support the conclusions that it urged EPA to adopt concerning short-term peak concentrations under other meterological conditions.[3] However, these data were not presented in a form that could be readily interpreted, and EPA has thus far been unable to draw any conclusions from them.[4]

In reviewing NRDC's comments on building downwash, EPA agrees that there is great uncertainty about our present understanding of this phenomenon, and this is supported by the range and variation of downwash effects observed in recent studies. However, no information has been presented which would convince EPA to abandon the present GEP formulae in favor of any alternative.

The health and welfare significance of downwash concentrations that result in violations of the ambient standards are documented and acknowledged in the standards themselves. The significance of short-term peaks at the levels that EPA's analyses predict is more judgmental. However, a number of studies cited in EPA's "Review of the National Ambient Air Quality Standards for Sulfur Oxides: Assessment of Scientific and Technical Information" (EPA-450/5-82-007, November 1982) indicate that concentrations of one ppm sustained for durations of 5 minutes or more can produce bronchoconstriction in asthmatics accompanied by symptoms such as wheezing and coughing. Such concentrations are well within the range of concentrations that can result from downwash. When sources meet the ambient standards, the frequency of occurrence for these concentrations under the other conditions cited by NRDC is substantially lower than for downwash when stacks are less than GEP.

GEP Formula Stack Height. Some commenters, including NRDC, stated that EPA cannot justify retention of the traditional (2.5H) and refined (H+1.5L) GEP formulae based simply on their relationship to the 40-percent criterion, and argued that the formulae provide too much credit in many or most cases. This, they argue, results in allowing sources to obtain unjustifiably lenient emission limitations.

Other commenters argued that Congress explicitly reaffirmed the traditional GEP formula, and that EPA should allow maximum reliance on it (and, by implication, on the refined formula that was subsequently derived from it).

Response. The use of EPA's refined formula as a starting point for determining GEP was not called into question by any litigant in the *Sierra Club* case. The court's opinion likewise does not question the use of the formula as a starting point. A detailed discussion of the court's treatment of the formula, showing how it endorsed the formula's presumptive validity, is contained in the Response to Comments document.

Despite this limited endorsement, EPA might need to revisit the formula on its own if its reexamination of the "excessive concentration" and modeling issues indicated that the formula clearly and typically misstated the degree of stack height needed to avoid downwash concentrations that cause health or welfare concerns.

However, no such result has emerged from our reexamination. Stacks below formula height are associated with downwash-related violations of the air quality standards themselves where emission rates significantly exceed the levels specified by NSPS. Even where emissions are low, downwash conditions at stacks below formula height can be expected, unlike other conditions, to generate numerous short-term peaks of air pollution at high le[vels]

[1] In "inversion breakup fumigation," an inversion layer dissipates due to heating of the ground, letting the pollutants that were trapped in it descend suddenly to ground level. In "looping plumes," a plume is brought down to the ground close to the source in the form of intermittent puffs under very unstable atmospheric conditions.

[2] "Comments on Peak Ground-Level Concentrations Due to Building Downwash Relative to Peak Concentrations Under Atmospheric Dispersion Processes." Alan H. Huber and Francis Pooler, Jr. June 10, 1985.

[3] Memorandum from David G. Hawkins, NRDC, to William F. Pedersen, Jr. Office of General Counsel, USEPA, May 29, 1985.

[4] Memorandum from Alan H. Huber, ASRL, to David Stonefield, OAQPS, June 21, 1985.

that raise a real prospect of local health or welfare impacts.

As EPA stated in the proposal, it is impossible to rely primarily on fluid modeling to implement the stack height regulations, particularly under the timetable established by the court. 49 FR 44883 (November 9, 1984). No commenter other than NRDC even suggested a different formula that in their eyes would be better, and NRDC's suggestions were premised on their "control first" position, which EPA has found inconsistent with the statute and has rejected. EPA considers the refined formula to be the state-of-the-art for determining necessary stack height.

Given the degree of presumptive validity the formula already possesses under the statute and the court opinion, we believe that this record amply supports its reaffirmation.

Stacks Above GEP Formula Height. The EPA's 1978 stack height guidelines [cite] imposed special conditions on stacks above formula height—the installation of control technology—that were not imposed on lower stacks. Similarly, EPA's 1973 proposal had made credit above formula height subject to a vaguely defined "detailed investigation" (38 FR 25700). The legislative history of the 1977 Clean Air Act Amendments cautioned that credit for stacks above formula height should be granted only in rare cases, and the Court of Appeals adopted this as one of the keystones of its opinion. The court also concluded that Congress deliberately adopted very strict requirements for sources locating in hilly terrain.

For these reasons, EPA is requiring sources seeking credit for stacks above formula height and credit for any stack height justified by terrain effects to show by field studies or fluid modeling that this height is needed to avoid a 40-percent increase in concentrations due to downwash and that such an increase would result in exceedance of air quality standards or applicable PSD increments. This will restrict stack height credit in this context to cases where the downwash avoided is at levels specified by regulation or by act of Congress as possessing health or welfare significance.

To conduct a demonstration to show that an absolute air quality concentration such as NAAQS or PSD increment will be exceeded, it is necessary to specify an emission rate for the source in question.[5] The EPA believes that in cases where greater than formula height may be needed to prevent excessive concentrations, sources should first attempt to eliminate such concentrations by reducing their emissions. For this reason EPA is requiring that the emission rate to be met by a source seeking to conduct a demonstration to justify stack height credit above the formula be equivalent to the emission rate prescribed by NSPS applicable to the industrial source category. In doing this, EPA is making the presumption that this limit can be met by all sources seeking to justify stack heights above formula height. Sources may rebut this presumption, establishing an alternative emission limitation, on a case-by-case basis, by demonstrating to the reviewing authority that the NSPS emission limitation may not feasibly be met, given the characteristics of the particular source.[6] For example, it may be possible for a source presently emitting SO_2 at a rate of 1.8 lb./mmBTU to show that meeting the NSPS rate of 1.2 lb./mmBTU would be prohibitive in that it would require scrapping existing scrubber equipment for the purpose of installing higher efficiency scrubbers. Similarly, a source may be able to show that, due to space constraints and plant configuration, it is not possible to install the necessary equipment to meet the NSPS emission rate. In the event that a source believes that downwash will continue to result in excessive concentrations when the source emission rate is consistent with NSPS requirements, additional stack height credit may be justified through fluid modeling at that emission rate.

A source, of course, always remains free to accept the emission rate that is associated with a formula height stack rather than relying on a demonstration under the conditions described here. The third alternative mentioned in the proposal—using the actual emission limit for the source—has been rejected because, to the extent that limit relied on greater than formula height, it would amount to using a tall stack to justify itself.

The EPA's reliance on exceedances, rather than violations of the NAAQS and PSD increments, is deliberate. Fluid modeling demonstrations are extremely complicated to design and carry out, even when the most simple demonstration criteria—that is, a percentage increase in concentrations, with no consideration of absolute values—are assumed. Adding consideration of an absolute concentration such as a NAAQS or PSD increment substantially complicates this effort further and introduces the scientific uncertainties associated with predicting an exceedance of a 3-hour or 24-hour standard based on 1 hour or less of modeling data. Using an hour or less of modeling values, based on one set of meteorological data, to draw the distinction between only one exceedance of the standard during the 8760 hours in a year, and the two or more that constitute a violation pushes that uncertainty beyond reasonable limits. EPA therefore does not find the additional difficulties that would be created by requiring violations instead of exceedances to be warranted. That is particularly so here, given that the regulations require sources seeking credit above the formula to be well-controlled as a condition of obtaining such credit.

Use of an absolute concentration in the test of "excessive concentrations" can lead to problems of administering the program, in that it can have a "zoning" effect. Since a source can only get stack height credit to the extent that it is needed to avoid a PSD increment or NAAQS exceedance, an emissions increase in the area of that source may increase concentrations beyond the controlling limit, thereby making it difficult for new sources to locate in the area, or for sequential construction of additional emitting units at the source in question.

This effect cannot be avoided under any test for "excessive concentrations" that is tied to absolute concentrations. However, that effect will be mitigated by the fact that the use of this approach is voluntary and limited to sources wishing to rely on fluid modeling to justify stack height credit. Moreover, the effects of downwash tend to occur very near the source, usually on fenced company property. Since concentrations measured at such locations are not used to evaluate NAAQS attainment or PSD increment consumption, new sources wishing to locate in the area are less likely to be affected.

Sources planning sequential construction of new emitting units at one location or contemplating future expansion can reduce the uncertainties noted above by initially obtaining permits for the total number of units anticipated and by planning for expansion in the calculation of necessary physical stack height. In the latter instance, only the allowable stack height credit would be revised as

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[5] In contrast, if the test of "excessive concentrations" involved a simple percentage increase, there would be no need to specify an emission rate, since the increase in concentration caused by downwash is independent of emission rates.

[6] The EPA will rely on its Best Available Retrofit Technology Guideline in reviewing any rebuttals and alternative emission limitations.

expansion is carried out—not actual stack height.

An additional theoretical complication is presented when an absolute concentration is used where meteorological conditions other than downwash result in the highest predicted ground-level concentrations in the ambient air. In such cases, a source that has established GEP at a particular height, assuming a given emission rate, may predict a NAAQS violation at that stack height and emission rate under some other condition, e.g., atmospheric stability Class 'A.' Reducing the emission rate to eliminate the predicted violation would result in stack height credit greater than absolutely necessary to avoid an excessive concentration under downwash. However, reducing stack height places the source back in jeopardy of a NAAQS violation under the other meteorological condition, and so on, "ratcheting" stack height credit and emission rates lower and lower. The EPA has eliminated this "ratcheting" potential in the GEP guideline by providing that, once GEP is established for a source, adjusting the emission rate to avoid a violation under other conditions does not require recalculation of a new GEP stack height.

EPA is making this part of the regulations retroactive to December 31, 1970. In the terms of the court's retroactivity analysis, stacks greater than formula height represent a situation that Congress did affirmatively "intend to alter" in section 123. Moreover, EPA regulatory pronouncements since 1970 have placed a stricter burden on sources raising stacks above formula height than on others.

No source is precluded from building a stack height greater than formula height if such height is believed to be needed to avoid excessive downwash. However, the design and purpose of section 123 prohibit SIP credit for that effort unless a relatively rigorous showing can be made.

Given the ability of sources to avoid modeling and rely on validity of the GEP formulae and requirement for further control of emissions in conjunction with stack heights in excess of formulae height, the result predicted by UARG—exceedances of the NAAQS or PSD increments due to inadequate stack height—is highly unlikely.

The potential effect of changes in background air quality on stack height credit is not substantially different from the effect that such changes in background can have on source emission limitations in nonattainment areas. In the first case, however, sources may be able to address these effects through greater stack height if such changes affect the concentrations under downwash. Moreover, the possibility that shifting background air quality can yield different calculations of GEP is significantly limited by the fact that consideration of background in GEP calculations is restricted to those cases where credit for greater than formula height is being sought or sources are seeking to raise stacks to avoid excessive concentrations.

Raising Stacks Below Formula Height to Formula Height. In response to EPA's proposal to allow automatic credit for GEP formula height, several commenters have argued that EPA has failed to adequately respond to the court's directive to "reconsider whether, in light of its new understanding of 'excessive concentrations,' demonstrations are necessary before stack heights may be raised, even if the final height will not exceed formula height."

Response. Raising a stack below formula height to formula height is not, in EPA's judgment, subject to the same statutory reservations as building stacks greater than formula height. However, as the court has cautioned, it may still be necessary for these sources to show that raising stacks is necessary to avoid "excessive concentrations" that raise health or welfare concerns.

For these reasons, sources wishing to raise stacks subsequent to October 11, 1983, the date of the D.C. Circuit opinion, must provide evidence that additional height is necessary to avoid downwash-related concentrations raising health and welfare concerns. These rules allow sources to do this in two ways.

The first way is to rebut the presumption that the short stack was built high enough to avoid downwash problems; i.e., to show, by site-specific information such as monitoring data or citizen complaints, that the short stack had in fact caused a local nuisance and must be raised for this reason. The EPA believes that both the historical experience of the industry and the data on short-term peaks discussed earlier show that short stacks can cause local nuisances due to downwash. However, where a source has built a short stack rather than one at formula height, it has created a presumption that this is not the case. General data on short-term peaks may not be strong enough to support, by themselves and in the abstract, a conclusion that the stack must be raised to avoid local adverse effects. Instead, that proposition must be demonstrated for each particular source involved.

In the event that a source cannot make such a showing, the second way to justify raising a stack is to demonstrate by fluid modeling or field study an increase in concentrations due to downwash that is at least 40-percent in excess of concentrations in the absence of such downwash and in excess of the applicable NAAQS or PSD increments. In making this demonstration, the emission rate in existence before the stack is raised must be used.

Since raising stacks to formula height is not subject to the same extraordinary reservations expressed by Congress and the court with respect to stacks being raised above formula height, EPA does not believe that the use of presumptive "well-controlled" emission rate is appropriate here. As discussed in EPA's response to NRDC's "control first" argument, the basic purpose of section 123 was to take sources as it found them and, based on those circumstances, to assure that they did not avoid control requirements through additional dispersion. Use of a source's actual emission rate in this instance is consistent with that basic purpose and, absent special indications of a different intent, should be used in stack height calculations.

The EPA believes that it is most unlikely that any source with a current emission limitation has failed to claim full formula credit for a stack of formula height. Accordingly, the question whether a source can receive stack height credit up to formula height will involve only sources that want to actually raise their physical stack, not sources that simply want to claim more credit for a stack already in existence. A source will presumably not go to the trouble of raising an existing stack without some reason. If a source cannot show that the reason was in fact the desire to avoid a problem caused by downwash, then the inference that it was instead a desire for more dispersion credit is hard to avoid. A nuisance caused by downwashed emissions could include citizen or employee complaints or property damage. A source would be expected to show that complaints of this nature were reasonably widespread before getting credit under this section.

The EPA does not intend to make this rule retroactive to stacks that "commenced construction" on modifications that would raise them to formula height prior to October 11, 1983. Applying the court's retroactivity analysis, it appears:

1. The new rule does depart from prior practice. The EPA's 1973 proposed rule affirmatively encouraged sources with shorter stacks to raise them to formula

height.[7] Though EPA's 1976 guideline can be read as imposing a "control first" requirement on some stack height increases, its general thrust gave automatic credit for all stacks that met the "2.5" times formula.[8] Automatic permission was similarly set forth in the 1979 proposal, in the 1981 reproposal, and in the 1982 final rule. Only a notice published in 1980, but later withdrawn, departs from this trend, requiring the use of field studies or fluid modeling demonstrations to justify stack height increases up to GEP formula height.[9] Even then, the notice would have made this policy prospective in its application.

2. Sources that raised stacks in reliance on this past EPA guidance assuming the availability of dispersion credit cannot be distinguished from the sources, in the example approved by the court, that built stacks to the traditional formula in an identical expectation of dispersion credit.

3. It cannot be said that the raising of stacks to formula height is a practice that Congress "affirmatively sought to end." It is not mentioned in the text of the statute or its legislative history. Further, as the court has already noted, the statute attributes a degree of presumptive validity to the formula on which sources that raise their stacks will have relied.

Discretion to Require Fluid Modeling. Several commenters argued that EPA's proposal to allow agencies to require the use of fluid modeling was unnecessary, since EPA had already documented the validity of the GEP formulae. Furthermore, these commenters argue that this allowance would make fluid modeling the rule, rather than the exception. This would result, the commenters state, because it was their expectation that agencies or environmental groups would nearly always call for fluid modeling demonstrations during the permit application and review process.

Other commenters stated that providing the discretion to require fluid modeling was appropriate, since EPA had failed to demonstrate that the GEP formulae represented the minimum height necessary to avoid excessive concentrations.

Response. The Court of Appeals directed EPA to reexamine whether its rules should allow States, as a matter of discretion, to require even sources that planned to rely on the formula to show instead by fluid modeling that a stack this high was required to avoid dangers to health and welfare caused by downwash. The court suggested that EPA should include such a provision unless it could find that the formula was so accurate, or tended so much to err on the low side, as to make discretionary authority to adjust formula height downward unnecessary.

The EPA believes that the court was mistaken in its conclusion that a stack at formula height is likely to generate downwash concentrations as great as 40 percent only in uncommon situations. In fact, EPA's observations indicate that when stacks are built to GEP formula height, an increase in concentrations due to downwash can still be expected to occur that is between 20 and 80 percent greater than the concentration that would occur in the absence of building influences.[10]

Nevertheless, in response to the court's remand, EPA is including in this final rule a provision for the authority administering these rules to require field studies or fluid modeling demonstrations, even for stacks built to formula height, in cases where it believes that the formula may significantly overstate the appropriate stack height credit.[11]

While EPA believes the formula is a reasonable rule of thumb indicating the stack height needed to avoid some probability of a standards violation and a significantly greater probability of a local nuisance, actual results in any given case may vary somewhat based on specific circumstances. The EPA has attempted to minimize this possibility within the limits of available data by identifying two particular situations in which it believes that the formulae may not be reliable indicators of GEP: Porous structures and buildings whose shapes are aerodynamically smoother than the simple block-shaped structures on which the formulae are based.[12]

However, EPA acknowledges that other situations, of which the Agency is not presently aware, may arise wherein the formulae may not be adequate.

The EPA intends to "grandfather" any source that relied on the formula in building its stack before the date of EPA's 1979 proposal from the effect of this discretionary reexamination requirement.

Only in that proposal did EPA first suggest that such a discretionary reexamination provision might be included in the final rule. The retroactivity analysis set out earlier therefore supports exempting stacks built in reliance on EPA guidance before that date from discretionary reexamination. Indeed, a failure to "grandfather" these sources would lead to the paradoxical result that a source that had built a GEP stack under the traditional EPA formula would have its direct reliance interests protected by the "grandfather" provision previously upheld by the court, but could then lose that "grandfathered" credit through a case-specific demonstration requirement showing that the traditional formula was somewhat inaccurate—the very reason behind the change in the formula properly found non-retroactive by EPA earlier.

Given this background, EPA believes that the effect on emissions of including or of excluding a provision for discretionary determinations from this rule is likely to be very small. Building stacks above formula height, and raising stacks below formula height to formula height, are covered by regulatory provisions already discussed. The only case left for discretionary determinations to address is the building of stacks at formula height in the post-1979 period. However, all major sources built since that time are already controled to SO_2 emission rates no greater than 1.2 lb./mmBTU—and, not uncommonly much less—under various EPA regulations. All new power plants on which construction "commenced" since 1971 must meet EPA's NSPS mandating an emission rate no greater than this level. That standard was tightened for all power plants on which construction "commenced" after 1978. In addition, all "major" sources built since 1977 in areas subject to the Act's PSD requirements have had to install best available control technology. That technology must require the greatest degree of emission control that is achievable considering technology, economics, and energy impacts.[13]

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[7] "The use of stack height up to the level of good engineering practice is encouraged by EPA in order to avoid local nuisances." (38 FR 25700).

[8] 41 FR 7451 (February 18, 1976); Guideline Sections B.1, C.1(2), C.2(2).

[9] 45 FR 42279 (June 24, 1980); specific discussion of stack height credit is discussed at 42281–2.

[10] Guideline for Determination of Good Engineering Practice Stack Height, pp 20–22. This is further illustrated in Figures 5 and 6.

[11] Quite apart from any such regulatory provision, States have authority to require such demonstrations, on the terms outlined or on stricter or more lenient terms, under the savings provisions of section 116 of the Clean Air Act.

[12] Earlier EPA guidance, although expressing reservations about the accuracy of the formula when applied to rounded structures, allowed its use for certain tapered structures and cooling towers. "Guideline for Determination of Good Engineering Practice Stack Height," July 1981 at 39–40. For this reason, EPA will grandfather any credits for such structures that were granted prior to November 9, 1984. Since EPA guidance has never allowed credit for porous structures, the restriction in this rule for such structures applies to all stacks in existence since December 31, 1970.

[13] Clean Air Act section 169.

If such sources had to show that use of a formula height stack was needed to avoid exceedances of the NAAQS or PSD increments, that might prove difficult for many of them. The likelihood of such exceedances tends to decrease as the emission rate for the source decreases. By the same token, the incremental emission reductions available from the sources that are at issue here tend to be small and among the most expensive available. In terms of emission reductions, little is at stake where these sources are concerned.

Accordingly, the rules will require such sources, if a reviewing authority calls for a demonstration, to the rules show that the use of a formula stack height is needed to avoid a 40-percent increase in concentrations due to downwash. This will provide a rough check on whether the formula, as applied in the particular case at issue, produces the result it was designed to produce.

The EPA is not providing here for sources to justify their formula height stacks by arguing that the height in excess of that needed to avoid NAAQS violations is needed to avoid a local nuisance. The discretionary modeling requirement is designed for application to stacks before they were built. Beyond that, there is no way to determine based on the *absence* of a local nuisance that a formula height stack is not too tall, in the way that the *presence* of a nuisance shows that a stack under formula height in fact is too short. Accordingly, there will be no way, as there was with short stacks being raised, to determine from actual experience whether a local nuisance would occur at a shorter stack height. Though avoiding local nuisance is a legitimate purpose for which stacks are built, it would be very difficult to show by modeling what stack height was needed to avoid it.

Some commenters have misunderstood EPA's allowance of discretion to require fluid modeling as requiring such modeling whenever *any* individual or entity called for such a demonstration. This discretion rests explicitly with the reviewing agencies who have always had the prerogative to require more stringent analyses in the SIP process, and no obligation is implied for these agencies to require fluid modeling simply because it has been called for by some individual during the permit review process. It is EPA's expectation that technical decisions to require such additional demonstrations would be based on sound rationale and valid data to show why the formulae may not be adequate in a given situation. In any case, given the burden of reviewing a fluid modeling demonstration, an agency is not likely to exercise this option absent sufficient justification. Consequently, EPA disagrees with the commenters' contention that fluid modeling will supplant the use of the GEP formulae, except in what EPA believes will be unusual instances.

Reliance on the 2.5H Formula. In limiting the applicability of the 2.5H formula to those cases where the formula was actually relied upon, the November 9 proposal defined such reliance in terms of stack design. A number of comments indicated that actual stack design and construction may ultimately be control, not by the 2.5H engineering rule, but by construction materials specifications. Consequently, while 2.5H rule may have provided an initial starting point in stack design, the rule may not have dictated final stack height. In other cases, it was argued that a number of source owners may have constructed their stacks in excess of what was determined to be minimum GEP for precautionary reasons, for process requirements, or in anticipation of additional growth in the area surrounding the facility, even though emission limitations for these sources would have been limited then, as now, to formula height. Consequently, it was argued that EPA should allow sources to demonstrate reliance on the formula in the calculation of emission limits as well as in the design of the stack.

In response to EPA's request for comments on what evidence should be considered acceptable in determining reliance on the 2.5H formula, some commenters urged EPA to consider reconstructed evidence, e.g., affidavits from design engineers or copies of correspondence indicating past reliance on EPA guidance. Other commenters stated that "reliance" should be very strictly construed, that EPA should be circumspect in its review of reliance demonstrations, and that only contemporaneous documentary evidence, such as blueprints and facility design plans, be accepted as evidence.

Response. The EPA is in general agreement with the view that reliance should be considered in relation to the emission limitation for the source, not the design. Since section 123 specifically prohibits EPA from regulating actual stack heights and rather regulates stack height credits used in setting emission limitations, it would be illogical to require that sources demonstrate reliance on the 2.5H formula for actual stack design. Moreover, such an approach would contradict principles of sound planning, in that it would penalize those sources that have built taller stacks in anticipation of facility expansion or other growth in the area that could influence GEP determinations.

If a stack has been built taller than 2.5H formula provides, while the emission limitation has been calculated assuming 2.5H credit, a convincing demonstration has been made that the source properly relied on the formula. Conversely, if the emission limitation for the source is based on some other stack height credit, such as 2.8H, 3.5H or some other number, it would be difficult to show that the GEP formula had in fact been relied on.

In some cases the emission limit information may be unavailable or inconclusive. In such cases, EPA will allow reliance on reconstructed evidence of construction intent.

In comments submitted during the public comment period and in response to questions raised by EPA at the public hearing held on January 8, 1985, industry representatives repeatedly stated that contemporaneous evidence of reliance on the 2.5H formula, such as facility design plans, dated engineering calculations, or decision records are rarely, if ever, retained for more than a few years after construction of the facility is completed. Consequently, they argued that most cases of legitimate reliance would be denied if contemporaneous evidence were required in order to retain for the 2.5H formula.

The EPA agrees. Additionally, credit afforded by the 2.5H formula in excess of that resulting from the use of the H+1.5L derivative is likely to be small, except when the building on which stack height credit is based is substantially taller than it is wide. Finally, it is EPA's view that the court did not intend that sources be subject to a rigorous or overly stringent of reliance, but only that they be accorded a reasonable opportunity to show reliance on the 2.5H formula. For these reasons, EPA will allow the submission of reconstructed, i.e., noncontemporaneous documentary evidence to demonstrate reliance on the 2.5H formula.

Definition of "Nearby". Comments were submitted by UARG and others, arguing that, effectively, no limitation should be placed on the consideration of terrain-induced downwash. Alternatively, some of these commenters argued that the court decision requires that a limitation be adopted that does not apply any distance restriction of ½ mile in modeling terrain effects such as is

applied to structures in the use of GEP formulae, but rather allows consideration of all terrain that results in the same downwash effect as those structures within ½ mile of the stack.

Other commenters have argued that the court decision and legislative history preclude EPA from allowing consideration of any terrain beyond a distance of ½ mile, regardless of where it begins.

Response. For the reasons summarized below, EPA does not accept either the interpretation that the court decision authorizes EPA to adopt a definition based solely on effect, or that it limits consideration exclusively to terrain features falling entirely within ½ mile.

When Congress discussed the allowance of credit for stack height to address downwash, it stated that the term "nearby" was to be "strictly construed," noting that if the term were to be interpreted "to apply to man-made structures *or terrain features* ¼ to ½ mile away from the sources or more, the result could be an open invitation to raise stack heights to unreasonably high elevations and to defeat the basic underlying committee intent." [14]

In its opinion, the court held that EPA could not give unlimited credit when modeling terrain features because that would conflict with the Congressional intention to impose artificial limits on that credit. The court was not presented with, and did not address, the question of what to do about terrain features that "began" within ½ mile and extended outside it. The approach adopted by EPA carried out this congressional purpose to impose an artificial limit but at the same time reflects the real facts more closely than an absolute ½ mile limitation.

Unlike man-made structures, terrain features do not have readily definable dimensions other than height. For this reason, EPA has defined "nearby" as generally allowing inclusion of consideration of terrain features that fall within a distance of ½ mile of the stack. EPA's definition will permit consideration of such terrain that extends beyond the ½ mile limit if the terrain begins within ½ mile, allowing that portion within 10 times the maximum height of the feature, not to exceed 2 miles, as described in the proposal.

To define when a terrain feature "begins" within ½ mile, EPA has related terrain height at the ½ mile distance to the maximum stack height that could be justified under the other two methods for determining GEP. Accordingly, EPA will require that terrain features reach a height at the ½ mile distance limit of either 26 meters (i.e., 65 meters divided by 2.5) or 40 percent of the stack height determined by the GEP formulae applied to nearby buildings.

Treatment of New versus Existing Sources Under the Definition of "Nearby". In the proposal, EPA requested comment on whether new sources should be treated differently from existing sources and presented two options for addressing them.

Few comments were received on these options. Several questioned the logic of distinguishing between new and existing sources in the regulations. One commenter argued that new and existing sources should both be subject to the strict ½ mile limit proposed under one option for new sources only. This has already been discussed under EPA's response to comments on the general definition of "nearby" and is not addressed further here.

Response. New sources are initially subject to more stringent control requirements than many existing sources. Consequently, it is less likely that the emission limitations and stack height credits for these sources will be affected by terrain features. Furthermore, EPA believes that the effect of applying a more restrictive distance limitation will be insignificant and will result only in minor changes in siting, rather than substantial relocation of sources. For this reason, EPA has selected the second option, treating new and existing sources identically under the definition of "nearby."

EPA is giving this definition of "nearby" retroactive application to December 31, 1970. The court's decision makes clear its conclusion that Congress affirmatively focused on this issue and decided thus making application as of the enactment date proper.

Definition of Other Dispersion Techniques. The EPA received many comments on the proper scope of the definition of "dispersion techniques," and perhaps more on the appropriate bounds of the exclusions. Industry commenters generally argued that EPA had improperly proposed to deny consideration for plume-enhancement effects that are "coincidental" with techniques and practices routinely carried out for sound engineering and economic reasons. They argued that EPA should prohibit credit only when a technique or practice was decisively motivated by a desire for dispersion credit. Such an approach would create a "but for" test using the intent of the source owner or operator as the basis for EPA's decisions.

Other commenters argued that EPA must use a test based purely on *effects*, prohibiting credit where a technique or practice has the effect of enhancing dispersion, regardless of any other justification.

Response. In the final regulation, EPA has rejected the polar positions discussed above. The argument that dispersion *effects* are forbidden regardless of motive is discussed and rejected as a part of the general response to the argument that only "well-controlled" sources can receive any dispersion credit.

Conversely, a pure "but for" test runs the risk of creating exclusions that effectively swallow the rule itself. The EPA judges that few, if any, circumstances are likely to arise in which some other benefit or justification cannot be asserted as the basis for a practice, and therefore for such an exclusion.

Where prospective evaluation of merged gas streams, or combined stacks, is concerned, there is no reason to assume the serious administrative burdens investigating such claims might entail. The court directed EPA to apply an intent test "at a minimum," and left it free to take an approach that may be less generous toward credit for combined stacks. Since sources in the future will be able to plan against the background of rules that define permissible credits precisely, little unfairness results from a restrictive approach.

When retrospective application is concerned, however, the retroactivity analysis spelled out by the court directs that an intent-based test be employed as described later.

Accordingly, after considering the record on these matters, EPA has determined to take a "middle-ground" approach to this question. The final regulation retains the same broad prohibition found in the proposal on increasing exhaust gas plume rise by manipulation of parameters, or the combining of exhaust gases from several existing stacks into one stack, with several classes of exclusions. These exclusions recognize the existence of independent justifications based on engineering and/or economic factors, and include:

(1) Demonstration of original facility design and construction with merged gas streams;

(2) Demonstration that merging after July 8, 1985 is part of a change in operation that includes the installation of pollution controls and results in a net reduction in allowable emissions of the pollutant for which credit is sought; or

[14] H.R. Report. No. 294, 95th Cong., 1st Sess. 93 (1977).

(3) Demonstration that merging before July 8, 1985 was part of a change in operation that included the installation of control equipment, or was carried out for sound economic or engineering reasons. An allowable emissions increase creates the presumption that the merging was not carried out for sound economic or engineering reasons.[15]

Of these exclusions, the first is identical to the proposal, and the second and third are modifications of the second exclusion included in the proposal, with a refinement based on prospective/retroactive application.

The first exclusion was retained for the reasons stated in the proposal. After reviewing the comments submitted, EPA determined that its previous conclusion—that standard practice in designing and constructing facilities routinely includes venting emissions from several units into a common or multiflued stack—is correct. Sound engineering and economic reasons, based on costs of constructing and maintaining separate stacks, availability of land, and cost savings for pollution control equipment support facility design and construction considerations. Even if air pollution requirements did not exist at all, sources would have incentives to use as few stacks as possible.

Since *increasing* plume rise, rather than plume rise itself, is a "dispersion technique" and original design and construction define the initial base, such original design and construction of merged gas streams is not considered a dispersion technique. Moreover, in designing the facility, a source can usually choose to build one larger unit rather than several smaller units. Therefore, prohibiting credit for original design generally only effect the design of units and not the plume rise.

Objections have been raised to applying this logic to sources which are constructed over a period of time, but use a single stack. However, the same factual arguments just listed would apply is the same, if the original design included provision for the additional units in the plans for the facility, and in the design and construction of the stack. In such a case, the later units merged into the stack would be included within the exclusion.

In addition, it would be logically very difficult to apply a rule denying credit to original design stacks. EPA or the State would have to assume how many stacks would have been built absent a desire for dispersion credit, where they would have been located, and how high they would have been. Since these alternative stacks would be purely hypothetical, there would be no clear way of answering these questions; the answer would simply have to be selected arbitrarily from the wide range of possible answers. This problem is absent when existing stacks have been combined.

In contrast, EPA finds changes from the original design of a facility in order to include merged stacks to require a narrower judgment. The EPA concluded that, where prospective application is concerned, the exclusion should be available only to sources that combine stacks reduces allowable emissions of the pollutant for which the credit is granted. There are obvious economic advantages in combining stacks to reduce the number of emission control units that must be purchased. In addition, the installation of pollution control for the pollutant in question provides substantial assurance that the purpose of the combination is not to receive a more lenient emission limit.

However, given past EPA guidance on merging of stacks, EPA has concluded that retroactive application of this test would not be proper. The EPA guidance documents uniformly took the view that merging of separate stacks into a single stack "is generally not considered a dispersion technique" absent other factors such as excessive use of fans or other devices.[16] Each document provided guidance to a source of a Regional Office regarding the proper treatment of merged stacks in calculating emission limitations. Considering these statements, EPA must consider the standards expressed by the court, as previously discussed in this notice, in judging the propriety of a differing standard for retroactive application. Given the nature and applications of the guidance which it issued in the past, EPA judges the first two criteria—that is, whether the new rule represents an abrupt departure from well-established practice, and whether the parties against whom the new rule is applied relied on the former rule—to be satisfied. In addition, applying the prospective criteria to past practice would require significant changes in fuel and/or control equipment for parties whose emission limits were based on previous guidance. Finally, and particularly where sources have not been allowed to increase their previous emissions as a result of the combining of stacks, EPA does not judge the statutory interest to be overriding in this instance since the rule even in its retrospective version only exempts sources that can show a reasonable non-dispersion enhancement ground for combining stacks, and thereby implements the "intent" test suggested by the court. On the other hand, EPA has never suggested that combined stacks that *cannot* meet such a test are proper. Sources whose actual emissions are increased, or whose emission limitations are relaxed in connection with the combining of stacks create a strong presumption that the combination was carried out in order to avoid the installation of controls. Such combinations would indeed run counter to the statutory purpose, and retrospective application of a test that forbids them is therefore proper.

Exemptions from the Definition of Dispersion Techniques. The EPA received numerous comments in response to its request for input on what consideration, if any, should be given to excluding sources from the definition of "Dispersion Techniques" whose emissions are below a specified level or whose stacks are less than the *de minimis* height. These commenters argued that combining gas streams in particular often had an economic justification independent of its effects on dispersion, and therefore should not be generally forbidden. Other comments stated that, in considering any such exclusion, EPA should consider the effect on total atmospheric loadings.

Response. Some limitation on the number of sources affected by the definition of "dispersion techniques" necessary for EPA to carry out the stack height program. There are currently estimated to be over 23,000 sources of SO_2 in the United States with actual emissions exceeding 100 tons per year. It would not be possible for EPA or States to review the emission limits of even a significant fraction of this number within a reasonable time period. Twenty-two thousand of these sources have emissions less than 5,000 tons per year and contribute a total of less than 13 percent of the total annual SO_2 emission.[17] For this reason, and for reasons of administrative necessity discussed earlier, EPA is adopting an exemption from prohibitions on manipulating plume rise for facilities with allowable SO_2 emissions below

[15] In cases where no emission limit existed for a source prior to the merging, such merging is not to result in any increase in the actual emissions that occurred prior to the merging.

[16] Memorandum from Darryl Tyler to Steven Rothblatt, August 20, 1980. See also letter from Walt Barber from Howard Ellis, October 8, 1980, and from David Stonefield to Joseph Paisie, June 27, 1980.

[17] Memorandum from Eric Ginsburg, OAQPS to David Stonefield, "Stratification of SO_2 Point Sources by Size," June 25, 1985.

5,000 tons per year. The EPA believes the effect of this exemption on total SO_2 emissions to be *de minimis* in nature. Even if these sources were able to increase their emission rates as the result of an exemption from the definition of dispersion techniques, their combined effect would not be significant. Indeed, because these sources are exempt on the basis of their annual emissions, there exists an upper limit to the extent to which they may obtain relaxed emission limitations, i.e., to maintain an exemption, the annual emissions of a source may never exceed 5,000 tons per year. For these reasons, the 5,000 ton limit passes a *de minimis* test even more clearly than the 65-meter limit included without challenge in the prior version of this rule. Moreover, EPA believes that a large majority of these sources would not be inclined to seek less stringent emission limitations, in part because a substantial portion of them are limited by State and local fuel use rules.

The EPA believes at this time that a *de minimis* size exemption is justified only for sources of SO_2 and that the number of small sources for which emission limitations for other pollutants are a significant concern would not support a similar exemption. The EPA will continue to review the need for such exemptions and, if deemed appropriate, will propose them for review and comment at a later date.

Plume Impaction. The EPA received a number of comments requesting that credit for plume impaction be retained on the grounds that eliminating such credit would have severe impacts on existing sources. Several approaches were offered for overcoming plume impaction effects in modeling to determine emission limitations based on GEP stack height. Generally, these approaches focused on modifying the stack-terrain relationship represented in the models. Several commenters argued along these lines that the court recognized and approved of EPA's attempt to avoid the effects of plume impaction, but only disapproved of EPA's regulatory method in allowing sources to avoid impaction. These commenters argued that the court did not preclude EPA from allowing credit to avoid plume impaction, but only from allowing credit for stack height in excess of GEP; this, it was argued, could be remedied in a way that was consistent with the court decision by incorporating impaction avoidance within the definition of GEP. It was also suggested that EPA give its "interim approval" to the use of certain refined complex terrain models, in particular the Rough Terrain Display Model (RTDM), to calculate emission limitations for sources affected by changes to the stack height regulation.

Response. The EPA agrees that the court was cognizant of the problem of plume impaction and noted that there was much to recommend EPA's allowance of credit for impaction avoidance. However, the allowance of credit for plume impaction was not remanded to EPA for revision or reconsideration, but was reversed by the court as exceeding EPA's authority.

The EPA does not agree that it would be possible to redefine GEP in a manner that allowed credit for avoiding impaction, since GEP is explicitly defined in terms of preventing excessive concentrations due to downwash, wakes, and eddies. Plume impaction is a phenomenon completely unrelated to downwash and, rather, is a consequence of effluent gases being emitted at an insufficient height to avoid their striking downwind hillsides, cliffs, or mountainsides prior to dilution. Manipulation or "adjustment" of modeling parameters to avoid predicting theoretical plume impaction where actual stacks have been constructed above GEP would be tantamount to granting the same impaction credit that was invalidated by the court. Furthermore, EPA believes that the manipulation of modeling parameters for no other reason than to avoid an undesirable result is technically indefensible.

The EPA is in the process of revising its "Guideline on Air Quality Models." A number of individuals commenting on the guideline have requested that EPA approve the use of the RTDM model as a preferred technique. Further discussion of this issue can be found in documents associated with EPA's action on the modeling guideline (Docket No. A-80-46). With respect to the revised stack height regulation, EPA has not rejected the use of RTDM. To the extent that appropriate and complete data bases and information on model accuracy are available, EPA may approve the use of RTDM on a case-by-case basis when executed in accordance with the guideline requirements. Sponsors of RTDM and presently developing more extensive support for broader applications of the model. When such support is received and reviewed by EPA, consideration will be given to allowing more general use of RTDM in regulatory activities such as compliance with the stack height rule.

Timetable for State Implementation. A number of commenters stated that it was not possible to conduct the necessary analyses, prepare and submit revised State rules and source-specific emission limitations within the 9-month timeframe referred to in the November 9 proposal. A variety of alternative schedules were proposed by these commenters for consideration by EPA.

Response. As with EPA's previous allowance of credit for plume impaction, the timetable for preparation and submittal of revised SIP's was not an issue remanded by the court. The EPA is in agreement that these revisions to the stack height regulation will require significant efforts by State and local agencies, individual emission source owners and EPA Regional and Headquarters offices in order to comply within the 9-month timeframe required by section 406(d)(2) of the 1977 Clean Air Act Amendments. It was based on this concern that EPA originally provided a two-step process for States to follow in revising their plans and submitting them to EPA for approval. However, the court found that this effort was explicitly contrary to section 406(d)(2) and ordered EPA to follow the 9-month schedule provided in the Clean Air Act.

New Sources Tied into Pre-1971 Stacks. As indicated earlier, in response to the court opinion, EPA proposed to deny "grandfathered" status to post-1970 sources tying into pre-1971 stacks. Some commenters stated that EPA was in no way prohibited from allowing credit for new sources ducted into pre-1971 stacks exceeding GEP height. Rather, they indicated that EPA simply had to provide justification for such allowance.

Other commenters indicated general support for EPA's proposal with respect to new sources tying into grandfathered stacks, but suggested that several expansions or clarifications be provided, most notably that, in addition to new and major modified sources, reconstructed sources not be allowed greater than GEP stack height credit when tying into greater than GEP stacks.

Response. In further review of this issue, EPA can find no convincing rationale to allow sources constructed after December 31, 1970, to avoid GEP restrictions simply by ducting their emissions into a stack that is "grandfathered" under section 123. On the contrary, the intent of section 123 to limit credit for stack height in excess of GEP suggests that EPA should not allow credit for such stack height except to honor financial commitments made prior to the end of 1970. Sources in existence after that date should be treated equally under the regulation and not allowed to avoid legitimate control requirements

through the use of "grandfathered" stack heights.

Sources undertaking major modification, or reconstruction become subject to additional control requirements under the Clean Air Act and are treated as "new sources" for the purpose of new source review and PSD requirements. EPA finds it appropriate that GEP requirements should be invoked at the time that other requirements for new, modified, or reconstructed sources become applicable.

Summary of Modifications to EPA's Proposal Resulting from Public Comments

Based on comments received during the public comment period, EPA has made a number of revisions to its proposed regulation in addition to those discussed above. These revisions are summarized below.

Section 51.1(hh)(2)(B)(ii) of the regulation has been clarified to require sources merging gas streams after July 8, 1985 to achieve a net reduction in allowable emissions. This change was made to make it clear that the effects of merging should not be used as a way of achieving compliance with present emission limits and to avoid penalizing sources who are presently emitting at less than allowable levels.

Section 51.1(hh)(2)(B)(iii) allows credit for a source that merged gas streams in a change of operation at the facility prior to July 8, 1985 that included the installation of control equipment or had other sound engineering or economic reasons. Any increase in the emission limitation, or in the previous actual emissions where no emission limitation existed created a presumption that those sound reasons were not present.

Section 51.1(hh)(2)(E) has been added to exclude from the definition of prohibited "dispersion techniques" the use of techniques affecting final exhaust gas plume rise where the resulting total allowable emissions of SO_2 from the facility do not exceed 5,000 tons per year.

Section 51.1(ii)(1) has been revised to specify that the 65 meter *de minimis* height is to be measured, as in other determinations of GEP stack height, from the ground-level elevation at the base of the stack. This does not represent a substantive change in the rule or in its application relative to past practices, but rather a simple clarification.

Section 51.1(ii)(2) has been revised to require that source owners demonstrate that the 2.5H formula was relied on in establishing the emission limitation.

Section 51.1(ii)(3) has been revised as discussed elsewhere in this notice to specify that an emission rate equivalent to NSPS must be met before a source may conduct fluid modeling to justify stack height credit in excess of that permitted by the GEP formulae.

Section 51.1(jj) now defines "nearby" for purposes of conducting field studies or fluid modeling demonstrations as 0.8 km (½ mile), but allows limited consideration of terrain features extending beyond that distance if such features "begin" within 0.8 km, as defined in the regulation.

Section 51.1(kk) has been revised to provide separate discussions of "excessive concentrations" for the separate situations discussed earlier in this preamble. As that discussion makes clear, EPA believes that the differing categories of sources subject to this rule are best addressed by requirements that vary somewhat with those circumstances. This definition embodies that approach.

Section 51.12(k) has been corrected to provide that the provisions of § 51.12(j) shall not apply to *stack heights* in existence before December 31, 1970. The proposal had incorrectly stated that ". . . § 51.12 shall not apply to *stacks* existence. . . ."

Program

This regulation does not limit the physical stack height of any source, or the actual use of dispersion techniques at a source, nor does it require any specific stack height for any source. Instead, it sets limits on the maximum credit for stack height and other dispersion techniques to be used in ambient air modeling for the purpose of setting an emission limitation and calculating the air quality impact of a source. Sources are modeled at their actual physical stack height unless that height exceeds their GEP stack height. The regulation applies to all stacks in existence and all dispersion techniques implemented since December 31, 1970.

State Implementation Plan Requirements

Pursuant to section 406(d)(2) of the Clean Air Act Amendments of 1977, EPA is requiring that all States (1) review and revise, as necessary, their SIP's to include provisions that limit stack height credits and dispersion techniques in accordance with this regulation and (2) review all existing emission limitations to determine whether any of these limitations have been affected by stack height credits above GEP or by any other dispersion techniques. For any limitations that have been so affected, States must prepare revised limitations consistent with their revised SIP's. All SIP revisions and revised emission limitations must be submitted to EPA within 9 months of promulgation of this regulation.

Interim Guidance

In its proposal, EPA stated that it would use the proposed regulation to govern stack height credits during the period before promulgation of the final regulation. The EPA further stated that any stack height credits that are granted based on this interim guidance would be subject to review against the final rules and may need to be revised. Consequently, with these final rules, EPA is requiring that any actions that were taken on stack heights and stack height credits during this interm period be reviewed and revised as needed to be consistent with this regulation.

Regulatory Flexibility Analysis

Pursuant to the provisions of 5 U.S.C. 605(b), I hereby certify that the attached rule will not have significant economic impacts on a substantial number of small entities. This rule is structured to apply only to large sources: i.e., those with stacks above 65 meters (213 feet), or with annual SO_2 emissions in excess of 5,000 tons, as further noted in the rule. Based on an analysis of impacts, electric utility plants and several smelters and pulp and paper mills will be significantly affected by this regulation.

Executive Order 12291

Under Executive Order 12291, EPA must judge whether a regulation is "major" and therefore subject to the requirement of a regulatory impact analysis. EPA's analysis of economic impacts predicts a potential cost to emission source owners and operators exceeding $100 million; therefore, this is a major rule under Executive Order 12291. However, due to the promulgation deadline imposed by the court, EPA did not have sufficient time to develop a full analysis of costs and benefits as required by the Executive Order. Consequently, it is not possible to judge the annual effect of this rule on the economy. A preliminary economic impact analysis and subsequent revision were prepared and are in the docket.

For any facility, the air quality and economic impact of the stack height regulation generally depends on the extent to which the actual stack at that facility conforms to GEP stack height.

Thus, when the regulation is applied to large sources, i.e., those with stack height greater than GEP and emissions greater than 5,000 tons per year, it will have the potential for producing emission reductions and increased control costs.

A preliminary evaluation of the potential air quality impacts and a cost analysis of the regulation was performed at the time of proposal. The impacts identified were established in isolation of other regulatory requirements. The report predicted a range of impacts, from a "low impact" scenario that presumed that many potentially affected sources would be able to justify their existing stack heights, configurations, and emission limitations to a "high impact" scenario which assumed that all of the potentially affected sources would be required to reduce their emissions to some degree.

In the development of its final rulemaking action, EPA refined its evaluation of potential impacts, producing revised estimates of the probable costs of the changes to the regulation and expected reductions in SO_2 emissions. As a result of this refinement, EPA estimates that the rule will yield reductions in SO_2 emissions of approximately 1.7 million tons per year. The annualized cost of achieving these reductions will be aproximately $730 million, and the capital cost is expected to be approximately $700 million.

This regulation was reviewed by the Office of Management and Budget, and their written comments and any responses are contained in Docket A-83-49.

Judicial Review

The EPA believes that this rule is based on determinations of nationwide scope and effect. Nothing in section 123 limits its applicability to a particular locality, State, or region. Rather, section 123 applies to sources wherever located. Under section 307(b)(1) of the Clean Air Act [42 U.S.C. 7607(b)(1)], judicial review of the actions taken by this notice is available only by the filing of a petition for review in the United States Court of Appeals for the District of Columbia and within 60 days of the date of publication.

List of Subjects in 40 CFR Part 51

Air pollution control, Ozone, Sulfur dioxide, Nitrogen dioxide, Lead, Particulate matter, Hydrocarbons, Carbon monoxide.

Dated: June 27, 1985.

Lee M. Thomas,

Administrator.

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

Part 51 of Chapter I, Title 40 of the Code of Federal Regulations is amended as follows:

1. The authority citation for Part 51 continues to read as follows:

Authority: Sec. 110, 301(a), and 123, Clean Air Act as amended (42 U.S.C. 7410, 7601(a) and 7423).

2. Section 51.1 is amended by revising paragraphs (hh), (ii), (jj), and (kk) as follows:

§ 51.1 Definitions.

* * * * *

(hh)(1) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by:

(i) Using that portion of a stack which exceeds good engineering practice stack height;

(ii) Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or

(iii) Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.

(2) The preceding sentence does not include:

(i) The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;

(ii) The merging of exhaust gas streams where:

(A) The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

(B) After July 8, 1985, such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or

(C) Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the reviewing agency shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the reviewing agency shall deny credit for the effects of such merging in calculating the allowable emissions for the source;

(iii) Smoke management in agricultural or silvicultural prescribed burning programs;

(iv) Episodic restrictions on residential woodburning and open burning; or

(v) Techniques under § 51.1(hh)(1)(iii) which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed 5,000 tons per year.

(ii) "Good engineering practice" (GEP) stack height means the greater of:

(1) 65 meters, measured from the ground-level elevation at the base of the stack;

(2) (i) For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable permits or approvals required under 40 CFR Parts 51 and 52,

$$H_g = 2.5H,$$

provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation;

(ii) For all other stacks,

$$H_g = H + 1.5L,$$

where

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack,

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack,

L = lesser dimension, height or projected width, of nearby structure(s)

provided that the EPA, State or local control agency may require the use of a field study or fluid model to verify GEP stack height for the source; or

(3) The height demonstrated by a fluid model or a field study approved by the EPA State or local control agency, which ensures that the emissions from a stack do not result in excessive

concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features.

(jj) "Nearby" as used in § 51.1(ii) of this part is defined for a specific structure or terrain feature and

(1) for purposes of applying the formulae provided in § 51.1(ii)(2) means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than 0.8 km (½ mile), and

(2) for conducting demonstrations under § 51.1(ii)(3) means not greater than 0.8 km (½ mile), except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to 10 times the maximum height (H_t) of the feature, not to exceed 2 miles if such feature achieves a height (H_t) 0.8 km from the stack that is at least 40 percent of the GEP stack height determined by the formulae provided in § 51.1(ii)(2)(ii) of this part or 26 meters, whichever is greater, as measured from the ground-level elevation at the base of the stack. The height of the structure or terrain feature is measured from the ground-level elevation at the base of the stack.

(kk) "Excessive concentration" is defined for the purpose of determining good engineering practice stack height under § 51.1(ii)(3) and means:

(1) for sources seeking credit for stack height exceeding that established under § 51.1(ii)(2), a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard. For sources subject to the prevention of significant deterioration program (40 CFR 51.24 and 52.21), an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and greater than a prevention of significant deterioration increment. The allowable emission rate to be used in making demonstrations under this part shall be prescribed by the new source performance standard that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible. Where such demonstrations are approved by the authority administering the State implementation plan, an alternative emission rate shall be established in consultation with the source owner or operator;

(2) for sources seeking credit after October 1, 1983, for increases in existing stack heights up to the heights established under § 51.1(ii)(2), either (i) a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects as provided in paragraph (kk)(1) of this section, except that the emission rate specified by any applicable State implementation plan (or, in the absence of such a limit, the actual emission rate) shall be used, or (ii) the actual presence of a local nuisance caused by the existing stack, as determined by the authority administering the State implementation plan; and

(3) for sources seeking credit after January 12, 1979 for a stack height determined under § 51.1(ii)(2) where the authority administering the State implementation plan requires the use of a field study or fluid model to verify GEP stack height, for sources seeking stack height credit after November 9, 1984 based on the aerodynamic influence of cooling towers, and for sources seeking stack height credit a. December 31, 1970 based on the aerodynamic influence of structures not adequately represented by the equations in § 51.1(ii)(2), a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects that is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

3. Section 51.1 is further amended by removing paragraphs (ll) and (mm).

§ 51.12 [Amended]

4. Section 51.12 is amended by removing paragraph (l).

5. Section 51.12(j) is amended by removing "and (l)" from the first sentence.

6. Section 51.12(k) is revised as follows:

(k) The provisions of § 51.12(j) shall not apply to (1) stack heights in existence, or dispersion techniques implemented on or before December 31, 1970, except where pollutants are being emitted from such stacks or using such dispersion techniques by sources, as defined in section 111(a)(3) of the Clean Air Act, which were constructed, or reconstructed, or for which major modifications, as defined in §§ 51.18(j)(1)(v)(a), 51.24(b)(2)(i) and 52.21(b)(2)(i), were carried out after December 31, 1970; or (2) coal-fired steam electric generating units subject to the provisions of Section 118 of the Clean Air Act, which commenced operation before July 1, 1957, and whose stacks were constructed under a construction contract awarded before February 8, 1974.

§ 51.18 [Amended]

7. Section 51.18(l) is amended by removing "and (l)" from the first sentence.

[FR Doc. 85-16094 Filed 7-5-85; 8:45 am]

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PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

Authority: This rulemaking is promulgated under authority of sections 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act 42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a).

Source: 36 FR 22398, Nov. 25, 1971, unless otherwise noted.

Editorial Note: Nomenclature changes affecting Part 51 appear at 44 FR 8237, Feb. 8, 1979 and 51 FR 40661, Nov. 7, 1986.

Subparts A–C—[Reserved]

Subpart D—Maintenance of National Standards

Source: 41 FR 18388, May 3, 1976, unless otherwise noted.

§ 51.40 Scope.

(a) *Applicability.* The requirements of this subpart apply to air quality maintenance areas (AQMAs) identified under § 51.110(i) and to any areas identified under § 51.110(l).

(b) *AQMA Analysis.* Under this subpart, procedures are given for the analysis of the air quality impact of specified pollutant emissions from existing sources and emissions associated with projected growth and development in areas identified under paragraphs (i) and (l) of § 51.110. This analysis is referred to in this subpart as an AQMA analysis.

(c) *AQMA Plan.* Under this subpart, the Administrator will require a revision to the State implementation plan for areas identified under § 51.110(i) or § 51.110(l) when necessary to prevent a national ambient air quality standard

estimated amounts of emissions and the amounts of such emissions allowable under the applicable emission limitations or other measures.

§ 51.117 Additional provisions for lead.

In addition to other requirements in §§ 51.100 through 51.116 the following requirements apply to lead. To the extent they conflict, there requirements are controlling over those of the proceeding sections.

(a) *Control strategy demonstration.* Each plan must contain a demonstration showing that the plan will attain and maintain the standard 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 2,000 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 ambient air quality standard concentration for lead, measured since January 1, 1974.

(b) *Time perio for emonstration of a equacy.* The demonstration of adequacy of the control strategy required under § 51.112 may cover a longer period if allowed by the appropriate EPA Regional Administrator.

(c) *Special modeling provisions.* (1) For urbanized areas with measured lead concentrations in excess of 4.0 $\mu g/m^3$, 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. If a proportional model is used, the air quality data should be the same year as the emissions inventory required under the paragraph e.

(2) For each point source listed in § 51.117(a), that plan must employ an atmospheric dispersion model for demonstration of attainment.

(3) 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.

(d) *Air quality data and projections.* (1) Each State must submit to the appropriate EPA Regional Office with the plan, but not 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.

(3) 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.

(e) *Emissions data.* (1) The point source inventory on which the summary of the baseline lead emissions inventory is based must contain all sources that emit five or more tons of lead per year.

(2) Each State must submit lead emissions data to the appropriate EPA Regional Office with the original plan. The submission must be made with the plan, but not as part of the plan, and must include emissions data and information related to point and area source emissions. The emission data and information should include the information identified in the Hazardous and Trace Emissions System (HATREMS) point source coding forms for all point sources and the area source coding forms for all sources that are not point sources, but need not necessarily be in the format of those forms.

§ 51.118 Stack height provisions.

(a) The plan must provide that the degree of emission limitation required of any source for control of any air pollutant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in § 51.118(b). The plan must provide that before a State submits to EPA a new or revised emission limitation that is based on a good engineering practice stack height that exceeds the height allowed by § 51.100(ii) (1) or (2), the State must notify the public of the availability of the demonstration study and must provide opportunity for a public hearing on it. This section does not require the plan to restrict, in any manner, the actual stack height of any source.

(b) The provisions of § 51.118(a) shall not apply to (1) stack heights in existence, or dispersion techniques implemented on or before December 31, 1970, except where pollutants are being emitted from such stacks or using such dispersion techniques by sources, as defined in section 111(a)(3) of the Clean Air Act, which were constructed, or reconstructed, or for which major modifications, as defined in §§ 51.165(a)(1)(v)(A), 51.166(b)(2)(i) and 52.21(b)(2)(i), were carried out after December 31, 1970; or (2) coal-fired steam electric generating units subject to the provisions of section 118 of the Clean Air Act, which commenced operation before July 1, 1957, and whose stacks were construced under a construction contract awarded before February 8, 1974.

§ 51.119 Intermittent control systems.

(a) The use of an intermittent control system (ICS) may be taken into account in establishing an emission limitation for a pollutant under a State implementation plan, provided:

(1) The ICS was implemented before December 31, 1970, according to the criteria specified in § 51.119(b).

(2) The extent to which the ICS is taken into account is limited to reflect emission levels and associated ambient pollutant concentrations that would result if the ICS was the same as it was before December 31, 1970, and was operated as specified by the operating system of the ICS before December 31, 1970.

(3) The plan allows the ICS to compensate only for emissions from a source for which the ICS was implemented before December 31, 1970, and, in the event the source has been modified, only to the extent the emissions correspond to the maximum capacity of the source before December 31, 1970. For purposes of this paragraph, a source for which the ICS was implemented is any particular structure or equipment the emissions from which were subject to the ICS operating procedures.

(4) The plan requires the continued operation of any constant pollution control system which was in use before December 31, 1970, or the equivalent of that system.

(5) The plan clearly defines the emission limits affected by the ICS and the manner in which the ICS is taken into account in establishing those limits.

(6) The plan contains requirements for the operation and maintenance of the qualifying ICS which, together with the emission limitations and any other necessary requirements, will assure that the national ambient air quality standards and any applicable prevention of significant deterioration increments will be attained and maintained. These requirements shall include, but not necessarily be limited to, the following:

(i) Requirements that a source owner or operator continuously operate and maintain the components of the ICS specified at § 51.119(b)(3) (ii)-(iv) in a manner which assures that the ICS is at least as effective as it was before December 31, 1970. The air quality monitors and meteorological instrumentation specified at § 51.119(b) may be operated by a local authority or other entity provided the source has ready access to the data from the monitors and instrumentation.

(ii) Requirements which specify the circumstances under which, the extent to which, and the procedures through which, emissions shall be curtailed through the activation of ICS.

(iii) Requirements for recordkeeping which require the owner or operator

§ 51.153 Reevaluation of episode plans.

(a) States should periodically reevaluate priority classifications of all Regions or portion of Regions within their borders. The reevaluation must consider the three most recent years of air quality data. If the evaluation indicates a change to a higher priority classification, appropriate changes in the episode plan must be made as expeditiously as practicable.

Subpart I—Review of New Sources and Modifications

Source: 51 FR 40669, Nov. 7, 1986, unless otherwise noted.

§ 51.160 Legally enforceable procedures.

(a) Each plan must set forth legally enforceable procedures that enable the State or local agency to determine whether the construction or modification of a facility, building, structure or installation, or combination of these will result in—

(1) A violation of applicable portions of the control strategy; or

(2) Interference with attainment or maintenance of a national standard in the State in which the proposed source (or modification) is located or in a neighboring State.

(b) Such procedures must include means by which the State or local agency responsible for final decisionmaking on an application for approval to construct or modify will prevent such construction or modification if—

(1) It will result in a violation of applicable portions of the control strategy; or

(2) It will interfere with the attainment or maintenance of a national standard.

(c) The procedures must provide for the submission, by the owner or operator of the building, facility, structure, or installation to be constructed or modified, of such information on—

(1) The nature and amounts of emissions to be emitted by it or emitted by associated mobile sources;

(2) The location, design, construction, and operation of such facility, building, structure, or installation as may be necessary to permit the State or local agency to make the determination referred to in paragraph (a) of this section.

(d) The procedures must provide that approval of any construction or modification must not affect the responsibility to the owner or operator to comply with applicable portions of the control strategy.

(e) The procedures must identify types and sizes of facilities, buildings, structures, or installations which will be subject to review under this section. The plan must discuss the basis for determining which facilities will be subject to review.

(f) The procedures must discuss the air quality data and the dispersion or other air quality modeling used to meet the requirements of this subpart.

§ 51.161 Public availability of information.

(a) The legally enforceable procedures in § 51.160 must also require the State or local agency to provide opportunity for public comment on information submitted by owners and operators. The public information must include the agency's analysis of the effect of construction or modification on ambient air quality, including the agency's proposed approval or disapproval.

(b) For purposes of paragraph (a) of this section, opportunity for public comment shall include, as a minimum—

(1) Availability for public inspection in at least one location in the area affected of the information submitted by the owner or operator and of the State or local agency's analysis of the effect on air quality;

(2) A 30-day period for submittal of public comment; and

(3) A notice by prominent advertisement in the area affected of the location of the source information and analysis specified in paragraph (b)(1) of this section.

(c) Where the 30-day comment period required in paragraph (b) of this section would conflict with existing requirements for acting on requests for permission to construct or modify, the State may submit for approval a comment period which is consistent with such existing requirements.

(d) A copy of the notice required by paragraph (b) of this section must also be sent to the Administrator through the appropriate Regional Office, and to all other State and local air pollution control agencies having jurisdiction in the region in which such new or modified installation will be located. The notice also must be sent to any other agency in the region having responsibility for implementing the procedures required under this subpart. For lead, a copy of the notice is required for all point sources. The definition of point for lead is given in § 51.100(k)(2).

§ 51.162 Identification of responsible agency.

Each plan must identify the State or local agency which will be responsible for meeting the requirements of this subpart in each area of the State. Where such responsibility rests with an agency other than an air pollution control agency, such agency will consult with the appropriate State or local air pollution control agency in carrying out the provisions of this subpart.

§ 51.163 Administrative procedures.

The plan must include the administrative procedures, which will be followed in making the determination specified in paragraph (a) of § 51.160.

§ 51.164 Stack height procedures.

Such procedures must provide that the degree of emission limitation required of any source for control of any air pollutant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in § 51.118(b). Such procedures must provide that before a State issues a permit to a source based on a good engineering practice stack height that exceeds the height allowed by § 51.100(ii) (1) or (2), the State must notify the public of the availability of the demonstration study and must provide opportunity for public hearing on it. This section does not require such procedures to restrict in any manner the actual stack height of any source.

§ 51.165 Permit requirements.

(a) State Implementation Plan provisions satisfying sections 172(b)(6) and 173 of the Act shall meet the following conditions:

(1) All such plans shall use the specific definitions. Deviations from the following wording will be approved only if the state specifically demonstrates that the submitted definition is more stringent, or at least as stringent, in all respects as the corresponding definition below:

(i) "Stationary source" means any building, structure, facility, or installation which emits or may emit any air pollutant subject to regulation under the Act.

(ii) "Building, structure, facility, or installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same two-digit code) as described in the *Standard Industrial Classification Manual, 1972*, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0065 and 003-005-00176-0, respectively).

(iii) "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

monitoring or communications portions of a contingency plan, but detailed critiques of such portions are provided to the State.

(c) Where a State plan does not provide for public announcement regarding air pollution emergency episodes or where the State fails to give any such public announcement, the Administrator will issue a public announcement that an episode stage has been reached. When making such an announcement, the Administrator will be guided by the suggested episode criteria and emission control actions suggested in Appendix L of Part 51 of this chapter or those in the approved plan.

[37 FR 10846, May 31, 1972, as amended at 37 FR 19807, Sept. 22, 1972]

§ 52.12 Source surveillance.

(a) Each subpart identifies the plan provisions for source surveillance which are disapproved, and sets forth the Administrator's promulgation of necessary provisions for requiring sources to maintain records, make reports, and submit information.

(b) No provisions are promulgated for any disapproved State or local agency procedures for testing, inspection, investigation, or detection, but detailed critiques of such portions are provided to the State.

(c) For purpose of Federal enforcement, the following test procedures shall be used:

(1) Sources subject to plan provisions which do not specify a test procedure and sources subject to provisions promulgated by the Administrator will be tested by means of the appropriate procedures and methods prescribed in Part 60 of this chapter; unless otherwise specified in this part.

(2) Sources subject to approved provisions of a plan wherein a test procedure is specified will be tested by the specified procedure.

[37 FR 10846, May 31, 1972, as amended at 40 FR 26032, June 20, 1975]

§ 52.13 Air quality surveillance; resources; intergovernmental cooperation.

Disapproved portions of the plan related to the air quality surveillance system, resources, and intergovernmental cooperation are identified in each subpart, and detailed critiques of such portions are provided to the State. No provisions are promulgated by the Administrator.

§ 52.14 State ambient air quality standards.

Any ambient air quality standard submitted with a plan which is less stringent than a national standard is not considered part of the plan.

§ 52.15 Public availability of plans.

Each State shall make available for public inspection at least one copy of the plan in at least one city in each region to which such plan is applicable. All such copies shall be kept current.

§ 52.16 Submission to Administrator.

All requests, reports, applications, submittals, and other communications to the Administrator pursuant to this part shall be submitted in duplicate and addressed to the appropriate Regional Office of the Environmental Protection Agency, to the attention of the Director, Enforcement Division. The Regional Offices are as follows:

Region I (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont), John F. Kennedy Federal Building, Boston, Mass. 02203.

Region II (New York, New Jersey, Puerto Rico, Virgin Islands) Federal Office Building, 26 Federal Plaza (Foley Square), New York, NY 10007.

Region III (Delaware, District of Columbia, Pennsylvania, Maryland, Virginia, West Virginia) Curtis Building, Sixth and Walnut Streets, Philadelphia, PA 19106.

Region IV (Alabama, Florida, Georgia, Mississippi, Kentucky, North Carolina, South Carolina, Tennessee) Suite 300, 1421 Peachtree Street, Atlanta, GA 30309.

Region V (Illinois, Indiana, Minnesota, Ohio, Wisconsin) Federal Building, 230 South Dearborn, Chicago, Illinois 60606.

Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, Texas) 1600 Paterson Street, Dallas, TX 75201.

Region VII (Iowa, Kansas, Missouri, Nebraska) 1735 Baltimore Street, Kansas City, MO 64106.

Region VIII (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming) 916 Lincoln Towers, 1860 Lincoln Street, Denver, CO 80203.

Region IX (Arizona, California, Hawaii, Nevada, Guam, American Samoa) 100 California Street, San Francisco, CA 94111.

Region X (Washington, Oregon, Idaho, Alaska) 1200 Sixth Avenue, Seattle, WA 98101.

[37 FR 19808, Sept. 22, 1972, as amended at 39 FR 37987, Oct. 25, 1974]

§ 52.17 Severability of provisions.

The provisions promulgated in this part and the various applications thereof are distinct and severable. If any provision of this part or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or application of such provision to other persons or circumstances which can be given effect without the invalid provision or application.

[37 FR 19808, Sept. 22, 1972]

§ 52.18 Abbreviations.

Abbreviations used in this part shall be those set forth in Part 60 of this chapter.

[38 FR 12698, May 14, 1973]

§ 52.19 Revision of plans by Administrator.

After notice and opportunity for hearing in each affected State, the Administrator may revise any provision of an applicable plan, including but not limited to provisions specifying compliance schedules, emission limitations, and dates for attainment of national standards; if:

(a) The provision was promulgated by the Administrator, and

(b) The plan, as revised, will be consistent with the act and with the requirements applicable to implementation plans under Part 51 of this chapter.

[38 FR 12698, May 14, 1973]

§ 52.20 Attainment dates for national standards.

Each subpart contains a section which specifies the latest dates by which national standards are to be attained in each region in the State. An attainment date which only refers to a month and a year (such as July 1975) shall be construed to mean the last day of the month in question. However, the specification of attainment dates for national standards does not relieve any State from the provisions of Subpart N of this chapter which require all sources and categories of sources to comply with applicable requirements of the plan—

(a) As expeditiously as practicable where the requirement is part of a control strategy designed to attain a primary standard, and

(b) Within a reasonable time where the requirement is part of a control strategy designed to attain a secondary standard.

[37 FR 19808, Sept. 22, 1972, as amended at 39 FR 34535, Sept. 26, 1974; 51 FR 40676, Nov. 7, 1986]

§ 52.21 Prevention of significant deterioration of air quality.

(a) *Plan disapproval.* The provisions of this section are applicable to any State implementation plan which has been disapproved with respect to prevention of significant deterioration of air quality in any portion of any State where the existing air quality is better than the national ambient air quality standards. Specific disapprovals are listed where applicable, in Subparts B through DDD of this part. The provisions of this section have been incorporated by reference into the applicable implementation plans for various States, as provided in Subparts B through DDD of this part. Where this section is so incorporated, the provisions shall also be applicable to all lands owned by the Federal Government and Indian Reservations located in such State. No disapproval with respect to a State's failure to prevent significant deterioration of air quality shall invalidate or otherwise affect the obligations of States, emission sources, or other persons with respect to all portions of plans approved or promulgated under this part.

(b) *Definitions.* For the purposes of this section:

(1)(i) "Major stationary source" means:

(*a*) Any of the following stationary sources of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any pollutant subject to regulation under the Act: Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants, and charcoal production plants;

(*b*) Notwithstanding the stationary source size specified in paragraph (b)(1)(i) of this section, any stationary source which emits, or has the potential to emit, 250 tons per year or more of any air pollutant subject to regulation under the Act; or

(*c*) Any physical change that would occur at a stationary source not otherwise qualifying under paragraph (b)(1) of this section, as a major stationary source, if the changes would constitute a major stationary source by itself.

(ii) A major stationary source that is major for volatile organic compounds shall be considered major for ozone.

(iii) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this section whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

(*a*) Coal cleaning plants (with thermal dryers);

(*b*) Kraft pulp mills;

(*c*) Portland cement plants;

(*d*) Primary zinc smelters;

(*e*) Iron and steel mills;

(*f*) Primary aluminum ore reduction plants;

(*g*) Primary copper smelters;

(*h*) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(*i*) Hydrofluoric, sulfuric, or nitric acid plants;

(*j*) Petroleum refineries;

(*k*) Lime plants;

(*l*) Phosphate rock processing plants;

(*m*) Coke oven batteries;

(*n*) Sulfur recovery plants;

(*o*) Carbon black plants (furnace process);

(*p*) Primary lead smelters;

(*q*) Fuel conversion plants;

(*r*) Sintering plants;

(*s*) Secondary metal production plants;

(*t*) Chemical process plants;

(*u*) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(*v*) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(*w*) Taconite ore processing plants;

(*x*) Glass fiber processing plants;

(*y*) Charcoal production plants;

(*z*) Fossil fuel-fired steam electric plants of more that 250 million British thermal units per hour heat input." and

(*aa*) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

(2)(i) "Major modification" means any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.

(ii) Any net emissions increase that is significant for volatile organic compounds shall be considered significant for ozone.

(iii) A physical change or change in the method of operation shall not include:

(*a*) Routine maintenance, repair and replacement;

(*b*) Use of an alternative fuel or raw material by reason of an order under sections 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plant pursuant to the Federal Power Act;

(*c*) Use of an alternative fuel by reason of an order or rule under section 125 of the Act;

(*d*) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(*e*) Use of an alternative fuel or raw material by a stationary source which:

(*1*) The source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975 pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or 40 CFR 51.166; or

(*2*) The source is approved to use under any permit issued under 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.166;

(*f*) An increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975, pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or 40 CFR 51.166.

(*g*) Any change in ownership at a stationary source.

(3)(i) "Net emissions increase" means the amount by which the sum of the following exceeds zero:

(*a*) Any increase in actual emissions from a particular physical change or change in method of operation at a stationary source; and

(*b*) Any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable.

(ii) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between:

(*a*) The date five years before construction on the particular change commences; and

(*b*) The date that the increase from the particular change occurs.

(iii) An increase or decrease in actual emissions is creditable only if the Administrator has not relied on it in issuing a permit for the source under this section, which permit is in effect when the increase in actual emissions from the particular change occurs.

(iv) An increase or decrease in actual emissions of sulfur dioxide or particulate matter which occurs before the applicable baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available.

(v) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

(vi) A decrease in actual emissions is creditable only to the extent that:

(*a*) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

(*b*) It is federally enforceable at and after the time that actual construction on the particular change begins; and

(*c*) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

(vii) [Reserved]

(viii) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

(4) "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

(5) "Stationary source" means any building, structure, facility, or installa-

tion which emits or may emit any air pollutant subject to regulation under the Act.

(6) "Building, structure, facility, or installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same first two digit code) as described in the *Standard Industrial Classification Manual, 1972*, as amended by the 1977 Supplement (U. S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively).

(7) "Emissions unit" means any part of a stationary source which emits or would have the potential to emit any pollutant subject to regulation under the Act.

(8) "Construction" means any physical change or change in the method of operation (including fabrication, erection, installation, demolition, or modification of an emissions unit) which would result in a change in actual emissions.

(9) "Commence" as applied to construction of a major stationary source or major modification means that the owner or operator has all necessary preconstruction approvals or permits and either has:

(i) Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

(ii) Entered into binding agreements or contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time.

(10) "Necessary preconstruction approvals or permits" means those permits or approvals required under federal air quality control laws and regulations and those air quality control laws and regulations which are part of the applicable State Implementation Plan.

(11) "Begin actual construction" means, in general, initiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying underground pipework and construction of permanent storage structures. With respect to a change in method of operations, this term refers to those on-site activites other than preparatory activities which mark the initiation of the change.

(12) "Best available control technology" means an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61. If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.

(13)(i) "Baseline concentration" means that ambient concentration level which exists in the baseline area

at the time of the applicable baseline date. A baseline concentration is determined for each pollutant for which a baseline date is established and shall include:

(*a*) The actual emissions representative of sources in existence on the applicable baseline date, except as provided in paragraph (b)(13)(ii) of this section;

(*b*) The allowable emissions of major stationary sources which commenced construction before January 6, 1975, but were not in operation by the applicable baseline date.

(ii) The following will not be included in the baseline concentration and will affect the applicable maximum allowable increase(s):

(*a*) Actual emissions from any major stationary source on which construction commenced after January 6, 1975; and

(*b*) Actual emissions increases and decreases at any stationary source occurring after the baseline date.

(14)(i) "Baseline date" means the earliest date after August 7, 1977, on which the first complete application under 40 CFR 52.21 is submitted by a major stationary source or major modification subject to the requirements of 40 CFR 52.21.

(ii) The baseline date is established for each pollutant for which increments or other equivalent measures have been established if:

(*a*) The area in which the proposed source or modification would construct is designated as attainment or unclassifiable under section 107(d)(i) (D) or (E) of the Act for the pollutant on the date of its complete application under 40 CFR 52.21; and

(*b*) In the case of a major stationary source, the pollutant would be emitted in significant amounts, or, in the case of a major modification, there would be a significant net emissions increase of the pollutant.

(15)(i) "Baseline area" means any intrastate area (and every part thereof) designated as attainment or unclassifiable under section 107(d)(1) (D) or (E) of the Act in which the major source or major modification establishing the baseline date would construct or would have an air quality impact equal to or greater than 1 $\mu g/m^3$ (annual average) of the pollutant for which the baseline date is established.

(ii) Area redesignations under section 107(d)(1) (D) or (E) of the Act cannot intersect or be smaller than the area of impact of any mjaor stationary source or major modification which:

(*a*) Establishes a baseline date; or

(*b*) Is subject to 40 CFR 52.21 and would be constructed in the same state as the state proposing the redesignation.

(16) "Allowable emissions" means the emissions rate of a stationary source calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable limits which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

(i) The applicable standards as set forth in 40 CFR Parts 60 and 61;

(ii) The applicable State Implementation Plan emissions limitation, including those with a future compliance date; or

(iii) The emissions rate specified as a federally enforceable permit condition, including those with a future compliance date.

(17) "Federally enforceable" means all limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable State Implementation Plan, and any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I and 40 CFR 51.166.

(18) "Secondary emissions" means emissions which would occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. Secondary emissions include emissions from any offsite support facility which would not be constructed or increase its emissions except as a result of the construction or operation of the major stationary source or major modification. Secondary emissions do not include any emissions which come di-

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rectly from a mobile source, such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel.

(i) Emissions from ships or trains coming to or from the new or modified stationary source; and

(ii) Emissions from any offsite support facility which would not otherwise be constructed or increase its emissions as a result of the construction or operation of the major stationary source or major modification.

(19) "Innovative control technology" means any system of air pollution control that has not been adequately demonstrated in practice, but would have a substantial likelihood of achieving greater continuous emissions reduction than any control system in current practice or of achieving at least comparable reductions at lower cost in terms of energy, economics, or nonair quality environmental impacts.

(20) "Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

(21)(i) "Actual emissions" means the actual rate of emissions of a pollutant from an emissions unit, as determined in accordance with paragraphs (b)(21)(ii) through (iv) of this section.

(ii) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operation. The Administrator shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

(iii) The Administrator may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(iv) For any emissions unit which has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

(22) "Complete" means, in reference to an application for a permit, that the application contains all of the information necessary for processing the application.

(23)(i) "Significant" means, in reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant and Emissions Rate

Carbon monoxide: 100 tons per year (tpy)
Nitrogen oxides: 40 tpy
Sulfur dioxide: 40 tpy
Particulate matter:
25 tpy of particulate matter emissions;
15 tpy of PM_{10} emissions
Ozone: 40 tpy of volatile organic compounds
Lead: 0.6 tpy
Asbestos: 0.007 tpy
Beryllium: 0.0004 tpy
Mercury: 0.1 tpy
Vinyl chloride: 1 tpy
Fluorides: 3 tpy
Sulfuric acid mist: 7 tpy
Hydrogen sulfide (H_2S): 10 tpy
Total reduced sulfur (including H_2S): 10 tpy
Reduced sulfur compounds (including H_2S): 10 tpy

(ii) "Significant" means, in reference to a net emissions increase or the potential of a source to emit a pollutant subject to regulation under the Act that paragraph (b)(23)(i) of this section, does not list, any emissions rate.

(iii) Notwithstanding paragraph (b)(23)(i) of this section, "significant" means any emissions rate or any net emissions increase associated with a major stationary source or major modification, which would construct within 10 kilometers of a Class I area, and have an impact on such area equal to or greater than 1 $\mu g/m^3$, (24-hour average).

(24) "Federal Land Manager" means, with respect to any lands in the United States, the Secretary of the department with authority over such lands.

(25) "High terrain" means any area having an elevation 900 feet or more above the base of the stack of a source.

(26) "Low terrain" means any area other than high terrain.

(27) "Indian Reservation" means any federally recognized reservation

established by Treaty, Agreement, executive order, or act of Congress.

(28) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self government.

(29) "Adverse impact on visibility" means visibility impairment which interferes with the management, protection, preservation or enjoyment of the visitor's visual experience of the Federal Class I area. This determination must be made on a case-by-case basis taking into account the geographic extent, intensity, duration, frequency and time of visibility impairment, and how these factors correlate with (1) times of visitor use of the Federal Class I area, and (2) the frequency and timing of natural conditions that reduce visibility.

(c) *Ambient air increments.* In areas designated as Class I, II or III, increases in pollutant concentration over the baseline concentration shall be limited to the following:

MAXIMUM ALLOWABLE INCREASE

Pollutant	Micrograms per cubic meter
Class I	
Particulate matter:	
TSP, annual geometric mean	5
TSP, 24-hr. maximum	10
Sulfur dioxide:	
Annual arithmetic mean	2
24-h maximum	5
3-h maximum	25
Class II	
Particulate matter:	
TSP, annual geometric mean	19
TSP, 24-hr. maximum	37
Sulfur dioxide:	
Annual arithmetic mean	20
24-h maximum	91
3-h maximum	512
Class III	
Particulate matter:	
TSP, annual geometric mean	37
TSP, 24-hr. maximum	75
Sulfur dioxide:	
Annual arithmetic mean	40
24-h maximum	182
3-h maximum	700

For any period other than an annual period, the applicable maximum allowable increase may be exceeded during one such period per year at any one location.

(d) *Ambient air ceilings.* No concentration of a pollutant shall exceed:

(1) The concentration permitted under the national secondary ambient air quality standard, or

(2) The concentration permitted under the national primary ambient air quality standard, whichever concentration is lowest for the pollutant for a period of exposure.

(e) *Restrictions on area classifications.* (1) All of the following areas which were in existence on August 7, 1977, shall be Class I areas and may not be redesignated:

(i) International parks,

(ii) National wilderness areas which exceed 5,000 acres in size,

(iii) National memorial parks which exceed 5,000 acres in size, and

(iv) National parks which exceed 6,000 acres in size.

(2) Areas which were redesignated as Class I under regulations promulgated before August 7, 1977, shall remain Class I, but may be redesignated as provided in this section.

(3) Any other area, unless otherwise specified in the legislation creating such an area, is initially designated Class II, but may be redesignated as provided in this section.

(4) The following areas may be redesignated only as Class I or II:

(i) An area which as of August 7, 1977, exceeded 10,000 acres in size and was a national monument, a national primitive area, a national preserve, a national recreational area, a national wild and scenic river, a national wildlife refuge, a national lakeshore or seashore; and

(ii) A national park or national wilderness area established after August

7, 1977, which exceeds 10,000 acres in size.

(f) *Exclusions from increment consumption.* (1) Upon written request of the governor, made after notice and opportunity for at least one public hearing to be held in accordance with procedures established in 40 CFR 51.102, the Administrator shall exclude the following concentrations in determining compliance with a maximum allowable increase:

(i) Concentrations attributable to the increase in emissions from stationary sources which have converted from the use of petroleum products, natural gas, or both by reason of an order in effect under sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) over the emissions from such sources before the effective date of such an order;

(ii) Concentrations attributable to the increase in emissions from sources which have converted from using natural gas by reason of a natural gas curtailment plan in effect pursuant to the Federal Power Act over the emissions from such sources before the effective date of such plan;

(iii) Concentrations of particulate matter attributable to the increase in emissions from construction or other temporary emission-related activities of new or modified sources;

(iv) The increase in concentrations attributable to new sources outside the United States over the concentrations attributable to existing sources which are included in the baseline concentration; and

(v) Concentrations attributable to the temporary increase in emissions of sulfur dioxide or particulate matter from stationary sources which are affected by plan revisions approved by the Administrator as meeting the criteria specified in paragraph (f)(4) of this section.

(2) No exclusion of such concentrations shall apply more than five years after the effective date of the order to which paragraph (f)(1)(i) of this section, refers or the plan to which paragraph (f)(1)(ii) of this section, refers, whichever is applicable. If both such order and plan are applicable, no such exclusion shall apply more than five years after the later of such effective dates.

(3) No exclusion under paragraph (f) of this section shall occur later than 9 months after August 7, 1980, unless a State Implementation Plan revision meeting the requirements of 40 CFR 51.166 has been submitted to the Administrator.

(4) For purposes of excluding concentrations pursuant to paragraph (f)(1)(v) of this section, the proposed plan revision shall:

(i) Specify the time over which the temporary emissions increase of sulfur dioxide or particulate matter would occur. Such time is not to exceed two years in duration unless a longer time is approved by the Administrator;

(ii) Specify that the time period for excluding certain contributions in accordance with paragraph (f)(4)(i) of this section, is not renewable;

(iii) Allow no emissions increase from a stationary source which would:

(*a*) Impact a Class I area or an area where an applicable increment is known to be violated; or

(*b*) Cause or contribute to the violation of a national ambient air quality standard;

(iv) Require limitations to be in effect at the end of the time period specified in accordance with paragraph (f)(4)(i) of this section, which would ensure that the emissions levels from stationary sources affected by the plan revision would not exceed those levels occurring from such sources before the plan revision was approved.

(g) *Redesignation.* (1) All areas (except as otherwise provided under paragraph (e) of this section) are designated Class II as of December 5, 1974. Redesignation (except as otherwise precluded by paragraph (e) of this section) may be proposed by the respective States or Indian Governing Bodies, as provided below, subject to approval by the Administrator as a revision to the applicable State implementation plan.

(2) The State may submit to the Administrator a proposal to redesignate areas of the State Class I or Class II provided that:

(i) At least one public hearing has been held in accordance with procedures established in § 51.102 of this chapter;

(ii) Other States, Indian Governing Bodies, and Federal Land Managers whose lands may be affected by the proposed redesignation were notified at least 30 days prior to the public hearing;

(iii) A discussion of the reasons for the proposed redesignation, including a satisfactory description and analysis of the health, environmental, economic, social and energy effects of the proposed redesignation, was prepared and made available for public inspection at least 30 days prior to the hearing and the notice announcing the hearing contained appropriate notification of the availability of such discussion;

(iv) Prior to the issuance of notice respecting the redesignation of an area that includes any Federal lands, the State has provided written notice to the appropriate Federal Land Manager and afforded adequate opportunity (not in excess of 60 days) to confer with the State respecting the redesignation and to submit written comments and recommendations. In redesignating any area with respect to which any Federal Land Manager had submitted written comments and recommendations, the State shall have published a list of any inconsistency between such redesignation and such comments and recommendations (together with the reasons for making such redesignation against the recommendation of the Federal Land Manager); and

(v) The State has proposed the redesignation after consultation with the elected leadership of local and other substate general purpose governments in the area covered by the proposed redesignation.

(3) Any area other than an area to which paragraph (e) of this section refers may be redesignated as Class III if—

(i) The redesignation would meet the requirements of paragraph (g)(2) of this section;

(ii) The redesignation, except any established by an Indian Governing Body, has been specifically approved by the Governor of the State, after consultation with the appropriate committees of the legislature, if it is in session, or with the leadership of the legislature, if it is not in session (unless State law provides that the redesignation must be specifically approved by State legislation) and if general purpose units of local government representing a majority of the residents of the area to be redesignated enact legislation or pass resolutions concurring in the redesignation:

(iii) The redesignation would not cause, or contribute to, a concentration of any air pollutant which would exceed any maximum allowable increase permitted under the classification of any other area or any national ambient air quality standard; and

(iv) Any permit application for any major stationary source or major modification, subject to review under paragraph (l) of this section, which could receive a permit under this section only if the area in question were redesignated as Class III, and any material submitted as part of that application, were available insofar as was practicable for public inspection prior to any public hearing on redesignation of the area as Class III.

(4) Lands within the exterior boundaries of Indian Reservations may be redesignated only by the appropriate Indian Governing Body. The appropriate Indian Governing Body may submit to the Administrator a proposal to redesignate areas Class I, Class II, or Class III: *Provided*, That:

(i) The Indian Governing Body has followed procedures equivalent to those required of a State under paragraphs (g)(2), (g)(3)(iii), and (g)(3)(iv) of this section; and

(ii) Such redesignation is proposed after consultation with the State(s) in which the Indian Reservation is located and which border the Indian Reservation.

(5) The Administrator shall disapprove, within 90 days of submission, a proposed redesignation of any area only if he finds, after notice and opportunity for public hearing, that such redesignation does not meet the procedural requirements of this paragraph or is inconsistent with paragraph (e) of this section. If any such disapproval occurs, the classification of the area shall be that which was in effect prior

to the redesignation which was disapproved.

(6) If the Administrator disapproves any proposed redesignation, the State or Indian Governing Body, as appropriate, may resubmit the proposal after correcting the deficiencies noted by the Administrator.

(h) *Stack heights.* (1) The degree of emission limitation required for control of any air pollutant under this section shall not be affected in any manner by—

(i) So much of the stack height of any source as exceeds good engineering practice, or

(ii) Any other dispersion technique.

(2) Paragraph (h)(1) of this section shall not apply with respect to stack heights in existence before December 31, 1970, or to dispersion techniques implemented before then.

(i) *Review of major stationary sources and major modifications—Source applicability and exemptions.* (1) No stationary source or modification to which the requirements of paragraphs (j) through (r) of this section apply shall begin actual construction without a permit which states that the stationary source or modification would meet those requirements. The Administrator has authority to issue any such permit.

(2) The requirements of paragraphs (j) through (r) of this section shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the Act that it would emit, except as this section otherwise provides.

(3) The requirements of paragraphs (j) through (r) of this section apply only to any major stationary source or major modification that would be constructed in an area designated as attainment or unclassifiable under section 107(d)(1)(D) or (E) of the Act.

(4) The requirements of paragraphs (j) through (r) of this section shall not apply to a particular major stationary source or major modification, if:

(i) Construction commenced on the source or modification before August 7, 1977. The regulations at 40 CFR 52.21 as in effect before August 7, 1977, shall govern the review and permitting of any such source or modification; or

(ii) The source or modification was subject to the review requirements of 40 CFR 52.21(d)(1) as in effect before March 1, 1978, and the owner or operator:

(*a*) Obtained under 40 CFR 52.21 a final approval effective before March 1, 1978;

(*b*) Commenced construction before March 19, 1979; and

(*c*) Did not discontinue construction for a period of 18 months or more and completed construction within a reasonable time; or

(iii) The source or modification was subject to 40 CFR 52.21 as in effect before March 1, 1978, and the review of an application for approval for the stationary source or modification under 40 CFR 52.21 would have been completed by March 1, 1978, but for an extension of the public comment period pursuant to a request for such an extension. In such a case, the application shall continue to be processed, and granted or denied, under 40 CFR 52.21 as in effect prior to March 1, 1978; or

(iv) The source or modification was not subject to 40 CFR 52.21 as in effect before March 1, 1978, and the owner or operator:

(*a*) Obtained all final Federal, state and local preconstruction approvals or permits necessary under the applicable State Implementation Plan before March 1, 1978;

(*b*) Commenced construction before March 19, 1979; and

(*c*) Did not discontinue construction for a period of 18 months or more and completed construction within a reasonable time; or

(v) The source or modification was not subject to 40 CFR 52.21 as in effect on June 19, 1978 or under the partial stay of regulations published on February 5, 1980 (45 FR 7800), and the owner or operator:

(*a*) Obtained all final Federal, state and local preconstruction approvals or permits necessary under the applicable State Implementation Plan before August 7, 1980;

(*b*) Commenced construction within 18 months from August 7, 1980, or any

earlier time required under the applicable State Implementation Plan; and

(*c*) Did not discontinuue construction for a period of 18 months or more and completed construction within a reasonable time; or

(vi) The source or modification would be a nonprofit health or nonprofit educational institution, or a major modification would occur at such an institution, and the governor of the state in which the source or modification would be located requests that it be exempt from those requirements; or

(vii) The source or modification would be a major stationary source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit of the stationary source or modification and the source does not belong to any of the following categories:

(*a*) Coal clea[illegible] plants (with thermal dryers);

(*b*) Kraft pulp mills;

(*c*) Portland cement plants;

(*d*) Primary zinc smelters;

(*e*) Iron and steel mills;

(*f*) Primary aluminum ore reduction plants;

(*g*) Primary copper smelters;

(*h*) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(*i*) Hydrofluoric, sulfuric, or nitric acid plants;

(*j*) Petroleum refineries;

(*k*) Lime plants;

(*l*) Phosphate rock processing plants;

(*m*) Coke oven batteries;

(*n*) Sulfur recovery plants;

(*o*) Carbon black plants (furnace process);

(*p*) Primary lead smelters;

(*q*) Fuel conversion plants;

(*r*) Sintering plants;

(*s*) Secondary metal production plants;

(*t*) Chemical process plants;

(*u*) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(*v*) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(*w*) Taconite ore processing plants;

(*x*) Glass fiber processing plants;

(*y*) Charcoal production plants;

(*z*) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

(*aa*) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act; or

(viii) The source is a portable stationary source which has previously received a permit under this section, and

(*a*) The owner or operator proposes to relocate the source and emissions of the source at the new location would be temporary; and

(*b*) The emissions from the source would not exceed its allowable emissions; and

(*c*) The emissions from the source would impact no Class I area and no area where an applicable increment is known to be violated; and

(*d*) Reasonable notice is given to the Administrator prior to the relocation identifying the proposed new location and the probable duration of operation at the new location. Such notice shall be given to the Administrator not less than 10 days in advance of the proposed relocation unless a different time duration is previously approved by the Administrator.

(ix) The source or modification was not subject to § 52.21, with respect to particulate matter, as in effect before July 31, 1987, and the owner or operator:

(*a*) Obtained all final Federal, State, and local preconstruction approvals or permits necessary under the applicable State implementation plan before July 31, 1987;

(*b*) Commenced construction within 18 months after July 31, 1987, or any earlier time required under the State implementation plan; and

(*c*) Did not discontinue construction for a period of 18 months or more and completed construction within a reasonable period of time.

(x) The source or modification was subject to 40 CFR 52.21, with respect to particulate matter, as in effect before July 31, 1987 and the owner or operator submitted an application for a permit under this section before that date, and the Administrator subsequently determines that the application as submitted was complete with respect to the particulate matter requirements then in effect in this section. Instead, the requirements of paragraphs (j) through (r) of this section that were in effect before July 31, 1987 shall apply to such source or modification.

(5) The requirements of paragraphs (j) through (r) of this section shall not apply to a major stationary source or major modification with respect to a particular pollutant if the owner or operator demonstrates that, as to that pollutant, the source or modification is located in an area designated as nonattainment under section 107 of the Act.

(6) The requirements of paragraphs (k), (m) and (o) of this section shall not apply to a major stationary source or major modification with respect to a particular pollutant, if the allowable emissions of that pollutant from the source, or the net emissions increase of that pollutant from the modification:

(i) Would impact no Class I area and no area where an applicable increment is known to be violated, and

(ii) Would be temporary.

(7) The requirements of paragraphs (k), (m) and (o) of this section as they relate to any maximum allowable increase for a Class II area shall not apply to a major modification at a stationary source that was in existence on March 1, 1978, if the net increase in allowable emissions of each pollutant subject to regulation under the Act from the modification after the application of best available control technology would be less than 50 tons per year.

(8) The Administrator may exempt a stationary source or modification from the requirements of paragraph (m) of this section, with respect to monitoring for a particular pollutant if:

(i) The emissions increase of the pollutant from the new source or the net emissions increase of the pollutant from the modification would cause, in any area, air quality impacts less than the following amounts:

Carbon monoxide—575 $\mu g/m^3$, 8-hour average;

Nitrogen dioxide—14 $\mu g/m^3$, annual average;

Particulate matter:

10 $\mu g/m^3$ of TSP, 24-hour average;

10 $\mu g/m^3$ of PM_{10}, 24-hour average;

Sulfur dioxide—13 $\mu g/m^3$, 24-hour average;

Ozone; [1]

Lead—0.1 $\mu g/m^3$, 3-month average;

Mercury—0.25 $\mu g/m^3$, 24-hour average;

Beryllium—0.001 $\mu g/m^3$, 24-hour average;

Fluorides—0.25 $\mu g/m^3$, 24-hour average;

Vinyl chloride—15 $\mu g/m^3$, 24-hour average;

Total reduced sulfur—10 $\mu g/m^3$, 1-hour average;

Hydrogen sulfide—0.2 $\mu g/m^3$, 1-hour average;

Reduced sulfur compounds—10 $\mu g/m^3$, 1-hour average; or

(ii) The concentrations of the pollutant in the area that the source or modification would affect are less than the concentrations listed in paragraph (i)(8)(i) of this section, or the pollutant is not listed in paragraph (i)(8)(i) of this section.

(9) The requirements for best available control technology in paragraph (j) of this section and the requirements for air quality analyses in paragraph (m)(1) of this section, shall not apply to a particular stationary source or modification that was subject to 40 CFR 52.21 as in effect on June 19, 1978, if the owner or operator of the source or modification submitted an application for a permit under those regulations before August 7, 1980, and the Administrator subsequently determines that the application as submitted before that date was complete. Instead, the requirements at 40 CFR 52.21(j) and (n) as in effect on June 19, 1978 apply to any such source or modification.

(10)(i) The requirements for air quality monitoring in paragraphs (m)(1) (ii) through (iv) of this section shall not apply to a particular source or modification that was subject to 40 CFR 52.21 as in effect on June 19, 1978, if the owner or operator of the source or modification submits an application for a permit under this section on or before June 8, 1981, and the

[1] No *de minimis* air quality level is provided for ozone. However, any net increase of 100 tons per year or more of volatile organic compounds subject to PSD would be required to perform an ambient impact analysis including the gathering of ambient air quality data.

Administrator subsequently determines that the application as submitted before that date was complete with respect to the requirements of this section other than those in paragraphs (m)(1) (ii) through (iv) of this section, and with respect to the requirements for such analyses at 40 CFR 52.21(m)(2) as in effect on June 19, 1978. Instead, the latter requirements shall apply to any such source or modification.

(ii) The requirements for air quality monitoring in paragraphs (m)(1) (ii) through (iv) of this section shall not apply to a particular source or modification that was not subject to 40 CFR 52.21 as in effect on June 19, 1978, if the owner or operator of the source or modification submits an application for a permit under this section on or before June 8, 1981, and the Administrator subsequently determines that the application as submitted before that date was complete, except with respect to the requirements in paragraphs (m)(1) (ii) through (iv).

(11)(i) At the discretion of the Administrator, the requirements for air quality monitoring of PM_{10} in paragraphs (m)(1) (i)—(iv) of this section may not apply to a particular source or modification when the owner or operator of the source or modification submits an application for a permit under this section on or before June 1, 1988 and the Administrator subsequently determines that the application as submitted before that date was complete, except with respect to the requirements for monitoring particulate matter in paragraphs (m)(1) (i)—(iv).

(ii) The requirements for air quality monitoring of PM_{10} in paragraphs (m)(1), (ii) and (iv) and (m)(3) of this section shall apply to a particular source or modification if the owner or operator of the source or modification submits an application for a permit under this section after June 1, 1988 and no later than December 1, 1988. The data shall have been gathered over at least the period from February 1, 1988 to the date the application becomes otherwise complete in accordance with the provisions set forth under paragraph (m)(1)(viii) of this section, except that if the Administrator determines that a complete and adequate analysis can be accomplished with monitoring data over a shorter period (not to be less than 4 months), the data that paragraph (m)(1)(iii) requires shall have been gathered over a shorter period.

(j) *Control technology review.* (1) A major stationary source or major modification shall meet each applicable emissions limitation under the State Implementation Plan and each applicable emissions standard and standard of performance under 40 CFR Parts 60 and 61.

(2) A new major stationary source shall apply best available control technology for each pollutant subject to regulation under the Act that it would have the potential to emit in significant amounts.

(3) A major modification shall apply best available control technology for each pollutant subject to regulation under the Act for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit.

(4) For phased construction projects, the determination of best available control technology shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source.

(k) *Source impact analysis.* The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of:

(1) Any national ambient air quality standard in any air quality control region; or

(2) Any applicable maximum allowable increase over the baseline concentration in any area.

(l) *Air quality models.* (1) All estimates of ambient concentrations required under this paragraph shall be based on the applicable air quality models, data bases, and other requirements specified in the "Guideline on Air Quality Models (Revised)" (1986) and Supplement A (1987) which are incorporated by reference. The guideline (EPA publication No. 450/2-78-027R) and Supplement A (1987) are for sale from the U.S. Department of Commerce, National Technical Information Service, 5825 Port Royal Road, Springfield, Virginia 22161. They are also available for inspection at the Office of the Federal Register Information Center, Room 8301, 1100 L Street, NW., Washington, DC 20408. This incorporation by reference was approved by the Director of the Federal Register on February 5, 1988. These materials are incorporated as they exist on the date of approval and a notice of any change will be published in the FEDERAL REGISTER.

(2) Where an air quality impact model specified in the "Guideline on Air Quality Models (Revised)" (1986) and Supplement A (1987) are inappropriate, the model may be modified or another model substituted. Such a modification or substitution of a model may be made on a case-by-case basis or, where appropriate, on a generic basis for a specific state program. Written approval of the Administrator must be obtained for any modification or substitution. In addition, use of a modified or substituted model must be subject to notice and opportunity for public comment under procedures developed in accordance with paragraph (q) of this section.

(m) *Air quality analysis*—(1) *Preapplication analysis.* (i) Any application for a permit under this section shall contain an analysis of ambient air quality in the area that the major stationary source or major modification would affect for each of the following pollutants:

(*a*) For the source, each pollutant that it would have the potential to emit in a significant amount;

(*b*) For the modification, each pollutant for which it would result in a significant net emissions increase.

(ii) With respect to any such pollutant for which no National Ambient Air Quality Standard exists, the analysis shall contain such air quality monitoring data as the Administrator determines is necessary to assess ambient air quality for that pollutant in any area that the emissions of that pollutant would affect.

(iii) With respect to any such pollutant (other than nonmethane hydrocarbons) for which such a standard does exist, the analysis shall contain continuous air quality monitoring data gathered for purposes of determining whether emissions of that pollutant would cause or contribute to a violation of the standard or any maximum allowable increase.

(iv) In general, the continuous air quality monitoring data that is required shall have been gathered over a period of at least one year and shall represent at least the year preceding receipt of the application, except that, if the Administrator determines that a complete and adequate analysis can be accomplished with monitoring data gathered over a period shorter than one year (but not to be less than four months), the data that is required shall have been gathered over at least that shorter period.

(v) For any application which becomes complete, except as to the requirements of paragraphs (m)(1) (iii) and (iv) of this section, between June 8, 1981, and February 9, 1982, the data that paragraph (m)(1)(iii) of this section, requires shall have been gathered over at least the period from February 9, 1981, to the date the application becomes otherwise complete, except that:

(*a*) If the source or modification would have been major for that pollutant under 40 CFR 52.21 as in effect on June 19, 1978, any monitoring data shall have been gathered over at least the period required by those regulations.

(*b*) If the Administrator determines that a complete and adequate analysis can be accomplished with monitoring data over a shorter period (not to be less than four months), the data that

paragraph (m)(1)(iii) of this section, requires shall have been gathered over at least that shorter period.

(*c*) If the monitoring data would relate exclusively to ozone and would not have been required under 40 CFR 52.21 as in effect on June 19, 1978, the Administrator may waive the otherwise applicable requirements of this paragraph (v) to the extent that the applicant shows that the monitoring data would be unrepresentative of air quality over a full year.

(vi) The owner or operator of a proposed stationary source or modification of violatile organic compounds who satisfies all conditions of 40 CFR Part 51 Appendix S, section IV may provide post-approval monitoring data for ozone in lieu of providing preconstruction data as requried under paragraph (m)(1) of this section.

(vii) For any application that becomes complete, except as to the requirements of paragraphs (m)(1) (iii) and (iv) pertaining to PM_{10}, after December 1, 1988 and no later than August 1, 1989 the data that paragraph (m)(1)(iii) requires shall have been gathered over at least the period from August 1, 1988 to the date the application becomes otherwise complete, except that if the Administrator determines that a complete and adequate analysis can be accomplished with monitoring data over a shorter period (not to be less than 4 months), the data that paragraph (m)(1)(iii) requires shall have been gathered over that shorter period.

(viii) With respect to any requirements for air quality monitoring of PM_{10} under paragraphs (i)(11) (i) and (ii) of this sectionm the owner or operator of the source or modification shall use a monitoring method approved by the Administrator and shall estimate the ambient concentrations of PM_{10} using the data collected by such approved monitoring method in accordance with estimating procedures approved by the Administrator.

(2) *Post-construction monitoring.* The owner or operator of a major stationary source or major modification shall, after construction of the stationary source or modification, conduct such ambient monitoring as the Administrator determines is necessary to determine the effect emissions from the stationary source or modification may have, or are having, on air quality in any area.

(3) *Operations of monitoring stations.* The owner or operator of a major stationary source or major modification shall meet the requirements of Appendix B to Part 58 of this chapter during the operation of monitoring stations for purposes of satisfying paragraph (m) of this section.

(n) *Source information.* The owner or operator of a proposed source or modification shall submit all information necessary to perform any analysis or make any determination required under this section.

(1) With respect to a source or modification to which paragraphs (j), (l), (n) and (p) of this section apply, such information shall include:

(i) A description of the nature, location, design capacity, and typical operating schedule of the source or modification, including specifications and drawings showing its design and plant layout;

(ii) A detailed schedule for construction of the source or modification;

(iii) A detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine that best available control technology would be applied.

(2) Upon request of the Administrator, the owner or operator shall also provide information on:

(i) The air quality impact of the source or modification, including meteorological and topographical data necessary to estimate such impact; and

(ii) The air quality impacts, and the nature and extent of any or all general commercial, residential, industrial, and other growth which has occurred since August 7, 1977, in the area the source or modification would affect.

(o) *Additional impact analyses.* (1) The owner or operator shall provide an analysis of the impairment to visibility, soils and vegetation that would occur as a result of the source or modification and general commercial, residential, industrial and other growth associated with the source or modification. The owner or operator need not provide an analysis of the impact on vegetation having no significant commercial or recreational value.

(2) The owner or operator shall provide an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial and other growth associated with the source or modification.

(3) *Visibility monitoring.* The Administrator may require monitoring of visibility in any Federal class I area near the proposed new stationary source for major modification for such purposes and by such means as the Administrator deems necessary and appropriate.

(p) *Sources impacting Federal Class I areas—additional requirements*—(1) *Notice to Federal land managers.* The Administrator shall provide written notice of any permit application for a proposed major stationary source or major modification, the emissions from which may affect a Class I area, to the Federal land manager and the Federal official charged with direct responsibility for management of any lands within any such area. Such notification shall include a copy of all information relevant to the permit application and shall be given within 30 days of receipt and at least 60 days prior to any public hearing on the application for a permit to construct. Such notification shall include an analysis of the proposed source's anticipated impacts on visibility in the Federal Class I area. The Administrator shall also provide the Federal land manager and such Federal officials with a copy of the preliminary determination required under paragraph (q) of this section, and shall make available to them any materials used in making that determination, promptly after the Administrator makes such determination. Finally, the Administrator shall also notify all affected Federal land managers within 30 days of receipt of any advance notification of any such permit application.

(2) *Federal Land Manager.* The Federal Land Manager and the Federal official charged with direct responsibility for management of such lands have an affirmative responsibility to protect the air quality related values (including visibility) of such lands and to consider, in consultation with the Administrator, whether a proposed source or modification will have an adverse impact on such values.

(3) *Visibility analysis.* The Administrator shall consider any analysis performed by the Federal land manager, provided within 30 days of the notification required by paragraph (p)(1) of this section, that shows that a proposed new major stationary source or major modification may have an adverse impact on visibility in any Federal Class I area. Where the Administrator finds that such an analysis does not demonstrate to the satisfaction of the Administrator that an adverse impact on visibility will result in the Federal Class I area, the Administrator must, in the notice of public hearing on the permit application, either explain his decision or give notice as to where the explanation can be obtained.

(4) *Denial—impact on air quality related values.* The Federal Land Manager of any such lands may demonstrate to the Administrator that the emissions from a proposed source or modification would have an adverse impact on the air quality-related values (including visibility) of those lands, notwithstanding that the change in air quality resulting from emissions from such source or modification would not cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the Administrator concurs with such demonstration, then he shall not issue the permit.

(5) *Class I variances.* The owner or operator of a proposed source or modification may demonstrate to the Federal Land Manager that the emissions from such source or modification would have no adverse impact on the air quality related values of any such lands (including visibility), notwithstanding that the change in air quality resulting from emissions from such source or modification would cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the Federal Land Manager concurs with such demonstration and he so certifies, the State may authorize the Administrator: *Provided,* That the applicable requirements of this section are otherwise met, to issue the permit with such emission limitations as may be necessary to assure that emissions of sulfur dioxide and particulate matter would not exceed the followng maximum allowable increases over baseline concentration for such pollutants:

MAXIMUM ALLOWABLE INCREASE

	Micrograms per cubic meter
Particulate matter:	
TSP, annual geometric mean	19
TSP, 24-hr maximum	37
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	325

(6) *Sulfur dioxide variance by Governor with Federal Land Manager's concurrence.* The owner or operator of a proposed source or modification which cannot be approved under paragraph (q)(4) of this section may demonstrate to the Governor that the source cannot be constructed by reason of any maximum allowable increase for sulfur dioxide for a period of twenty-four hours or less applicable to any Class I area and, in the case of Federal mandatory Class I areas, that a variance under this clause would not adversely affect the air quality related values of the area (including visibility). The Governor, after consideration of the Federal Land Manager's recommendation (if any) and subject to his concurrence, may, after notice and public hearing, grant a variance from such maximum allowable increase. If such variance is granted, the Administrator shall issue a permit to such source or modification pursuant to the requirements of paragraph (q)(7) of this section: *Provided,* That the applicable requirements of this section are otherwise met.

(7) *Variance by the Governor with the President's concurrence.* In any case where the Governor recommends a variance in which the Federal Land Manager does not concur, the recommendations of the Governor and the Federal Land Manager shall be transmitted to the President. The President may approve the Governor's recommendation if he finds that the variance is in the national interest. If the variance is approved, the Administrator shall issue a permit pursuant to the requirements of paragraph (q)(7) of this section: *Provided,* That the applicable requirements of this section are otherwise met.

(8) *Emission limitations for Presidential or gubernatorial variance.* In the case of a permit issued pursuant to paragraph (q) (5) or (6) of this section the source or modification shall comply with such emission limitations as may be necessary to assure that emissions of sulfur dioxide from the source or modification would not (during any day on which the otherwise applicable maximum allowable increases are exceeded) cause or contribute to concentrations which would exceed the following maximum allowable increases over the baseline concentration and to assure that such emissions would not cause or contribute to concentrations which exceed the otherwise applicable maximum allowable increases for periods of exposure of 24 hours or less for more than 18 days, not necessarily consecutive, during any annual period:

MAXIMUM ALLOWABLE INCREASE

(Micrograms per cubic meter)

Period of exposure	Terrain areas	
	Low	High
24-hr maximum	36	62
3-hr maximum	130	221

(q) *Public participation.* The Administrator shall follow the applicable procedures of 40 CFR Part 124 in processing applications under this section. The Administrator shall follow the procedures at 40 CFR 52.21(r) as in effect on June 19, 1979, to the extent that the procedures of 40 CFR Part 124 do not apply.

(r) *Source obligation.* (1) Any owner or operator who constructs or operates a source or modification not in accordance with the application submitted pursuant to this section or with the terms of any approval to construct, or any owner or operator of a source or modification subject to this section who commences construction after the effective date of these regulations without applying for and receiving approval hereunder, shall be subject to appropriate enforcement action.

(2) Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Administrator may extend the 18-month period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date.

(3) Approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the State implementation plan and any other requirements under local, State, or Federal law.

(4) At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements or paragraphs (j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification.

(s) *Environmental impact statements.* Whenever any proposed source or modification is subject to action by a Federal Agency which might necessitate preparation of an environmental impact statement pursuant to the National Environmental Policy Act (42 U.S.C. 4321), review by the Administrator conducted pursuant to this section shall be coordinated with the broad environmental reviews under that Act and under section 309 of the Clean Air Act to the maximum extent feasible and reasonable.

(t) *Disputed permits or redesignations.* If any State affected by the redesignation of an area by an Indian Governing Body, or any Indian Governing Body of a tribe affected by the redesignation of an area by a State, disagrees with such redesignation, or if a permit is proposed to be issued for any major stationary source or major modification proposed for construction in any State which the Governor of an affected State or Indian Governing Body of an affected tribe determines will cause or contribute to a cumulative change in air quality in excess of that allowed in this part within the affected State or Indian Reservation, the Governor or Indian Governing Body may request the Administrator to enter into negotiations with the parties involved to resolve such dispute. If requested by any State or Indian Governing Body involved, the Administrator shall make a recommendation to resolve the dispute and protect the air quality related values of the lands involved. If the parties involved do not reach agreement, the Administrator shall resolve the dispute and his determination, or the results of agreements reached through other means, shall become part of the applicable State implementation plan and shall be enforceable as part of such plan. In resolving such disputes relating to area redesignation, the Administrator shall consider the extent to which the lands involved are of sufficient size to allow effective air quality management or have air quality related values of such an area.

(u) *Delegation of authority.* (1) The Administrator shall have the authority to delegate his responsibility for conducting source review pursuant to this section, in accordance with paragraphs (v) (2) and (3) of this section.

(2) Where the Administrator delegates the responsibility for conducting source review under this section to any agency other than a Regional Office of the Environmental Protection Agency, the following provisions shall apply:

(i) Where the delegate agency is not an air pollution control agency, it shall consult with the appropriate State and local air pollution control agency prior to making any determination under this section. Similarly, where the delegate agency does not have continuing responsibility for managing land use, it shall consult with the appropriate State and local agency primarily responsible for managing land use prior to making any determination under this section.

(ii) The delegate agency shall send a copy of any public comment notice required under paragraph (r) of this section to the Administrator through the appropriate Regional Office.

(3) The Administrator's authority for reviewing a source or modification located on an Indian Reservation shall not be redelegated other than to a Regional Office of the Environmental Protection Agency, except where the State has assumed jurisdiction over such land under other laws. Where the State has assumed such jurisdiction, the Administrator may delegate his authority to the States in accordance with paragraph (v)(2) of this section.

(4) In the case of a source or modification which proposes to construct in a class III area, emissions from which would cause or contribute to air quality exceeding the maximum allowable increase applicable if the area were designated a class II area, and where no standard under section 111 of the act has been promulgated for such source category, the Administrator must approve the determination of best available control technology as set forth in the permit.

(v) *Innovative control technology.* (1) An owner or operator of a proposed major stationary source or major modification may request the Administrator in writing no later than the close of the comment period under 40 CFR 124.10 to approve a system of innovative control technology.

(2) The Administrator shall, with the consent of the governor(s) of the affected state(s), determine that the source or modification may employ a system of innovative control technology, if:

(i) The proposed control system would not cause or contribute to an unreasonable risk to public health, welfare, or safety in its operation or function;

(ii) The owner or operator agrees to achieve a level of continuous emissions reduction equivalent to that which would have been required under paragraph (j)(2) of this section, by a date specified by the Administrator. Such date shall not be later than 4 years from the time of startup or 7 years from permit issuance;

(iii) The source or modification would meet the requirements of paragraphs (j) and (k) of this section, based on the emissions rate that the stationary source employing the system of innovative control technology would be required to meet on the date specified by the Administrator;

(iv) The source or modification would not before the date specified by the Administrator:

(*a*) Cause or contribute to a violation of an applicable national ambient air quality standard; or

(*b*) Impact any Class I area; or

(*c*) Impact any area where an applicable increment is known to be violated; and

(v) All other applicable requirements including those for public participation have been met.

(3) The Administrator shall withdraw any approval to employ a system of innovative control technology made under this section, if:

(i) The proposed system fails by the specified date to achieve the required continuous emissions reduction rate; or

(ii) The proposed system fails before the specified date so as to contribute to an unreasonable risk to public health, welfare, or safety; or

(iii) The Administrator decides at any time that the proposed system is unlikely to achieve the required level of control or to protect the public health, welfare, or safety.

(4) If a source or modification fails to meet the required level of continuous emission reduction within the specified time period or the approval is withdrawn in accordance with paragraph (v)(3) of this section, the Administrator may allow the source or modification up to an additional 3 years to meet the requirement for the application of best available control technology through use of a demonstrated system of control.

(w) *Permit rescission.* (1) Any permit issued under this section or a prior version of this section shall remain in effect, unless and until it expires under paragraph (s) of this section or is rescinded.

(2) Any owner or operator of a stationary source or modification who holds a permit for the source or modification which was issued under 40 CFR 52.21 as in effect on July 30, 1987, or any earlier version of this section, may request that the Administrator rescind the permit or a particular portion of the permit.

(3) The Administrator shall grant an application for rescission if the application shows that this section would not apply to the source or modification.

(4) If the Administrator rescinds a permit under this paragraph, the public shall be given adequate notice of the rescission. Publication of an announcement of rescission in a newspaper of general circulation in the affected region within 60 days of the rescission shall be considered adequate notice.

[43 FR 26403, June 19, 1978, as amended at 44 FR 27571, May 10, 1979; 45 FR 52735, Aug. 7, 1980; 47 FR 27561, June 25, 1982; 49 FR 43209, Oct. 26, 1984; 50 FR 28550, July 12, 1985; 51 FR 40675, 40677, Nov. 7, 1986; 52 FR 24714, July 1, 1987; 52 FR 26401, July 14, 1987; 53 FR 396, Jan. 6, 1988]

§ 52.22 Maintenance of national standards.

(a) Subsequent to January 31, 1973, the Administrator reviewed again State implementation plan provisions for insuring the maintenance of the national standards. The review indicates that State plans generally do not contain regulations or procedures which adequately address this problem. Accordingly, all State plans are disapproved with respect to maintenance because such plans do not meet the requirements of § 51.12(g) of this chapter. The disapproval applies to all States listed in Subparts B through DDD of this part. Nothing in this section shall invalidate or otherwise affect the obligations of States, emission sources, or other persons with respect to all portions of plans approved or promulgated under this part.

(b) *Regulation for review of new or modified indirect sources.* (1) All terms used in this paragraph but not specifically defined below shall have the meaning given them in § 52.01 of this chapter.

(i) The term "indirect source" means a facility, building, structure, or installation which attracts or may attract mobile source activity that results in emissions of a pollutant for which there is a national standard. Such indirect sources include, but are not limited to:

(*a*) Highways and roads.

(*b*) Parking facilities.

(*c*) Retail, commercial and industrial facilities.

(*d*) Recreation, amusement, sports and entertainment facilities.

(*e*) Airports.

(*f*) Office and Government buildings.

(*g*) Apartment and condominium buildings.

(*h*) Education facilities.

(ii) The term "Administrator" means the Administrator of the Environmental Protection Agency or his designated agent.

(iii) The term "associated parking area" means a parking facility or facilities owned and/or operated in conjunction with an indirect source.

(iv) The term "aircraft operation" means an aircraft take-off or landing.

(v) The phrase "to commence construction" means to engage in a continuous program of on-site construction including site clearance, grading, dredging, or land filling specifically designed for an indirect source in preparation for the fabrication, erection, or installation of the building components of the indirect source. For the purpose of this paragraph, interruptions resulting from acts of God, strikes, litigation, or other matters beyond the control of the owner shall be disregarded in determining whether a construction or modification program is continuous.

(vi) The phrase "to commence modification" means to engage in a continuous program of on-site modification, including site clearance, grading, dredging, or land filling in preparation for a specific modification of the indirect source.

(vii) The term "highway section" means the development proposal of a highway of substantial length between

logical termini (major crossroads, population centers, major traffic generators, or similar major highway control elements) as normally included in a single location study or multi-year highway improvement program as set forth in 23 CFR 770.201 (38 FR 31677).

(viii) The term "highway project" means all or a portion of a highway section which would result in a specific construction contract.

(ix) The term "Standard Metropolitan Statistical Area (SMSA)" means such areas as designated by the U.S. Bureau of the Budget in the following publication: "Standard Metropolitan Statistical Area," issued in 1967, with subsequent amendments.

(2) The requirements of this paragraph are applicable to the following:

(i) In an SMSA:

(*a*) Any new parking facility, or other new indirect source with an associated parking area, which has a new parking capacity of 1,000 cars or more; or

(*b*) Any modified parking facility, or any modification of an associated parking area, which increases parking capacity by 500 cars or more; or

(*c*) Any new highway project with an anticipated average annual daily traffic volume of 20,000 or more vehicles per day within ten years of construction; or

(*d*) Any modified highway project which will increase average annual daily traffic volume by 10,000 or more vehicles per day within ten years after modification.

(ii) Outside an SMSA:

(*a*) Any new parking facility, or other new indirect source with an associated parking area, which has a parking capacity of 2,000 cars or more; or

(*b*) Any modified parking facility, or any modification of an associated parking area, which increases parking capacity by 1,000 cars or more.

(iii) Any airport, the construction or general modification program of which is expected to result in the following activity within ten years of construction or modification:

(*a*) New airport: 50,000 or more operations per year by regularly scheduled air carriers, or use by 1,600,000 or more passengers per year.

(*b*) Modified airport: Increase of 50,000 or more operations per year by regularly scheduled air carriers over the existing volume of operations, or increase of 1,600,000 or more passengers per year.

(iv) Where an indirect source is constructed or modified in increments which individually are not subject to review under this paragraph, and which are not part of a program of construction or modification in planned incremental phases approved by the Administrator, all such increments commenced after December 31, 1974, or after the latest approval hereunder, whichever date is most recent, shall be added together for determining the applicability of this paragraph.

(3) No owner or operator of an indirect source subject to this paragraph shall commence construction or modification of such source after December 31, 1974, without first obtaining approval from the Administrator. Application for approval to construct or modify shall be by means prescribed by the Administrator, and shall include a copy of any draft or final environmental impact statement which has been prepared pursuant to the National Environmental Policy Act (42 U.S.C. 4321). If not included in such environmental impact statement, the Administrator may request the following information:

(i) For all indirect sources subject to this paragraph, other than highway projects:

(*a*) The name and address of the applicant.

(*b*) A map showing the location of the site of indirect source and the topography of the area.

(*c*) A description of the proposed use of the site, including the normal hours of operation of the facility, and the general types of activities to be operated therein.

(*d*) A site plan showing the location of associated parking areas, points of motor vehicle ingress and egress to and from the site and its associated parking areas, and the location and height of buildings on the site.

(*e*) An identification of the principal roads, highways, and intersections that will be used by motor vehicles moving to or from the indirect source.

WORKSHOP ON IMPLEMENTING THE STACK HEIGHT REGULATIONS (REVISED)

OCTOBER 29 TO 30, 1985

by

PEI Associates, Inc.
505 South Duke Street, Suite 503
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CONTROL PROGRAMS DEVELOPMENT DIVISION
OFFICE OF AIR QUALITY PLANNING AND STANDARDS
U.S. ENVIRONMENTAL PROTECTION AGENCY
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October 1985

estimated amounts of emissions and the amounts of such emissions allowable under the applicable emission limitations or other measures.

§ 51.117 Additional provisions for lead.

In addition to other requirements in §§ 51.100 through 51.116 the following requirements apply to lead. To the extent they conflict, there requirements are controlling over those of the proceeding sections.

(a) *Control strategy demonstration.* Each plan must contain a demonstration showing that the plan will attain and maintain the standard 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 2,000 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 ambient air quality standard concentration for lead, measured since January 1, 1974.

(b) *Time perio for emonstration of a equacy.* The demonstration of adequacy of the control strategy required under § 51.112 may cover a longer period if allowed by the appropriate EPA Regional Administrator.

(c) *Special modeling provisions.* (1) For urbanized areas with measured lead concentrations in excess of 4.0 $\mu g/m^3$, 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. If a proportional model is used, the air quality data should be the same year as the emissions inventory required under the paragraph e.

(2) For each point source listed in § 51.117(a), that plan must employ an atmospheric dispersion model for demonstration of attainment.

(3) 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.

(d) *Air quality data and projections.* (1) Each State must submit to the appropriate EPA Regional Office with the plan, but not 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.

(3) 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.

(e) *Emissions data.* (1) The point source inventory on which the summary of the baseline lead emissions inventory is based must contain all sources that emit five or more tons of lead per year.

(2) Each State must submit lead emissions data to the appropriate EPA Regional Office with the original plan. The submission must be made with the plan, but not as part of the plan, and must include emissions data and information related to point and area source emissions. The emission data and information should include the information identified in the Hazardous and Trace Emissions System (HATREMS) point source coding forms for all point sources and the area source coding forms for all sources that are not point sources, but need not necessarily be in the format of those forms.

§ 51.118 Stack height provisions.

(a) The plan must provide that the degree of emission limitation required of any source for control of any air pollutant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in § 51.118(b). The plan must provide that before a State submits to EPA a new or revised emission limitation that is based on a good engineering practice stack height that exceeds the height allowed by § 51.100(ii) (1) or (2), the State must notify the public of the availablity of the demonstration study and must provide opportunity for a public hearing on it. This section does not require the plan to restrict, in any manner, the actual stack height of any source.

(b) The provisions of § 51.118(a) shall not apply to (1) stack heights in existence, or dispersion techniques implemented on or before December 31, 1970, except where pollutants are being emitted from such stacks or using such dispersion techniques by sources, as defined in section 111(a)(3) of the Clean Air Act, which were constructed, or reconstructed, or for which major modifications, as defined in §§ 51.165(a)(1)(v)(A), 51.166(b)(2)(i) and 52.21(b)(2)(i), were carried out after December 31, 1970; or (2) coal-fired steam electric generating units subject to the provisions of section 118 of the Clean Air Act, which commenced operation before July 1, 1957, and whose stacks were construced under a construction contract awarded before February 8, 1974.

§ 51.119 Intermittent control systems.

(a) The use of an intermittent control system (ICS) may be taken into account in establishing an emission limitation for a pollutant under a State implementation plan, provided:

(1) The ICS was implemented before December 31, 1970, according to the criteria specified in § 51.119(b).

(2) The extent to which the ICS is taken into account is limited to reflect emission levels and associated ambient pollutant concentrations that would result if the ICS was the same as it was before December 31, 1970, and was operated as specified by the operating system of the ICS before December 31, 1970.

(3) The plan allows the ICS to compensate only for emissions from a source for which the ICS was implemented before December 31, 1970, and, in the event the source has been modified, only to the extent the emissions correspond to the maximum capacity of the source before December 31, 1970. For purposes of this paragraph, a source for which the ICS was implemented is any particular structure or equipment the emissions from which were subject to the ICS operating procedures.

(4) The plan requires the continued operation of any constant pollution control system which was in use before December 31, 1970, or the equivalent of that system.

(5) The plan clearly defines the emission limits affected by the ICS and the manner in which the ICS is taken into account in establishing those limits.

(6) The plan contains requirements for the operation and maintenance of the qualifying ICS which, together with the emission limitations and any other necessary requirements, will assure that the national ambient air quality standards and any applicable prevention of significant deterioration increments will be attained and maintained. These requirements shall include, but not necessarily be limited to, the following:

(i) Requirements that a source owner or operator continuously operate and maintain the components of the ICS specified at § 51.119(b)(3) (ii)-(iv) in a manner which assures that the ICS is at least as effective as it was before December 31, 1970. The air quality monitors and meteorological instrumentation specified at § 51.119(b) may be operated by a local authority or other entity provided the source has ready access to the data from the monitors and instrumentation.

(ii) Requirements which specify the circumstances under which, the extent to which, and the procedures through which, emissions shall be curtailed through the activation of ICS.

(iii) Requirements for recordkeeping which require the owner or operator

REFERENCES FOR SECTION 5.2

EPA-450/4-80-023R

Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations)

(Revised)

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

June 1985

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

AUTHORITY: This rulemaking is promulgated under authority of sections 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act 42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a).

SOURCE: 36 FR 22398, Nov. 25, 1971, unless otherwise noted.

EDITORIAL NOTE: Nomenclature changes affecting Part 51 appear at 44 FR 8237, Feb. 8, 1979 and 51 FR 40661, Nov. 7, 1986.

Subparts A-C—[Reserved]

Subpart D—Maintenance of National Standards

SOURCE: 41 FR 18388, May 3, 1976, unless otherwise noted.

§ 51.40 Scope.

(a) *Applicability*. The requirements of this subpart apply to air quality maintenance areas (AQMAs) identified under § 51.110(i) and to any areas identified under § 51.110(l).

(b) *AQMA Analysis*. Under this subpart, procedures are given for the analysis of the air quality impact of specified pollutant emissions from existing sources and emissions associated with projected growth and development in areas identified under paragraphs (i) and (l) of § 51.110. This analysis is referred to in this subpart as an AQMA analysis.

(c) *AQMA Plan*. Under this subpart, the Administrator will require a revision to the State implementation plan for areas identified under § 51.110(i) or § 51.110(l) when necessary to prevent a national ambient air quality standard

§ 51.62 AQMA analysis and plan: Data availability.

(a) The State shall retain all detailed data and calculations used in the preparation of AQMA analyses and plans, 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 AQMA analyses and plans shall not be considered a part of the AQMA plan.

§ 51.63 AQMA analysis and plan: Alternative procedures.

(a) At the request of a State, or under his own initiative, the Administrator, where he determines it appropriate, may approve alternative AQMA analysis and plan development procedures as allowed under §§ 51.42, 51.44, 51.45, 51.46, 51.48(b), and 51.60(a). He may consider all relevant factors including but not limited to air quality problems, financial and manpower limitations, administrative feasibility, and existing commitments by the State.

(b) The Administrator shall act upon a request for modification within 45 days after receipt of a properly prepared and filed request. Unless a State is notified of a denial, or the Administrator requests additional information, such a request is automatically approved on the forty-sixth day.

(c) The Administrator shall publish in the FEDERAL REGISTER a description of each modification made.

(d) A public hearing on an AQMA plan does not fulfill the public hearing requirements of this part if, subsequent to the hearing, any alternative procedures are approved under this section.

(Secs. 110, 121, 174(a), 301(a), Clean Air Act, as amended (42 U.S.C. 7410, 7421, 7504, and 7601(a)))

[41 FR 18388, May 3, 1976, as amended at 44 FR 35179, June 18, 1979]

Subpart E—[Reserved]

Subpart F—Procedural Requirements

SOURCE: 51 FR 40661, Nov. 7, 1986, unless otherwise noted.

§ 51.100 Definitions.

As used in this part, all terms not defined herein will have the meaning given them in the Act:

(a) "Act" means the Clean Air Act (42 U.S.C. 7401 *et seq.*, as amended by Pub. L. 91-604, 84 Stat. 1676 Pub. L. 95-95, 91 Stat., 685 and Pub. L. 95-190, 91 Stat., 1399.)

(b) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or an authorized representative.

(c) "Primary standard" means a national primary ambient air quality standard promulgated pursuant to section 109 of the Act.

(d) "Secondary standard" means a national secondary ambient air quality standard promulgated pursuant to section 109 of the Act.

(e) "National standard" means either a primary or secondary standard.

(f) "Owner or operator" means any person who owns, leases, operates, controls, or supervises a facility, building, structure, or installation which directly or indirectly result or may result in emissions of any air pollutant for which a national standard is in effect.

(g) "Local agency" means any local government agency other than the State agency, which is charged with responsibility for carrying out a portion of the plan.

(h) "Regional Office" means one of the ten (10) EPA Regional Offices.

(i) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(j) "Plan" means an implementation plan approved or promulgated under section 110 of 172 of the Act.

(k) "Point source" means the following:

(1) For particulate matter, sulfur oxides, carbon monoxide, volatile organic compounds (VOC) 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 1980 "urban place" population, as defined by the U.S. Bureau of the Census, was equal to or greater than 1 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 1980 "urban place" population, as defined by the U.S. Bureau of the Census, was less than 1 million; or

(2) For lead or lead compounds measured as elemental lead, any stationary source that actually emits a total of 4.5 metric tons (5 tons) per year or more.

(l) "Area source" means any small residential, governmental, institutional, commercial, or industrial fuel combustion operations; onsite solid waste disposal facility; motor vehicles, aircraft vessels, or other transportation facilities or other miscellaneous sources identified through inventory techniques similar to those described in the "AEROS Manual series, Vol. II AEROS User's Manual," EPA-450/2-76-029 December 1976.

(m) "Region" means an area designated as an air quality control region (AQCR) under section 107(c) of the Act.

(n) "Control strategy" means a combination of measures designated to achieve the aggregate reduction of emissions necessary for attainment and maintenance of national standards including, but not limited to, measures such as:

(1) Emission limitations.

(2) Federal or State emission charges or taxes or other economic incentives or disincentives.

(3) Closing or relocation of residential, commercial, or industrial facilities.

(4) Changes in schedules or methods of operation of commercial or industrial facilities or transportation systems, including, but not limited to, short-term changes made in accordance with standby plans.

(5) Periodic inspection and testing of motor vehicle emission control systems, at such time as the Administrator determines that such programs are feasible and practicable.

(6) Emission control measures applicable to in-use motor vehicles, including, but not limited to, measures such as mandatory maintenance, installation of emission control devices, and conversion to gaseous fuels.

(7) Any transportation control measure including those transportation measures listed in section 108(f) of the Clean Air Act as amended.

(8) Any variation of, or alternative to any measure delineated herein.

(9) 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 seconary air quality standard and is approved by the Administrator under section 211(c)(4)(C) of the Act.

(o) "Reasonably available control technology" (RACT) means devices, systems process modifications, or other apparatus or techniques that are reasonably available taking into account (1) the necessity of imposing such controls in order to attain and maintain a national ambient air quality standard, (2) the social, environmental and economic impact of such controls, and (3) alternative means of providing for attainment and maintenance of such standard. (This provision defines RACT for the purposes of §§ 51.110(c)(2) and 51.341(b) only.)

(p) "Compliance schedule" means the date or dates by which a source or category of sources is required to comply with specific emission limitations contained in an implementation plan and with any increments of progress toward such compliance.

(q) "Increments of progress" means steps toward compliance which will be taken by a specific source, including:

(1) Date of submittal of the source's final control plan to the appropriate air pollution control agency;

(2) Date by which contracts for emission control systems or process modifications will be awarded; or date by which orders will be issued for the purchase of component parts to accomplish emission control or process modification;

(3) Date of initiation of on-site construction or installation of emission control equipment or process change;

(4) Date by which on-site construction or installation of emission control equipment or process modification is to be completed; and

(5) Date by which final compliance is to be achieved.

(r) "Transportation control measure" means any measure that is directed toward reducing emissions of air pollutants from transportation sources. Such measures include, but are not limited to, those listed in section 108(f) of the Clean Air Act.

(s)-(w) [Reserved]

(x) "Time period" means any period of time designated by hour, month, season, calendar year, averaging time, or other suitable characteristics, for which ambient air quality is estimated.

(y) "Variance" means the temporary deferral of a final compliance date for an individual source subject to an approved regulation, or a temporary change to an approved regulation as it applies to an individual source.

(z) "Emission limitation" and "emission standard" mean a requirement established by a State, local government, or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission reduction.

(aa) "Capacity factor" means the ratio of the average load on a machine or equipment for the period of time considered to the capacity rating of the machine or equipment.

(bb) "Excess emissions" means emissions of an air pollutant in excess of an emission standard.

(cc) "Nitric acid plant" means any facility producing nitric acid 30 to 70 percent in strength by either the pressure or atmospheric pressure process.

(dd) "Sulfuric acid plant" means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, or acid sludge, but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.

(ee) "Fossil fuel-fired steam generator" means a furnance or bioler used in the process of burning fossil fuel for the primary purpose of producing steam by heat transfer.

(ff) "Stack" means any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct but not including flares.

(gg) "A stack in existence" means that the owner or operator had (1) begun, or caused to begin, a continuous program of physical on-site construction of the stack or (2) entered into binding agreements or contractual obligations, which could not be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the stack to be completed within a reasonable time.

(hh)(1) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by:

(i) Using that portion of a stack which exceeds good engineering practice stack height:

(ii) Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or

(iii) Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.

(2) The preceding sentence does not include:

(i) The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;

(ii) The merging of exhaust gas streams where:

(A) The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

(B) After July 8, 1985 such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or

(C) Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the reviewing agency shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the reviewing agency shall deny credit for the effects of such merging in calculating the allowable emissions for the source;

(iii) Smoke management in agricultural or silvicultural prescribed burning programs;

(iv) Episodic restrictions on residential woodburning and open burning; or

(v) Techniques under § 51.100(hh)(1)(iii) which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed 5,000 tons per year.

(ii) "Good engineering practice" (GEP) stack height means the greater of:

(1) 65 meters, measured from the ground-level elevation at the base of the stack:

(2)(i) For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable permits or approvals required under 40 CFR Parts 51 and 52.

$$H_g = 2.5H,$$

provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation:

(ii) For all other stacks,

$$H_g = H + 1.5L$$

where

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack,

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = lesser dimension, height or projected width, of nearby structure(s)

provided that the EPA, State or local control agency may require the use of a field study or fluid model to verify GEP stack height for the source; or

(3) The height demonstrated by a fluid model or a field study approved by the EPA State or local control agency, which ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features.

(jj) "Nearby" as used in § 51.100(ii) of this part is defined for a specific structure or terrain feature and

(1) For purposes of applying the formulae provided in § 51.100(ii)(2) means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than 0.8 km (½ mile), and

(2) For conducting demonstrations under § 51.100(ii)(3) means not greater than 0.8 km (½ mile), except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to 10 times the maximum height (H_t) of the feature, not to exceed 2 miles if such feature achieves a height (H_t) 0.8 km from the stack that is at least 40 percent of the GEP stack height determined by the formulae provided in § 51.100(ii)(2)(ii) of this part or 26 meters, whichever is greater, as measured from the ground-level elevation at the base of the stack. The height of the structure or terrain feature is measured from the ground-level elevation at the base of the stack.

(kk) "Excessive concentration" is defined for the purpose of determining good engineering practice stack height under § 51.100(ii)(3) and means.

(1) For sources seeking credit for stack height exceeding that established under § 51.100(ii)(2) a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of

the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard. For sources subject to the prevention of significant deterioration program (40 CFR 51.166 and 52.21), an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and greater than a prevention of significant deterioration increment. The allowable emission rate to be used in making demonstrations under this part shall be prescribed by the new source performance standard that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible. Where such demonstrations are approved by the authority administering the State implementation plan, an alternative emission rate shall be established in consultation with the source owner or operator.

(2) For sources seeking credit after October 11, 1983, for increases in existing stack heights up to the heights established under § 51.100(ii)(2), either (i) a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects as provided in paragraph (kk)(1) of this section, except that the emission rate specified by any applicable State implementation plan (or, in the absence of such a limit, the actual emission rate) shall be used, or (ii) the actual presence of a local nuisance caused by the existing stack, as determined by the authority administering the State implementation plan; and

(3) For sources seeking credit after January 12, 1979 for a stack height determined under § 51.100(ii)(2) where the authority administering the State implementation plan requires the use of a field study or fluid model to verify GEP stack height, for sources seeking stack height credit after November 9, 1984 based on the aerodynamic influence of cooling towers, and for sources seeking stack height credit after December 31, 1970 based on the aerodynamic influence of structures not adequately represented by the equations in § 51.100(ii)(2), a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects that is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

(ll)-(mm) [Reserved]

(nn) Intermittent control system (ICS) means a dispersion technique which varies the rate at which pollutants are emitted to the atmosphere according to meteorological conditions and/or ambient concentrations of the pollutant, in order to prevent ground-level concentrations in excess of applicable ambient air quality standards. Such a dispersion technique is an ICS whether used alone, used with other dispersion techniques, or used as a supplement to continuous emission controls (i.e., used as a supplemental control system).

(oo) "Particulate matter" means any airborne finely divided solid or liquid material with an aerodynamic diameter smaller than 100 micrometers.

(pp) "Particulate matter emissions" means all finely divided solid or liquid material, other than uncombined water, emitted to the ambient air as measured by applicable reference methods, or an equivalent or alternative method, specified in this chapter, or by a test method specified in an approved State implementation plan.

(qq) "PM_{10}" means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by a reference method based on Appendix J of Part 50 of this chapter and designated in accordance with Part 53 of this chapter or by an equivalent method designated in accordance with Part 53 of this chapter.

(rr) "PM_{10} emissions" means finely divided solid or liquid material, with an aerodynamic diameter less than or equal to a nominal 10 micrometers emitted to the ambient air as measured by an applicable reference method, or an equivalent or alternative method, specified in this chapter or by a test method specified in an approved State implementation plan.

(ss) "Total suspended particulate" means particulate matter as measured by the method described in Appendix B of Part 50 of this chapter.

[51 FR 40661, Nov. 7, 1986, as amended at 52 FR 24712, July 1, 1987]

§ 51.101 Stipulations.

Nothing in this part will be construed in any manner:

(a) To encourage a State to prepare, adopt, or submit a plan which does not provide for the protection and enhancement of air quality so as to promote the public health and welfare and productive capacity.

(b) To encourage a State to adopt any particular control strategy without taking into consideration the cost-effectiveness of such control strategy in relation to that of alternative control strategies.

(c) To preclude a State from employing techniques other than those specified in this part for purposes of estimating air quality or demonstrating the adequacy of a control strategy, provided that such other techniques are shown to be adequate and appropriate for such purposes.

(d) To encourage a State to prepare, adopt, or submit a plan without taking into consideration the social and economic impact of the control strategy set forth in such plan, including, but not limited to, impact on availability of fuels, energy, transportation, and employment.

(e) To preclude a State from preparing, adopting, or submitting a plan which provides for attainment and maintenance of a national standard through the application of a control strategy not specifically identified or described in this part.

(f) To preclude a State or political subdivision thereof from adopting or enforcing any emission limitations or other measures or combinations thereof to attain and maintain air quality better than that required by a national standard.

(g) To encourage a State to adopt a control strategy uniformly applicable throughout a region unless there is no satisfactory alternative way of providing for attainment and maintenance of a national standard throughout such region.

§ 51.102 Public hearings.

(a) Except as otherwise provided in paragraph (c) of this section, States must conduct one or more public hearings on the following prior to adoption and submission to EPA of:

(1) Any plan or revision of it required by § 51.104(a).

(2) Any individual compliance schedule under (§ 51.260).

(3) Any revision under § 51.104(d).

(b) Separate hearings may be held for plans to implement primary and secondary standards.

(c) No hearing will be required for any change to an increment of progress in an approved individual compliance schedule unless such change is likely to cause the source to be unable to comply with the final compliance date in the schedule. The requirements of §§ 51.104 and 51.105 will be applicable to such schedules, however.

(d) Any hearing required by paragraph (a) of this section will be held only after reasonable notice, which will be considered to include, at least 30 days prior to the date of such hearing(s):

(1) Notice given to the public by prominent advertisement in the area affected announcing the date(s), time(s), and place(s) of such hearing(s);

(2) Availability of each proposed plan or revision for public inspection in at least one location in each region to which it will apply, and the availability of each compliance schedule for public inspection in at least one location in the region in which the affected source is located;

(3) Notification to the Administrator (through the appropriate Regional Office);

(4) Notification to each local air pollution control agency which will be significantly impacted by such plan, schedule or revision;

(5) In the case of an interstate region, notification to any other States included, in whole or in part, in

REFERENCES FOR SECTION 5.3

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

AUTHORITY: This rulemaking is promulgated under authority of sections 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act 42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a).

SOURCE: 36 FR 22398, Nov. 25, 1971, unless otherwise noted.

EDITORIAL NOTE: Nomenclature changes affecting Part 51 appear at 44 FR 8237, Feb. 8, 1979 and 51 FR 40661, Nov. 7, 1986.

Subparts A-C—[Reserved]

Subpart D—Maintenance of National Standards

SOURCE: 41 FR 18388, May 3, 1976, unless otherwise noted.

§ 51.40 Scope.

(a) *Applicability.* The requirements of this subpart apply to air quality maintenance areas (AQMAs) identified under § 51.110(i) and to any areas identified under § 51.110(l).

(b) *AQMA Analysis.* Under this subpart, procedures are given for the analysis of the air quality impact of specified pollutant emissions from existing sources and emissions associated with projected growth and development in areas identified under paragraphs (i) and (l) of § 51.110. This analysis is referred to in this subpart as an AQMA analysis.

(c) *AQMA Plan.* Under this subpart, the Administrator will require a revision to the State implementation plan for areas identified under § 51.110(i) or § 51.110(l) when necessary to prevent a national ambient air quality standard

§ 51.62 AQMA analysis and plan: Data availability.

(a) The State shall retain all detailed data and calculations used in the preparation of AQMA analyses and plans, 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 AQMA analyses and plans shall not be considered a part of the AQMA plan.

§ 51.63 AQMA analysis and plan: Alternative procedures.

(a) At the request of a State, or under his own initiative, the Administrator, where he determines it appropriate, may approve alternative AQMA analysis and plan development procedures as allowed under §§ 51.42, 51.44, 51.45, 51.46, 51.48(b), and 51.60(a). He may consider all relevant factors including but not limited to air quality problems, financial and manpower limitations, administrative feasibility, and existing commitments by the State.

(b) The Administrator shall act upon a request for modification within 45 days after receipt of a properly prepared and filed request. Unless a State is notified of a denial, or the Administrator requests additional information, such a request is automatically approved on the forty-sixth day.

(c) The Administrator shall publish in the FEDERAL REGISTER a description of each modification made.

(d) A public hearing on an AQMA plan does not fulfill the public hearing requirements of this part if, subsequent to the hearing, any alternative procedures are approved under this section.

(Secs. 110, 121, 174(a), 301(a), Clean Air Act, as amended (42 U.S.C. 7410, 7421, 7504, and 7601(a)))

[41 FR 18388, May 3, 1976, as amended at 44 FR 35179, June 18, 1979]

Subpart E—[Reserved]

Subpart F—Procedural Requirements

SOURCE: 51 FR 40661, Nov. 7, 1986, unless otherwise noted.

§ 51.100 Definitions.

As used in this part, all terms not defined herein will have the meaning given them in the Act:

(a) "Act" means the Clean Air Act (42 U.S.C. 7401 *et seq.*, as amended by Pub. L. 91-604, 84 Stat. 1676 Pub. L. 95-95, 91 Stat., 685 and Pub. L. 95-190, 91 Stat., 1399.)

(b) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or an authorized representative.

(c) "Primary standard" means a national primary ambient air quality standard promulgated pursuant to section 109 of the Act.

(d) "Secondary standard" means a national secondary ambient air quality standard promulgated pursuant to section 109 of the Act.

(e) "National standard" means either a primary or secondary standard.

(f) "Owner or operator" means any person who owns, leases, operates, controls, or supervises a facility, building, structure, or installation which directly or indirectly result or may result in emissions of any air pollutant for which a national standard is in effect.

(g) "Local agency" means any local government agency other than the State agency, which is charged with responsibility for carrying out a portion of the plan.

(h) "Regional Office" means one of the ten (10) EPA Regional Offices.

(i) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(j) "Plan" means an implementation plan approved or promulgated under section 110 of 172 of the Act.

(k) "Point source" means the following:

(1) For particulate matter, sulfur oxides, carbon monoxide, volatile organic compounds (VOC) 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 1980 "urban place" population, as defined by the U.S. Bureau of the Census, was equal to or greater than 1 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 1980 "urban place" population, as defined by the U.S. Bureau of the Census, was less than 1 million; or

(2) For lead or lead compounds measured as elemental lead, any stationary source that actually emits a total of 4.5 metric tons (5 tons) per year or more.

(l) "Area source" means any small residential, governmental, institutional, commercial, or industrial fuel combustion operations; onsite solid waste disposal facility; motor vehicles, aircraft vessels, or other transportation facilities or other miscellaneous sources identified through inventory techniques similar to those described in the "AEROS Manual series, Vol. II AEROS User's Manual," EPA-450/2-76-029 December 1976.

(m) "Region" means an area designated as an air quality control region (AQCR) under section 107(c) of the Act.

(n) "Control strategy" means a combination of measures designated to achieve the aggregate reduction of emissions necessary for attainment and maintenance of national standards including, but not limited to, measures such as:

(1) Emission limitations.

(2) Federal or State emission charges or taxes or other economic incentives or disincentives.

(3) Closing or relocation of residential, commercial, or industrial facilities.

(4) Changes in schedules or methods of operation of commercial or industrial facilities or transportation systems, including, but not limited to, short-term changes made in accordance with standby plans.

(5) Periodic inspection and testing of motor vehicle emission control systems, at such time as the Administrator determines that such programs are feasible and practicable.

(6) Emission control measures applicable to in-use motor vehicles, including, but not limited to, measures such as mandatory maintenance, installation of emission control devices, and conversion to gaseous fuels.

(7) Any transportation control measure including those transportation measures listed in section 108(f) of the Clean Air Act as amended.

(8) Any variation of, or alternative to any measure delineated herein.

(9) 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 seconary air quality standard and is approved by the Administrator under section 211(c)(4)(C) of the Act.

(o) "Reasonably available control technology" (RACT) means devices, systems process modifications, or other apparatus or techniques that are reasonably available taking into account (1) the necessity of imposing such controls in order to attain and maintain a national ambient air quality standard, (2) the social, environmental and economic impact of such controls, and (3) alternative means of providing for attainment and maintenance of such standard. (This provision defines RACT for the purposes of §§ 51.110(c)(2) and 51.341(b) only.)

(p) "Compliance schedule" means the date or dates by which a source or category of sources is required to comply with specific emission limitations contained in an implementation plan and with any increments of progress toward such compliance.

(q) "Increments of progress" means steps toward compliance which will be taken by a specific source, including:

(1) Date of submittal of the source's final control plan to the appropriate air pollution control agency;

(2) Date by which contracts for emission control systems or process modifications will be awarded; or date by which orders will be issued for the purchase of component parts to accomplish emission control or process modification;

(3) Date of initiation of on-site construction or installation of emission control equipment or process change;

(4) Date by which on-site construction or installation of emission control equipment or process modification is to be completed; and

(5) Date by which final compliance is to be achieved.

(r) "Transportation control measure" means any measure that is directed toward reducing emissions of air pollutants from transportation sources. Such measures include, but are not limited to, those listed in section 108(f) of the Clean Air Act.

(s)-(w) [Reserved]

(x) "Time period" means any period of time designated by hour, month, season, calendar year, averaging time, or other suitable characteristics, for which ambient air quality is estimated.

(y) "Variance" means the temporary deferral of a final compliance date for an individual source subject to an approved regulation, or a temporary change to an approved regulation as it applies to an individual source.

(z) "Emission limitation" and "emission standard" mean a requirement established by a State, local government, or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission reduction.

(aa) "Capacity factor" means the ratio of the average load on a machine or equipment for the period of time considered to the capacity rating of the machine or equipment.

(bb) "Excess emissions" means emissions of an air pollutant in excess of an emission standard.

(cc) "Nitric acid plant" means any facility producing nitric acid 30 to 70 percent in strength by either the pressure or atmospheric pressure process.

(dd) "Sulfuric acid plant" means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, or acid sludge, but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.

(ee) "Fossil fuel-fired steam generator" means a furnance or bioler used in the process of burning fossil fuel for the primary purpose of producing steam by heat transfer.

(ff) "Stack" means any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct but not including flares.

(gg) "A stack in existence" means that the owner or operator had (1) begun, or caused to begin, a continuous program of physical on-site construction of the stack or (2) entered into binding agreements or contractual obligations, which could not be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the stack to be completed within a reasonable time.

(hh)(1) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by:

(i) Using that portion of a stack which exceeds good engineering practice stack height:

(ii) Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or

(iii) Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.

(2) The preceding sentence does not include:

(i) The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;

(ii) The merging of exhaust gas streams where:

(A) The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

(B) After July 8, 1985 such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or

(C) Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the reviewing agency shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the reviewing agency shall deny credit for the effects of such merging in calculating the allowable emissions for the source;

(iii) Smoke management in agricultural or silvicultural prescribed burning programs;

(iv) Episodic restrictions on residential woodburning and open burning; or

(v) Techniques under § 51.100(hh)(1)(iii) which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed 5,000 tons per year.

(ii) "Good engineering practice" (GEP) stack height means the greater of:

(1) 65 meters, measured from the ground-level elevation at the base of the stack:

(2)(i) For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable permits or approvals required under 40 CFR Parts 51 and 52.

$$H_g = 2.5H,$$

provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation:

(ii) For all other stacks,

$$H_g = H + 1.5L$$

where

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack,

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = lesser dimension, height or projected width, of nearby structure(s)

provided that the EPA, State or local control agency may require the use of a field study or fluid model to verify GEP stack height for the source; or

(3) The height demonstrated by a fluid model or a field study approved by the EPA State or local control agency, which ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features.

(jj) "Nearby" as used in § 51.100(ii) of this part is defined for a specific structure or terrain feature and

(1) For purposes of applying the formulae provided in § 51.100(ii)(2) means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than 0.8 km (½ mile), and

(2) For conducting demonstrations under § 51.100(ii)(3) means not greater than 0.8 km (½ mile), except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to 10 times the maximum height (H_t) of the feature, not to exceed 2 miles if such feature achieves a height (H_t) 0.8 km from the stack that is at least 40 percent of the GEP stack height determined by the formulae provided in § 51.100(ii)(2)(ii) of this part or 26 meters, whichever is greater, as measured from the ground-level elevation at the base of the stack. The height of the structure or terrain feature is measured from the ground-level elevation at the base of the stack.

(kk) "Excessive concentration" is defined for the purpose of determining good engineering practice stack height under § 51.100(ii)(3) and means.

(1) For sources seeking credit for stack height exceeding that established under § 51.100(ii)(2) a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of

the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard. For sources subject to the prevention of significant deterioration program (40 CFR 51.166 and 52.21), an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and greater than a prevention of significant deterioration increment. The allowable emission rate to be used in making demonstrations under this part shall be prescribed by the new source performance standard that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible. Where such demonstrations are approved by the authority administering the State implementation plan, an alternative emission rate shall be established in consultation with the source owner or operator.

(2) For sources seeking credit after October 11, 1983, for increases in existing stack heights up to the heights established under § 51.100(ii)(2), either (i) a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects as provided in paragraph (kk)(1) of this section, except that the emission rate specified by any applicable State implementation plan (or, in the absence of such a limit, the actual emission rate) shall be used, or (ii) the actual presence of a local nuisance caused by the existing stack, as determined by the authority administering the State implementation plan; and

(3) For sources seeking credit after January 12, 1979 for a stack height determined under § 51.100(ii)(2) where the authority administering the State implementation plan requires the use of a field study or fluid model to verify GEP stack height, for sources seeking stack height credit after November 9, 1984 based on the aerodynamic influence of cooling towers, and for sources seeking stack height credit after December 31, 1970 based on the aerodynamic influence of structures not adequately represented by the equations in § 51.100(ii)(2), a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects that is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

(ll)-(mm) [Reserved]

(nn) *Intermittent control system (ICS)* means a dispersion technique which varies the rate at which pollutants are emitted to the atmosphere according to meteorological conditions and/or ambient concentrations of the pollutant, in order to prevent ground-level concentrations in excess of applicable ambient air quality standards. Such a dispersion technique is an ICS whether used alone, used with other dispersion techniques, or used as a supplement to continuous emission controls (i.e., used as a supplemental control system).

(oo) "Particulate matter" means any airborne finely divided solid or liquid material with an aerodynamic diameter smaller than 100 micrometers.

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(rr) "PM_{10} emissions" means finely divided solid or liquid material, with an aerodynamic diameter less than or equal to a nominal 10 micrometers emitted to the ambient air as measured by an applicable reference method, or an equivalent or alternative method, specified in this chapter or by a test method specified in an approved State implementation plan.

(ss) "Total suspended particulate" means particulate matter as measured by the method described in Appendix B of Part 50 of this chapter.

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(b) To encourage a State to adopt any particular control strategy without taking into consideration the cost-effectiveness of such control strategy in relation to that of alternative control strategies.

(c) To preclude a State from employing techniques other than those specified in this part for purposes of estimating air quality or demonstrating the adequacy of a control strategy, provided that such other techniques are shown to be adequate and appropriate for such purposes.

(d) To encourage a State to prepare, adopt, or submit a plan without taking into consideration the social and economic impact of the control strategy set forth in such plan, including, but not limited to, impact on availability of fuels, energy, transportation, and employment.

(e) To preclude a State from preparing, adopting, or submitting a plan which provides for attainment and maintenance of a national standard through the application of a control strategy not specifically identified or described in this part.

(f) To preclude a State or political subdivision thereof from adopting or enforcing any emission limitations or other measures or combinations thereof to attain and maintain air quality better than that required by a national standard.

(g) To encourage a State to adopt a control strategy uniformly applicable throughout a region unless there is no satisfactory alternative way of providing for attainment and maintenance of a national standard throughout such region.

§ 51.102 Public hearings.

(a) Except as otherwise provided in paragraph (c) of this section, States must conduct one or more public hearings on the following prior to adoption and submission to EPA of:

(1) Any plan or revision of it required by § 51.104(a).

(2) Any individual compliance schedule under (§ 51.260).

(3) Any revision under § 51.104(d).

(b) Separate hearings may be held for plans to implement primary and secondary standards.

(c) No hearing will be required for any change to an increment of progress in an approved individual compliance schedule unless such change is likely to cause the source to be unable to comply with the final compliance date in the schedule. The requirements of §§ 51.104 and 51.105 will be applicable to such schedules, however.

(d) Any hearing required by paragraph (a) of this section will be held only after reasonable notice, which will be considered to include, at least 30 days prior to the date of such hearing(s):

(1) Notice given to the public by prominent advertisement in the area affected announcing the date(s), time(s), and place(s) of such hearing(s);

(2) Availability of each proposed plan or revision for public inspection in at least one location in each region to which it will apply, and the availability of each compliance schedule for public inspection in at least one location in the region in which the affected source is located;

(3) Notification to the Administrator (through the appropriate Regional Office);

(4) Notification to each local air pollution control agency which will be significantly impacted by such plan, schedule or revision;

(5) In the case of an interstate region, notification to any other States included, in whole or in part, in

REFERENCES FOR SECTION 5.4

Attachment A

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

APR 22 1988

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Interim Policy on Stack Height Regulatory Actions

FROM: J. Craig Potter W. Ray Cunningham
for Assistant Administrator
for Air and Radiation (ANR-443)

TO: Director, Air Management Division
Regions I, III, IX
Director, Air and Waste Management Division
Region II
Director, Air, Pesticides, and Toxics Management Division
Regions IV, VI
Director, Air and Radiation Division
Region V
Director, Air and Toxics Division
Regions VII, VIII, X

On January 22, 1988, the U.S. Court of Appeals for the District of Columbia issued its decision in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988), regarding the Environmental Protection Agency's (EPA's) stack height regulations published on July 8, 1985 (50 FR 27892). Subsequent petitions for rehearing were denied. Although the court upheld most provisions of the rules, three portions were remanded to EPA for review:

1. Grandfathering pre-October 11, 1983 within-formula stack height increases from demonstration requirements [40 CFR 51.100(kk)(2)];

2. Dispersion credit for sources originally designed and constructed with merged or multiflue stacks [40 CFR 51.100(hh)(2)(ii)(A)]; and

3. Grandfathering of pre-1979 use of the refined H + 1.5L formula [40 CFR 51.100(ii)(2)].

A number of pending State implementation plan (SIP) and other rulemaking actions may be affected by this decision in advance of EPA's promulgation of further revisions of the stack height regulations. This includes not only rulemaking packages developed to respond to the 1985 stack height regulations, but also such actions as issuance of new source review (NSR) and prevention of significant deterioration (PSD) permits, permit modifications, SIP revisions

dealing with specific source emission limitations, and redesignations under section 107 of the Clean Air Act. Consequently, until resolution of litigation and completion of any rulemaking activity to respond to the court decision, the following policy will be applied.

In general, actions to approve States' rules may proceed provided appropriate caveat language is inserted which notes that the action is potentially subject to review and modification as a result of the recent court decision. Actions addressing State permitting authority should require States to provide notice that permits are subject to review and modification if sources are later found to be affected by revisions to stack height regulations. Where States currently have the authority to issue permits under fully-approved or delegated NSR and PSD programs, any permits issued prior to EPA's promulgation of revised stack height regulations should provide notice as described above that they may be subject to review and modification. Regional Office staff are requested to contact their State officials and notify them accordingly. Where EPA has retained authority to issue permits, it should also insert appropriate cautionary language in the permit.

The EPA will try to avoid taking source-specific actions that may need to be retracted later. Such actions may include certain emission limitations and good engineering practice demonstrations which reflect dispersion credit affected by the remand. The EPA may approve these State submittals on a case-by-case basis, with the explicit caution that they and the sources affected by them may need to be evaluated for compliance with any later revisions to the stack height regulations, as a result of the litigation. The EPA will continue to process, under normal procedures, any source-specific actions which do not involve the remanded provisions.

Requests for redesignation of areas from nonattainment to attainment which are affected by any of the remanded provisions of the stack height regulations will be put on hold until EPA has completed any rulemaking necessary to comply with the court's remand. This is due to the issue of whether EPA has authority to unilaterally change attainment designations.

During this interim period, the Regional Office staff should review with their States all regulatory actions involving dispersion credits and identify those actions or sources affected by the remanded provisions. The Region should consult with their States on appropriate action for all such packages, consistent with this policy.

If you have any questions regarding the application of this policy, please contact Doug Grano at FTS 629-0870 or Janet Metsa at FTS 629-5313.

cc: D. Clay
A. Eckert
J. Emison
D. Grano
J. Metsa

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

MAY 17 1988

MEMORANDUM

SUBJECT: Application of the Interim Policy for Stack Height Regulatory Actions

FROM: John Calcagni, Director
Air Quality Management Division (MD-15)

TO: Chief, Air Branch
Regions I-X

On April 22, 1988, J. Craig Potter, Assistant Administrator for Air and Radiation, issued a memorandum entitled, "Interim Policy on Stack Height Regulatory Actions" (Attachment A). The memorandum requests that the Regional Offices review with their States all regulatory actions involving dispersion credits and determine the appropriate action consistent with the policy. The purpose of today's memorandum is to provide guidance in carrying out the interim policy.

In general, actions taken at this time to approve or disapprove statewide stack height rules which are affected by the remand must include the qualification that they are subject to review and modification on completion of EPA's response to the court decision. Permits issued under the prevention of significant deterioration or new source review programs should also contain caveat language for sources which may be affected by the remand. Attachment B contains example boilerplate language to be inserted into permits and regulatory packages. Note that States must commit to including the caveat before EPA will take final action on packages affecting permitting authority. Those actions not involving the remanded provisions may proceed as usual.

In contrast to our policy regarding the processing of stack height rules, our policy for source-specific State implementation plan (SIP) revisions is to avoid proceeding with actions which may need to be retracted later. You are advised to consult with my staff and the Office of General Counsel staff prior to submitting such rulemaking packages. Affected sources must be deleted from negative declaration packages prepared under the 1985 stack height regulations before EPA can proceed with action on them.

My staff has applied the policy when reviewing packages currently in Headquarters (Attachment C). While proposals to approve (or disapprove) State rules will remain on the Headquarters clock, the Regional Offices are requested to review these packages and provide appropriate boilerplate as soon as possible. Negative declaration packages and final actions on State rules are being returned to the Regional Office clock as more substantial revisions and commitments may be required. The redesignation packages currently in Headquarters which contain sources affected by the remand are being placed on formal hold.

If you have any questions regarding the April 22 policy, today's guidance, or disposition of the SIP's, please contact Janet Metsa (FTS 629-5313) or Doug Grano (FTS 629-0870).

Attachments

cc: R. Bauman
R. Campbell
C. Carter
G. McCutchen
J. Pearson
J. Sableski

bcc: B. Armstrong
P. Embrey
G. Foote
E. Ginsburg
D. Grano
N. Mayer
J. Metsa
S. Reinders
R. Roos-Collins
SO_2 SIP Contacts
Stack Height Contacts, Regions I-X

Attachment A

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

APR 22 1988

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Interim Policy on Stack Height Regulatory Actions

FROM: J. Craig Potter W. Ray Cunningham
for Assistant Administrator
for Air and Radiation (ANR-443)

TO: Director, Air Management Division
Regions I, III, IX
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On January 22, 1988, the U.S. Court of Appeals for the District of Columbia issued its decision in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988), regarding the Environmental Protection Agency's (EPA's) stack height regulations published on July 8, 1985 (50 FR 27892). Subsequent petitions for rehearing were denied. Although the court upheld most provisions of the rules, three portions were remanded to EPA for review:

1. Grandfathering pre-October 11, 1983 within-formula stack height increases from demonstration requirements [40 CFR 51.100(kk)(2)];

2. Dispersion credit for sources originally designed and constructed with merged or multiflue stacks [40 CFR 51.100(hh)(2)(ii)(A)]; and

3. Grandfathering of pre-1979 use of the refined H + 1.5L formula [40 CFR 51.100(ii)(2)].

A number of pending State implementation plan (SIP) and other rulemaking actions may be affected by this decision in advance of EPA's promulgation of further revisions of the stack height regulations. This includes not only rulemaking packages developed to respond to the 1985 stack height regulations, but also such actions as issuance of new source review (NSR) and prevention of significant deterioration (PSD) permits, permit modifications, SIP revisions

dealing with specific source emission limitations, and redesignations under section 107 of the Clean Air Act. Consequently, until resolution of litigation and completion of any rulemaking activity to respond to the court decision, the following policy will be applied.

In general, actions to approve States' rules may proceed provided appropriate caveat language is inserted which notes that the action is potentially subject to review and modification as a result of the recent court decision. Actions addressing State permitting authority should require States to provide notice that permits are subject to review and modification if sources are later found to be affected by revisions to stack height regulations. Where States currently have the authority to issue permits under fully-approved or delegated NSR and PSD programs, any permits issued prior to EPA's promulgation of revised stack height regulations should provide notice as described above that they may be subject to review and modification. Regional Office staff are requested to contact their State officials and notify them accordingly. Where EPA has retained authority to issue permits, it should also insert appropriate cautionary language in the permit.

The EPA will try to avoid taking source-specific actions that may need to be retracted later. Such actions may include certain emission limitations and good engineering practice demonstrations which reflect dispersion credit affected by the remand. The EPA may approve these State submittals on a case-by-case basis, with the explicit caution that they and the sources affected by them may need to be evaluated for compliance with any later revisions to the stack height regulations, as a result of the litigation. The EPA will continue to process, under normal procedures, any source-specific actions which do not involve the remanded provisions.

Requests for redesignation of areas from nonattainment to attainment which are affected by any of the remanded provisions of the stack height regulations will be put on hold until EPA has completed any rulemaking necessary to comply with the court's remand. This is due to the issue of whether EPA has authority to unilaterally change attainment designations.

During this interim period, the Regional Office staff should review with their States all regulatory actions involving dispersion credits and identify those actions or sources affected by the remanded provisions. The Region should consult with their States on appropriate action for all such packages, consistent with this policy.

If you have any questions regarding the application of this policy, please contact Doug Grano at FTS 629-0870 or Janet Metsa at FTS 629-5313.

cc: D. Clay
A. Eckert
J. Emison
D. Grano
J. Metsa

Attachment B

The following boilerplate, or variations tailored to suit particular situations, should be used in rulemaking actions affected by the stack height remand.

General Addition

"The EPA's stack height regulations were challenged in NRDC v. Thomas, 838 F.2d 1224 (D.C. Cir. 1988). On January 22, 1988, the U.S. Court of Appeals for the D.C. Circuit issued its decision affirming the regulations in large part, but remanding three provisions to the EPA for reconsideration. These are:

1. Grandfathering pre-October 11, 1983 within-formula stack height increases from demonstration requirements [40 CFR 51.100(kk)(2)];
2. Dispersion credit for sources originally designed and constructed with merged or multiflue stacks [40 CFR 51.100(hh)(2)(ii)(A)]; and
3. Grandfathering pre-1979 use of the refined H + 1.5L formula [40 CFR 51.100(ii)(2)]."

Addition for Stack Heights Rules Packages

"Although the EPA generally approves [State's] stack height rules on the grounds that they satisfy 40 CFR Part 51, the EPA also provides notice that this action may be subject to modification when EPA completes rulemaking to respond to the decision in NRDC v. Thomas, 838 F.2d 1224 (D.C. Cir. 1988). If the EPA's response to the NRDC remand modifies the July 8, 1985 regulations, the EPA will notify the State of [__] that its rules must be changed to comport with the EPA's modified requirements. This may result in revised emission limitations or may affect other actions taken by [State] and source owners or operators."

Additions for Stack Negative Declaration Packages

"The EPA is not acting on ____ sources (identified in table form or by asterisk) because they currently receive credit under one of the provisions remanded to the EPA in NRDC v. Thomas, 838 F.2d 1224 (D.C. Cir 1988). The [State] and EPA will review these sources for compliance with any revised requirements when the EPA completes rulemaking to respond to the NRDC remand."

Additions for Stack Height Emission Limitation Changes or Good Engineering Practice Demonstration

The OAQPS and OGC will provide language on a case-by-case basis when the EPA is acting on a source-specific package which is affected by the remand.

Language for Proposed NSR and PSD SIP Approvals

"Under this program, [State] will be issuing permits and establishing emission limitations that may be affected by the court-ordered reconsideration of the stack height regulations promulgated on July 8, 1985 (50 FR 27892). For this reason, EPA requires that the State include the following caveat in all potentially affected permit approvals until the EPA completes its reconsideration of remanded portions of the regulations and promulgates any necessary revisions:

> 'In approving this permit, [name of agency] has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F.2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators.'

[State] must make an enforceable commitment to include this caveat in all affected permits before the EPA can take final action approving the [NSR or PSD] program."

Language for Final NSR and PSD SIP Approvals

"Under this program, [State] will be issuing permits and establishing emission limitations that may be affected by the court-ordered reconsideration of the stack height regulations promulgated on July 8, 1985 (50 FR 27892). For this reason, the EPA has required that the State include the following caveat in all potentially affected permit approvals until the EPA completes its reconsideration of remanded portions of the regulations and promulgates any necessary revisions:

> 'In approving this permit, [name of agency] has determined that the application complies with the applicable provisions of the stack height regulations as revised by the EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F.2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when the EPA revises the regulations in

response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators.'

[State] has made an enforceable commitment to include this caveat in all affected permits by letter dated [__]. This commitment is being incorporated into the Code of Federal Regulations for the State of [__] as part of EPA's approval action."

See Attachment D for sample CFR amendment.

The Regional Offices are requested to contact those States that currently have permitting authority and request that they include similar language in any permits issued until EPA has completed its reconsideration of the stack height regulations and has promulgated any necessary revisions.

Attachment C

State	AQMD #	Description	Disposition
AZ/CA/NV	3059	Promulgation of Stack Height Regs.	HQ
AZ/CA/NV	3210	App. and Disapp. of Stack Height Req.	RO
SC	3243	Negative Declaration	RO
MS	3330	Mississippi's Negative Declaration	RO
NJ/NY/VI	3418	Stack Height Revisions	RO
WA	3480	Stack Height Rules	HQ
MD	3543	Negative Declaration	RO
AR	3548	Stack Height Rules	HQ
OH	3570	Stack Height Regulations	HQ
TX	3572	Stack Height Regulations	HQ
LA	3592	Revisions to Stack Height Rules	HQ
DE	3600	Stack Height Regulations	HQ
OH	3334	Redesignation of Galia County to Attainment	Hold
SD	3618	Administrative Rules	RO
CO	3623	Negative Declaration	RO

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

12 NOV 1987

MEMORANDUM

SUBJECT: Incorporation by Reference

FROM: G. T. Helms, Chief
Control Programs Operations Branch

TO: Chief, Air Branch
Regions I-X

The Office of the Federal Register (OFR) has recently advised us that commitment letters are not acceptable for incorporation by reference because they are not regulatory in nature.

Instead, the OFR has informed us that the Code of Federal Regulations (CFR) can be amended by adding a new section or amending an existing section to add the commitment; the "Identification of Plan" paragraph should not be amended.

Attached is an example of a CFR page that the OFR has reviewed and approved and the commitment letter from the State of Minnesota that was the basis for this sample regulatory text. Please note that the core paragraph from the letter should be quoted in the new section that is being added to the CFR.

If you have any questions on incorporation by reference procedures, call Denise Gerth at 629-5550. Thank you for your cooperation.

Attachments

cc: Betty Abramson
Walter Bishop
Ted Creekmore
Tom Diggs
Pat Embrey
Greg Foote
Denise Garth
Dean Gillam
Laurie Kral
Carol LeValley
Sandy McLean
Bob Miller
Rich Ossias
Carolyn Payne
Sharon Reinders
Julie Rose
John Silvasi
Marcia Spink
Rebecca Taggart
Paul Truchan

40 CFR Part 52, Subpart Y, is amended as follows:

1. The authority citation for Part 52 continues to read as follows

   AUTHORITY: 42 U.S.C. 7401-7642

2. A new Section 52.1237 is added as follows:

   §52.1237 Stack Height Regulations

The State of Minnesota has committed to conform to the Stack Height Regulations as set forth in 40 CFR Part 51. In a letter to Mr. David Kee, EPA, dated January 14, 1987, Mr. Thomas J. Kalitowski of the Minnesota Pollution Control Agency stated:

> Minnesota does not currently have a stack height rule, nor do we intend to adopt such a rule. Instead, we will conform with the Stack Height Regulation as set forth in the July 8, 1985 Federal Register in issuing permits for new or modified sources. In cases where that rule is not clear, we will contact U.S. EPA Region V and conform to the current federal interpretation of the item in question.

REFERENCES FOR SECTION 5.5

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 51

[AD-FRL 2010-1; Docket No. A-79-01]

Stack Height Regulations

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rulemaking.

SUMMARY: Section 123 of the Clean Air Act requires EPA to promulgate regulations to assure that the degree of emission limitation required for the control of any air pollutant under an applicable State Implementation Plan (SIP) is not affected by that portion of any stack height which exceeds good engineering practice (GEP) or by any other dispersion technique. Regulations to implement Section 123 were proposed on January 12, 1979 at 44 FR 2608 and reproposed October 7, 1981 at 46 FR 49814. Today's action incorporates changes to the reproposal and finalizes these regulations.

DATE: These rules are effective March 10, 1982.

ADDRESS: Docket A-79-01, containing material relevant to this action, is located in the Central Docket Section (A-130), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, D.C. 20460.

FOR FURTHER INFORMATION CONTACT: Mr. Bruce Polkowsky, MD-15, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711. Telephone: (919) 541-5540.

SUPPLEMENTARY INFORMATION:

Docket Statement

All pertinent information concerning the development of these regulations is included in Docket No. A-79-01. The Docket is open for inspection by the public between the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday, at the EPA Central Docket Section, West Tower Lobby, Gallery One, 401 M Street, SW., Washington, D.C. Background documents normally available to the public, such as Federal Register notices and Congressional reports, are not included in the docket. A reasonable fee may be charged for copying documents.

I. Background

A. Statute

Section 123 was added to the Clean Air Act by the 1977 Clean Air Act Amendments. It prohibits stacks taller than good engineering practice (GEP) height and other dispersion techniques from affecting the emission limitations required to meet the national ambient air quality standards (NAAQS) or prevention of significant deterioration air quality increments (PSD increments). Section 123 requires EPA to promulgate regulations which define GEP stack height, and which restrict the use of other dispersion techniques, including intermittent or supplemental control techniques. This rulemaking fulfills this requirement. In the near future, EPA also intends to propose rules on the use of intermittent control techniques.

B. Rulemaking

On January 12, 1979 (44 FR 2608), EPA published a notice proposing limitations on stack height credit and other dispersion techniques. The notice proposed specific rules to be used in determining GEP stack height for any source and specific requirements for State Implementation Plan (SIP) revisions. EPA provided an extended period for the submission of public comments on these proposed regulations. EPA held a public hearing on May 31, 1979 followed by a 30-day period for the submission of additional comments (44 FR 24329, April 25, 1979). EPA provided for comments on additional technical information (44 FR 40359, July 11, 1979 and 46 FR 24596, May 1, 1981). Finally, EPA recently reproposed the regulations with changes made in response to the comments received (46 FR 49814, October 7, 1981).

Forty individuals and groups commented on the October 1981 proposal. EPA has considered all comments and has made a number of changes in the regulations in response to these comments. Most of these changes simply clarify the proposed rules. The revisions are outlined in Section IV: "Changes in the Regulations from the October 1981 Proposal." In addition, EPA has prepared a document entitled "Summary of Comments and Responses on the October 7, 1981 Proposal of the Stack Height Regulations." This document has been placed in Docket A-79-01, and, depending upon available supplies, copies may also be obtained from: EPA Library (MD-35), U.S. Environmental Protection Agency, Research Triangle Park, N.C. 27711. A copy of this document will be sent to all persons who submitted comments on the October 1981 proposal.

C. Documents

In conjunction with the regulations, EPA developed several technical and guidance documents. These served as background information for the regulations and all are included in Docket No. A-79-01. The following documents have been placed in the National Technical Information Service (NTIS) system and may be obtained by contacting NTIS at 5285 Port Royal Rd., Springfield, Virginia 22161.

(1) "Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for Stack Height Regulations)," July 1981, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, EPA-450/4-80-023 (NTIS PB82 145301)

(2) "Guideline for Use of Fluid Modeling to Determine Good Engineering Practice Stack Height," July 1981, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, EPA-450/4-81-003 (NTIS PB82 145327)

(3) "Guideline for Fluid Modeling of Atmospheric Diffusion," April 1981, U.S. Environmental Protection Agency, Environmental Sciences Research Laboratory, EPA-600/8-81-009. (NTIS PB81 201410)

II. Program Overview

A. The Problem

There are two general methods for preventing violations of the NAAQS and PSD increments. Emission controls reduce, on a continuous basis, the quantity, rate, or concentrations of pollutants released into the atmosphere from a source. In contrast, dispersion techniques rely on the dispersive effects of the atmosphere to carry pollutant emissions away from a source and to prevent high concentrations of pollutants near the source. The Clean Air Act requires pollution sources to meet the NAAQS and PSD increments by complying with emission limitations instead of relying on dispersion techniques.[1] Section 123 defines stack height exceeding GEP as a dispersion technique.

Tall stacks and intermittent or supplemental control systems (ICS or SCS) are the two basic types of dispersion techniques. Tall stacks enhance dispersion by releasing pollutants into the air at elevations high above ground level, increasing the volume of air through which pollutants must travel to reach the ground. Releasing pollutants from a tall stack allows a source to reduce the ambient levels of its pollution as measured at ground level without reducing the amount of pollution it releases. Intermittent and supplemental control systems vary a source's rate of emissions to take advantage of

[1] See Sections 110(a)(2)(B), 123, 302(k), and 302(m) of the Act, 42 U.S.C. 7410(a)(2)(B), 7423, 7602(k), and 7602(m). The Notice of Proposed Rulemaking contains a more detailed discussion of the Act's prohibition of the use of dispersion techniques. See 44 FR 2608-2610.

meteorological conditions. When atmospheric conditions do not favor dispersion and an NAAQS may be violated, the source temporarily reduces its pollutant emissions. When conditions favor rapid dispersion, the source emits pollutants at higher rates.

Use of dispersion techniques instead of constant emission controls can result in additional atmospheric loadings which may contribute to undesirable environmental effects. The use of tall stacks increases the possibility that pollution will travel long distances before it settles to the ground.

Although dispersion techniques may produce adverse effects, some stack height is needed to prevent excessive concentrations of pollutant emissions created by airflow disruptions caused by structures, terrain features, and ground-level meteorological phenomena. These excessive concentrations result from interference with the plume. Section 123 responds to this problem by allowing EPA to give a source credit for that portion of its stack height needed to prevent excessive concentrations near the source. This height is called GEP stack height.

The regulations promulgated today define "excessive concentrations," "nearby," and other important concepts. They also establish methods for determining the GEP stack height for all stationary sources to which these regulations apply.

B. The Program

These regulations do not limit the physical stack height of any source, nor require any specific stack height for any source. Instead, they set limits on the maximum stack height credit to be used in ambient air quality modeling for the purpose of setting an emission limitation and calculating the air quality impact of a source. Sources are modeled at the physical stack height unless that height exceeds their GEP stack height. The regulations apply to all stacks constructed and all dispersion techniques implemented since December 31, 1970.

1. Methods of Determining GEP Stack Height. The regulations establish three basic methods of calculating a source's GEP stack height.

(a) De minimis height—EPA is adopting 65 meters as the minimum GEP stack height for all sources regardless of the size or location of any structures or terrain features. Sixty-five meters represents a reasonable estimate of the height needed to insure that emissions will not be affected by common ground-level meteorological phenomena which may produce excessive pollutant concentrations. Typical causes of these phenomena include surface roughness and the temperature changes caused by the solar heating and terrestrial cooling cycle (see page 26 of the Technical Support Document).

Virtually all significant sources of SO_2 can justify stack height credits greater than 65 meters. Accordingly, this de minimis height will have little effect on atmospheric loadings of sulfur dioxide.

(b) Mathematical Formulas—Excessive concentrations may be produced by downwash, wakes, and eddies caused by structures located near the stack. EPA is adopting two formulas with which to calculate the GEP stack height: One for stacks in existence on January 12, 1979 (the date of publication of EPA original proposed rules), and one for stacks constructed after that date.

For stacks in existence on January 12, 1979, EPA has adopted the traditional engineering formula of two and one-half times the height of the nearby structure ($H_g=2.5H$) as the formula for determining the GEP stack height. For stacks constructed after January 12, 1979, EPA has established a refined formula of the height of the nearby structure plus one and one-half times the height or width of the structure, whichever is less ($H_g=H+1.5L$) as the formula for determining the GEP stack height.

(c) Physical Demonstration—In some cases, a source may need a stack taller than the height predicted by the formulas to prevent excessive concentrations of a pollutant due to downwash, wakes, or eddies created by structures or terrain obstacles. In such cases, Section 123 provides that a source may obtain credit for all of the stack height necessary to avoid excessive concentrations provided it demonstrates to the satisfaction of the reviewing authority that the additional height is necessary.

EPA is requiring such a source to demonstrate that maximum concentrations caused by the source's emissions from its proposed stack height, without consideration of nearby structures or terrain obstacles, will increase by at least 40 percent when the effects of the structures or terrain obstacles are considered. This difference in concentrations must be shown either by a fluid model study conducted in accordance with guidelines published by EPA or by a field study which has been approved by the reviewing authority.

Before a source can obtain credit for a GEP stack height determined by a fluid model or field study demonstration, Section 123(c) requires that the reviewing authority must notify the public of the availability of the source's demonstration study and must provide an opportunity for a public hearing.

2. Method of Adjusting GEP Stack Height for Elevated Terrain Areas. As traditionally defined, plume impaction occurs when a plume emitted from a stack interacts with terrain that is taller than the stack. The contact between the plume and the terrain can produce high pollutant concentrations. EPA is establishing a procedure which will allow sources to adjust their GEP stack height to avoid modeled plume impaction on elevated terrain causing one to predict violations of the NAAQS or applicable PSD increments which will not occur. (This procedure is explained in Section IV.C.) The predicted violations will not occur because the physical stack height is sufficient to ensure that the plume passes over the elevated terrain.

Before a source can obtain credit for a GEP stack height based on allowances for terrain impaction, the reviewing authority must notify the public of the availability of the source's demonstration study and must provide an opportunity for a public hearing.

3. Grandfathered Stack Height. The 1970 Clean Air Act became effective on December 31, 1970. Prior to that date some sources had constructed stacks taller than their GEP height. In Section 123, Congress recognized this and exempted those sources' stack heights. Section 123 allows credit for stack height in existence on December 31, 1970. A source's stack is considered to be "in existence" if that stack was part of the design of a facility on which construction commenced prior to December 31, 1970.

4. Other Dispersion Techniques. The regulations prohibit the use of other dispersion techniques to attain or maintain any NAAQS or protect a PSD increment. Those techniques include major alteration of plume characteristics such as the manipulation of exhaust flow rates or temperatures for the purpose of enhancing plume rise. The regulation defines three types of dispersion techniques: (1) tall stacks, (2) use of ICS or SCS, and (3) addition of a fan or reheater to obtain a less stringent emission limitation. However, the regulations exempt (1) reheating of a gas stream following the use of a pollutant control system, (2) smoke management in agricultural or silvicultural programs, and (3) combining exhaust gases from several stacks into one stack.

III. State Implementation Plan Requirements

EPA is establishing a two-stage process for the implementation of these regulations. All States must review and revise, as necessary, their SIPs to include provisions that limit stack height credits and dispersion techniques in accordance with these regulations. Section 406(d)(2) of the Clean Air Act Amendments of 1977 requires that these SIP revisions be submitted within nine months of promulgation of these regulations.

After EPA approves a State's stack height rules, the State must review existing limitations to determine whether these limitations have been affected by stack height credit above GEP levels or any other dispersion technique. If so, the State must revise the emission limitations to be consistent with its revised SIP.

IV. Changes in the Regulations From the October 7, 1981 Proposal

EPA has made several changes in the proposed regulations as a result of the public comments on the reproposed regulations. These changes are noted below.

A. Prospective Application of the New GEP Formula

On February 18, 1978 (41 FR 7450), EPA published the "Stack Height Increase Guideline" which provided guidance on its policy for the use of tall stacks. The guideline permitted credit for stacks up to two and one-half times the height of the facility it served. On November 3, 1977, after passage of the Clean Air Act Amendments of 1977, EPA promulgated a final rule on some changes to its prevention of significant deterioration (PSD) program (42 FR 57459). As part of the preamble to that notice, EPA defined GEP as "two and one-half times the height of the source" (2.5H).

On January 12, 1979 (44 FR 2608), EPA proposed regulations to implement Section 123 which refined the two and one-half times rule by defining GEP stack height as the height of a nearby structure plus one and one-half times the lesser of the height or width of the nearby structure (H+1.5L). That proposal and the reproposal of that regulation on October 7, 1981 (46 FR 49814) would have made the new formula retroactive to December 31, 1970.

Four commenters argued that EPA's definition of GEP, until January 12, 1979, had been based on two and one-half times the building height and that sources in good faith had constructed stacks in accordance with that definition. Applying the new formula retroactively would be unfair to those sources. The commenters argued that the new formula should be applied prospectively.

In response to these comments, EPA has developed two formulas for determining GEP stack height: (1) For stacks in existence on January 12, 1979, the formula is $H_g = 2.5H$; (2) for all other stacks, the formula is $H_g = H + 1.5L$.

B. Definition of "in existence"

Section 123 does not affect stack heights "in existence" on December 31, 1970. In October 1981, EPA proposed to define "in existence" to mean that the owner or operator of a stack had obtained all necessary preconstruction permits or approvals required by Federal, State or local air pollution control agencies, and either (1) actually commenced construction, or (2) entered into a binding commitment for construction.

Comments on the reproposed definition stated that this new definition would discriminate unfairly against sources located in the few States or local jurisdictions which required construction permits for air pollution sources in 1970. (There were no Federal permit programs in 1970.) EPA agrees that the reproposed definition might operate unfairly. EPA has deleted the requirement for such approvals or permits in determining whether a source's stack is "in existence" as of December 31, 1970.

However, the regulations now apply the two and one-half times formula for determining GEP only to stacks "in existence" on January 12, 1979. Federal requirements for preconstruction permits for air pollution sources were effective well before 1979. Accordingly, EPA is retaining the permit requirement for sources which want to claim credit for stacks "in existence" as of January 12, 1979. EPA has changed § 51.1(ii), which defines GEP, to require sources wishing to use the two and one-half times formula to show that they had obtained, prior to January 12, 1979, all preconstuction permits required by 40 CFR Parts 51 and 52.

The remaining portions of the definition of "in existence" are identical to the October 1981 proposal.

C. Impaction Credit

Many comments on the January 1979 proposal asked EPA to provide stack height credit for a source which experiences plume impaction. Plume impaction occurs when a plume emitted from a stack interacts with a terrain feature that is taller than the stack. The contact between the plume and the terrain feature can produce high pollutant concentrations, especially under stable atmospheric conditions in which the plume disperses slowly.

EPA decided that sources should receive stack height credit when impaction produces concentrations high enough to violate an NAAQS or applicable PSD increment. EPA included in its October 1981 reproposal a procedure for determining the amount of credit needed to prevent plume impaction.

EPA has received three types of comments on the proposed impaction credit. Environmental groups claimed that Section 123 does not authorize impaction credits. Several industrial commenters asked EPA to clarify the proposed procedures for impaction credits. Finally, some industrial commenters asked EPA to modify a portion of its proposed procedures. To respond to these comments, EPA is presenting below a brief description of its rationale and procedures for impaction credits. EPA is also providing a brief explanation of its reason for declining to make procedural modifications.

(1) Rationale

Plume impaction resembles downwash, wakes, and eddies. In all of these events, structures or terrain features interfere with plume dispersion. If the interference occurs relatively close to the stack, before the plume has had adequate opportunity to disperse, high concentrations of pollutants can occur.

In enacting Section 123, Congress decided that sources should be allowed sufficient stack height credit to prevent high pollutant concentrations caused by downwash, wakes, and eddies. Congress called this height "good engineering practice." Any additional stack height was to be regarded as a dispersion technique that might allow a source to relax its emissions limitations. Section 123 does not mention impaction. However, neither the language of the statute nor the legislative history show that this omission was deliberate. EPA considers impaction to be enough like downwash that the same rationale should apply. GEP stack height should include credit needed to avoid high concentrations caused by impaction. Accordingly, EPA has decided to exercise general rulemaking authority to establish stack height credit needed to prevent high concentrations caused by plume impaction.

EPA recognizes Congress did not want the stack height rules to grant too much credit to sources locating in complex terrain, for "the result could be an open invitation to raise stack heights to unreasonably high elevations." H.R.

Rep. No. 95–294, 95th Cong., 1st Sess. at 93 (1977). Therefore, EPA has carefully tailored impaction credit procedures to provide only the minimum stack height credit needed to avoid high concentrations [3] produced by impaction. These procedures are described in more detail below.

EPA is convinced that its narrowly drawn rules represent a reasonable solution for a plume effect that closely resembles the phenomena of downwash, wakes, and eddies. Credits for plume impaction, when carefully limited, should not be regarded as a dispersion technique. Although the promulgated procedure allows for the use of some stack height to avoid high pollutant concentrations on elevated terrain, it does not permit excessive dispersion credits.

(2) Explanation of Procedures

EPA has developed a three-step procedure for determining the amount of stack height credit appropriate for a source with a predicted impaction concentration violating an NAAQS or applicable PSD increment.

First, a source must determine its downwash GEP height—the amount of stack height that can be justified based on downwash, wakes, or eddies—using any of the three methods described in Section II.B. above. Using this GEP height, the source must show that its plume would come into contact with elevated terrain (defined as terrain taller than this GEP height) and together with background concentrations cause a violation of an NAAQS or applicable PSD increment. If the source cannot show that a violation would occur, it cannot claim any impaction credit. Its stack height credit would be limited to the GEP height already calculated.

If a violation is modeled, the second step is to determine the source's maximum allowable emission limitation. In this step the source would model its air quality impact using the previously determined GEP height and assuming that the terrain feature(s) causing impaction is no taller than its downwash GEP height. Using the appropriate maximum concentration from this modeling scenario, the source would calculate an emission limitation which would become its maximum allowable emission limitation.

The third step allows the source to adjust its GEP stack height to account for the plume impaction on actual terrain features above the downwash GEP stack height. The source cannot adjust its maximum allowable emission limitation. The source would model its air quality impact again, this time using actual terrain elevations, but limiting its emissions to the rate fixed by the emission limitation developed in step two. The source would increase the height of the stack in the model to the height at which the maximum concentration predicted to occur on elevated terrain equaled the maximum concentration predicted to occur in step two. This increased stack height is the source's maximum GEP height to avoid high concentrations due to impaction.

Like the downwash GEP height, this stack height will represent maximum allowable credit. The source would not be able to claim this credit if its physical (actual or proposed) stack height were not as tall as its maximum creditable height. In that case, the source would be able to claim only its physical stack height. A source with physical stack height lower than its allowable GEP height would have to adjust its emission limitation downward to prevent a violation of an NAAQS or applicable PSD increment.

(3) Modification Requested by Commenters

The electric utilities requested that EPA assume, during the Step two modeling, that all terrain features are no taller than ground elevation at the base of the stack or, in other words, that the source is located in absolutely flat terrain. The utilities believe that this assumption is necessary to ensure equity between sources located in elevated terrain and sources in flat terrain.

EPA has decided not to make this change to its procedure. EPA's objective is to provide the minimum stack height credit needed to allow a source to avoid high concentrations caused by plume impaction. A source in assumed flat terrain would obtain a less restrictive emission limitation than a source in terrain assumed to be as tall as its downwash GEP height. The flat terrain assumption would thus allow a source to obtain more stack height credit than needed to prevent impaction. It would also have a greater negative impact on air quality by allowing taller stacks and more relaxed emission limits.

D. Dispersion Technique

EPA received numerous comments on the definition of the term "dispersion technique." Most of these comments stated that wording concerning the enhancement of plume rise was vague. Comments specifically mentioned that many changes in operation or equipment made for engineering purposes, to improve reliability or efficiency, could be construed as a disperison technique. This is not the intent of the definition. EPA has changed the definition of dispersion technique to prevent the addition of a fan or reheater to obtain a less stringent emission limitation. The purpose of this change is to prevent only the installation of equipment clearly intended to enchance plume rise. The new definition should not prevent equipment changes intended to improve reliability and efficiency.

E. Definition of "Stack"

Comments on the January 1979 proposal urged EPA to exempt "flares" from the definition of "stack." EPA agreed that flares, which are designed to dispense heat and vent emissions intermittently for safety purposes, do not serve the same purpose as stacks, which are typically a source's major a most constant emissions point. EPA announced that it would exempt flares from the stack height regulations in the preamble to the October 1981 reproposal. New comments urged EPA to include this exemption in the regulations themselves to eliminate any potential for confusion or misunderstanding. In response to these comments, EPA is incorporating a specific exemption for flares into the definition of "stack."

F. Section 123 and Physical Stack Height

EPA received several comments on the October 1981 reproposal which indicated that the commenters believed that the proposed regulations would give EPA authority to limit a source's actual stack height. EPA did not intend to create this impression. In fact, EPA stated in the preamble to the reproposal that Section 123 expressly prohibits the Agency from limiting physical stack height. Section 123 limits only the theoretical stack height used in determining a source's emission limitation. However, to eliminate this confusion, EPA is adding a statement to §§ 51.12(j) and 51.18(l) of the regulation stating that these regulations do not restrict in any manner the actual height of any stack at any source.

[3] EPA considers "high concentrations" to be a violation of an NAAQS or applicable PSD increment. Unlike "excessive concentrations" caused by downwash, high concentrations caused by plume impaction occur in different meteorological conditions than downwash and are longer in duration. High concentrations due to plume impaction can be compared easily to an NAAQS or applicable PSD increment. Therefore, EPA has required that the concentration caused by plume impaction must be in excess of an NAAQS or applicable PSD increment before a source can adjust its GEP stack height.

G. Measurement of Stack Height

In the proposed definition of a "stack," EPA stated that the "stack height is the distance from the ground-level elevation of the plant to the elevation of the stack outlet." Several commenters requested clarification in the establishing the ground-level elevation of the plant. For instance, the commenters noted that where a plant was built on a slope the regulation could have varying interpretations. Also, some commenters asked whether the entire plant site should be included or just the portion of the plant site considered "nearby" the stack.

EPA is changing the regulations to clarify this point. EPA deleted from the definition of a "stack," the statement defining stack height. However, EPA clarified the methods for determining GEP stack height by stating that all stack and structure heights are measured from the ground-level elevation at the base of the stack.

If a stack is on top of a building, the ground-level elevation of the building is used as the base elevation. In order to appropriately assess the impact of nearby structures on this stack height, the height of structures is also determined relative to the ground-level elevation of the stack.

H. Minor Wording Changes

Several commenters identified typographical errors and areas where minor wording changes could clarify the regulations. These and other wording changes have been made to correct and to clarify the regulations. These changes did not have any significant effect on the regulations.

V. Impact Analysis

EPA has prepared a series of impact analyses on these regulations. These analyses are in Docket A-79-01. The analyses show that the expected "worst-case" national annual costs to fossil-fuel fired power plants should be less than $45 million per year. These costs result from conservative estimates of required purchases of lower sulfur coal and estimates of required retrofit of electrostatic precipitators at some plants which purchase the lower sulfur coal. The worst-case analyses show that the expected reduction in SO_2 emissions is less than 200,000 tons per year. Nationally, these costs could increase electric utility rate charges approximately 0.1 to 0.2 percent. Increases for individual power company rates could range from 0.5 to 30 percent.

VI. Regulatory Flexibility Analysis

Pursuant to the provisions of 5 U.S.C. 605(b), I hereby certify that the attached rule will not have significant economic impact on a substantial number of small entities. This rule applies only to large sources. The impact assessment predicted that these regulations would not have significant impact on any small entities. Based upon our impact analysis, only electric utility plants and possibly one smelter will be significantly affected by these regulations.

VII. Executive Order 12291

Under Executive Order 12291, EPA must judge whether a regulation is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. This regulation is not "major" because it does not result in an annual effect on the economy of $100 million, nor does it result in a major increase in costs or prices for consumers, Federal, State, or local governments or individual industries, including the electric power industry.

VIII. Judicial Review

EPA believes that this rule is based on determinations of nationwide scope and effect. Nothing in Section 123 limits its applicability to a particular locality, State, or region. On the contrary, Section 123 applies to sources wherever located. Because of the rule's national applicability, Section 307(b) (42 U.S.C. 7607(b)) requires that any petition for review of the promulgated rule be filed only in the United States Court of Appeals for the District of Columbia and within 60 days of the date of publication.

(Secs. 110, 123, 301, Clean Air Act as amended (42 U.S.C. 7410, 7423, and 7601))

Dated: January 31, 1982.

John W. Hernandez, Jr.,

Acting Administrator.

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

Part 51 of Chapter I, Title 40 of the Code of Federal Regulations is amended as follows:

1. Section 51.1 is amended by revising paragraph (z) and by adding paragraphs (ff), (gg), (hh), (ii), (jj), (kk), (ll), and (mm) as follows:

§ 51.1 Definitions.

* * * * *

(z) "Emission limitation" and "emission standard" mean a requirement established by a State, local government, or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission reduction.

* * * * *

(ff) "Stack" means any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct but not including flares.

(gg) "A stack in existence" means that the owner or operator had (1) begun, or caused to begin, a continuous program of physical on-site construction of the stack or (2) entered into binding agreements or contractual obligations, which could not be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the stack to be completed in a reasonable time.

(hh) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by using that portion of a stack which exceeds good engineering practice stack height, varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant, or by addition of a fan or reheater to obtain a less stringent emission limitation. The preceding sentence does not include: (1) The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream; (2) the use of smoke management in agricultural or silvicultural programs; or (3) combining the exhaust gases from several stacks into one stack.

(ii) "Good engineering practice (GEP) stack height" means the greater of:

(1) 65 meters;

(2)(i) For stacks in existence on January 12, 1979 and for which the owner or operator had obtained all applicable preconstruction permits or approvals required under this Parts 51 and 52 of this Title 40, $H_g = 2.5H$

(ii) for all other stacks,

$H_g = H + 1.5L$, where

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack.

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = lesser dimension (height or projected width) of nearby structure(s);

(3) The height demonstrated by a fluid model or a field study approved by the

reviewing agency, which ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, structures, or terrain obstacles.

(jj) "Nearby" as used in § 51.1(ii)(2) is that distance up to five times the lesser of the height or the width dimension of a structure but not greater than 0.8 km (one-half mile). The height of the structure is measured from the ground-level elevation at the base of the stack.

(kk) "Excessive concentrations" for the purpose of determining good engineering practice stack height in a fluid model or field study means a maximum concentration due to downwash wakes, or eddy effects produced by structures or terrain features which is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

(ll) "Plume impaction" means concentrations measured or predicted to occur when the plume interacts with elevated terrain.

(mm) "Elevated terrain" means terrain which exceeds the elevation of the good engineering practice stack as calculated under paragraph (ii) of this section.

2. Section 51.12 is amended by adding paragraphs (j), (k), and (l) as follows:

§ 51.12 Control strategy: General.

* * * * *

(j) The plan must provide that the degree of emission limitation required of any source for control of any air pollutant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in § 51.12(k) and (l). The plan must provide that before a State submits to EPA a new or revised emission limitation that is based on a good engineering practice stack height that exceeds the height allowed by § 51.1(ii) (1) or (2), the State must notify the public of the availability of the demonstration study and must provide opportunity for public hearing on it. This Section does not require the plan to restrict, in any manner, the actual stack height of any source.

(k) The provisions of §§ 51.12(j) and 51.18(l) shall not apply to (1) stack heights in existence, or dispersion techniques implemented prior to December 31, 1970, or (2) coal-fired steam electric generating units, subject to the provisions of Section 118 of the Clean Air Act, which commenced operation before July 1, 1957, and whose stacks were constructed under a construction contract awarded before February 8, 1974.

(l) The good engineering practice (GEP) stack height for any source seeking credit because of plume impaction which results in concentrations in violation of national ambient air quality standards or applicable prevention of significant deterioration increments can be adjusted by determining the stack height necessary to predict the same maximum air pollutant concentration on any elevated terrain feature as the maximum concentration associated with the emission limit which results from modeling the source using the GEP stack height as determined in § 51.1(ii) and assuming the elevated terrain features to be equal in elevation to the GEP stack height. If this adjusted GEP stack height is greater than the stack height the source proposes to use, the source's emission limitation and air quality impact shall be determined using the proposed stack height and the actual terrain heights.

3. Section 51.18 is amended by adding paragraph (l) as follows:

§ 51.18 Review of new sources and modifications.

* * * * *

(l) Such procedures must provide that the degree of emission limitation required of any source for control of any air pollutant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in § 51.12(k) and (l). Such procedures must provide that before a State issues a permit to a source based on a good engineering practice stack height that exceeds the height allowed by § 51.1(ii) (1) or (2), the State must notify the public of the availability of the demonstration study and must provide opportunity for public hearing on it. This section does not require such procedures to restrict, in any manner, the actual stack height of any source.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

OCT 28 1985

MEMORANDUM

SUBJECT: Determining Stack Heights "In Existence" Before December 31, 1970

FROM: Darryl D. Tyler, Director
Control Programs Development Division (MD-15)

TO: Director, Air Management Division
Regions I-X

The following guidance is provided to describe how the definition of "in existence" should be implemented and to assist States and emission source owners and operators in providing appropriate evidence of commitments to undertake stack construction on or before December 31, 1970. Please note that this is guidance; States may submit alternative demonstrations in support of grandfathering claims, if they feel the circumstances warrant.

We intend to rely on the general provisions of this guidance to determine eligibility for grandfathering exemptions from certain other provisions of the revised stack height regulations: restrictions on the use of GEP formulae for cooling towers, use of the refined GEP formula, fluid modeling to justify GEP formula stack height, credit for merged stacks, credit for new sources tied into grandfathered stacks, and credit for stacks raised to GEP formula height.

Background

Section 123 of the Clean Air Act, as amended, contains a grandfather clause intended to exempt stack heights and techniques for pollutant dispersion that were in existence on or before December 31, 1970, from general provisions of Section 123 restricting the degree to which emission limitations may be affected by dispersion. When EPA promulgated stack height regulations pursuant to Section 123 in 1982, it adopted a definition of "stack heights in existence before December 31, 1970." This definition allowed the grandfathering of stacks on which construction had not yet commenced, but for which binding contracts had been signed that could not be modified or cancelled without substantial loss to the owner or operator. The EPA's definition was upheld by the U.S. Court of Appeals for the D.C. Circuit in Sierra Club v. EPA, 719 F.2d 436, and has not been modified in any way by the rule revisions promulgated on July 8, 1985, except to restrict its applicability to facilities that have not undertaken major modifications or reconstruction, and have not ducted the effluent gas streams from post-1970 units into pre-1971 stacks.

Subsequent to the recent revisions, questions have been raised about how the definition should be implemented, i.e., what EPA should consider to be a binding contract, and what should constitute a "substantial loss" for determining whether a stack should be grandfathered.

General Provisions

The burden of proof for showing that a stack is eligible for grandfathering exemption lies with either the State or the source owner or operator, as appropriate, and documentation in support of exemptions must be made available for public review during the rulemaking process. In the event that no case for exemption under this provision is made, or that satisfactory support for such a request is not provided, the stack is presumed not to be grandfathered, and therefore subject to the requirements of Section 123 and the stack height regulations promulgated by EPA.

Grandfathering exemptions may be supported in one of three ways: by showing that the stack was completed or was physically in existence prior to December 31, 1970; by showing that actual on-site continuous stack construction activities began on or before December 31, 1970; or by showing that a binding contract for stack construction was executed on or before that date.

Documenting Stack Construction

In cases where a stack was completed prior to December 31, 1970, the State may make a summary determination that the stack is grandfathered, but must provide an explanation of the reasons for its determination. One way in which it can be documented that the stack was physically in place before December 31, 1970, is to provide a copy of the 1970 Federal Power Commission report Form 67, which includes stack height, among other information. Evidence that may be submitted to support the date of commencement of stack construction can include virtually any contemporaneous documentation that clearly indicates that construction activities were under way as of December 31, 1970. This could consist of building inspection records, construction materials delivery receipts, correspondence, inter-office memoranda, photographic records, or news clippings. In the event that documentation is lacking or weak, EPA will consider affidavits which include detailed descriptions of efforts that were undertaken to obtain contemporaneous supporting documentation.

Documenting Contractual Obligations

The date of signature on a contract for stack construction will be acceptable for applying grandfathering exemptions if the contract itself meets certain minimum qualifications. A "binding contract," under the previously-discussed provisions is considered to be one that commits the source owner or operator financially to undertake stack construction and that did not have in effect on December 31, 1970, an "escape" provision that allows cancellation by the owner or operator without penalty.

In the event that a contract contains provisions for assessing penalties for modification or cancellation by the owner or operator, and those provisions were in effect on December 31, 1970, then the provisions must be reviewed to determine whether the penalties and other costs of cancellation would have imposed a "substantial loss" on the owner or operator. For new facilities, EPA will presume that a substantial loss would have resulted where the penalties exceed ten percent of the project cost. Where the project involves only stack construction or replacement, EPA will review claims on a case-by-case basis.

If a contract does not contain provisions which impose financial obligations on the owner or operator for contract modification or cancellation, then any determinations of whether liability to the owner or operator resulting from such modification would constitute substantial losses must be made on a case-by-case basis. In general, EPA's rule of thumb relying on ten percent of the project cost will be used.

If you have any questions regarding application of this guidance in specific instances, please contact Eric Ginsburg at (FTS) 629-5540 or Sharon Reinders and (FTS) 629-5526.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

OCT 10 1985

MEMORANDUM

SUBJECT: Questions and Answers on Implementing the Revised Stack Height Regulation

FROM: G. T. Helms, Chief G. T. Helms
Control Programs Operations Branch (MD-15)

TO: Chief, Air Branch, Regions I-X

A number of questions have arisen in several areas of the revised stack height regulation since its promulgation on July 8. The following answers have been developed in response. The questions and answers are arranged under the general topic headings of interpretation of the regulation, State implementation plan (SIP) requirements, and modeling analyses. Please continue to call Sharon Reinders at 629-5526 if you have further comments or additional questions.

Interpretation of the Regulation

1. Q: What criteria should be used to determine when a stack was "in existence" with respect to the various grandfathering dates in the regulation?

A: The recent promulgation of revisions to the stack height regulatio did not change the definition of "in existence." The definition is provid in 40 CFR 51.1(gg) and includes either the commencement of continuous construction on the stack or entering into a binding contract for stack construction, the cancellation of which would result in "substantial loss" to the source owner or operator. The definition of what constitutes a "substantial loss" will be the subject of future guidance.

2. Q: What "source" definition should be used in determining whether tie-ins to grandfathered stacks should be permitted or prohibited?

A: The term "source" in this instance means a single emitting unit. Thus, credit for tying a single post-1970 unit(s) into a grandfathered stack serving a number of old units is prohibited under the regulation.

3. Q: What is meant in the regulation by "facility"?

A: For purposes of this regulation, the definition contained in 40 CFR 51.301(d) should be used. That definition essentially defines the term as the entire complex of emitting activities on one property or contiguous properties controlled by a single owner or designee.

4. Q: Must good engineering practice (GEP) stack height be established separately for each pollutant? If not, how should it be determined?

A: It is not necessary to calculate a separate GEP stack height for each pollutant. Since "GEP" is defined by Section 123 of the Clean Air Act as the height necessary to ensure against excessive concentrations of any air pollutant, it follows that GEP should be established for each source based on the pollutant requiring the greatest height to avoid excessive concentrations.

5. Q: How should "reliance" on the 2.5H formula be determined?

A: First, "reliance" on the 2.5H formula applies only to stacks in existence before January 12, 1979. Credit for "reliance" on the 2.5H formula can be granted under the following cases: (a) Where the stack was actually built to a height less than or equal to 2.5H; (b) Where the stack was built taller than 2.5H and the emission limitation reflects t use of 2.5H in the SIP modeling analysis; or (c) Where evidence is provide to show "reliance" as discussed in the following paragraph. If no modelin was used to set the emission limitation for the source, then it cannot be argued that there was "reliance" on the formula, since EPA's guidance was specifically aimed at using stack height credit in establishing emission limitations. Once it is determined that the emission limitation was in fact based on estimates of dispersion from the stack, then the source can be said to have properly "relied" on the 2.5H formula. In the event that it cannot be determined that the emission limit is based on "reliance" on the 2.5H formula, then the refined H + 1.5L formula must be used.

Where a clear relationship between a 2.5H stack height and the emission limitation cannot be shown, where the emission limitation was not calculated based precisely on the 2.5H height, or where the stack height used in modeling cannot be verified, then additional evidence will be needed. Preferred would be written documentation, such as copies of the original engineering calculations or correspondence between the State or the emission source owner and EPA indicating that the 2.5H formula should be used to derive the emission limitation. However, recognizing that such evidence is often not retained for more than a few years, "reconstructed" documentation may be considered, but should only be used as a last resort. This evidence should include explanations by those individuals who were involved in designing the facility, calculating emission rates, and who represented the facility in dealings with the

State and EPA on how the emission limit was derived, including a discussion of how the formula was originally used in deriving the source emission limitation, a discussion of the analytical method applied, and a listing of any contacts or discussions with EPA during that period. This listing will aid EPA in searching its own files to find any records of communication or correspondence that may bear on the issue.

In no case should a source be allowed after January 12, 1979, to obtain a relaxation in the emission limitation by arguing that it "relied" on past EPA guidance endorsing the 2.5H formula. In cases where a relaxation based on GEP formula height is sought in the future, the refined H + 1.5L formula must be used.

6. Q: The preamble specifically discusses cooling towers as structures to which the formula should not be applied. Will the Office of Air Quality Planning and Standards be specifying other structures that are not well represented by the formula?

A: The discussion in the preamble and GEP guideline is not intended to be all-inclusive; judgment should be used in determining when fluid modeling should be used to estimate the effects of structures with rounded, domed, or tapered shapes. Water towers and storage tanks are additional examples of such structures. As additional information becomes available on the aerodynamic effects of specific building shapes and configurations, we will evaluate the need to revise the GEP guidance. However, at present, there are no plans to issue a "laundry list" of structures to which the formulas do not apply.

SIP Requirements

7. Q: Should a compliance averaging time be explicitly stated in a SIP revision for sulfur dioxide (SO_2) emission limits that are revised to meet the stack height regulation?

A: A compliance averaging time need not be specified as an enforceable SIP provision as long as a stack test compliance method is in place in the underlying federally approved SIP. EPA's current national policy requires that SIP's and permits contain enforceable "short-term" emission limits set to limit maximum emissions to a level which ensures protection of the short-term national ambient air quality standards (NAAQS) and prevention of significant deterioration (PSD) increments. EPA relies upon a short-term stack test provision in the SIP as the method of determining compliance with the emission limits. In lieu of a stack test, EPA has accepted fuel sampling and analysis and continuous emission in-stack monitors (CEM's). When compliance is to be determined from information obtained by fuel sampling and analysis and CEM's, short-term averaging times should be specified.

8. Q: Are all States required to have "stack height regulations"?

A: Limitations on creditable stack height and dispersion techniques impact the SIP program in two areas--SIP emission limits for existing sources and SIP provisions covering new source review (NSR)/PSD permitting procedures. For existing sources, State regulations limiting credit for stack height and other dispersion techniques (stack height regulations) are not necessary as long as the SIP emission limits are not affected in any manner by so much of the stack height as exceeds GEP, or any other dispersion technique. Where a State has stack height regulations, those regulations must be consistent with EPA's regulation. Where a SIP contains regulations that are inconsistent with EPA's regulation, the State must either adopt a stack height regulation that is consistent with EPA's or incorporate the EPA regulation by reference.

For the NSR/PSD programs, it is essential that the plan contain limitations on the amount of creditable stack height and other dispersion techniques. The following cases have been developed to illustrate what action(s) may be required of the State since promulgation of the stack height regulation.

CASE A(1): A fully or partially delegated PSD program that references but does not define GEP where the delegation agreement does not contain a date to define which version of the PSD rule is being delegated.

ACTION: Notify the State that all permits issued henceforth must be consistent with EPA's stack height regulation. All permits previously issued must be reviewed and revised as necessary within 9 months.

CASE A(2): A fully or partially delegated PSD program that references but does not define GEP where the delegation agreement does contain a date to define which version of the PSD rule is being delegated.

ACTION: Update the delegation agreement to reflect agreement with EPA's stack height regulation as of July 8, 1985. Notify the State that all permits issued henceforth must be consistent with EPA's stack height regulation. All permits previously issued must be reviewed and revised as necessary within 9 months.

CASE B: The current federally approved SIP for NSR/PSD does not contain a reference to GEP or dispersion techniques, i.e., provisions assuring that emission limitations will not be affected by stack height in excess of GEP or any prohibited dispersion techniques do not exist in the current SIP.

ACTION: Notify the State that such provisions must be adopted and submitted as a SIP revision within 9 months. This can be acccomplished by adopting stack height regulations at the State level or by adopting the appropriate reference and commitment to comply with EPA's stack height regulation as promulgated on July 8, 1985. Interim permitting should be consistent with EPA's stack height regulation.**

CASE C: The current federally approved SIP for NSR/PSD contains references to, but does not define, GEP or dispersion techniques.

ACTION: Notify the State that a commitment to comply with EPA's stack height regulation as promulgated on July 8, 1985, is required. If a State is unable to make such a commitment, State regulations must be revised to be consistent and submitted to EPA as a SIP revision within 9 months and interim permitting should be consistent with EPA's stack height regulation. No "grace period" will be allowed for sources receiving permits between July 1985 and April 1986.**

CASE D: The current federally approved SIP for NSR/PSD contains stack height regulations that are inconsistent with EPA's regulation.

ACTION: Notify the State that such regulations must be revised to be consistent and submitted as a SIP revision within 9 months and that interim permitting should be consistent with EPA's stack height regulation.**

CASE E(1): A SIP for NSR/PSD has been submitted to EPA, or will be submitted to EPA before the due date for stack height revisions. The submittal contains provisions that conflict with EPA's stack height regulation.

ACTION: Notify the State that EPA cannot approve the submittal until it is revised pursuant to EPA's July 8, 1985, regulation.

**In the event that a State does not have legal authority to comply with EPA's regulation in the interim (e.g., because it must enforce State rules that are inconsistent with EPA's regulation) and is compelled to issue a permit that does not meet the requirements of the EPA revised stack height regulation, then EPA should notify the State that such permits do not constitute authority under the Clean Air Act to commence construction.

CASE E(2): As in Case E(1), a SIP for NSR/PSD has been submitted to EPA or will be submitted to EPA before the due date for stack height revisions. The submittal is not inconsistent with EPA's stack height regulation, but portions of the existing approved SIP that relate to the submittal are inconsistent.

ACTION: Approve the SIP submittal based on a commitment by the State to correct the inconsistencies in its existing SIP to comport with EPA's July 8 regulation and submit the corrections as a SIP revision within 9 months. Interim permitting should be consistent with EPA's stack height regulation.** If the existing SIP is ambiguous, i.e., the SIP references but does not define terms relating to GEP or dispersion techniques, the action steps outlined in Case C above should be followed.

CASE F: In nonattainment areas, emission limits or permits do not always include modeling, but rather are based on lowest achievable emission rate (LAER) and offsets.

ACTION: If no modeling is used in the issuance of a permit, the emission requirements for the source are not "affected" by stack heights or dispersion techniques, and no action is needed. However, if modeling was used in the process of preparing and issuing a permit, such as cases where offsets were obtained offsite, that modeling must be reviewed for consistency with the stack height regulation.

9. Q: What must all States do now that EPA's stack height regulation is promulgated?

A: States must review and revise their SIP's as necessary to include or revise provisions to limit stack height credits and dispersion techniques to comport with the revised regulations, and, in addition, review and revise all emission limitations that are affected by stack height credit above GEP or any other dispersion techniques. In accordance with Section 406(d)(2) of the Clean Air Act, States have 9 months from promulgation to submit the revised SIP's and revised SIP emission limitations to EPA.

In an August 7, 1985, memo titled "Implementation of the Revised Stack Height Regulation--Request for Inventory and Action Plan to Revise SIP's," Regional Offices were requested to begin working with each of their States to develop States' Action Plans. Each Action Plan should include the following: (1) An inventory of (a) all stacks greater than 65 meters (m), (b) stacks at sources which exceed 5,000 tons per year total allowable SO_2 emissions; and (2) A reasonable schedule of dates for significant State actions to conform both State stack height rules and emission limitations to EPA's stack height regulation. Schedules should include increments of progress. Regional Offices should be satisfied that each of their States provide schedules for completion of the tasks

as outlined in the August memo and report the status of schedule commitments to them on a monthly basis. Regional Offices have been asked to forward monthly status reports to the Control Programs Development Division on the States' progress to meet scheduled commitments and also report the results of followup with the States on schedules that are not met. In order to facilitate tracking the States monthly progress, guidance on a standardized format will be issued shortly.

Modeling Analyses

10. Q: Is there any restriction or prohibition against, or demonstration required for, raising an existing (or replacing) stack up to 65 m?

A: No, as long as prohibited dispersion techniques are not employed.

11. Q: Are flares considered to be stacks?

A: No, flares are excluded from the regulation.

12. Q: What load should be used for a fluid modeling demonstration?

A: One hundred percent load should generally be used unless there is a compelling argument otherwise..

13. Q: Can new or modified sources who have agreed to a case-by-case best available control technology (BACT) emission rate be required to use this rate for fluid modeling rather than a less stringent new source performance standard (NSPS) emission rate?

A: As set forth in 40 CFR 51.1 (kk), the allowable emission rate to be used in making demonstrations under this part shall be prescribed by the NSPS that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible.

14. Q: Must the exceedance of NAAQS or PSD increment due to downwash, wakes, or eddies occur at a location meeting the definition of ambient air?

A: No, the exceedance may occur at any location, including that to which the general public does not have access.

15. Q: Is a source that meets NSPS or BACT emission limits subject to restrictions on plume merging?

A: Yes. However, in a majority of such cases, there will be no practical effect since BACT or NSPS limits will be sufficient to assure attainment without credit for plume rise enhancement.

Q: What stack parameters are to be used in modeling when the actual stack height is greater than GEP height?

A: Where it is necessary to reduce stack height credit below what is in existence, for modeling purposes, use existing stack gas exit parameters--temperature and flow rate--and existing stack top diameter and model at GEP height.

17. Q: How should a stack that is less than GEP height be modeled when dispersion techniques are employed?

A: In order to establish an appropriate emission limitation where a source desires to construct less than a GEP stack but use dispersion techniques to make up the difference in plume rise, two cases should be tested. First, conduct a modeling analysis inputting the GEP stack height without enhanced dispersion parameters, then conduct a second analysis inputting the less than GEP stack height with the increased plume rise. The more stringent emission limitation resulting from each of the two runs should be the one specified as the enforceable limitation.

18. Q: How are the effects of prohibited dispersion techniques to be excluded for modeling purposes?

A: Where prohibited dispersion techniques have been used, modeling to exclude their effects on the emission limitation will be accomplished by using the temperature and flow rates as the gas stream enters the stack, and recalculating stack parameters to exclude the prohibited techniques (e.g., calculate stack diameter without restrictions in place, determine exit gas temperatures before the use of prohibited reheaters, etc.).

19. Q: How are single flued merged stacks and multiflued stacks to be treated in a modeling analysis?

A: This is a multistep process. First, sources with allowable SO_2 emissions below 5,000 tons/year may be modeled accounting for any plume merging that has been employed. For larger sources, multiflued stacks are considered as prohibited dispersion techniques in the same way as single flued merged gas streams unless one of the three allowable conditions has been met; i.e., (1) the source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams; (2) after date of promulgation, demonstrate that such merging is associated with a change in operation at the facility that includes the installation of pollution controls and results in a net reduction in the allowable emissions of the pollutant for which credit is sought; or (3) before date of promulgation, demonstrate that such merging did not result in any increase in the allowable emissions (or, in the event that no emission limit existed, actual emission level) and was associated with a change in operation at the facility that included the installation of

emissions control equipment or was carried out for sound economic or engineering reasons, as demonstrated to EPA. Guidelines on what constitutes sound economic or engineering justification will be issued shortly.

If plume merging from multiflued stacks is not allowable, then each flue/liner must be modeled as a separate source and the combined impact determined. For single flued merged stacks where credit is not allowed, each unit should be modeled as a separate stack located at the same point. The exit parameters, i.e. velocity and temperature, would be the same as for the existing merged stack conditions and the volume flow rate based on an apportionment of the flow from the individual units.

20. Q: What stack height for point sources should be input to air quality dispersion modeling for the purpose of demonstrating protection of the NAAQS and PSD increments?

A: A discussion of the maximum stack height credit to be used in modeling analyses is provided in the "Guideline for Determination of Good Engineering Practice Stack Height" and provides that the GEP stack height should be used as input to the model assessment. If a source is operating with a less than GEP stack height, then the actual stack height should be input to the model.

21. Q: What stack height should be used for background sources in modeling analyses?

A: The GEP stack height for each background source should be input to the model assessment. If a background source is operating with a less than GEP stack height, then the actual stack height should be input to the model.

22. Q: Can credit for plume merging due to installation of control equipment for total suspended particulate (TSP) matter be allowed when setting the SO_2 limit?

A: To state the question another way, the concern is what impact the merging and installation of control equipment have on the emission limit for another pollutant, and whether the merging occurred before or after July 8, 1985. After July 8, 1985, any exclusion from the definition of "dispersion techniques" applies only to the emission limitation for the pollutant affected by such change in operation and is accompanied by a net reduction in allowable emissions of the pollutant. For example, a source tears down two old stacks and builds one new GEP stack with an electrostatic precipitator (ESP). This results in a net reduction in TSP emissions. This source could model using stack gas characteristics resulting from merging the two gas streams in setting the TSP emission limit, but may not so model and receive the credit for stack merging when evaluating the SO_2 emission limit.

Before July 8, 1985, installation of TSP pollution control equipment generally justifies the merging of the stacks for TSP. However, if a source's emission limitation for SO_2 increased after the merging, then credit would generally not be allowed since it is presumed that the merging was to increase dispersion.

A source with no previous SO_2 emission limit that merges stacks and installs an ESP for TSP control may consider the effects of merging on compliance with the TSP NAAQS but may not use merging to justify setting an SO_2 emission limit less stringent than its actual emission rate before the merging.

23. Q: If, after determining GEP stack height by fluid modeling, dispersion modeling under other than "downwash" meteorological conditions shows that a lower emission limit than that from the fluid model GEP analysis is necessary to meet ambient air quality constraints, should a new stack height be defined for the source?

A: No. GEP stack height is set. Ambient air quality problems predicted by dispersion modeling at the fluid modeled height means that a more stringent emission limit is necessary.

24. Q: Does EPA intend to issue additional guidance on fluid modeling demonstrations?

A: See the attached memo from Joseph A. Tikvart, Chief, Source Receptor Analysis Branch, to David Stonefield, Chief, Policy Development Section, on guidance for a discussion of existing and additional guidance on fluid model demonstrations.

Attachment

cc: Stack Height Contacts
Gerald Emison
Ron Campbell
B. J. Steigerwald

REFERENCES FOR SECTION 5.6

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

AUTHORITY: This rulemaking is promulgated under authority of sections 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act 42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a).

SOURCE: 36 FR 22398, Nov. 25, 1971, unless otherwise noted.

EDITORIAL NOTE: Nomenclature changes affecting Part 51 appear at 44 FR 8237, Feb. 8, 1979 and 51 FR 40661, Nov. 7, 1986.

Subparts A-C—[Reserved]

Subpart D—Maintenance of National Standards

SOURCE: 41 FR 18388, May 3, 1976, unless otherwise noted.

§ 51.40 Scope.

(a) *Applicability.* The requirements of this subpart apply to air quality maintenance areas (AQMAs) identified under § 51.110(i) and to any areas identified under § 51.110(l).

(b) *AQMA Analysis.* Under this subpart, procedures are given for the analysis of the air quality impact of specified pollutant emissions from existing sources and emissions associated with projected growth and development in areas identified under paragraphs (i) and (l) of § 51.110. This analysis is referred to in this subpart as an AQMA analysis.

(c) *AQMA Plan.* Under this subpart, the Administrator will require a revision to the State implementation plan for areas identified under § 51.110(i) or § 51.110(l) when necessary to prevent a national ambient air quality standard

§ 51.62 AQMA analysis and plan: Data availability.

(a) The State shall retain all detailed data and calculations used in the preparation of AQMA analyses and plans, 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 AQMA analyses and plans shall not be considered a part of the AQMA plan.

§ 51.63 AQMA analysis and plan: Alternative procedures.

(a) At the request of a State, or under his own initiative, the Administrator, where he determines it appropriate, may approve alternative AQMA analysis and plan development procedures as allowed under §§ 51.42, 51.44, 51.45, 51.46, 51.48(b), and 51.49(a). He may consider all relevant factors including but not limited to air quality problems, financial and manpower limitations, administrative feasibility, and existing commitments by the State.

(b) The Administrator shall act upon a request for modification within 45 days after receipt of a properly prepared and filed request. Unless a State is notified of a denial, or the Administrator requests additional information, such a request is automatically approved on the forty-sixth day.

(c) The Administrator shall publish in the FEDERAL REGISTER a description of each modification made.

(d) A public hearing on an AQMA plan does not fulfill the public hearing requirements of this part if, subsequent to the hearing, any alternative procedures are approved under this section.

(Secs. 110, 121, 174(a), 301(a), Clean Air Act, as amended (42 U.S.C. 7410, 7421, 7504, and 7601(a)))

[41 FR 18388, May 3, 1976, as amended at 44 FR 35179, June 18, 1979]

Subpart E—[Reserved]

Subpart F—Procedural Requirements

SOURCE: 51 FR 40661, Nov. 7, 1986, unless otherwise noted.

§ 51.100 Definitions.

As used in this part, all terms not defined herein will have the meaning given them in the Act:

(a) "Act" means the Clean Air Act (42 U.S.C. 7401 *et seq.*, as amended by Pub. L. 91-604, 84 Stat. 1676 Pub. L. 95-95, 91 Stat., 685 and Pub. L. 95-190, 91 Stat., 1399.)

(b) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or an authorized representative.

(c) "Primary standard" means a national primary ambient air quality standard promulgated pursuant to section 109 of the Act.

(d) "Secondary standard" means a national secondary ambient air quality standard promulgated pursuant to section 109 of the Act.

(e) "National standard" means either a primary or secondary standard.

(f) "Owner or operator" means any person who owns, leases, operates, controls, or supervises a facility, building, structure, or installation which directly or indirectly result or may result in emissions of any air pollutant for which a national standard is in effect.

(g) "Local agency" means any local government agency other than the State agency, which is charged with responsibility for carrying out a portion of the plan.

(h) "Regional Office" means one of the ten (10) EPA Regional Offices.

(i) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(j) "Plan" means an implementation plan approved or promulgated under section 110 of 172 of the Act.

(k) "Point source" means the following:

(1) For particulate matter, sulfur oxides, carbon monoxide, volatile organic compounds (VOC) 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 1980 "urban place" population, as defined by the U.S. Bureau of

the Census, was equal to or greater than 1 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 1980 "urban place" population, as defined by the U.S. Bureau of the Census, was less than 1 million; or

(2) For lead or lead compounds measured as elemental lead, any stationary source that actually emits a total of 4.5 metric tons (5 tons) per year or more.

(l) "Area source" means any small residential, governmental, institutional, commercial, or industrial fuel combustion operations; onsite solid waste disposal facility; motor vehicles, aircraft vessels, or other transportation facilities or other miscellaneous sources identified through inventory techniques similar to those described in the "AEROS Manual series, Vol. II AEROS User's Manual," EPA-450/2-76-029 December 1976.

(m) "Region" means an area designated as an air quality control region (AQCR) under section 107(c) of the Act.

(n) "Control strategy" means a combination of measures designated to achieve the aggregate reduction of emissions necessary for attainment and maintenance of national standards including, but not limited to, measures such as:

(1) Emission limitations.

(2) Federal or State emission charges or taxes or other economic incentives or disincentives.

(3) Closing or relocation of residential, commercial, or industrial facilities.

(4) Changes in schedules or methods of operation of commercial or industrial facilities or transportation systems, including, but not limited to, short-term changes made in accordance with standby plans.

(5) Periodic inspection and testing of motor vehicle emission control systems, at such time as the Administrator determines that such programs are feasible and practicable.

(6) Emission control measures applicable to in-use motor vehicles, including, but not limited to, measures such as mandatory maintenance, installation of emission control devices, and conversion to gaseous fuels.

(7) Any transportation control measure including those transportation measures listed in section 108(f) of the Clean Air Act as amended.

(8) Any variation of, or alternative to any measure delineated herein.

(9) 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 seconary air quality standard and is approved by the Administrator under section 211(c)(4)(C) of the Act.

(o) "Reasonably available control technology" (RACT) means devices, systems process modifications, or other apparatus or techniques that are reasonably available taking into account (1) the necessity of imposing such controls in order to attain and maintain a national ambient air quality standard, (2) the social, environmental and economic impact of such controls, and (3) alternative means of providing for attainment and maintenance of such standard. (This provision defines RACT for the purposes of §§ 51.110(c)(2) and 51.341(b) only.)

(p) "Compliance schedule" means the date or dates by which a source or category of sources is required to comply with specific emission limitations contained in an implementation plan and with any increments of progress toward such compliance.

(q) "Increments of progress" means steps toward compliance which will be taken by a specific source, including:

(1) Date of submittal of the source's final control plan to the appropriate air pollution control agency;

(2) Date by which contracts for emission control systems or process modifications will be awarded; or date by which orders will be issued for the purchase of component parts to accomplish emission control or process modification;

(3) Date of initiation of on-site construction or installation of emission control equipment or process change;

(4) Date by which on-site construction or installation of emission control equipment or process modification is to be completed; and

(5) Date by which final compliance is to be achieved.

(r) "Transportation control measure" means any measure that is directed toward reducing emissions of air pollutants from transportation sources. Such measures include, but are not limited to, those listed in section 108(f) of the Clean Air Act.

(s)-(w) [Reserved]

(x) "Time period" means any period of time designated by hour, month, season, calendar year, averaging time, or other suitable characteristics, for which ambient air quality is estimated.

(y) "Variance" means the temporary deferral of a final compliance date for an individual source subject to an approved regulation, or a temporary change to an approved regulation as it applies to an individual source.

(z) "Emission limitation" and "emission standard" mean a requirement established by a State, local government, or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission reduction.

(aa) "Capacity factor" means the ratio of the average load on a machine or equipment for the period of time considered to the capacity rating of the machine or equipment.

(bb) "Excess emissions" means emissions of an air pollutant in excess of an emission standard.

(cc) "Nitric acid plant" means any facility producing nitric acid 30 to 70 percent in strength by either the pressure or atmospheric pressure process.

(dd) "Sulfuric acid plant" means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, or acid sludge, but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.

(ee) "Fossil fuel-fired steam generator" means a furnance or bioler used in the process of burning fossil fuel for the primary purpose of producing steam by heat transfer.

(ff) "Stack" means any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct but not including flares.

(gg) "A stack in existence" means that the owner or operator had (1) begun, or caused to begin, a continuous program of physical on-site construction of the stack or (2) entered into binding agreements or contractual obligations, which could not be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the stack to be completed within a reasonable time.

(hh)(1) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by:

(i) Using that portion of a stack which exceeds good engineering practice stack height:

(ii) Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or

(iii) Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.

(2) The preceding sentence does not include:

(i) The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;

(ii) The merging of exhaust gas streams where:

(A) The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

(B) After July 8, 1985 such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or

(C) Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the reviewing agency shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the reviewing agency shall deny credit for the effects of such merging in calculating the allowable emissions for the source;

(iii) Smoke management in agricultural or silvicultural prescribed burning programs;

(iv) Episodic restrictions on residential woodburning and open burning; or

(v) Techniques under § 51.100(hh)(1)(iii) which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed 5,000 tons per year.

(ii) "Good engineering practice" (GEP) stack height means the greater of:

(1) 65 meters, measured from the ground-level elevation at the base of the stack:

(2)(i) For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable permits or approvals required under 40 CFR Parts 51 and 52,

$$H_g = 2.5H,$$

provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation:

(ii) For all other stacks,

$$H_g = H + 1.5L$$

where

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack,

H = height of nearby structure(s) measured from the ground level elevation at the base of the stack.

L = lesser dimension, height or projected width, of nearby structure(s)

provided that the EPA, State or local control agency may require the use of a field study or fluid model to verify GEP stack height for the source; or

(3) The height demonstrated by a fluid model or a field study approved by the EPA State or local control agency, which ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features.

(jj) "Nearby" as used in § 51.100(ii) of this part is defined for a specific structure or terrain feature and

(1) For purposes of applying the formulae provided in § 51.100(ii)(2) means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than 0.8 km (½ mile), and

(2) For conducting demonstrations under § 51.100(ii)(3) means not greater than 0.8 km (½ mile), except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to 10 times the maximum height (H_t) of the feature, not to exceed 2 miles if such feature achieves a height (H_t) 0.8 km from the stack that is at least 40 percent of the GEP stack height determined by the formulae provided in § 51.100(ii)(2)(ii) of this part or 26 meters, whichever is greater, as measured from the ground-level elevation at the base of the stack. The height of the structure or terrain feature is measured from the ground-level elevation at the base of the stack.

(kk) "Excessive concentration" is defined for the purpose of determining good engineering practice stack height under § 51.100(ii)(3) and means.

(1) For sources seeking credit for stack height exceeding that established under § 51.100(ii)(2) a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of

the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard. For sources subject to the prevention of significant deterioration program (40 CFR 51.166 and 52.21), an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and greater than a prevention of significant deterioration increment. The allowable emission rate to be used in making demonstrations under this part shall be prescribed by the new source performance standard that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible. Where such demonstrations are approved by the authority administering the State implementation plan, an alternative emission rate shall be established in consultation with the source owner or operator.

(2) For sources seeking credit after October 11, 1983, for increases in existing stack heights up to the heights established under § 51.100(ii)(2), either (i) a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects as provided in paragraph (kk)(1) of this section, except that the emission rate specified by any applicable State implementation plan (or, in the absence of such a limit, the actual emission rate) shall be used, or (ii) the actual presence of a local nuisance caused by the existing stack, as determined by the authority administering the State implementation plan; and

(3) For sources seeking credit after January 12, 1979 for a stack height determined under § 51.100(ii)(2) where the authority administering the State implementation plan requires the use of a field study or fluid model to verify GEP stack height, for sources seeking stack height credit after November 9, 1984 based on the aerodynamic influence of cooling towers, and for sources seeking stack height credit after December 31, 1970 based on the aerodynamic influence of structures not adequately represented by the equations in § 51.100(ii)(2), a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects that is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

(ll)-(mm) [Reserved]

(nn) Intermittent control system (ICS) means a dispersion technique which varies the rate at which pollutants are emitted to the atmosphere according to meteorological conditions and/or ambient concentrations of the pollutant, in order to prevent ground-level concentrations in excess of applicable ambient air quality standards. Such a dispersion technique is an ICS whether used alone, used with other dispersion techniques, or used as a supplement to continuous emission controls (i.e., used as a supplemental control system).

(oo) "Particulate matter" means any airborne finely divided solid or liquid material with an aerodynamic diameter smaller than 100 micrometers.

(pp) "Particulate matter emissions" means all finely divided solid or liquid material, other than uncombined water, emitted to the ambient air as measured by applicable reference methods, or an equivalent or alternative method, specified in this chapter, or by a test method specified in an approved State implementation plan.

(qq) "PM_{10}" means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by a reference method based on Appendix J of Part 50 of this chapter and designated in accordance with Part 53 of this chapter or by an equivalent method designated in accordance with Part 53 of this chapter.

(rr) "PM_{10} emissions" means finely divided solid or liquid material, with an aerodynamic diameter less than or equal to a nominal 10 micrometers emitted to the ambient air as measured by an applicable reference method, or an equivalent or alternative method, specified in this chapter or by a test method specified in an approved State implementation plan.

(ss) "Total suspended particulate" means particulate matter as measured by the method described in Appendix B of Part 50 of this chapter.

[51 FR 40661, Nov. 7, 1986, as amended at 52 FR 24712, July 1, 1987]

§ 51.101 Stipulations.

Nothing in this part will be construed in any manner:

(a) To encourage a State to prepare, adopt, or submit a plan which does not provide for the protection and enhancement of air quality so as to promote the public health and welfare and productive capacity.

(b) To encourage a State to adopt any particular control strategy without taking into consideration the cost-effectiveness of such control strategy in relation to that of alternative control strategies.

(c) To preclude a State from employing techniques other than those specified in this part for purposes of estimating air quality or demonstrating the adequacy of a control strategy, provided that such other techniques are shown to be adequate and appropriate for such purposes.

(d) To encourage a State to prepare, adopt, or submit a plan without taking into consideration the social and economic impact of the control strategy set forth in such plan, including, but not limited to, impact on availability of fuels, energy, transportation, and employment.

(e) To preclude a State from preparing, adopting, or submitting a plan which provides for attainment and maintenance of a national standard through the application of a control strategy not specifically identified or described in this part.

(f) To preclude a State or political subdivision thereof from adopting or enforcing any emission limitations or other measures or combinations thereof to attain and maintain air quality better than that required by a national standard.

(g) To encourage a State to adopt a control strategy uniformly applicable throughout a region unless there is no satisfactory alternative way of providing for attainment and maintenance of a national standard throughout such region.

§ 51.102 Public hearings.

(a) Except as otherwise provided in paragraph (c) of this section, States must conduct one or more public hearings on the following prior to adoption and submission to EPA of:

(1) Any plan or revision of it required by § 51.104(a).

(2) Any individual compliance schedule under (§ 51.260).

(3) Any revision under § 51.104(d).

(b) Separate hearings may be held for plans to implement primary and secondary standards.

(c) No hearing will be required for any change to an increment of progress in an approved individual compliance schedule unless such change is likely to cause the source to be unable to comply with the final compliance date in the schedule. The requirements of §§ 51.104 and 51.105 will be applicable to such schedules, however.

(d) Any hearing required by paragraph (a) of this section will be held only after reasonable notice, which will be considered to include, at least 30 days prior to the date of such hearing(s):

(1) Notice given to the public by prominent advertisement in the area affected announcing the date(s), time(s), and place(s) of such hearing(s);

(2) Availability of each proposed plan or revision for public inspection in at least one location in each region to which it will apply, and the availability of each compliance schedule for public inspection in at least one location in the region in which the affected source is located;

(3) Notification to the Administrator (through the appropriate Regional Office);

(4) Notification to each local air pollution control agency which will be significantly impacted by such plan, schedule or revision;

(5) In the case of an interstate region, notification to any other States included, in whole or in part, in

federal register

Monday
July 8, 1985

Part II

Environmental Protection Agency

40 CFR Part 51
Stack Height Regulation; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 51

[AD-FRL-2847-6]

Stack Height Regulation

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rulemaking.

SUMMARY: Section 123 of the Clean Air Act, as amended, requires EPA to promulgate regulations to ensure that the degree of emission limitation required for the control of any air pollutant under an applicable State implementation plan (SIP) is not affected by that portion of any stack height which exceeds good engineering practice (GEP) or by any other dispersion technique. A regulation implementing section 123 was promulgated on February 8, 1982, at 47 FR 5864. Revisions to the regulation were proposed on November 9, 1984, at 49 FR 44878. Today's action incorporates changes to the proposal and adopts this regulation in final form.

EFFECTIVE DATE: This regulation becomes effective on August 7, 1985.

FOR FURTHER INFORMATION CONTACT: Eric O. Ginsburg, MD-15, Office of Air Quality Planning and Standards, EPA, Research Triangle Park, North Carolina 27711. Telephone (919) 541-5540.

SUPPLEMENTARY INFORMATION:

Docket Statement

Pertinent information concerning this regulation is included in Docket Number A-83-49. The docket is open for public inspection between the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday, at the EPA Central Docket Section, West Tower Lobby, Gallery One, 401 M Street, SW., Washington, D.C. Background documents normally available to the public, such as Federal Register notices and Congressional reports, are not included in the docket. A reasonable fee may be charged for copying documents.

Background

Statute

Section 123, which was added to the Clean Air Act by the 1977 Amendments, regulates the manner in which techniques for disperson of pollutants from a source may be considered in setting emission limitations. Specifically, section 123 requires that the degree of emission limitation shall not be affected by that portion of a stack which exceeds GEP or by "any other dispersion technique." It defines GEP, with respect to stack heights as:

> the height necessary to insure that emissions from the stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of atmospheric downwash, eddies or wakes which may be created by the source itself, nearby structures or nearby terrain obstacles . . . [Section 123(c)].

Section 123 further provides that GEP stack height shall not exceed two and one-half times the height of the source (2.5H) unless a demonstration is performed showing that a higher stack is needed to avoid "excessive concentrations." As the legislative history of section 123 makes clear, this reference to a two and one-half times test reflects the established practice of using a formula for determining the GEP stack height needed to avoid excessive downwash. Finally, section 123 provides that the Administrator shall regulate only stack height credits—that is, the portion of the stack height used in calculating an emission limitation—rather than actual stack heights.

With respect to "other dispersion techniques" for which emission limitation credit is restricted, the statute is less specific. It states only that the term shall include intermittent and supplemental control systems (ICS, SCS), but otherwise leaves the definition of that term to the discretion of the Administrator.

Thus the statute delegates to the Administrator the responsibility for defining key phrases, including "excessive concentrations" and "nearby," with respect to both structures and terrain obstacles, and "other dispersion techniques." The Administrator must also define the requirements of an adequate demonstration justifying stack height credits in excess of the 2.5H formula.

Rulemaking and Litigation

On February 8, 1982 (47 FR 5864), EPA promulgated final regulations limiting stack height credits and other dispersion techniques. Information concerning the development of the regulation was included in Docket Number A-79-01 and is available for inspection at the EPA Central Docket Section. This regulation was challenged in the U.S. Court of Appeals for the D.C. Circuit by the Sierra Club Legal Defense Fund, Inc.; the Natural Resources Defense Council, Inc.; and the Commonwealth of Pennsylvania in *Sierra Club* v. *EPA*, 719 F. 2d 436. On October 11, 1983, the court issued its decision ordering EPA to reconsider portions of the stack height regulation, reversing certain portions and upholding other portions. Further discussion of the court decision is provided later in this notice.

Administrative Proceedings Subsequent to the Court Decision

On December 19, 1983, EPA held a public meeting to take comments to assist the Agency in implementing the mandate of the court. This meeting was announced in the Federal Register on December 8, 1983, at 48 FR 54999. Comments received by EPA are included in Docket Number A-83-49. On February 28, 1984, the electric power industry filed a petition for a writ of certiorari with the U.S. Supreme Court. While the petition was pending before the court, the mandate from the U.S. Court of Appeals was stayed. On July 2, 1984, the Supreme Court denied the petition (104 S.Ct. 3571), and on July 18, 1984, the Court of Appeals' mandate was formally issued, implementing the court's decision and requiring EPA to promulgate revisions to the stack height regulations within 6 months. The promulgation deadline was ultimately extended to June 27, 1985, in order to provide additional opportunities for public comment, to allow EPA to hold a public hearing on January 8, 1985, and to provide additional time for EPA to complete its analysis of rulemaking alternatives.

Documents

In conjunction with the 1982 regulation and this revision, EPA developed several technical and guidance documents. These served as background information for the regulation, and are included in Dockets A-79-01 and A-83-49. The following documents have been or will be placed in the National Technical Information Service (NTIS) system and may be obtained by contacting NTIS at 5285 Port Royal Road, Springfield, Virginia 22161.

(1) "Guideline for Use of Fluid Modeling to Determine Good Engineering Stack Height," July 1981, EPA, Office of Air Quality Planning and Standards, EPA-450/4-81-003 (NTIS PB82 145327).

(2) "Guideline for Fluid Modeling of Atmospheric Diffusion," April 1981, EPA, Environmental Sciences Research Laboratory, EPA-600/8-81-009 (NTIS PB81 201410).

(3) "Guidance for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulation)," June 1985, EPA, Office of Air Quality Planning and Standards, EPA-450/4-80-023R.

(4) "Determination of Good Engineering Practice Stack Height—A

Fluid Model Demonstration Study for a Power Plant." April 1983. EPA. Environmental Sciences Research Laboratory. EPA-600/3-83-024 (NTIS PB83 207407).

(5) "Fluid Modeling Demonstration of Good-Engineering-Practice Stack Height in Complex Terrain." April 1985. EPA Atmospheric Sciences Research Laboratory. EPA/600/3-85/022 (NTIS PB85 203107).

In addition, the following documents are available in Docket A-83-49.

"Economic Impact Assessment for Revisions to the EPA Stack Height Regulation." June 1985.

"Effect of Terrain-Induced Downwash on Determination of Good-Engineering-Practice Stack Height." July 1984.

Program Overview

General

The problem of air pollution can be approached in either of two ways: through reliance on a technology-based program that mandates specific control requirements (either control equipment or control efficiencies) irrespective of ambient pollutant concentrations, or through an air quality based system that relies on ambient air quality levels to determine the allowable rates of emissions. The Clean Air Act incorporates both approaches, but the SIP program under section 110 uses an air quality-based approach to establish emission limitations for sources. Implicitly, this approach acknowledges and is based on the normal dispersion of pollutants from their points of origin into the atmosphere prior to measurements of ambient concentrations at ground level.

There are two general methods for preventing violations of the national ambient air quality standards (NAAQS) and prevention of significant deterioration (PSD) increments. Continuous emission controls reduce on a continuous basis the quantity, rate, or concentrations of pollutants released into the atmosphere from a source. In contrast, dispersion techniques rely on the dispersive effects of the atmosphere to carry pollutant emissions away from the source in order to prevent high concentrations of pollutants near the source. Section 123 of the Clean Air Act limits the use of dispersion techniques by pollution sources to meet the NAAQS or PSD increments.

Tall stacks, manipulation of exhaust gas parameters, and varying the rate of emissions based on atmospheric conditions (ICS and SCS) are the basic types of dispersion techniques. Tall stacks enhance dispersion by releasing pollutants into the air at elevations high above ground level, thereby providing greater mixing of pollutants into the atmosphere. The result is to dilute the pollutant levels and reduce the concentrations of the pollutant at ground level, without reducing the total amount of pollution released. Manipulation of exhaust gas parameters increases the plume rise from the source to achieve similar results. ICS and SCS vary a source's rate of emissions to take advantage of meteorologic conditions. When conditions favor rapid dispersion, the source emits pollutants at higher rates, and when conditions are adverse, emission rates are reduced. Use of dispersion techniques in lieu of constant emission controls results in additional atmospheric loadings of pollutants and can increase the possibility that pollution will travel long distances before reaching the ground.

Although overreliance on dispersion techniques may produce adverse effects, some use of the dispersive properties of the atmosphere has long been an important factor in air pollution control. For example, some stack height is needed to prevent excessive pollutant concentrations near a source. When wind meets an obstacle such as a hill or a building, a turbulent region of downwash, wakes, and eddies is created downwind of the obstacle as the wind passes over and around it. This can force a plume rapidly to the ground, resulting in excessive concentrations of pollutants near the source. As discussed previously, section 123 recognizes these phenomena and responds by allowing calculation of emission limitations with explicit consideration of that portion of a source's stack that is needed to ensure that excessive concentrations due to downwash will not be created near the source. This height is called GEP stack height.

Summary of the Court Decision

Petitions for review of EPA's 1982 regulation were filed in the D.C. Circuit within the statutory time period following promulgation of the regulation. On October 11, 1983, the court issued its decision ordering EPA to reconsider portions of the stack height regulation, reversing certain portions and upholding others. The following is a summary of the court decision.

The EPA's 1982 rule provided three ways to determine GEP stack height. One way was to calculate the height by using a formula based on the dimensions of nearby structures. The other two were a *de minimis* height of 65 meters, and the height determined by a fluid modeling demonstration or field study. The court endorsed the formula as a starting point to determine GEP height. However, it held that EPA has not demonstrated that the formula was an accurate predictor of the stack height needed to avoid "excessive concentrations of pollutants due to downwash. Accordingly, the court directed EPA to re-examine in three ways the conditions under which exceptions to the general rule of formula reliance could be justified.

First, the 1982 rule allowed a source to justify raising its stack above formula height by showing a 40-percent increase in concentrations due to downwash, wakes, or eddies, on the ground that this was the percentage increase that the formula avoided. The court found this justification insufficient, and remanded the definition to EPA with instructions to make it directly responsive to health and welfare considerations.

Similarly, the 1982 rule allowed a source that built a stack to less than formula height to raise it to formula height automatically. Once again, the court required more justification that such a step was needed to avoid adverse health or welfare effects.

Finally, the court directed EPA either to allow the authorities administering the stack height regulations to require modeling by sources in other cases as a check on possible error in the formula, or explain why the accuracy of the formula made such a step unnecessary.

The 1982 rule provided two formulae to calculate GEP stack height. For sources constructed on or before January 12, 1979, the date of initial proposal of the stack height regulations, the applicable formula was 2.5 times the height of the source or other nearby structure. For sources constructed after that date, the rule specified a newer, refined formula, the height of the source or other nearby structure plus 1.5 times the height or width of that structure, whichever is less (H+1.5L). The EPA based its decision to include two formulae on the unfairness of applying the new formula retroactively. In its examination of this issue, the court specified four factors that influence whether an agency has a duty to apply a rule retroactively. They are:

1. Whether the new rule represents an abrupt departure from well established practice or merely attempts to fill a void in an unsettled area of law.

2. The extent to which the party against whom the new rule is applied relied on the former rule.

3. The degree of burden which a retroactive order imposes on a party, and

4. The statutory interest in applying a new rule despite the reliance of a party on the old standard.

719 F.2d at 487 (citations omitted). Applying this analysis to the two formulae, the court upheld EPA's basic decision.

However, the court also held that sources constructed on or before January 12, 1979, should not be automatically entitled to full credit calculated under the 2.5H formula unless they could demonstrate reliance on that formula. The court remanded this provision for revision to take actual reliance on the 2.5H formula into account.

The statute limits stack height credit to that needed to avoid excessive concentrations due to downwash caused by "nearby" structures or terrain features. The 1982 regulation defined "nearby" for GEP formula applications as five times the lesser of either the height or projected width of the structure causing downwash, not to exceed one-half mile. No such distance limitation was placed on structures or terrain features whose effects were being considered in fluid modeling demonstrations or field studies. The court held that section 123 explicitly applies the "nearby" limitation to demonstrations and studies as well as formula applications, and remanded the rule to EPA to apply the limitation in both contexts.

The 1982 rule defined "dispersion techniques" as those techniques which attempt to affect pollutant concentrations by using that portion of a stack exceeding GEP, by varying emission rates according to atmospheric conditions or pollutant concentrations, or by the addition of a fan or reheater to obtain a less stringent emission limitation. The court found this definition too narrow because any technique "significantly motivated by an intent to gain emissions credit for greater dispersion" should be barred. 719 F.2d 462. As a result, the court directed EPA to develop rules disallowing credit for all such dispersion techniques unless the Agency adequately justified exceptions on the basis of administrative necessity or a *de minimis* result.

The GEP formulae established in the 1982 rule do not consider plume rise, on the ground that plume rise is not significant under downwash conditions. In its review of this provision, the court affirmed this judgment by EPA.

The 1982 rule addressed pollutant concentrations estimated to occur when a plume impacts elevated terrain by allowing credit for stack height necessary to avoid air quality violations in such cases. However, the court ruled that section 123 did not allow EPA to grant credit for plume impaction in setting emission limits, and reversed this part of the regulation.

The preamble to the 1982 regulation provided a 22 month process for State implementation of the regulation. The court found this period to be contrary to section 406(d)(2) of the Clean Air Act and reversed it.

The regulation, following the statute, excluded stacks "in existence" on or before December 31, 1970, from the GEP requirements. However, the regulation did not prohibit sources constructed after December 31, 1970, from receiving credit for tying into pre-1971 stacks. Although the court upheld EPA's definition of "in existence," it noted that EPA had failed to address the tie-in issue. Accordingly, the court remanded this issue to EPA for justification.

One other provision of the regulation was challenged in the *Sierra Club* suit: The exclusion of flares from the definition of "stack." In its review of this provision, the court held that EPA had acted properly.

Other provisions of the stack height regulation, such as the *de minimis* stack height established under § 51.1(ii)(1), were not challenged in the suit and thus remain in effect.

Summary of the November 9, 1984, Notice of Proposed Rulemaking

In the November 9, 1984, notice responding to the court decision, EPA proposed to redefine a number of specific terms, including "excessive concentrations," "dispersion techniques," "nearby," and other important concepts, and proposed to modify some of the bases for determining GEP stack height. The following is a summary of the revisions that were proposed.

Excessive Concentrations

The Court of Appeals held that EPA erred in defining "excessive concentrations" due to downwash, for purposes of justifying a stack greater than formula height, as nothing more than a 40-percent increase in pollutant concentrations over what would occur in the absence of downwash. It remanded this issue to EPA to relate the definition to some absolute level of air pollution that could be interpreted to endanger health and welfare, and thus to be "excessive."

The EPA proposed two alternative approaches to defining "excessive concentrations." First, EPA requested comment on whether the 40-percent approach adopted as part of the 1982 regulation in fact protects against the dangers to health and welfare envisioned by Congress when it enacted section 123. In the event that such a showing could not be made, EPA proposed a two-part definition of excessive concentrations, requiring that the downwash, wakes, or eddies induced by nearby structures or terrain features result in increases in ground-level pollutant concentrations that:

(a) Cause or contribute to an exceedance of a NAAQS or applicable PSD increment, and

(b) Are at least 40 percent in excess of concentrations projected to occur in the absence of such structures or terrain features.

Definition of GEP Stack Height

EPA proposed to find that the traditional (2.5H) and refined (H+1.5L) formulae remained proper methods for calculating GEP stack height except EPA proposed to revise its regulation to allow EPA, the State or local air pollution control agency discretion to require a further demonstration using a field study or fluid model to demonstrate GEP stack height for a source in a case where it was believed that the formula may not reliably predict GEP height. In the case of structures that are porous or aerodynamically smoother than block-shaped structures, it would require a source to demonstrate the downwash effects of such structures using a field study or fluid model before receiving credit for stack height based on the structures. EPA also proposed generally to allow sources to raise existing stacks up to formula GEP height without further demonstrations with the exception noted above for discretionary modeling.

Reliance on the 2.5H Formula

In its 1982 rules, EPA allowed sources built before January 12, 1979, the date on which it proposed the refined H+1.5L formulae, to calculate their emission limits based on the traditional 2.5H formula that existed previously. The court approved this distinction, but ruled that it should be limited to sources that "relied" on the traditional formula, suggesting, for example, that sources that had claimed credit for stacks far taller than the formula provided could not be said to have "relied" on it.

In response to the court decision, EPA proposed to revise its regulation to require that for stacks in existence on January 12, 1979, sources demonstrate that they actually relied on the 2.5H formula in the design of their stacks before receiving credit for that height in setting their emission limitations. In the proposal, EPA requested comment on what it should consider as acceptable evidence of such reliance.

Definition of "Nearby"

In its 1982 rules, EPA allowed sources that modeled the effects of terrain obstacles on downwash to include any terrain features in their model without limiting their distance from the stack. The court, though persuaded that this was a sensible approach, since it allowed the model to best approximate reality, ruled that Congress had intended a different result, namely that terrain features beyond ½ mile from the stack should not be included in the model.

In response, EPA proposed to revise § 51.1(ii)(3) of its regulation to limit the consideration of downwash, wakes, and eddy effects of structures and terrain features to those features classified as being "nearby" as defined in § 51.1(jj). Under this proposal, structures and terrain features would be considered to be "nearby" if they occur within a distance of not more than 0.8 km (½ mile); terrain features that extend beyond 0.8 km could be considered if, at a distance of 0.8 km, they achieved a height greater than or equal to 40-percent of the GEP stack height calculated by applying the GEP formula to actual nearby structures. In other words, a terrain feature would be said to "begin" within ½ mile if it reached at least the height of nearby buildings within that distance. Such features could be considered only out to a distance equal to 10 times the maximum height of the feature, not to exceed 2 miles.

The EPA proposed two options for distinguishing between sources constructed before and after the date of promulgation of these revisions. The first option would treat both categories of sources the same. The second option would limit the consideration of terrain for new sources to only those portions of terrain features that fall *entirely* within 0.8 km, thereby removing the possibility of including features extending beyond ½ mile.

Finally, EPA proposed three alternatives for conducting fluid modeling to evaluate the downwash effects or nearby terrain features. These alternatives described various ways of limiting terrain in the model beyond the proposed distance limitations.

To establish a baseline for comparison, two alternatives would initially model the stack on a flat plane with no structure or terrain influences. To analyze downwash effects, the first approach would then insert nearby terrain, with all terrain beyond the distance limit "cut off" horizontally. The second approach would gradually smooth and slope the terrain beyond the distance limit, down to the elevation of the base of the stack.

The third approach would proceed in a somewhat different manner. A baseline would be established by modeling all terrain beyond the distance limit, smoothing and sloping nearby terrain to minimize its influence. To analyze downwash effects, the nearby terrain would then be inserted into the model and the difference in effect measured to determine appropriate downwash credit for stack height.

Definition of "Dispersion Techniques"

In the 1982 rules, EPA identified two practices, in addition to stacks above GEP and ICS/SCS, as having no purpose other than to obtain a less stringent emission limitation. In so doing, it allowed credit for any other practice that had the result of increasing dispersion. The court concluded that Congress had intended, at a minimum, to forbid any dispersion enhancement practice that was significantly motivated by an intent to obtain additional credit for greater dispersion, and remanded the question to EPA for reexamination.

The EPA proposed to revise its definition of "dispersion techniques" generally to include, in addition to ICS, SCS, and stack heights in excess of GEP, any techniques that have the effect of enhancing exhaust gas plume rise. Combining several existing stacks into one new stack can have such an effect. However, such combinations also often have independent economic and engineering justification. Accordingly, EPA requested comment on defining the circumstances under which the combining of gas streams should not be considered a dispersion technique, and proposed to allow sources to take credit in emission limitations for such merging where a facility was originally designed and constructed with merged gas streams or where the merging occurs with the installation of additional controls yielding a net reduction in total emissions of the affected pollutant. The EPA retained exclusions from its definition of prohibited dispersion techniques for smoke management in agricultural and silvicultural prescribed burning programs and also proposed to exclude episodic restrictions on residential woodburning and debris burning.

New Sources Tied into Pre-1971 Stacks

Section 123 exempts stacks "in existence" at the end of 1970 from its requirements. EPA's general approach to implementing this language was upheld by the court. However, in its 1982 rule EPA had also allowed this credit to sources built after that date that had tied into stacks built before that date. EPA failed to respond to comments objecting to this allowance, and so the court remanded the question to EPA for the agency to address.

Upon reexamination, EPA saw no convincing justification for granting credit to these sources. Consequently, for sources constructed after December 31, 1970, with emissions ducted into grandfathered stacks of greater than GEP height and for sources constructed before that date but for which major modifications or reconstruction have been carried out subsequently, EPA proposed to limit stack height credit to only so much of the actual stack height as conforms to GEP. Sources constructed prior to December 31, 1970, for which modifications are carried out that are not classified as "major" under 40 CFR 51.18(j)(i), 51.24(b)(2)(i), and 51.21(b)(2)(i) would be allowed to retain full credit for their existing stack heights.

Plume Impaction

In its 1982 rules, EPA allowed stack height credit for "plume impaction," a phenomenon that is distinct from downwash, wakes and eddies. The court, though sympathetic to EPA's policy position, reversed this judgment as beyond the scope of the statute. Accordingly, EPA proposed to delete the allowance of plume impaction credit from its regulation in compliance with the court decision. However, EPA also recognized that sources in complex terrain face additional analytical difficulties when attempting to conduct modeling to determine appropriate emission limitations. Consequently, EPA requested comment on whether any allowance should be made for implementation problems that may result from the application of revised GEP stack height assumptions and, if so, how such allowance should be made.

State Implementation Plan Requirements

EPA's 1982 rules gave states a total of 22 months to revise their rules and to establish source emission limitations based on new stack height credits. The court found this, too, to go beyond the language of the statute. In response, EPA stated in the proposal that States would be required, pursuant to section 406(d)(2)(b) of the Clean Air Act, to review their rules and existing emission limitations, revising them as needed to comply with the new regulation within 9 months of the date of its promulgation.

Response to Public Comments on the November 9, 1984, Proposal

The EPA received over 400 comments during the public comment period and at the public hearing, addressing a number of aspects of the proposed regulation.These comments have been consolidated according to the issues raised and are discussed, along with EPA's responses, in a "Response to Comments" document included in the rulemaking docket. Certain comments can be characterized as "major" in that they address issues that are fundamental to the development of the final regulation. These comments are summarized below, along with EPA's responses. Additional discussion of the issues raised and further responses by EPA can be found in the "Response to Comments" document.

I. Maximum Control of Emissions in Lieu of Dispersion

A central legal and policy question addressed in this rulemaking was raised in the comments of the Natural Resources Defense Council (NRDC) and the Sierra Club. They contend that section 123 requires all sources to install the maximum feasible control technology before receiving any credit for the dispersive effects of a stack of any height, or for other practices that may enhance pollutant dispersion.

The NRDC argument is summarized fully in the Response to Comments document together with EPA's response. Very briefly, NRDC contends that litigation prior to the 1977 Clean Air Act Amendments had established that dispersion can never be used as an alternative to emission control, and that this understanding was carried forward and strengthened in the 1977 Clean Air Act Amendments. Accordingly, no rule that does not require full control of emissions as a prerequisite to any stack height credit would be consistent with Congressional intent.

EPA disagrees. During the 8 years between 1977 and NRDC's comments, a period covering two Administrations and three Administrators, NRDC's position has never been either adopted by EPA or seriously advocated before it. The pre-1977 cases cited by NRDC do not bar all stack credit, but only credit for stacks beyond the historical norm. Finally, the text and legislative history of section 123 contain essentially no support for NRDC's "control first" position.

II. Discussion of Other Major Issues

The EPA's position on the "control first" comments provides the necessary background against which the remaining major issues in this rulemaking are discussed. These issues are: the definition of "excessive concentrations" due to downwash, wakes, and eddies; the definition of "nearby;" and the definition of "dispersion technique." A question that affects several of these decisions, and that is addressed where it arises, concerns the extent to which any changes made in the stack heights regulations should be applied prospectively rather than retroactively.

This discussion of "excessive concentrations" is in turn divided into a discussion of the physical characteristics of downwash, followed by a discussion of the significance of those characteristics as they pertain to the GEP formulae, to stacks above formula height, to stacks being raised to formula height, and to stacks at formula height being modeled at the choice of the administering authorities.

Definition of "Excessive Concentrations"

The Physical Nature of Downwash. A number of commenters, including the Utility Air Regulatory Group (UARG), have argued that the court decision does not obligate EPA to revise the definition adopted in the 1982 regulation, but only directs EPA to ensure that the 40-percent criterion protects against concentrations due to downwash that could be related to health and welfare concerns. They point out that when emissions from a source become trapped in the wake region produced by the source itself or upwind structures and terrain features, those emissions are brought rapidly to earth, with little dilution. This, the commenters argue, can produce short-term peak concentrations at groundlevel that are many times greater that the concentration levels of the NAAQS. Because their duration is relatively short, averaging these concentrations over the times specified by the NAAQS does not result in NAAQS violations. Nonetheless, the commenters argue that these concentrations should be regarded as nuisances that section 123 was specifically enacted to avoid. Accordingly, the commenters held that EPA would be justified in retaining the 40-percent criterion without requiring that such increases result in exceedances of the NAAQS.

These same commenters argued that severe hardships would result if EPA's second proposed definition of "excessive concentrations" is adopted, and that, by limiting stack height credit to that just necessary to avoid exceedance of NAAQS or PSD increments, the definition would act to limit actual stack design and construction in a way that would increase the likelihood of NAAQS or PSD exceedances. This would occur, they argue, because, by building only so tall a stack as they can receive credit for, sources would be eliminating a "margin of safety" that would normally be provided otherwise. Furthermore, it was argued that, due to the changing nature of background air quality, inclusion of absolute concentrations such as the NAAQS or PSD increments in the definition would render determinations of GEP stack height constantly subject to change.

NRDC argued on the other hand that only a violation of air quality standards can be considered the type of "excessive concentration" for which downwash credit can be justified, the EPA had failed to specify the health or welfare significance of the short-term peaks that it might consider as meeting this description, and that in any event UARG's attempt to show that short stacks could cause a large number of short-term peaks was technically flawed in several different ways.

Response. Extensive discussion of the downwash phenomenon, as well as the aerodynamic effects of buildings and terrain features on windflow patterns and turbulence, is contained in the technical and guidance documents previously listed in this notice. To summarize briefly, numerous studies have shown that the region of turbulence created by obstacles to windflow extends to a height of approximately 2.5 times the height of the obstacle. Pollutants emitted into this region can be rapidly brought to the ground, with limited dilution. Though this tendency decreases the higher vertically within the downwash region that the plume is released, because of the highly unpredictable nature of downwash and the lack of extensive quantitative data, it is extremely difficult to reliably predict plume behavior within the downwash region. As noted in the comments submitted, the distinguishing features of downwash do not show up well over an averaging time as long as 1 hour or more. Pollutant concentrations resulting from downwash can arise and subside very quickly as meteorological conditions, including wind speed and atmospheric stability vary. This can result in short-term peaks, lasting up to 2 minutes or so, recurring intermittently for up to several hours, that significantly exceed the concentrations of the 3- and 24-hour NAAQS. Little quantitative information is available on the actual levels of these peaks, or on the frequency of their occurrence since most stacks have been

designed to avoid downwash and because downwash monitoring is not typically conducted.

A number of modeling and monitoring studies in the record assess the significance of downwash when plumes are released into the downwash region. The most important of these are a number of studies cited in the November 9 proposal showing that for sources with sulfur dioxide (SO_2) emission rates of 4 to 5 pounds per million British Thermal Units (lb./mmBTU). stacks releasing the plume into the downwash region can significantly exceed the 3-hour NAAQS.

The utility industry submitted monitoring results from four sites showing that facilities with short stacks (ranging from 23 to 89 percent of formula height) generated many short-term peaks in the vicinity of the plant at concentrations at least 2 times the highest concentration of the 3-hour SO_2 standard. i.e.. 1 ppm for up to 10 minutes. Those concentrations are the maximun that could be recorded by the monitors used. There is no way to determine from these data the true peak ground-level concentrations.

The NRDC. in commenting on this subject. has argued that downwash-related concentrations are largely theoretical. since stacks have generally been built to avoid downwash. and that actual concentrations occur under other meteorological conditions such as "inversion breakup fumigations" and "looping plums," that can equal these "theoretical" concentrations predicted under downwash.[1] The NRDC also criticized the utility data on numerous technical grounds.

EPA's studies indicate that. when stacks are significantly less than GEP formula height. high short-term concentrations can indeed occur due to downwash that are in the range of the values reported by the utility industry. Concentrations produced by the other conditions cited by NRDC. though high. may be lower by an order of magnitude. and occur less frequently by as much as two orders of magnitude. than those produced by downwash.[2] As stack height approaches the height determined by the GEP formula. the expected frequency and severity of short-term peaks due to downwash becomes less certain. This is to be expected. since it is the purpose of a formula height stack to avoid excessive downwash. While it might theoretically be possible for EPA to revise the GEP formula downward (e.g.. from H+1.5L to H+1.2L. or some other value). such a revision would have little purpose. By moving the release point further into the downwash region. such a change would increase the probability of high downwash-caused peaks. On the other hand. such relatively small changes in stack height are not likely to appreciably affect the emission limitation for the source. This is because emission limitations are calculated based on physical stack height and associated plume rise under atmospheric conditions judged most controlling for the source. Increasing or decreasing stack height by a small fraction will not greatly change the rate or extent of dispersion and thus will not affect the ground-level concentration. Moreover. as EPA noted in its November 9 proposal. no data presently exist on which to base a revision to the formula.

The NRDC submitted data to EPA which it believed to support the conclusions that it urged EPA to adopt concerning short-term peak concentrations under other meterological conditions.[3] However. these data were not presented in a form that could be readily interpreted. and EPA has thus far been unable to draw any conclusions from them.[4]

In reviewing NRDC's comments on building downwash. EPA agrees that there is great uncertainty about our present understanding of this phenomenon. and this is supported by the range and variation of downwash effects observed in recent studies. However. no information has been presented which would convince EPA to abandon the present GEP formulae in favor of any alternative.

The health and welfare significance of downwash concentrations that result in violations of the ambient standards are documented and acknowledged in the standards themselves. The significance of short-term peaks at the levels that EPA's analyses predict is more judgmental. However. a number of studies cited in EPA's "Review of the National Ambient Air Quality Standards for Sulfur Oxides: Assessment of Scientific and Technical Information (EPA-450/5-82-007. November 1982). indicate that concentrations of one ppm sustained for durations of 5 minutes or more can produce bronchoconstriction in asthmatics accompanied by symptoms such as wheezing and coughing. Such concentrations are well within the range of concentrations that can result from downwash. When sources meet the ambient standards. the frequency of occurrence for these concentrations under the other conditions cited by NRDC is substantially lower than for downwash when stacks are less than GEP.

GEP Formula Stack Height. Some commenters. including NRDC. stated that EPA cannot justify retention of the traditional (2.5H) and refined (H+1.5L) GEP formulae based simply on their relationship to the 40-percent criterion. and argued that the formulae provide too much credit in many or most cases. This. they argue. results in allowing sources to obtain unjustifiably lenient emission limitations.

Other commenters argued that Congress explicitly reaffirmed the traditional GEP formula. and that EPA should allow maximum reliance on it (and. by implication. on the refined formula that was subsequently derivied from it).

Response. The use of EPA's refined formula as a starting point for determining GEP was not called into question by any litigant in the *Sierra Club* case. The court's opinion likewise does not question the use of the formula as a starting point. A detailed discussion of the court's treatment of the formula. showing how it endorsed the formula's presumptive validity. is contained in the Response to Comments document.

Despite this limited endorsement. EPA might need to revisit the formula on its own if its reexamination of the "excessive concentration" and modeling issues indicated that the formula clearly and typically misstated the degree of stack height needed to avoid downwash concentrations that cause health or welfare concerns.

However. no such result has emerged from our reexamination. Stacks below formula height are associated with downwash-related violations of the air quality standards themselves where emission rates significantly exceed the levels specified by NSPS. Even where emissions are low. downwash conditions at stacks below formula height can be expected. unlike other conditions. to generate numerous short-term peaks of air pollution at high levels

[1] In "inversion breakup fumigation," an inversion layer dissipates due to heating of the ground. letting the pollutants that were trapped in it descend suddenly to ground level. In "looping plumes," a plume is brought down to the ground close to the source in the form of intermittent puffs under very unstable atmospheric conditions.

[2] "Comments on Peak Ground-Level Concentrations Due to Building Downwash Relative to Peak Concentrations Under Atmospheric Dispersion Processes." Alan H. Huber and Francis Pooler. Jr. June 10. 1985.

[3] Memorandum from David G. Hawkins. NRDC. to William F. Pedersen. Jr. Office of General Counsel. USEPA. May 29. 1985.

[4] Memorandum from Alan H. Huber. ASRL. to David Stonefield. OAQPS. June 21. 1985.

that raise a real prospect of local health or welfare impacts.

As EPA stated in the proposal, it is impossible to rely primarily on fluid modeling to implement the stack height regulations, particularly under the timetable established by the court. 49 FR 44883 (November 9, 1984). No commenter other than NRDC even suggested a different formula that in their eyes would be better, and NRDC's suggestions were premised on their "control first" position, which EPA has found inconsistent with the statute and has rejected. EPA considers the refined formula to be the state-of-the-art for determining necessary stack height.

Given the degree of presumptive validity the formula already possesses under the statute and the court opinion, we believe that this record amply supports its reaffirmation.

Stacks Above GEP Formula Height. The EPA's 1976 stack height guidelines [cite] imposed special conditions on stacks above formula height—the installation of control technology—that were not imposed on lower stacks. Similarly, EPA's 1973 proposal had made credit above formula height subject to a vaguely defined "detailed investigation" (38 FR 25700). The legislative history of the 1977 Clean Air Act Amendments cautioned that credit for stacks above formula height should be granted only in rare cases, and the Court of Appeals adopted this as one of the keystones of its opinion. The court also concluded that Congress deliberately adopted very strict requirements for sources locating in hilly terrain.

For these reasons, EPA is requiring sources seeking credit for stacks above formula height and credit for any stack height justified by terrain effects to show by field studies or fluid modeling that this height is needed to avoid a 40-percent increase in concentrations due to downwash and that such an increase would result in exceedance of air quality standards or applicable PSD increments. This will restrict stack height credit in this context to cases where the downwash avoided is at levels specified by regulation or by act of Congress as possessing health or welfare significance.

To conduct a demonstration to show that an absolute air quality concentration such as NAAQS or PSD increment will be exceeded, it is necessary to specify an emission rate for the source in question.[5] The EPA believes that in cases where greater than formula height may be needed to prevent excessive concentrations, sources should first attempt to eliminate such concentrations by reducing their emissions. For this reason EPA is requiring that the emission rate to be met by a source seeking to conduct a demonstration to justify stack height credit above the formula be equivalent to the emission rate prescribed by NSPS applicable to the industrial source category. In doing this, EPA is making the presumption that this limit can be met by all sources seeking to justify stack heights above formula height. Sources may rebut this presumption, establishing an alternative emission limitation, on a case-by-case basis, by demonstrating to the reviewing authority that the NSPS emission limitation may not feasibly be met, given the characteristics of the particular source.[6] For example, it may be possible for a source presently emitting SO_2 at a rate of 1.8 lb./mmBTU to show that meeting the NSPS rate of 1.2 lb./mmBTU would be prohibitive in that it would require scrapping existing scrubber equipment for the purpose of installing higher efficiency scrubbers. Similarly, a source may be able to show that, due to space constraints and plant configuration, it is not possible to install the necessary equipment to meet the NSPS emission rate. In the event that a source believes that downwash will continue to result in excessive concentrations when the source emission rate is consistent with NSPS requirements, additional stack height credit may be justified through fluid modeling at that emission rate.

A source, of course, always remains free to accept the emission rate that is associated with a formula height stack rather than relying on a demonstration under the conditions described here. The third alternative mentioned in the proposal—using the actual emission limit for the source—has been rejected because, to the extent that limit relied on greater than formula height, it would amount to using a tall stack to justify itself.

The EPA's reliance on exceedances, rather than violations of the NAAQS and PSD increments, is deliberate. Fluid modeling demonstrations are extremely complicated to design and carry out, even when the most simple demonstration criteria—that is, a percentage increase in concentrations, with no consideration of absolute values—are assumed. Adding consideration of an absolute concentration such as a NAAQS or PSD increment substantially complicates this effort further and introduces the scientific uncertainties associated with predicting an exceedance of a 3-hour or 24-hour standard based on 1 hour or less of modeling data. Using an hour or less of modeling values, based on one set of meteorological data, to draw the distinction between only one exceedance of the standard during the 8760 hours in a year, and the two or more that constitute a violation pushes that uncertainty beyond reasonable limits. EPA therefore does not find the additional difficulties that would be created by requiring violations instead of exceedances to be warranted. That is particularly so here, given that the regulations require sources seeking credit above the formula to be well-controlled as a condition of obtaining such credit.

Use of an absolute concentration in the test of "excessive concentrations" can lead to problems of administering the program, in that it can have a "zoning" effect. Since a source can only get stack height credit to the extent that it is needed to avoid a PSD increment or NAAQS exceedance, an emissions increase in the area of that source may increase concentrations beyond the controlling limit, thereby making it difficult for new sources to locate in the area, or for sequential construction of additional emitting units at the source in question.

This effect cannot be avoided under any test for "excessive concentrations" that is tied to absolute concentrations. However, that effect will be mitigated by the fact that the use of this approach is voluntary and limited to sources wishing to rely on fluid modeling to justify stack height credit. Moreover, the effects of downwash tend to occur very near the source, usually on fenced company property. Since concentrations measured at such locations are not used to evaluate NAAQS attainment or PSD increment consumption, new sources wishing to locate in the area are less likely to be affected.

Sources planning sequential construction of new emitting units at one location or contemplating future expansion can reduce the uncertainties noted above by initially obtaining permits for the total number of units anticipated and by planning for expansion in the calculation of necessary physical stack height. In the latter instance, only the allowable stack height credit would be revised as

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[5] In contrast, if the test of "excessive concentrations" involved a simple percentage increase, there would be no need to specify an emission rate, since the increase in concentration caused by downwash is independent of emission rates.

[6] The EPA will rely on its Best Available Retrofit Technology Guideline in reviewing any rebuttals and alternative emission limitations.

expansion is carried out—not actual stack height.

An additional theoretical complication is presented when an absolute concentration is used where meteorological conditions other than downwash result in the highest predicted ground-level concentrations in the ambient air. In such cases, a source that has established GEP at a particular height, assuming a given emission rate, may predict a NAAQS violation at that stack height and emission rate under some other condition, e.g., atmospheric stability Class 'A.' Reducing the emission rate to eliminate the predicted violation would result in stack height credit greater than absolutely necessary to avoid an excessive concentration under downwash. However, reducing stack height places the source back in jeopardy of a NAAQS violation under the other meteorological condition, and so on, "ratcheting" stack height credit and emission rates lower and lower. The EPA has eliminated this "ratcheting" potential in the GEP guideline by providing that, once GEP is established for a source, adjusting the emission rate to avoid a violation under other conditions does not require recalculation of a new GEP stack height.

EPA is making this part of the regulations retroactive to December 31, 1970. In the terms of the court's retroactivity analysis, stacks greater than formula height represent a situation that Congress did affirmatively "intend to alter" in section 123. Moreover, EPA regulatory pronouncements since 1970 have placed a stricter burden on sources raising stacks above formula height than on others.

No source is precluded from building a stack height greater than formula height if such height is believed to be needed to avoid excessive downwash. However, the design and purpose of section 123 prohibit SIP credit for that effort unless a relatively rigorous showing can be made.

Given the ability of sources to avoid modeling and rely on validity of the GEP formulae and requirement for further control of emissions in conjunction with stack heights in excess of formulae height, the result predicted by UARC—exceedances of the NAAQS or PSD increments due to inadequate stack height—is highly unlikely.

The potential effect of changes in background air quality on stack height credit is not substantially different from the effect that such changes in background can have on source emission limitations in nonattainment areas. In the first case, however, sources may be able to address these effects through greater stack height if such changes affect the concentrations under downwash. Moreover, the possibility that shifting background air quality can yield different calculations of GEP is significantly limited by the fact that consideration of background in GEP calculations is restricted to those cases where credit for greater than formula height is being sought or sources are seeking to raise stacks to avoid excessive concentrations.

Raising Stacks Below Formula Height to Formula Height. In response to EPA's proposal to allow automatic credit for GEP formula height, several commenters have argued that EPA has failed to adequately respond to the court's directive to "reconsider whether, in light of its new understanding of 'excessive concentrations,' demonstrations are necessary before stack heights may be raised, even if the final height will not exceed formula height."

Response. Raising a stack below formula height to formula height is not, in EPA's judgment, subject to the same statutory reservations as building stacks greater than formula height. However, as the court has cautioned, it may still be necessary for these sources to show that raising stacks is necessary to avoid "excessive concentrations" that raise health or welfare concerns.

For these reasons, sources wishing to raise stacks subsequent to October 11, 1983, the date of the D.C. Circuit opinion, must provide evidence that additional height is necessary to avoid downwash-related concentrations raising health and welfare concerns. These rules allow sources to do this in two ways.

The first way is to rebut the presumption that the short stack was built high enough to avoid downwash problems; i.e., to show, by site-specific information such as monitoring data or citizen complaints, that the short stack had in fact caused a local nuisance and must be raised for this reason. The EPA believes that both the historical experience of the industry and the data on short-term peaks discussed earlier show that short stacks can cause local nuisances due to downwash. However, where a source has built a short stack rather than one at formula height, it has created a presumption that this is not the case. General data on short-term peaks may not be strong enough to support, by themselves and in the abstract, a conclusion that the stack must be raised to avoid local adverse effects. Instead, that proposition must be demonstrated for each particular source involved.

In the event that a source cannot make such a showing, the second way to justify raising a stack is to demonstrate by fluid modeling or field study an increase in concentrations due to downwash that is at least 40-percent in excess of concentrations in the absence of such downwash and in excess of the applicable NAAQS or PSD increments. In making this demonstration, the emission rate in existence before the stack is raised must be used.

Since raising stacks to formula height is not subject to the same extraordinary reservations expressed by Congress and the court with respect to stacks being raised above formula height, EPA does not believe that the use of presumptive "well-controlled" emission rate is appropriate here. As discussed in EPA's response to NRDC's "control first" argument, the basic purpose of section 123 was to take sources as it found them and, based on those circumstances, to assure that they did not avoid control requirements through additional dispersion. Use of a source's actual emission rate in this instance is consistent with that basic purpose and, absent special indications of a different intent, should be used in stack height calculations.

The EPA believes that it is most unlikely that any source with a current emission limitation has failed to claim full formula credit for a stack of formula height. Accordingly, the question whether a source can receive stack height credit up to formula height will involve only sources that want to actually raise their physical stack, not sources that simply want to claim more credit for a stack already in existence. A source will presumably not go to the trouble of raising an existing stack without some reason. If a source cannot show that the reason was in fact the desire to avoid a problem caused by downwash, then the inference that it was instead a desire for more dispersion credit is hard to avoid. A nuisance caused by downwashed emissions could include citizen or employee complaints or property damage. A source would be expected to show that complaints of this nature were reasonably widespread before getting credit under this section.

The EPA does not intend to make this rule retroactive to stacks that "commenced construction" on modifications that would raise them to formula height prior to October 11, 1983. Applying the court's retroactivity analysis, it appears:

1. The new rule does depart from prior practice. The EPA's 1973 proposed rule affirmatively encouraged sources with shorter stacks to raise them to formula

height.[7] Though EPA's 1976 guideline can be read as imposing a "control first" requirement on some stack height increases, its general thrust gave automatic credit for all stacks that met the "2.5" times formula.[8] Automatic permission was similarly set forth in the 1979 proposal, in the 1981 reproposal, and in the 1982 final rule. Only a notice published in 1980, but later withdrawn, departs from this trend, requiring the use of field studies or fluid modeling demonstrations to justify stack height increases up to GEP formula height.[9] Even then, the notice would have made this policy prospective in its application.

2. Sources that raised stacks in reliance on this past EPA guidance assuming the availability of dispersion credit cannot be distinguished from the sources, in the example approved by the court, that built stacks to the traditional formula in an identical expectation of dispersion credit.

3. It cannot be said that the raising of stacks to formula height is a practice that Congress "affirmatively sought to end." It is not mentioned in the text of the statute or its legislative history. Further, as the court has already noted, the statute attributes a degree of presumptive validity to the formula on which sources that raise their stacks will have relied.

Discretion to Require Fluid Modeling. Several commenters argued that EPA's proposal to allow agencies to require the use of fluid modeling was unnecessary, since EPA had already documented the validity of the GEP formulae. Furthermore, these commenters argue that this allowance would make fluid modeling the rule, rather than the exception. This would result, the commenters state, because it was their expectation that agencies or environmental groups would nearly always call for fluid modeling demonstrations during the permit application and review process.

Other commenters stated that providing the discretion to require fluid modeling was appropriate, since EPA had failed to demonstrate that the GEP formulae represented the minimum height necessary to avoid excessive concentrations.

Response. The Court of Appeals directed EPA to reexamine whether its rules should allow States, as a matter of discretion, to require even sources that planned to rely on the formula to show instead by fluid modeling that a stack this high was required to avoid dangers to health and welfare caused by downwash. The court suggested that EPA should include such a provision unless it could find that the formula was so accurate, or tended so much to err on the low side, as to make discretionary authority to adjust formula height downward unnecessary.

The EPA believes that the court was mistaken in its conclusion that a stack at formula height is likely to generate downwash concentrations as great as 40 percent only in uncommon situations. In fact, EPA's observations indicate that when stacks are built to GEP formula height, an increase in concentrations due to downwash can still be expected to occur that is between 20 and 80 percent greater than the concentration that would occur in the absence of building influences.[10]

Nevertheless, in response to the court's remand, EPA is including in this final rule a provision for the authority administering these rules to require field studies or fluid modeling demonstrations, even for stacks built to formula height, in cases where it believes that the formula may significantly overstate the appropriate stack height credit.[11]

While EPA believes the formula is a reasonable rule of thumb indicating the stack height needed to avoid some probability of a standards violation and a significantly greater probability of a local nuisance, actual results in any given case may vary somewhat based on specific circumstances. The EPA has attempted to minimize this possibility within the limits of available data by identifying two particular situations in which it believes that the formulae may not be reliable indicators of GEP: Porous structures and buildings whose shapes are aerodynamically smoother than the simple block-shaped structures on which the formulae are based.[12] However, EPA acknowledges that other situations, of which the Agency is not presently aware, may arise wherein the formulae may not be adequate.

The EPA intends to "grandfather" any source that relied on the formula in building its stack before the date of EPA's 1979 proposal from the effect of this discretionary reexamination requirement.

Only in that proposal did EPA first suggest that such a discretionary reexamination provision might be included in the final rule. The retroactivity analysis set out earlier therefore supports exempting stacks built in reliance on EPA guidance before that date from discretionary reexamination. Indeed, a failure to "grandfather" these sources would lead to the paradoxical result that a source that had built a GEP stack under the traditional EPA formula would have its direct reliance interests protected by the "grandfather" provision previously upheld by the court, but could then lose that "grandfathered" credit through a case-specific demonstration requirement showing that the traditional formula was somewhat inaccurate—the very reason behind the change in the formula properly found non-retroactive by EPA earlier.

Given this background, EPA believes that the effect on emissions of including or of excluding a provision for discretionary determinations from this rule is likely to be very small. Building stacks above formula height, and raising stacks below formula height to formula height, are covered by regulatory provisions already discussed. The only case left for discretionary determinations to address is the building of stacks at formula height in the post-1979 period. However, all major sources built since that time are already controlled to SO_2 emission rates no greater than 1.2 lb./mmBTU—and, not uncommonly much less—under various EPA regulations. All new power plants on which construction "commenced" since 1971 must meet EPA's NSPS mandating an emission rate no greater than this level. That standard was tightened for all power plants on which construction "commenced" after 1978. In addition, all "major" sources built since 1977 in areas subject to the Act's PSD requirements have had to install best available control technology. That technology must require the greatest degree of emission control that is achievable considering technology, economics, and energy impacts.[13]

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[7] "The use of stack height up to the level of good engineering practice is encouraged by EPA in order to avoid local nuisances." (38 FR 25700).

[8] 41 FR 7451 (February 18, 1976); Guideline Sections B.1, C.1(2), C.2(2).

[9] 45 FR 42279 (June 24, 1980); specific discussion of stack height credit is discussed at 42281–2.

[10] Guideline for Determination of Good Engineering Practice Stack Height, pp 29–33. This is further illustrated in Figures 5 and 6.

[11] Quite apart from any such regulatory provision, States have authority to require such demonstrations, on the terms outlined or on stricter or more lenient terms, under the savings provisions of section 116 of the Clean Air Act.

[12] Earlier EPA guidance, although expressing reservations about the accuracy of the formula when applied to rounded structures, allowed its use for certain tapered structures and cooling towers. "Guideline for Determination of Good Engineering Practice Stack Height," July 1981 at 38–40. For this reason, EPA will grandfather any credits for such structures that were granted prior to November 9, 1984. Since EPA guidance has never allowed credit for porous structures, the restriction in this rule for such structures applies to all stacks in existence since December 31, 1970.

[13] Clean Air Act section 169.

If such sources had to show that use of a formula height stack was needed to avoid exceedances of the NAAQS or PSD increments, that might prove difficult for many of them. The likelihood of such exceedances tends to decrease as the emission rate for the source decreases. By the same token, the incremental emission reductions available from the sources that are at issue here tend to be small and among the most expensive available. In terms of emission reductions, little is at stake where these sources are concerned.

Accordingly, the rules will require such sources, if a reviewing authority calls for a demonstration, to the rules show that the use of a formula stack height is needed to avoid a 40-percent increase in concentrations due to downwash. This will provide a rough check on whether the formula, as applied in the particular case at issue, produces the result it was designed to produce.

The EPA is not providing here for sources to justify their formula height stacks by arguing that the height in excess of that needed to avoid NAAQS violations is needed to avoid a local nuisance. The discretionary modeling requirement is designed for application to stacks before they were built. Beyond that, there is no way to determine based on the *absence* of a local nuisance that a formula height stack is not too tall, in the way that the *presence* of a nuisance shows that a stack under formula height in fact is too short. Accordingly, there will be no way, as there was with short stacks being raised, to determine from actual experience whether a local nuisance would occur at a shorter stack height. Though avoiding local nuisance is a legitimate purpose for which stacks are built, it would be very difficult to show by modeling what stack height was needed to avoid it.

Some commenters have misunderstood EPA's allowance of discretion to require fluid modeling as requiring such modeling whenever *any* individual or entity called for such a demonstration. This discretion rests explicitly with the reviewing agencies who have always had the prerogative to require more stringent analyses in the SIP process, and no obligation is implied for these agencies to require fluid modeling simply because it has been called for by some individual during the permit review process. It is EPA's expectation that technical decisions to require such additional demonstrations would be based on sound rationale and valid data to show why the formulae may not be adequate in a given situation. In any case, given the burden of reviewing a fluid modeling demonstration, an agency is not likely to exercise this option absent sufficient justification. Consequently, EPA disagrees with the commenters' contention that fluid modeling will supplant the use of the GEP formulae, except in what EPA believes will be unusual instances.

Reliance on the 2.5H Formula. In limiting the applicability of the 2.5H formula to those cases where the formula was actually relied upon, the November 9 proposal defined such reliance in terms of stack design. A number of comments indicated that actual stack design and construction may ultimately be control, not by the 2.5H engineering rule, but by construction materials specifications. Consequently, while 2.5H rule may have provided an initial starting point in stack design, the rule may not have dictated final stack height. In other cases, it was argued that a number of source owners may have constructed their stacks in excess of what was determined to be minimum GEP for precautionary reasons, for process requirements, or in anticipation of additional growth in the area surrounding the facility, even though emission limitations for these sources would have been limited then, as now, to formula height. Consequently, it was argued that EPA should allow sources to demonstrate reliance on the formula in the calculation of emission limits as well as in the design of the stack.

In response to EPA's request for comments on what evidence should be considered acceptable in determining reliance on the 2.5H formula, some commenters urged EPA to consider reconstructed evidence, e.g., affidavits from design engineers or copies of correspondence indicating past reliance on EPA guidance. Other commenters stated that "reliance" should be very strictly construed, that EPA should be circumspect in its review of reliance demonstrations, and that only contemporaneous documentary evidence, such as blueprints and facility design plans, be accepted as evidence.

Response. The EPA is in general agreement with the view that reliance should be considered in relation to the emission limitation for the source, not the design. Since section 123 specifically prohibits EPA from regulating actual stack heights and rather regulates stack height credits used in setting emission limitations, it would be illogical to require that sources demonstrate reliance on the 2.5H formula for actual stack design. Moreover, such an approach would contradict principles of sound planning, in that it would penalize those sources that have built taller stacks in anticipation of facility expansion or other growth in the area that could influence GEP determinations.

If a stack has been built taller than 2.5H formula provides, while the emission limitation has been calculated assuming 2.5H credit, a convincing demonstration has been made that the source properly relied on the formula. Conversely, if the emission limitation for the source is based on some other stack height credit, such as 2.8H, 3.5H or some other number, it would be difficult to show that the GEP formula had in fact been relied on.

In some cases the emission limit information may be unavailable or inconclusive. In such cases, EPA will allow reliance on reconstructed evidence of construction intent.

In comments submitted during the public comment period and in response to questions raised by EPA at the public hearing held on January 8, 1985, industry representatives repeatedly stated that contemporaneous evidence of reliance on the 2.5H formula, such as facility design plans, dated engineering calculations, or decision records are rarely, if ever, retained for more than a few years after construction of the facility is completed. Consequently, they argued that most cases of legitimate reliance would be denied if contemporaneous evidence were required in order to retain for the 2.5H formula.

The EPA agrees. Additionally, credit afforded by the 2.5H formula in excess of that resulting from the use of the H+1.5L derivative is likely to be small, except when the building on which stack height credit is based is substantially taller than it is wide. Finally, it is EPA's view that the court did not intend that sources be subject to a rigorous or overly stringent of reliance, but only that they be accorded a reasonable opportunity to show reliance on the 2.5H formula. For these reasons, EPA will allow the submission of reconstructed, i.e., noncontemporaneous documentary evidence to demonstrate reliance on the 2.5H formula.

Definition of "Nearby". Comments were submitted by UARG and others, arguing that, effectively, no limitation should be placed on the consideration of terrain-induced downwash. Alternatively, some of these commenters argued that the court decision requires that a limitation be adopted that does not apply any distance restriction of ½ mile in modeling terrain effects such as is

applied to structures in the use of GEP formulae, but rather allows consideration of all terrain that results in the same downwash effect as those structures within ½ mile of the stack.

Other commenters have argued that the court decision and legislative history preclude EPA from allowing consideration of any terrain beyond a distance of ½ mile, regardless of where it begins.

Response. For the reasons summarized below, EPA does not accept either the interpretation that the court decision authorizes EPA to adopt a definition based solely on effect, or that it limits consideration exclusively to terrain features falling entirely within ½ mile.

When Congress discussed the allowance of credit for stack height to address downwash, it stated that the term "nearby" was to be "strictly construed," noting that if the term were to be interpreted "to apply to man-made structures *or terrain features* ¼ to ½ mile away from the sources or more, the result could be an open invitation to raise stack heights to unreasonably high elevations and to defeat the basic underlying committee intent." [14]

In its opinion, the court held that EPA could not give unlimited credit when modeling terrain features because that would conflict with the Congressional intention to impose artificial limits on that credit. The court was not presented with, and did not address, the question of what to do about terrain features that "began" within ½ mile and extended outside it. The approach adopted by EPA carried out this congressional purpose to impose an artificial limit but at the same time reflects the real facts more closely than an absolute ½ mile limitation.

Unlike man-made structures, terrain features do not have readily definable dimensions other than height. For this reason, EPA has defined "nearby" as generally allowing inclusion of consideration of terrain features that fall within a distance of ½ mile of the stack. EPA's definition will permit consideration of such terrain that extends beyond the ½ mile limit if the terrain begins within ½ mile, allowing that portion within 10 times the maximum height of the feature, not to exceed 2 miles, as described in the proposal.

To define when a terrain feature "begins" within ½ mile, EPA has related terrain height at the ½ mile distance to the maximum stack height that could be justified under the other two methods for determining GEP. Accordingly, EPA will require that terrain features reach a height at the ½ mile distance limit of either 26 meters (i.e., 65 meters divided by 2.5) or 40 percent of the stack height determined by the GEP formulae applied to nearby buildings.

Treatment of New versus Existing Sources Under the Definition of "Nearby". In the proposal, EPA requested comment on whether new sources should be treated differently from existing sources and presented two options for addressing them.

Few comments were received on these options. Several questioned the logic of distinguishing between new and existing sources in the regulations. One commenter argued that new and existing sources should both be subject to the strict ½ mile limit proposed under one option for new sources only. This has already been discussed under EPA's response to comments on the general definition of "nearby" and is not addressed further here.

Response. New sources are initially subject to more stringent control requirements than many existing sources. Consequently, it is less likely that the emission limitations and stack height credits for these sources will be affected by terrain features. Furthermore, EPA believes that the effect of applying a more restrictive distance limitation will be insignificant and will result only in minor changes in siting, rather than substantial relocation of sources. For this reason, EPA has selected the second option, treating new and existing sources identically under the definition of "nearby."

EPA is giving this definition of "nearby" retroactive application to December 31, 1970. The court's decision makes clear its conclusion that Congress affirmatively focused on this issue and decided thus making application as of the enactment date proper.

Definition of Other Dispersion Techniques. The EPA received many comments on the proper scope of the definition of "dispersion techniques," and perhaps more on the appropriate bounds of the exclusions. Industry commenters generally argued that EPA had improperly proposed to deny consideration for plume-enhancement effects that are "coincidental" with techniques and practices routinely carried out for sound engineering and economic reasons. They argued that EPA should prohibit credit only when a technique or practice was decisively motivated by a desire for dispersion credit. Such an approach would create a "but for" test using the intent of the source owner or operator as the basis for EPA's decisions.

Other commenters argued that EPA must use a test based purely on *effects*, prohibiting credit where a technique or practice has the effect of enhancing dispersion, regardless of any other justification.

Response. In the final regulation, EPA has rejected the polar positions discussed above. The argument that dispersion *effects* are forbidden regardless of motive is discussed and rejected as a part of the general response to the argument that only "well-controlled" sources can receive any dispersion credit.

Conversely, a pure "but for" test runs the risk of creating exclusions that effectively swallow the rule itself. The EPA judges that few, if any, circumstances are likely to arise in which some other benefit or justification cannot be asserted as the basis for a practice, and therefore for such an exclusion.

Where prospective evaluation of merged gas streams, or combined stacks, is concerned, there is no reason to assume the serious administrative burdens investigating such claims might entail. The court directed EPA to apply an intent test "at a minimum," and left it free to take an approach that may be less generous toward credit for combined stacks. Since sources in the future will be able to plan against the background of rules that define permissible credits precisely, little unfairness results from a restrictive approach.

When retrospective application is concerned, however, the retroactivity analysis spelled out by the court directs that an intent-based test be employed as described later.

Accordingly, after considering the record on these matters, EPA has determined to take a "middle-ground" approach to this question. The final regulation retains the same broad prohibition found in the proposal on increasing exhaust gas plume rise by manipulation of parameters, or the combining of exhaust gases from several existing stacks into one stack, with several classes of exclusions. These exclusions recognize the existence of independent justifications based on engineering and/or economic factors, and include:

(1) Demonstration of original facility design and construction with merged gas streams;

(2) Demonstration that merging after July 8, 1985 is part of a change in operation that includes the installation of pollution controls and results in a net reduction in allowable emissions of the pollutant for which credit is sought; or

[14] H.R. Report No. 294, 95th Cong., 1st Sess. 93 (1977).

(3) Demonstration that merging before July 8, 1985 was part of a change in operation that included the installation of control equipment, or was carried out for sound economic or engineering reasons. An allowable emissions increase creates the presumption that the merging was not carried out for sound economic or engineering reasons.[15]

Of these exclusions, the first is identical to the proposal, and the second and third are modifications of the second exclusion included in the proposal, with a refinement based on prospective/retroactive application.

The first exclusion was retained for the reasons stated in the proposal. After reviewing the comments submitted, EPA determined that its previous conclusion—that standard practice in designing and constructing facilities routinely includes venting emissions from several units into a common or multiflued stack—is correct. Sound engineering and economic reasons, based on costs of constructing and maintaining separate stacks, availability of land, and cost savings for pollution control equipment support facility design and construction considerations. Even if air pollution requirements did not exist at all, sources would have incentives to use as few stacks as possible.

Since *increasing* plume rise, rather than plume rise itself, is a "dispersion technique" and original design and construction define the initial base, such original design and construction of merged gas streams is not considered a dispersion technique. Moreover, in designing the facility, a source can usually choose to build one larger unit rather than several smaller units. Therefore, prohibiting credit for original design generally only affect the design of units and not the plume rise.

Objections have been raised to applying this logic to sources which are constructed over a period of time, but use a single stack. However, the same factual arguments just listed would apply is the same, if the original design included provision for the additional units in the plans for the facility, and in the design and construction of the stack. In such a case, the later units merged into the stack would be included within the exclusion.

In addition, it would be logically very difficult to apply a rule denying credit to original design stacks. EPA or the State would have to assume how many stacks would have been built absent a desire for dispersion credit, where they would have been located, and how high they would have been. Since these alternative stacks would be purely hypothetical, there would be no clear way of answering these questions: the answer would simply have to be selected arbitrarily from the wide range of possible answers. This problem is absent when existing stacks have been combined.

In contrast, EPA finds changes from the original design of a facility in order to include merged stacks to require a narrower judgment. The EPA concluded that, where prospective application is concerned, the exclusion should be available only to sources that combine stacks reduces allowable emissions of the pollutant for which the credit is granted. There are obvious economic advantages in combining stacks to reduce the number of emission control units that must be purchased. In addition, the installation of pollution control for the pollutant in question provides substantial assurance that the purpose of the combination is not to receive a more lenient emission limit.

However, given past EPA guidance on merging of stacks, EPA has concluded that retroactive application of this test would not be proper. The EPA guidance documents uniformly took the view that merging of separate stacks into a single stack "is generally not considered a dispersion technique" absent other factors such as excessive use of fans or other devices.[16] Each document provided guidance to a source of a Regional Office regarding the proper treatment of merged stacks in calculating emission limitations. Considering these statements, EPA must consider the standards expressed by the court, as previously discussed in this notice, in judging the propriety of a differing standard for retroactive application. Given the nature and applications of the guidance which it issued in the past, EPA judges the first two criteria—that is, whether the new rule represents an abrupt departure from well-established practice, and whether the parties against whom the new rule is applied relied on the former rule—to be satisfied. In addition, applying the prospective criteria to past practice would require significant changes in fuel and/or control equipment for parties whose emission limits were based on previous guidance. Finally, and particularly where sources have not been allowed to increase their previous emissions as a result of the combining stacks, EPA does not judge the statutory interest to be overriding in this instance, since the rule even in its retrospective version only exempts sources that can show a reasonable non-dispersion enhancement ground for combining stacks, and thereby implements the "intent" test suggested by the court. On the other hand, EPA has never suggested that combined stacks that *cannot* meet such a test are proper. Sources whose actual emissions are increased, or whose emission limitations are relaxed in connection with the combining of stacks create a strong presumption that the combination was carried out in order to avoid the installation of controls. Such combinations would indeed run counter to the statutory purpose, and retrospective application of a test that forbids them is therefore proper.

Exemptions from the Definition of Dispersion Techniques. The EPA received numerous comments in response to its request for input on what consideration, if any, should be given to excluding sources from the definition of "Dispersion Techniques" whose emissions are below a specified level or whose stacks are less than the *de minimis* height. These commenters argued that combining gas streams in particular often had an economic justification independent of its effects on dispersion, and therefore should not be generally forbidden. Other comments stated that, in considering any such exclusion, EPA should consider the effect on total atmospheric loadings.

Response. Some limitation on the number of sources affected by the definition at "dispersion techniques" necessary for EPA to carry out the stack height program. There are currently estimated to be over 23,000 sources of SO_2 in the United States with actual emissions exceeding 100 tons per year. It would not be possible for EPA or States to review the emission limits of even a significant fraction of this number within a reasonable time period. Twenty-two thousand of these sources have emissions less than 5,000 tons per year and contribute a total of less than 13 percent of the total annual SO_2 emission.[17] For this reason, and for reasons of administrative necessity discussed earlier, EPA is adopting an exemption from prohibitions on manipulating plume rise for facilities with allowable SO_2 emissions below

[15] In cases where no emission limit existed for a source prior to the merging, such merging is not to result in any increase in the actual emissions that occurred prior to the merging.

[16] Memorandum from Darryl Tyler to Steven Rothblatt, August 20, 1980. See also letter from Walt Barber from Howard Ellis, October 6, 1980, and from David Stonefield to Joseph Pausa, June 27, 1980.

[17] Memorandum from Eric Ginsburg, OAQPS to David Stonefield, "Stratification of SO_2 Point Sources by Size," June 25, 1985.

5,000 tons per year. The EPA believes the effect of this exemption on total SO_2 emissions to be *de minimis* in nature. Even if these sources were able to increase their emission rates as the result of an exemption from the definition of dispersion techniques, their combined effect would not be significant. Indeed, because these sources are exempt on the basis of their annual emissions, there exists an upper limit to the extent to which they may obtain relaxed emission limitations, i.e., to maintain an exemption, the annual emissions of a source may never exceed 5,000 tons per year. For these reasons, the 5,000 ton limit passes a *de minimis* test even more clearly than the 65-meter limit included without challenge in the prior version of this rule. Moreover, EPA believes that a large majority of these sources would not be inclined to seek less stringent emission limitations, in part because a substantial portion of them are limited by State and local fuel use rules.

The EPA believes at this time that a *de minimis* size exemption is justified only for sources of SO_2 and that the number of small sources for which emission limitations for other pollutants are a significant concern would not support a similar exemption. The EPA will continue to review the need for such exemptions and, if deemed appropriate, will propose them for review and comment at a later date.

Plume Impaction. The EPA received a number of comments requesting that credit for plume impaction be retained on the grounds that eliminating such credit would have severe impacts on existing sources. Several approaches were offered for overcoming plume impaction effects in modeling to determine emission limitations based on GEP stack height. Generally, these approaches focused on modifying the stack-terrain relationship represented in the models. Several commenters argued along these lines that the court recognized and approved of EPA's attempt to avoid the effects of plume impaction, but only disapproved of EPA's regulatory method in allowing sources to avoid impaction. These commenters argued that the court did not preclude EPA from allowing credit to avoid plume impaction, but only from allowing credit for stack height in excess of GEP; this, it was argued, could be remedied in a way that was consistent with the court decision by incorporating impaction avoidance within the definition of GEP. It was also suggested that EPA give its "interim approval" to the use of certain refined complex terrain models, in particular the Rough Terrain Display Model (RTDM), to calculate emission limitations for sources affected by changes to the stack height regulation.

Response. The EPA agrees that the court was cognizant of the problem of plume impaction and noted that there was much to recommend EPA's allowance of credit for impaction avoidance. However, the allowance of credit for plume impaction was not remanded to EPA for revision or reconsideration, but was reversed by the court as exceeding EPA's authority.

The EPA does not agree that it would be possible to redefine GEP in a manner that allowed credit for avoiding impaction, since GEP is explicitly defined in terms of preventing excessive concentrations due to downwash, wakes, and eddies. Plume impaction is a phenomenon completely unrelated to downwash and, rather, is a consequence of effluent gases being emitted at an insufficient height to avoid their striking downwind hillsides, cliffs, or mountainsides prior to dilution. Manipulation or "adjustment" of modeling parameters to avoid predicting theoretical plume impaction where actual stacks have been constructed above GEP would be tantamount to granting the same impaction credit that was invalidated by the court. Furthermore, EPA believes that the manipulation of modeling parameters for no other reason than to avoid an undesirable result is technically indefensible.

The EPA is in the process of revising its "Guideline on Air Quality Models." A number of individuals commenting on the guideline have requested that EPA approve the use of the RTDM model as a preferred technique. Further discussion of this issue can be found in documents associated with EPA's action on the modeling guideline (Docket No. A-80-46). With respect to the revised stack height regulation, EPA has not rejected the use of RTDM. To the extent that appropriate and complete data bases and information on model accuracy are available, EPA may approve the use of RTDM on a case-by-case basis when executed in accordance with the guideline requirements. Sponsors of RTDM are presently developing more extensive support for broader applications of the model. When such support is received and reviewed by EPA, consideration will be given to allowing more general use of RTDM in regulatory activities such as compliance with the stack height rule.

Timetable for State Implementation. A number of commenters stated that it was not possible to conduct the necessary analyses, prepare and submit revised State rules and source-specific emission limitations within the 9-month timeframe referred to in the November 9 proposal. A variety of alternative schedules were proposed by these commenters for consideration by EPA.

Response. As with EPA's previous allowance of credit for plume impaction, the timetable for preparation and submittal of revised SIP's was not an issue remanded by the court. The EPA is in agreement that these revisions to the stack height regulation will require significant efforts by State and local agencies, individual emission source owners and EPA Regional and Headquarters offices in order to comply within the 9-month timeframe required by section 406(d)(2) of the 1977 Clean Air Act Amendments. It was based on this concern that EPA originally provided a two-step process for States to follow in revising their plans and submitting them to EPA for approval. However, the court found that this effort was explicitly contrary to section 406(d)(2) and ordered EPA to follow the 9-month schedule provided in the Clean Air Act.

New Sources Tied into Pre-1971 Stacks. As indicated earlier, in response to the court opinion, EPA proposed to deny "grandfathered" status to post-1970 sources tying into pre-1971 stacks. Some commenters stated that EPA was in no way prohibited from allowing credit for new sources ducted into pre-1971 stacks exceeding GEP height. Rather, they indicated that EPA simply had to provide justification for such allowance.

Other commenters indicated general support for EPA's proposal with respect to new sources tying into grandfathered stacks, but suggested that several expansions or clarifications be provided, most notably that, in addition to new and major modified sources, reconstructed sources not be allowed greater than GEP stack height credit when tying into greater than GEP stacks.

Response. In further review of this issue, EPA can find no convincing rationale to allow sources constructed after December 31, 1970, to avoid GEP restrictions simply by ducting their emissions into a stack that is "grandfathered" under section 123. On the contrary, the intent of section 123 to limit credit for stack height in excess of GEP suggests that EPA should not allow credit for such stack height except to honor financial commitments made prior to the end of 1970. Sources in existence after that date should be treated equally under the regulation and not allowed to avoid legitimate control requirements

through the use of "grandfathered" stack heights.

Sources undertaking major modification, or reconstruction become subject to additional control requirements under the Clean Air Act and are treated as "new sources" for the purpose of new source review and PSD requirements. EPA finds it appropriate that GEP requirements should be invoked at the time that other requirements for new, modified, or reconstructed sources become applicable.

Summary of Modifications to EPA's Proposal Resulting from Public Comments

Based on comments received during the public comment period, EPA has made a number of revisions to its proposed regulation in addition to those discussed above. These revisions are summarized below.

Section 51.1(hh)(2)(B)(ii) of the regulation has been clarified to require sources merging gas streams after July 8, 1985 to achieve a net reduction in allowable emissions. This change was made to make it clear that the effects of merging should not be used as a way of achieving compliance with present emission limits and to avoid penalizing sources who are presently emitting at less than allowable levels.

Section 51.1(hh)(2)(B)(iii) allows credit for a source that merged gas streams in a change of operation at the facility prior to July 8, 1985 that included the installation of control equipment or had other sound engineering or economic reasons. Any increase in the emission limitation, or in the previous actual emissions where no emission limitation existed created a presumption that those sound reasons were not present.

Section 51.1(hh)(2)(E) has been added to exclude from the definition of prohibited "dispersion techniques" the use of techniques affecting final exhaust gas plume rise where the resulting total allowable emissions of SO_2 from the facility do not exceed 5,000 tons per year.

Section 51.1(ii)(1) has been revised to specify that the 65 meter *de minimis* height is to be measured, as in other determinations of GEP stack height, from the ground-level elevation at the base of the stack. This does not represent a substantive change in the rule or in its application relative to past practices, but rather a simple clarification.

Section 51.1(ii)(2) has been revised to require that source owners demonstrate that the 2.5H formula was relied on in establishing the emission limitation.

Section 51.1(ii)(3) has been revised as discussed elsewhere in this notice to specify that an emission rate equivalent to NSPS must be met before a source may conduct fluid modeling to justify stack height credit in excess of that permitted by the GEP formulae.

Section 51.1(jj) now defines "nearby" for purposes of conducting field studies or fluid modeling demonstrations as 0.8 km (½ mile), but allows limited consideration of terrain features extending beyond that distance if such features "begin" within 0.8 km, as defined in the regulation.

Section 51.1(kk) has been revised to provide separate discussions of "excessive concentrations" for the separate situations discussed earlier in this preamble. As that discussion makes clear, EPA believes that the differing categories of sources subject to this rule are best addressed by requirements that vary somewhat with those circumstances. This definition embodies that approach.

Section 51.12(k) has been corrected to provide that the provisions of § 51.12(j) shall not apply to *stack heights* in existence before December 31, 1970. The proposal had incorrectly stated that ". . . § 51.12 shall not apply to *stacks* existence. . . ."

Program

This regulation does not limit the physical stack height of any source, or the actual use of dispersion techniques at a source, nor does it require any specific stack height for any source. Instead, it sets limits on the maximum credit for stack height and other dispersion techniques to be used in ambient air modeling for the purpose of setting an emission limitation and calculating the air quality impact of a source. Sources are modeled at their actual physical stack height unless that height exceeds their GEP stack height. The regulation applies to all stacks in existence and all dispersion techniques implemented since December 31, 1970.

State Implementation Plan Requirements

Pursuant to section 406(d)(2) of the Clean Air Act Amendments of 1977, EPA is requiring that all States (1) review and revise, as necessary, their SIP's to include provisions that limit stack height credits and dispersion techniques in accordance with this regulation and (2) review all existing emission limitations to determine whether any of these limitations have been affected by stack height credits above GEP or by any other dispersion techniques. For any limitations that have been so affected, States must prepare revised limitations consistent with their revised SIP's. All SIP revisions and revised emission limitations must be submitted to EPA within 9 months of promulgation of this regulation.

Interim Guidance

In its proposal, EPA stated that it would use the proposed regulation to govern stack height credits during the period before promulgation of the final regulation. The EPA further stated that any stack height credits that are granted based on this interim guidance would be subject to review against the final rules and may need to be revised. Consequently, with these final rules, EPA is requiring that any actions that were taken on stack heights and stack height credits during this interm period be reviewed and revised as needed to be consistent with this regulation.

Regulatory Flexibility Analysis

Pursuant to the provisions of 5 U.S.C. 605(b), I hereby certify that the attached rule will not have significant economic impacts on a substantial number of small entities. This rule is structured to apply only to large sources; i.e., those with stacks above 65 meters (213 feet), or with annual SO_2 emissions in excess of 5,000 tons, as further noted in the rule. Based on an analysis of impacts, electric utility plants and several smelters and pulp and paper mills will be significantly affected by this regulation.

Executive Order 12291

Under Executive Order 12291, EPA must judge whether a regulation is "major" and therefore subject to the requirement of a regulatory impact analysis. EPA's analysis of economic impacts predicts a potential cost to emission source owners and operators exceeding $100 million; therefore, this is a major rule under Executive Order 12291. However, due to the promulgation deadline imposed by the court, EPA did not have sufficient time to develop a full analysis of costs and benefits as required by the Executive Order. Consequently, it is not possible to judge the annual effect of this rule on the economy. A preliminary economic impact analysis and subsequent revision were prepared and are in the docket.

For any facility, the air quality and economic impact of the stack height regulation generally depends on the extent to which the actual stack at that facility conforms to GEP stack height.

Thus, when the regulation is applied to large sources, i.e., those with stack height greater than GEP and emissions greater than 5,000 tons per year, it will have the potential for producing emission reductions and increased control costs.

A preliminary evaluation of the potential air quality impacts and a cost analysis of the regulation was performed at the time of proposal. The impacts identified were established in isolation of other regulatory requirements. The report predicted a range of impacts, from a "low impact" scenario that presumed that many potentially affected sources would be able to justify their existing stack heights, configurations, and emission limitations to a "high impact" scenario which assumed that all of the potentially affected sources would be required to reduce their emissions to some degree.

In the development of its final rulemaking action, EPA refined its evaluation of potential impacts, producing revised estimates of the probable costs of the changes to the regulation and expected reductions in SO_2 emissions. As a result of this refinement, EPA estimates that the rule will yield reductions in SO_2 emissions of approximately 1.7 million tons per year. The annualized cost of achieving these reductions will be aproximately $750 million, and the capital cost is expected to be approximately $700 million.

This regulation was reviewed by the Office of Management and Budget, and their written comments and any responses are contained in Docket A-83-49.

Judicial Review

The EPA believes that this rule is based on determinations of nationwide scope and effect. Nothing in section 123 limits its applicability to a particular locality, State, or region. Rather, section 123 applies to sources wherever located. Under section 307(b)(1) of the Clean Air Act (42 U.S.C. 7607(b)(1)), judicial review of the actions taken by this notice is available only by the filing of a petition for review in the United States Court of Appeals for the District of Columbia and within 60 days of the date of publication.

List of Subjects in 40 CFR Part 51

Air pollution control, Ozone, Sulfur dioxide, Nitrogen dioxide, Lead, Particulate matter, Hydrocarbons, Carbon monoxide.

Dated: June 27, 1985.

Lee M. Thomas,

Administrator.

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

Part 51 of Chapter I, Title 40 of the Code of Federal Regulations is amended as follows:

1. The authority citation for Part 51 continues to read as follows:

Authority: Sec. 110, 301(a), and 123, Clean Air Act as amended (42 U.S.C. 7410, 7601(a) and 7423).

2. Section 51.1 is amended by revising paragraphs (hh), (ii), (jj), and (kk) as follows:

§ 51.1 Definitions.

* * * * *

(hh)(1) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by:

(i) Using that portion of a stack which exceeds good engineering practice stack height:

(ii) Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or

(iii) Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.

(2) The preceding sentence does not include:

(i) The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;

(ii) The merging of exhaust gas streams where:

(A) The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

(B) After July 8, 1985, such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or

(C) Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the reviewing agency shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the reviewing agency shall deny credit for the effects of such merging in calculating the allowable emissions for the source;

(iii) Smoke management in agricultural or silvicultural prescribed burning programs;

(iv) Episodic restrictions on residential woodburning and open burning; or

(v) Techniques under § 51.1(hh)(1)(iii) which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed 5,000 tons per year.

(ii) "Good engineering practice" (GEP) stack height means the greater of:

(1) 65 meters, measured from the ground-level elevation at the base of the stack:

(2)(i) For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable permits or approvals required under 40 CFR Parts 51 and 52,

$$H_g = 2.5H,$$

provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation;

(ii) For all other stacks,

$$H_g = H + 1.5L,$$

where

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack,

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack,

L = lesser dimension, height or projected width, of nearby structure(s)

provided that the EPA, State or local control agency may require the use of a field study or fluid model to verify GEP stack height for the source; or

(3) The height demonstrated by a fluid model or a field study approved by the EPA State or local control agency, which ensures that the emissions from a stack do not result in excessive

concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features.

(jj) "Nearby" as used in § 51.1(ii) of this part is defined for a specific structure or terrain feature and

(1) for purposes of applying the formulae provided in § 51.1(ii)(2) means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than 0.8 km (½ mile), and

(2) for conducting demonstrations under § 51.1(ii)(3) means not greater than 0.8 km (½ mile), except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to 10 times the maximum height (H_t) of the feature, not to exceed 2 miles if such feature achieves a height (H_t) 0.8 km from the stack that is at least 40 percent of the GEP stack height determined by the formulae provided in § 51.1(ii)(2)(ii) of this part or 26 meters, whichever is greater, as measured from the ground-level elevation at the base of the stack. The height of the structure or terrain feature is measured from the ground-level elevation at the base of the stack.

(kk) "Excessive concentration" is defined for the purpose of determining good engineering practice stack height under § 51.1(ii)(3) and means:

(1) for sources seeking credit for stack height exceeding that established under § 51.1(ii)(2), a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard. For sources subject to the prevention of significant deterioration program (40 CFR 51.24 and 52.21), an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of the maximum concentration experienced in the absence of such downwash, wakes, or eddy affects and greater than a prevention of significant deterioration increment. The allowable emission rate to be used in making demonstrations under this part shall be prescribed by the new source performance standard that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible. Where such demonstrations are approved by the authority administering the State implementation plan, an alternative emission rate shall be established in consultation with the source owner or operator;

(2) for sources seeking credit after October 1, 1983, for increases in existing stack heights up to the heights established under § 51.1(ii)(2), either (i) a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects as provided in paragraph (kk)(1) of this section, except that the emission rate specified by any applicable State implementation plan (or, in the absence of such a limit, the actual emission rate) shall be used, or (ii) the actual presence of a local nuisance caused by the existing stack, as determined by the authority administering the State implementation plan; and

(3) for sources seeking credit after January 12, 1979 for a stack height determined under § 51.1(ii)(2) where the authority administering the State implementation plan requires the use of a field study or fluid model to verify GEP stack height, for sources seeking stack height credit after November 9, 1984 based on the aerodynamic influence of cooling towers, and for sources seeking stack height credit after December 31, 1970 based on the aerodynamic influence of structures not adequately represented by the equations in § 51.1(ii)(2), a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects that is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

3. Section 51.1 is further amended by removing paragraphs (ll) and (mm).

§ 51.12 [Amended]

4. Section 51.12 is amended by removing paragraph (l).

5. Section 51.12(j) is amended by removing "and (l)" from the first sentence.

6. Section 51.12(k) is revised as follows:

(k) The provisions of § 51.12(j) shall not apply to (1) stack heights in existence, or dispersion techniques implemented on or before December 31, 1970, except where pollutants are being emitted from such stacks or using such dispersion techniques by sources, as defined in section 111(a)(3) of the Clean Air Act, which were constructed, or reconstructed, or for which major modifications, as defined in §§ 51.18(j)(1)(v)(a), 51.24(b)(2)(i) and 52.21(b)(2)(i), were carried out after December 31, 1970; or (2) coal-fired steam electric generating units subject to the provisions of Section 118 of the Clean Air Act, which commenced operation before July 1, 1957, and whose stacks were constructed under a construction contract awarded before February 8, 1974.

§ 51.18 [Amended]

7. Section 51.18(l) is amended by removing "and (l)" from the first sentence.

[FR Doc. 85-16094 Filed 7-5-85; 8:45 am]

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EPA-450/4-80-023R

Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations)

(Revised)

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

June 1985

PN 123-85-10-28-009

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

OCT 28 1985

MEMORANDUM

SUBJECT: Implementation of Stack Height Regulations - Presumptive NSPS Emission Limit for Fluid Modeling Stacks Above Formula GEP Height

FROM: Darryl D. Tyler, Director
Control Programs Development Division (MD-15)

TO: Director, Air Management Division
Regions I-X

The following guidance is provided to explain the general emission control requirements for sources conducting fluid modeling to justify stack height in excess of that provided by the GEP formulae. While some of the discussion and examples contained herein focus on utility sources, the procedures outlined in this memorandum are generally applicable to all stationary source categories. Please note that this is guidance. States may present any other demonstrations that they may feel are warranted in individual circumstances.

Background

The revised stack height regulations published on July 8, 1985, define three methods for determining good engineering practice (GEP) stack height. These methods include:

1- a 65 meter de minimis GEP height;

2- the height determined by using an applicable formula based on the dimensions of nearby buildings; and

3- the height necessary to avoid excessive concentrations due to downwash as shown using a field study or fluid modeling demonstration.

As the preamble to the regulations points out, the revised definition of "excessive concentrations," a 40-percent increase in concentrations due to downwash resulting in a NAAQS or PSD increment exceedance, necessitates that an emission rate be specified for purposes of evaluating fluid modeling. The regulations require that a presumptive emission rate equivalent to the new source performance standards (NSPS) be established for the source in question before modeling may be conducted to determine stack height needed to avoid excessive concentrations due to downwash.* This emission rate is described as "presumptive" because it is EPA's presumption that all sources seeking to justify stack heights exceeding those provided by the GEP formulae are capable of controlling their emissions to NSPS levels. However, the regulations also allow source owners or operators to rebut this presumption, establishing an alternative emission rate that represents the most stringent level of control that can feasibly be met by that source in excess of the NSPS level. In the preamble to the regulations, EPA indicated that it will rely on the "Guidelines for Determination of Best Available Retrofit Technology for Coal-Fired Power Plants and other Existing Stationary Facilities, EPA-450/3-80-009b" (BART Guidelines) when reviewing these rebuttals.

If it is infeasible for a source to control its emissions to NSPS levels, then an alternative limit representing the lowest feasible emission limit must be met before obtaining credit for stack height in excess of GEP formula height. Sources may consider such factors as remaining plant life and the cost of modifying existing equipment when determining NSPS feasibility.

Procedures

The general procedure that is described in the BART Guidelines for analyzing control alternatives should be followed to identify and evaluate alternatives for sources seeking credit for stack heights in excess of those produced by the applicable GEP formulae. Because the guidelines were originally written to address visibility impairment, however, not all of the analytical steps or applicability criteria--such as analysis of visibility impairment or exemptions for power plants below 750 megawatts--will be appropriate, and need not be addressed.

General steps in the analysis described in Section 2.0 of the guidelines can be summarized as follows.

1. Identify a range of control alternatives, including both pre- and post-combustion controls. In this regard, several fuel substitution and alternative fuel blends should be considered, as well as technological alternatives, such as coal cleaning and flue gas desulfurization.

2. Calculate the cost, emissions, and other environmental and energy impacts of the alternatives (including those meeting NSPS objectives).

3. Select the alternative that represents the most stringent level of emissions control feasible.

*Where the NSPS has been subject to revision, and the source in question is not subject to the revised NSPS, the earliest standard will be applied; e.g., for power plants a rate of 1.2 lb/mmBtu would be used.

In performing these analyses, it is important to keep in mind that EPA's presumption is that the NSPS emission limit is feasible unless demonstrated otherwise. When carrying out evaluations, source owners or operators may consider such factors as remaining useful plant life, the remaining life of any equipment affected by revised emission rates (including any control equipment), the cost of modifying boilers, control equipment, and fuel handling facilities, and the cost of modifying or cancelling existing fuel supply contracts (remaining useful plant life, if a significant factor in determining NSPS feasibility, may necessitate restrictions on the period of applicability of less stringent emission limits). Finally, it is important to analyze, not only a range of alternative controls, but several combinations of alternatives, since such combinations may yield a greater and more cost-effective degree of emissions control.

Since determinations of the adequacy of any rebuttals of the NSPS emission limit and the reasonableness of control alternatives considered must be made on a case-by-case basis, and will be subject to public review and comment during the rulemaking process, all technical and economic analyses, as well as any claims of infeasibility, must be fully documented and supported by any information that may be available.

If you have any questions regarding the application of this guidance in a particular set of circumstances, please contact Eric Ginsburg at (FTS) 629-5540 or Sharon Reinders at (FTS) 629-5526.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

APR 2 .

Mr. John P. Proctor
Bishop, Cook, Purcell and Reynolds
Law Offices
1400 L Street, N.W.
Washington, D.C. 20005-3502

Dear Mr. Proctor:

Your letter of February 23, 1989 to Administrator Reilly was referred to me for response. The issues you describe were previously raised to the attention of the Environmental Protection Agency's (EPA's) Region III Office. You now question Region III's rejection of your position that the best available retrofit technology (BART) emission rate used in determining the creditable stack height can be ignored for purposes of setting the facility's operating rate as long as the operating rate is consistent with the national ambient air quality standards (NAAQS). The response provided to you by Region III on October 6, 1988 was extensively discussed with this office and with the Office of General Counsel, and we fully endorse Region III's conclusions and supporting rationale.

In your letter you stated that the sole basis for conducting a fluid modeling study is to justify credit for stack height above formula height, and that nothing requires States to rely on the BART emission rate to determine the appropriate operating rate. Actually, as noted by Region III, before such credit may be considered, the preamble to the stack height regulation is clear that the operating rate must be limited to the BART or new source performance standards (NSPS) rate. The preamble to the stack height regulation also notes that an emission limit more stringent than BART/NSPS may be needed because the sources must also meet the NAAQS and prevention of significant deterioration requirements.

We agree with Region III's conclusion that NRDC v. Thomas, 838 F.2nd 1224 (D.C. Cir 1988), does not support your position. In your February 23, 1989 letter to Administrator Reilly, you raise a new argument not presented to Region III. You argue that the court recognized that operating emission limitations are to be determined after stack height credit has been calculated, based on the court's acknowledgement that Congress imposed technology-based limits in some situations, and EPA has authority to mandate such limits for modeling demonstrations to determine stack height credit. From this you conclude that a technology-based emission rate used for fluid modeling is relevant only to that modeling.

In response, we point out first that the court's discussion of technology-based emission limitations (838 F.2d at 1241) was in reference to NRDC's control-first position and not related to fluid modeling as you suggest. We believe that the opinion indicates clearly that the court regarded the presumptive NSPS emission limit as a limit that must be complied with once the fluid modeling was completed ("We find the attempt of industry to bar control-first no stronger than NRDC's effort to require it in the within-formula context." 838 F.2d at 1241; ". . . industry petitioners assert that in order to use the NSPS presumption, EPA must be able to point to substantial evidence that it is attainable by most of the affected sources. But as EPA allows any source to use a higher emissions rate when NSPS is infeasible, there is no need for any sort of generic demonstration that it is normally so." id at 1242).

Second, in quoting EPA's statement about the significance of fluid modeling demonstration the court was merely citing with approval EPA's rationale for refusing to grandfather demonstrations undertaken and approved prior to adoption of the 1985 regulations. This in no way implies a finding by the court that the presumptive NSPS requirement (or higher BART limit) is not the constraining limit. Neither of these references provides support to your position.

In conclusion, we are in full agreement with the position taken by Region III that sources seeking credit above formula height must meet an emission rate consistent with BART/NSPS. While final action as to any particular source would necessarily await a State implementation plan revision, I hope the above responds to your inquiry. Staff in our Region III Office are available to assist you and your client, and I suggest that you contact them directly if you have further questions.

Sincerely,

Gerald A. Emison
Director
Office of Air Quality Planning
and Standards

cc: Charles Carter, OGC
Thomas Maslany, Region III
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February 23, 1989

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William K. Reilly
Administrator
United States Environmental
Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Dear Mr. Reilly:

The purpose of this letter is to request EPA's concurrence with a conclusion reached by this firm pertaining to the setting of emission limitations for existing sources that receive credit for stack height above Good Engineering Practice ("GEP") stack height.

Specifically, I am seeking your concurrence with the following conclusion: that a facility which uses a Best Available Retrofit Technology ("BART") emission rate in a fluid model to determine GEP stack height may ultimately receive a different operating emission rate as long as that rate is demonstrated by a dispersion model as being consistent with the National Ambient Air Quality Standards ("NAAQS"). EPA's consideration of this issue and response is extremely important since the Agency's position will have an immediate and long-term economic impact on one of our client's operations. As pertinent here, our client must make a major business decision regarding equipment purchases, a possible shutdown of operations and technical operating requirements. That decision is inextricably linked to the stack height issues; it will be primarily determined and affected by your response to this query.

For purposes of this discussion and request, I am setting forth our analysis and position below as to what legally appropriate procedures must be followed in establishing operating emission rates pursuant to Section 110 of the Clean Air Act for facilities receiving credit for stack height above GEP formula height. In brief, I believe this analysis supports our position that a facility is not required to conduct a dispersion modeling study that uses the same emission rate for a particular pollutant that was used by the facility in justifying stack

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height above GEP formula height; i.e., fluid and dispersion modeling emission rates are to be developed and applied independently. Thus, a state may authorize an emission rate for a particular pollutant at a facility as long as the emission rate is demonstrated by a dispersion model as being consistent with the attainment and maintenance of the NAAQS. Our analysis follows:

(a) In order to receive credit for stack height above GEP formula height, a facility must conduct fluid modeling studies to analyze the effects of terrain obstacles on downwash, and to show that the additional height is needed to avoid "excessive concentrations"; i.e., a 40 percent increase in concentrations due to downwash that cause or contribute to an increase or an exceedance of air quality standards or PSD increments.[1]

(b) To complete the fluid modeling studies and to show that there will be excessive concentrations, a facility must obtain a BART emission rate from the applicable state agency for each source. Although EPA's stack height regulations initially require a source seeking to conduct a fluid modeling study to use an emission rate equivalent to that New Source Performance Standards ("NSPS") applicable to the industrial source category ("presumptive NSPS emission limit"),[2] a source is permitted to rebut the applicability of the presumptive NSPS emission limit.

(c) The sole basis for conducting a fluid modeling study, and for obtaining an alternative emission rate to complete the study, is to justify credit for stack height above GEP formula height.[3] The rate is but one aspect of justifying stack height above GEP formula height, and GEP stack height is but one aspect in determining an appropriate operating emission rate. <u>See</u> Section 123(a)(1) of the Clean Air Act, 42 U.S.C. § 7423(a)(1).[4] In short, there is nothing in either the Clean Air Act or the implementing regulations that requires or advises the states to use or rely upon the BART emission rate, used for a fluid modeling

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1/ 40 C.F.R. § 51(kk).

2/ 50 <u>Fed</u>. <u>Reg</u>. 27892, 27898 (July 8, 1985).

3/ 50 <u>Fed</u>. <u>Reg</u>. 27892, 27898 (July 8, 1985).

4/ In this section, Congress limits the degree to which tall stacks may be considered in setting emission limitations. As is apparent from the statutory language used in Section 123, Congress intended to allow the states to consider other factors, in addition to stack height, in setting emission limitations.

study, in conducting a dispersion study to determine an appropriate operating emission rate.

(d) States are required to ensure the attainment and maintenance of the NAAQS by establishing emission limitations for facilities within their boundaries. Moreover, with respect to existing sources, states have the discretionary authority to determine and enforce whatever mix of emission limitations it deems best for these sources, as long as the overall effect is compliance with the NAAQS. Train v. N.R.D.C., 421 U.S. 60,79 (1974).

We believe our analysis and conclusion are supported by the District of Columbia Circuit Court of Appeals' recent decision in N.R.D.C. Inc. v. Thomas, 838 F.2d 1224 (D.C. Cir. 1988) in which the court reviewed EPA's stack height regulations and the NRDC's argument that a source must apply all available emission controls before it may justify a stack height above GEP formula height. The Court of Appeals rejected NRDC's "control-first" argument (id. at p. 1235) because it recognized that BART (stack height) emission rates and source-related emission limitations have independent purposes: "Although the record does not allow us to infer exactly the impact of the baseline emissions rate on the emissions rate that would emerge (after the stack height credit were calculated and then used to determine the permissible emissions), all parties agree that the impact is substantial. Indeed, that is what the issue is all about. If Congress in Section 123 prescribed the use of such a baseline emissions rate, with all its implications for ultimate emission ceilings, it did so in a remarkably cryptic way." Id. at p. 1236.

As is evident, the Court of Appeals recognized that operating emission limitations are to be determined after stack height credit has been calculated pursuant to Section 123 of the Act. This conclusion is supported by the Court's consideration of the following facts. First, the Court observed that Congress imposed technology-based emission limitations (including NSPS, BACT, LAER, RACT and BART) in a variety of situations, and that EPA has the authority to mandate a specific technology-based emission limit (e.g., the presumptive NSPS limit) for GEP fluid modeling demonstrations (id. at p. 1241) used for calculating stack height credit. Second, the Court noted that a "* * * 'fluid modeling demonstration has no significance apart from showing whether the source qualified for credit under the stack height guidelines than in effect.'" (emphasis in original). Id. at p. 1249. As pertinent here, the Court's analysis supports the conclusion that a specific technology-based emission rate used by a facility in a fluid modeling demonstration is significant only to the extent that it demonstrates whether a source should receive credit for stack height above GEP formula height. A different conclusion; i.e., that the emission rate used to calculate stack height (either a BART rate or the presumptive NSPS rate) should be used by a facility as its operating emission rate, is contrary to the Court's holding which rejected the "control-first" argument.

Please be advised that an EPA staff person, contacted by our firm, appears to have reached a different conclusion. Specifically, we have been advised by this staff member that an existing source is required to operate at the lowest emission rate resulting either from the stack height demonstration or dispersion study -- even though another (i.e., higher) emission rate will assure compliance with the NAAQS.

It is our opinion that this position is inconsistent with Sections 110 and 123 of the Clean Air Act, the stack height regulations, and existing case law. Therefore, we are requesting EPA's analysis of this issue and official agency position. We would appreciate your prompt review of this issue due to the impact that your response will have on our client's operations and financial planning.

If you have any questions regarding this issue, please feel free to contact me directly. Also, I have enclosed an extra copy of this letter and a stamped, self-addressed envelope. Would you please stamp this extra copy and return it to me for our files.

Sincerely,

John P. Proctor

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

OCT 10 1985

MEMORANDUM

SUBJECT: Questions and Answers on Implementing the Revised Stack Height Regulation

FROM: G. T. Helms, Chief G. T. Helms
Control Programs Operations Branch (MD-15)

TO: Chief, Air Branch, Regions I-X

A number of questions have arisen in several areas of the revised stack height regulation since its promulgation on July 8. The following answers have been developed in response. The questions and answers are arranged under the general topic headings of interpretation of the regulation, State implementation plan (SIP) requirements, and modeling analyses. Please continue to call Sharon Reinders at 629-5526 if you have further comments or additional questions.

Interpretation of the Regulation

1. Q: What criteria should be used to determine when a stack was "in existence" with respect to the various grandfathering dates in the regulation?

A: The recent promulgation of revisions to the stack height regulatio did not change the definition of "in existence." The definition is provid in 40 CFR 51.1(gg) and includes either the commencement of continuous construction on the stack or entering into a binding contract for stack construction, the cancellation of which would result in "substantial loss" to the source owner or operator. The definition of what constitutes a "substantial loss" will be the subject of future guidance.

2. Q: What "source" definition should be used in determining whether tie ins to grandfathered stacks should be permitted or prohibited?

A: The term "source" in this instance means a single emitting unit. Thus, credit for tying a single post-1970 unit(s) into a grandfathered stack serving a number of old units is prohibited under the regulation.

3. Q: What is meant in the regulation by "facility"?

A: For purposes of this regulation, the definition contained in 40 CFR 51.301(d) should be used. That definition essentially defines the term as the entire complex of emitting activities on one property or contiguous properties controlled by a single owner or designee.

4. Q: Must good engineering practice (GEP) stack height be established separately for each pollutant? If not, how should it be determined?

A: It is not necessary to calculate a separate GEP stack height for each pollutant. Since "GEP" is defined by Section 123 of the Clean Air Act as the height necessary to ensure against excessive concentrations of any air pollutant, it follows that GEP should be established for each source based on the pollutant requiring the greatest height to avoid excessive concentrations.

5. Q: How should "reliance" on the 2.5H formula be determined?

A: First, "reliance" on the 2.5H formula applies only to stacks in existence before January 12, 1979. Credit for "reliance" on the 2.5H formula can be granted under the following cases: (a) Where the stack was actually built to a height less than or equal to 2.5H; (b) Where the stack was built taller than 2.5H and the emission limitation reflects th use of 2.5H in the SIP modeling analysis; or (c) Where evidence is provi to show "reliance" as discussed in the following paragraph. If no modeling was used to set the emission limitation for the source, then it cannot be argued that there was "reliance" on the formula, since EPA's guidance was specifically aimed at using stack height credit in establishing emission limitations. Once it is determined that the emission limitation was in fact based on estimates of dispersion from the stack, then the source can be said to have properly "relied" on the 2.5H formula. In the event that it cannot be determined that the emission limit is based on "reliance" on the 2.5H formula, then the refined H + 1.5L formula must be used.

Where a clear relationship between a 2.5H stack height and the emission limitation cannot be shown, where the emission limitation was not calculated based precisely on the 2.5H height, or where the stack height used in modeling cannot be verified, then additional evidence will be needed. Preferred would be written documentation, such as copies of the original engineering calculations or correspondence between the State or the emission source owner and EPA indicating that the 2.5H formula should be used to derive the emission limitation. However, recognizing that such evidence is often not retained for more than a few years, "reconstructed" documentation may be considered, but should only be used as a last resort. This evidence should include explanations by those individuals who were involved in designing the facility, calculating emission rates, and who represented the facility in dealings with the

State and EPA on how the emission limit was derived, including a discussion of how the formula was originally used in deriving the source emission limitation, a discussion of the analytical method applied, and a listing of any contacts or discussions with EPA during that period. This listing will aid EPA in searching its own files to find any records of communication or correspondence that may bear on the issue.

In no case should a source be allowed after January 12, 1979, to obtain a relaxation in the emission limitation by arguing that it "relied" on past EPA guidance endorsing the 2.5H formula. In cases where a relaxation based on GEP formula height is sought in the future, the refined H + 1.5L formula must be used.

6. Q: The preamble specifically discusses cooling towers as structures to which the formula should not be applied. Will the Office of Air Quality Planning and Standards be specifying other structures that are not well represented by the formula?

A: The discussion in the preamble and GEP guideline is not intended to be all-inclusive; judgment should be used in determining when fluid modeling should be used to estimate the effects of structures with rounded, domed, or tapered shapes. Water towers and storage tanks are additional examples of such structures. As additional information becomes available on the aerodynamic effects of specific building shapes and configurations, we will evaluate the need to revise the GEP guidance. However, at present, there are no plans to issue a "laundry list" of structures to which the formulas do not apply.

SIP Requirements

7. Q: Should a compliance averaging time be explicitly stated in a SIP revision for sulfur dioxide (SO_2) emission limits that are revised to meet the stack height regulation?

A: A compliance averaging time need not be specified as an enforceable SIP provision as long as a stack test compliance method is in place in the underlying federally approved SIP. EPA's current national policy requires that SIP's and permits contain enforceable "short-term" emission limits set to limit maximum emissions to a level which ensures protection of the short-term national ambient air quality standards (NAAQS) and prevention of significant deterioration (PSD) increments. EPA relies upon a short-term stack test provision in the SIP as the method of determining compliance with the emission limits. In lieu of a stack test, EPA has accepted fuel sampling and analysis and continuous emission in-stack monitors (CEM's). When compliance is to be determined from information obtained by fuel sampling and analysis and CEM's, short-term averaging times should be specified.

8. Q: Are all States required to have "stack height regulations"?

A: Limitations on creditable stack height and dispersion techniques impact the SIP program in two areas--SIP emission limits for existing sources and SIP provisions covering new source review (NSR)/PSD permitting procedures. For existing sources, State regulations limiting credit for stack height and other dispersion techniques (stack height regulations) are not necessary as long as the SIP emission limits are not affected in any manner by so much of the stack height as exceeds GEP, or any other dispersion technique. Where a State has stack height regulations, those regulations must be consistent with EPA's regulation. Where a SIP contains regulations that are inconsistent with EPA's regulation, the State must either adopt a stack height regulation that is consistent with EPA's or incorporate the EPA regulation by reference.

For the NSR/PSD programs, it is essential that the plan contain limitations on the amount of creditable stack height and other dispersion techniques. The following cases have been developed to illustrate what action(s) may be required of the State since promulgation of the stack height regulation.

CASE A(1): A fully or partially delegated PSD program that references but does not define GEP where the delegation agreement does not contain a date to define which version of the PSD rule is being delegated.

ACTION: Notify the State that all permits issued henceforth must be consistent with EPA's stack height regulation. All permits previously issued must be reviewed and revised as necessary within 9 months.

CASE A(2): A fully or partially delegated PSD program that references but does not define GEP where the delegation agreement does contain a date to define which version of the PSD rule is being delegated.

ACTION: Update the delegation agreement to reflect agreement with EPA's stack height regulation as of July 8, 1985. Notify the State that all permits issued henceforth must be consistent with EPA's stack height regulation. All permits previously issued must be reviewed and revised as necessary within 9 months.

CASE B: The current federally approved SIP for NSR/PSD does not contain a reference to GEP or dispersion techniques, i.e., provisions assuring that emission limitations will not be affected by stack height in excess of GEP or any prohibited dispersion techniques do not exist in the current SIP.

ACTION: Notify the State that such provisions must be adopted and submitted as a SIP revision within 9 months. This can be acccomplished by adopting stack height regulations at the State level or by adopting the appropriate reference and commitment to comply with EPA's stack height regulation as promulgated on July 8, 1985. Interim permitting should be consistent with EPA's stack height regulation.**

CASE C: The current federally approved SIP for NSR/PSD contains references to, but does not define, GEP or dispersion techniques.

ACTION: Notify the State that a commitment to comply with EPA's stack height regulation as promulgated on July 8, 1985, is required. If a State is unable to make such a commitment, State regulations must be revised to be consistent and submitted to EPA as a SIP revision within 9 months and interim permitting should be consistent with EPA's stack height regulation. No "grace period" will be allowed for sources receiving permits between July 1985 and April 1986.**

CASE D: The current federally approved SIP for NSR/PSD contains stack height regulations that are inconsistent with EPA's regulation.

ACTION: Notify the State that such regulations must be revised to be consistent and submitted as a SIP revision within 9 months and that interim permitting should be consistent with EPA's stack height regulation.**

CASE E(1): A SIP for NSR/PSD has been submitted to EPA, or will be submitted to EPA before the due date for stack height revisions. The submittal contains provisions that conflict with EPA's stack height regulation.

ACTION: Notify the State that EPA cannot approve the submittal until it is revised pursuant to EPA's July 8, 1985, regulation.

**In the event that a State does not have legal authority to comply with EPA's regulation in the interim (e.g., because it must enforce State rules that are inconsistent with EPA's regulation) and is compelled to issue a permit that does not meet the requirements of the EPA revised stack height regulation, then EPA should notify the State that such permits do not constitute authority under the Clean Air Act to commence construction.

CASE E(2): As in Case E(1), a SIP for NSR/PSD has been submitted to EPA or will be submitted to EPA before the due date for stack height revisions. The submittal is not inconsistent with EPA's stack height regulation, but portions of the existing approved SIP that relate to the submittal are inconsistent.

ACTION: Approve the SIP submittal based on a commitment by the State to correct the inconsistencies in its existing SIP to comport with EPA's July 8 regulation and submit the corrections as a SIP revision within 9 months. Interim permitting should be consistent with EPA's stack height regulation.** If the existing SIP is ambiguous, i.e., the SIP references but does not define terms relating to GEP or dispersion techniques, the action steps outlined in Case C above should be followed.

CASE F: In nonattainment areas, emission limits or permits do not always include modeling, but rather are based on lowest achievable emission rate (LAER) and offsets.

ACTION: If no modeling is used in the issuance of a permit, the emission requirements for the source are not "affected" by stack heights or dispersion techniques, and no action is needed. However, if modeling was used in the process of preparing and issuing a permit, such as cases where offsets were obtained offsite, that modeling must be reviewed for consistency with the stack height regulation.

9. Q: What must all States do now that EPA's stack height regulation is promulgated?

A: States must review and revise their SIP's as necessary to include or revise provisions to limit stack height credits and dispersion techniques to comport with the revised regulations, and, in addition, review and revise all emission limitations that are affected by stack height credit above GEP or any other dispersion techniques. In accordance with Section 406(d)(2) of the Clean Air Act, States have 9 months from promulgation to submit the revised SIP's and revised SIP emission limitations to EPA.

In an August 7, 1985, memo titled "Implementation of the Revised Stack Height Regulation--Request for Inventory and Action Plan to Revise SIP's," Regional Offices were requested to begin working with each of their States to develop States' Action Plans. Each Action Plan should include the following: (1) An inventory of (a) all stacks greater than 65 meters (m), (b) stacks at sources which exceed 5,000 tons per year total allowable SO_2 emissions; and (2) A reasonable schedule of dates for significant State actions to conform both State stack height rules and emission limitations to EPA's stack height regulation. Schedules should include increments of progress. Regional Offices should be satisfied that each of their States provide schedules for completion of the tasks

as outlined in the August memo and report the status of schedule commitments to them on a monthly basis. Regional Offices have been asked to forward monthly status reports to the Control Programs Development Division on the States' progress to meet scheduled commitments and also report the results of followup with the States on schedules that are not met. In order to facilitate tracking the States monthly progress, guidance on a standardized format will be issued shortly.

Modeling Analyses

10. Q: Is there any restriction or prohibition against, or demonstration required for, raising an existing (or replacing) stack up to 65 m?

A: No, as long as prohibited dispersion techniques are not employed.

11. Q: Are flares considered to be stacks?

A: No, flares are excluded from the regulation.

12. Q: What load should be used for a fluid modeling demonstration?

A:- One hundred percent load should generally be used unless there is a compelling argument otherwise..

13. Q: Can new or modified sources who have agreed to a case-by-case best available control technology (BACT) emission rate be required to use this rate for fluid modeling rather than a less stringent new source performance standard (NSPS) emission rate?

A: As set forth in 40 CFR 51.1 (kk), the allowable emission rate to be used in making demonstrations under this part shall be prescribed by the NSPS that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible.

14. Q: Must the exceedance of NAAQS or PSD increment due to downwash, wakes, or eddies occur at a location meeting the definition of ambient air?

A: No, the exceedance may occur at any location, including that to which the general public does not have access.

15. Q: Is a source that meets NSPS or BACT emission limits subject to restrictions on plume merging?

A: Yes. However, in a majority of such cases, there will be no practical effect since BACT or NSPS limits will be sufficient to assure attainment without credit for plume rise enhancement.

Q: What stack parameters are to be used in modeling when the actual stack height is greater than GEP height?

A: Where it is necessary to reduce stack height credit below what is in existence, for modeling purposes, use existing stack gas exit parameters--temperature and flow rate--and existing stack top diameter and model at GEP height.

17. Q: How should a stack that is less than GEP height be modeled when dispersion techniques are employed?

A: In order to establish an appropriate emission limitation where a source desires to construct less than a GEP stack but use dispersion techniques to make up the difference in plume rise, two cases should be tested. First, conduct a modeling analysis inputting the GEP stack height without enhanced dispersion parameters, then conduct a second analysis inputting the less than GEP stack height with the increased plume rise. The more stringent emission limitation resulting from each of the two runs should be the one specified as the enforceable limitation.

18. Q: How are the effects of prohibited dispersion techniques to be excluded for modeling purposes?

A: Where prohibited dispersion techniques have been used, modeling to exclude their effects on the emission limitation will be accomplished by using the temperature and flow rates as the gas stream enters the stack, and recalculating stack parameters to exclude the prohibited techniques (e.g., calculate stack diameter without restrictions in place, determine exit gas temperatures before the use of prohibited reheaters, etc.).

19. Q: How are single flued merged stacks and multiflued stacks to be treated in a modeling analysis?

A: This is a multistep process. First, sources with allowable SO_2 emissions below 5,000 tons/year may be modeled accounting for any plume merging that has been employed. For larger sources, multiflued stacks are considered as prohibited dispersion techniques in the same way as single flued merged gas streams unless one of the three allowable conditions has been met; i.e., (1) the source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams; (2) after date of promulgation, demonstrate that such merging is associated with a change in operation at the facility that includes the installation of pollution controls and results in a net reduction in the allowable emissions of the pollutant for which credit is sought; or (3) before date of promulgation, demonstrate that such merging did not result in any increase in the allowable emissions (or, in the event that no emission limit existed, actual emission level) and was associated with a change in operation at the facility that included the installation of

emissions control equipment or was carried out for sound economic or engineering reasons, as demonstrated to EPA. Guidelines on what constitutes sound economic or engineering justification will be issued shortly.

If plume merging from multiflued stacks is not allowable, then each flue/liner must be modeled as a separate source and the combined impact determined. For single flued merged stacks where credit is not allowed, each unit should be modeled as a separate stack located at the same point. The exit parameters, i.e. velocity and temperature, would be the same as for the existing merged stack conditions and the volume flow rate based on an apportionment of the flow from the individual units.

20. Q: What stack height for point sources should be input to air quality dispersion modeling for the purpose of demonstrating protection of the NAAQS and PSD increments?

A: A discussion of the maximum stack height credit to be used in modeling analyses is provided in the "Guideline for Determination of Good Engineering Practice Stack Height" and provides that the GEP stack height should be used as input to the model assessment. If a source is operating with a less than GEP stack height, then the actual stack height should be input to the model.

21. Q: What stack height should be used for background sources in modeling analyses?

A: The GEP stack height for each background source should be input to the model assessment. If a background source is operating with a less than GEP stack height, then the actual stack height should be input to the model.

22. Q: Can credit for plume merging due to installation of control equipment for total suspended particulate (TSP) matter be allowed when setting the SO_2 limit?

A: To state the question another way, the concern is what impact the merging and installation of control equipment have on the emission limit for another pollutant, and whether the merging occurred before or after July 8, 1985. After July 8, 1985, any exclusion from the definition of "dispersion techniques" applies only to the emission limitation for the pollutant affected by such change in operation and is accompanied by a net reduction in allowable emissions of the pollutant. For example, a source tears down two old stacks and builds one new GEP stack with an electrostatic precipitator (ESP). This results in a net reduction in TSP emissions. This source could model using stack gas characteristics resulting from merging the two gas streams in setting the TSP emission limit, but may not so model and receive the credit for stack merging when evaluating the SO_2 emission limit.

Before July 8, 1985, installation of TSP pollution control equipment generally justifies the merging of the stacks for TSP. However, if a source's emission limitation for SO_2 increased after the merging, then credit would generally not be allowed since it is presumed that the merging was to increase dispersion.

A source with no previous SO_2 emission limit that merges stacks and installs an ESP for TSP control may consider the effects of merging on compliance with the TSP NAAQS but may not use merging to justify setting an SO_2 emission limit less stringent than its actual emission rate before the merging.

23. Q: If, after determining GEP stack height by fluid modeling, dispersion modeling under other than "downwash" meteorological conditions shows that a lower emission limit than that from the fluid model GEP analysis is necessary to meet ambient air quality constraints, should a new stack height be defined for the source?

A: No. GEP stack height is set. Ambient air quality problems predicted by dispersion modeling at the fluid modeled height means that a more stringent emission limit is necessary.

24. Q: Does EPA intend to issue additional guidance on fluid modeling demonstrations?

A: See the attached memo from Joseph A. Tikvart, Chief, Source Receptor Analysis Branch, to David Stonefield, Chief, Policy Development Section, on guidance for a discussion of existing and additional guidance on fluid model demonstrations.

Attachment

cc: Stack Height Contacts
Gerald Emison
Ron Campbell
B. J. Steigerwald

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

September 19, 1985

MEMORANDUM

SUBJECT: Guidance on Fluid Model Demonstrations for Determining GEP Stack Height in Complex Terrain

FROM: Joseph A. Tikvart, Chief
Source Receptor Analysis Branch, MDAD

TO: David Stonefield, Chief
Policy Development Section, CPDD

The recently promulgated stack height regulation requires that a source that wishes to receive credit for the effects of wakes, eddies and downwash produced by nearby terrain for the purpose of calculating GEP stack height must conduct a fluid model demonstration or a field study. Recent guidance for fluid modeling these terrain effects is contained in Section 3.6 of the "Guideline for Determination of GEP Stack Height (Revised)," EPA 450/4-80-023R, June 1985, available from NTIS as PB 85-225-241. In addition, the report "Fluid Modeling Determination of Good Engineering Practice Stack Height in Complex Terrain," EPA 600/3-85-022, available from NTIS PB 85-203-107, provides an actual case of how EPA conducted a GEP determination, short of performing the "excessive concentration" criteria test. Requests to conduct field studies in lieu of fluid modeling demonstrations will be evaluated on a case-by-case basis; refer to pp. 46-47 of the GEP Guideline.

Previously, EPA published three documents which form the basis for conducting fluid model demonstrations, particularly in flat terrain situations: (1) "Guideline for Fluid Modeling of Atmospheric Diffusion," EPA 600/8-81-009, April 1981, available from NTIS as PB 81-201-410; (2) "Guideline for Use of Fluid Modeling to Determine Good Engineering Practice Stack Height," EPA 450/4-81-003, July 1981, available from NTIS as PB 82-145-327; and (3) "Determination of Good-Engineering-Practice Stack Height: A Fluid Model Demonstration Study for a Power Plant," EPA 600/3-83-024, April 1983, available from NTIS as PB 83-207407.

Lastly, EPA conducted a 4-day workshop on fluid modeling and GEP determination at the Fluid Modeling Facility at RTP in February 1981, attended by staff from each Regional Office. Although some attendees are no longer with the Agency, we believe at least one person in each Region who attended is still "on board," except for Regions II and VIII, and could serve as a resource person. At the Regional Workshop on the Stack Height Regulation next month, we will poll the attendees concerning the need for another fluid modeling workshop for Regional Office and State technical staff. If a need is expressed and specific attendees can be identified, we will request the Meteorology and Assessment Division, ASRL, to present such a workshop at RTP within the next few months.

The above documents together with staff that have some knowledge of fluid modeling should enable most Regions to provide initial technical assistance to the States and enable the States to increase their own level of expertise. Note that document (2) contains a report checklist in Section 5, outlining what a fluid model report should contain. Additional items explicitly related to complex terrain studies may be required on a case-by-case basis, especially after reviewing EPA's example study carefully. More detailed procedures for implementing the excessive concentration criteria calculations, using data from a fluid model demonstration, are being developed and will be provided at the upcoming Regional Workshop.

Should technical questions arise regarding GEP determinations or fluid model demonstrations, please contact Jim Dicke or Dean Wilson of my staff, FTS 629-5681. We assume the Regional Office staffs will attempt a first-cut resolution of technical issues before requesting our assistance.

cc: S. Reinders
R. Rhoads
F. Schiermeier
D. Wilson

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/4-81-003
July 1981

Air

EPA

Guideline for Use of Fluid Modeling to Determine Good Engineering Practice Stack Height

United States
Environmental Protection
Agency

Environmental Sciences Research
Laboratory
Research Triangle Park NC 27711

EPA-600/3-83-024
April 1983

Research and Development

EPA

Determination of Good-Engineering-Practice Stack Height

A Fluid Model Demonstration Study for a Power Plant

United States
Environmental Protection
Agency

EPA-600/8-81-009
April 1981

EPA

Research and Development

Guideline for Fluid Modeling of Atmospheric Diffusion

Prepared for

Office of Air Quality
Planning and Standards

Prepared by

Environmental Sciences Research
Laboratory
Research Triangle Park NC 27711

United States
Environmental Protection
Agency

Atmospheric Sciences Research
Laboratory
Research Triangle Park NC 27711

EPA/600/3-85/022
April 1985

PB85-203107

Research and Development

EPA

Fluid Modeling Demonstration of Good-Engineering-Practice Stack Height in Complex Terrain

REFERENCES FOR SECTION 5.7

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

OCT 28 1985

MEMORANDUM

SUBJECT: Implementation of Stack Height Regulations - Exceptions From Restrictions on Credit for Merged Stacks

FROM: Darryl D. Tyler, Director
Control Programs Development Division (MD-15)

TO: Director, Air Management Division
Regions I-X

This guidance has been prepared to address two issues pertaining to credit for merged stacks prior to July 8, 1985. It establishes a procedure that should be used to prepare and to review justifications for merging gas streams for economic or engineering reasons, and to address the presumption that merging was significantly motivated by an intent to gain credit for increased dispersion. Please note that this is guidance; States may submit alternative demonstrations in support of merged stack exemptions if they feel the individual circumstances warrant.

Background

Recent revisions to EPA's stack height regulations place certain restrictions on the degree to which stationary sources may rely on the effects of dispersion techniques when calculating allowable emissions. One such restriction is provided for the merging of gas streams, or combining of stacks. Several exemptions have been provided in the regulation, however. More specifically, 40 CFR Part 51.1(hh)(2)(ii) allows credit under circumstances where:

A. The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

B. After July 8, 1985, such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or

C. Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the federally-approved emission limitation for any pollutant or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of any pollutants actually emitted from existing units prior to the merging, the reviewing agency shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such an intent, the reviewing agency shall deny credit for the effects of such merging in calculating the allowable emissions for the source.

General Requirements

Figure 1 illustrates a framework for evaluating claims for merged stack credit. Because merged gas streams are generally regarded as prohibited dispersion techniques under the regulations, it is incumbent on the State or the source owner or operator to demonstrate that such merging was conducted for sound economic or engineering reasons, and was not significantly motivated by an intent to avoid emission controls. Consequently, the first step should entail a review of State and EPA files to determine the existence of any evidence of intent on the part of the source owner or operator. Information showing that merging was conducted specifically to increase final exhaust gas plume rise serves as a demonstration of dispersion intent that justifies a denial of credit for merged gas streams. Demonstrations that merging was carried out for sound economic or engineering reasons are expected to show that either the benefits of merging due to reduced construction and maintenance costs outweigh the benefits relating to lower emission control costs or that relevant engineering considerations showed the merging to be clearly superior to other configurations.

Demonstration Requirements

Several exemptions from prohibitions on gas stream merging are provided for existing sources in the stack height regulations:

1- where sources constructed their stacks before December 31, 1970,

2- where the total facility-wide emissions from the source do not exceed 5,000 tons per year,

3- where the facility was originally designed and constructed with merged gas streams, and

4- where the merging was part of a change in facility operation that included the installation of pollution control equipment and resulted in no increase in the allowable emissions of any pollutant.* Where there was an increase in emissions in conjunction with the merging and installation of control equipment, the regulations require that source owners also make an affirmative demonstration that the merging was not motivated by dispersive intent.

*Where there was no federally-approved emission limit prior to merging gas streams, there must be no increase in the actual emissions of any pollutant. Moreover, it is incumbent on the State to demonstrate that there was a logical relationship between the merging of existing gas streams and the installation of controls.

Sources that are not covered under these criteria may still qualify for exemption if they can show that merging was conducted for sound economic or engineering reasons. Such demonstrations should include justifications for having replaced existing stacks. This may be done, for instance, by documenting through maintenance records, correspondence, or other contemporaneous evidence, that the existing stacks had reached the end of their useful life, were prematurely corroded, had sustained other damage making them unservicable, were of a height less than that regarded as good engineering practice, thereby causing downwash problems, or that the addition of new units at the facility necessitated additional stacks and insufficient land was available. The absence of any evidence supporting the need for stack replacement creates a strong presumption that merging was carried out specifically to avoid the installation of pollution controls, i.e., was "significantly motivated by an intent to gain emissions credit for increased dispersion."

No Increase in Allowable Emissions

Once this initial criterion is satisfied, demonstrations may show that merging was based either on sound economic or sound engineering reasons. Claims based on strict engineering justifications may be more difficult to show, since the existence of more than one reasonable engineering solution generally leads to a decision based on economics. However, if it can be documented that the merged stack configuration was clearly superior to other stack configurations for purely engineering reasons, without consideration of cost, then credit for merging may be granted.

In order to most reliably implement the provisions of the regulations regarding the merging of gas streams for sound economic reasons, it would be necessary to ascertain the actual intent of the source owner or operator at the time the decision was made to merge gas streams. Recognizing that the difficulty of doing so was the basis for EPA's rejection of an "intent test" in the rule, the following approach provides a surrogate demonstration of intent. This approach is summarized in Figure 2.

Because the potential savings attributable to the avoidance of pollution controls can significantly influence decisions to merge stacks, one way to show the absence of dispersion intent is to conduct an analysis of the annualized capital and maintenance costs for merged stacks and for individual stacks, and compare the results to the compliance costs (fuel and operation and maintenance of any control equipment) calculated based on the emission limitations derived with and without merged stack credit. If, when the difference in capital and maintenance costs is compared with the difference in compliance costs over the period of capital amortization, the capital and maintenance cost saving is greater than the compliance cost saving, then merging can be accepted as having a sound economic basis.

In establishing this rule of thumb, we are aware that a benefit of as little as 10-20 percent could be considered "significant" in the context of the court's holding on this matter--i.e., such a benefit could have been considered to be a relevant factor in decisions to construct merged stacks.

However, recognizing that documentation of cost analyses after an extended period of time--up to 15 years--is likely to be limited, we believe that the 50 percent test articulated above would constitute a more reasonable basis for initial determinations (that is, a level at which we believe that there was likely a significant incentive to merge stacks to avoid control requirements).

Affirmative Demonstrations of Nondispersion Intent

In some instances, a State or emission source owner may not be able to make a demonstration as described above, or believe that sound economic reasons existed for merging stacks, regardless of the relationship between financial savings attributable to reduced emission control requirements versus lower stack construction cost. In such cases, an opportunity should be provided to affirmatively demonstrate that merged stacks were not "significantly motivated by an intent to obtain emissions credit for increased dispersion." The burden of proof rests solely with source owners or operators attempting to make this showing.

Demonstrations may rely on any relevant evidence, including but not limited to the following:

- construction permits, or permits to operate from pollution control agencies
- correspondence between the source owner or operator and government agencies
- engineering reports relating to the facility
- facility records
- affidavits
- any other relevant materials

For instance, such a demonstration could be made by submitting documentary or other evidence (e.g., internal company memoranda presenting the alternative construction opportunities available to the company) that indicates the intent of the source owner or operator and shows that consideration of dispersion advantages was conspicuously absent.

Alternatively, it might be shown that either action by the State in approving a revised emission limit followed actual merging sufficiently later in time to suggest that dispersion credit was not considered by the source at the time of merging or the State approved limit was unrelated to the merging.

In attempting to make demonstrations, source owners or operators should present as much evidence as can be located, with the understanding that demonstrations based on any single category of evidence (such as affidavits) presented in isolation are less likely to constitute acceptable showings than demonstrations based on cumulative bodies of evidence.

As discussed below, affirmative showings will be required of sources whose merged stacks were associated with an increase in allowable emissions as well as some sources whose mergers were not associated with such increases. However, EPA expects sources whose emission limits increased subsequent to the merging to present stronger showings than those with no increase, since the regulatory definition of "dispersion technique" views such increases as an explicit indication that the merged stacks were significantly motivated by an intent to gain credit for increased dispersion. Sources who do not increase their emissions, but who have difficulty making other demonstrations, such as the installation of pollution controls, or merging for sound economic or engineering reasons convey a more implicit indication of dispersion intent that must be rebutted; for such sources, however, the presumption of intent is not as compelling.

Increases in Allowable Emissions

As stated above, in cases where the allowable emissions of any pollutant increased in conjunction with the merging of gas streams, such an increase provides even stronger circumstantial evidence that merging was not carried out for sound economic or engineering reasons, but was "significantly motivated by an intent to gain emissions credit for greater dispersion." This presumption may be rebutted by making one of the following demonstrations.

1- by showing that the cost savings associated with reduced compliance costs for merged stacks are less than 50 percent of the total savings due to merged stacks (i.e., annual compliance savings plus annualized capital and maintenance savings), and by making an affirmative showing, as described above, that there was no significant motivation to gain credit for the increased dispersion provided by merged stacks; or

2- by showing that alternatives to stack merging were reasonably precluded strictly for engineering reasons, and by affirmatively demonstrating the absence of significant dispersion intent, as noted above.

In the absence of such a showing, it should be presumed that avoidance of emissions control was a significant factor in the decision to merge gas streams, and credit should be denied.

If you or your staff have any questions regarding the application of this guidance in specific instances, please contact Eric Ginsburg at (FTS) 629-5540 or Sharon Reinders at (FTS) 629-5526.

Attachments

FIGURE 1

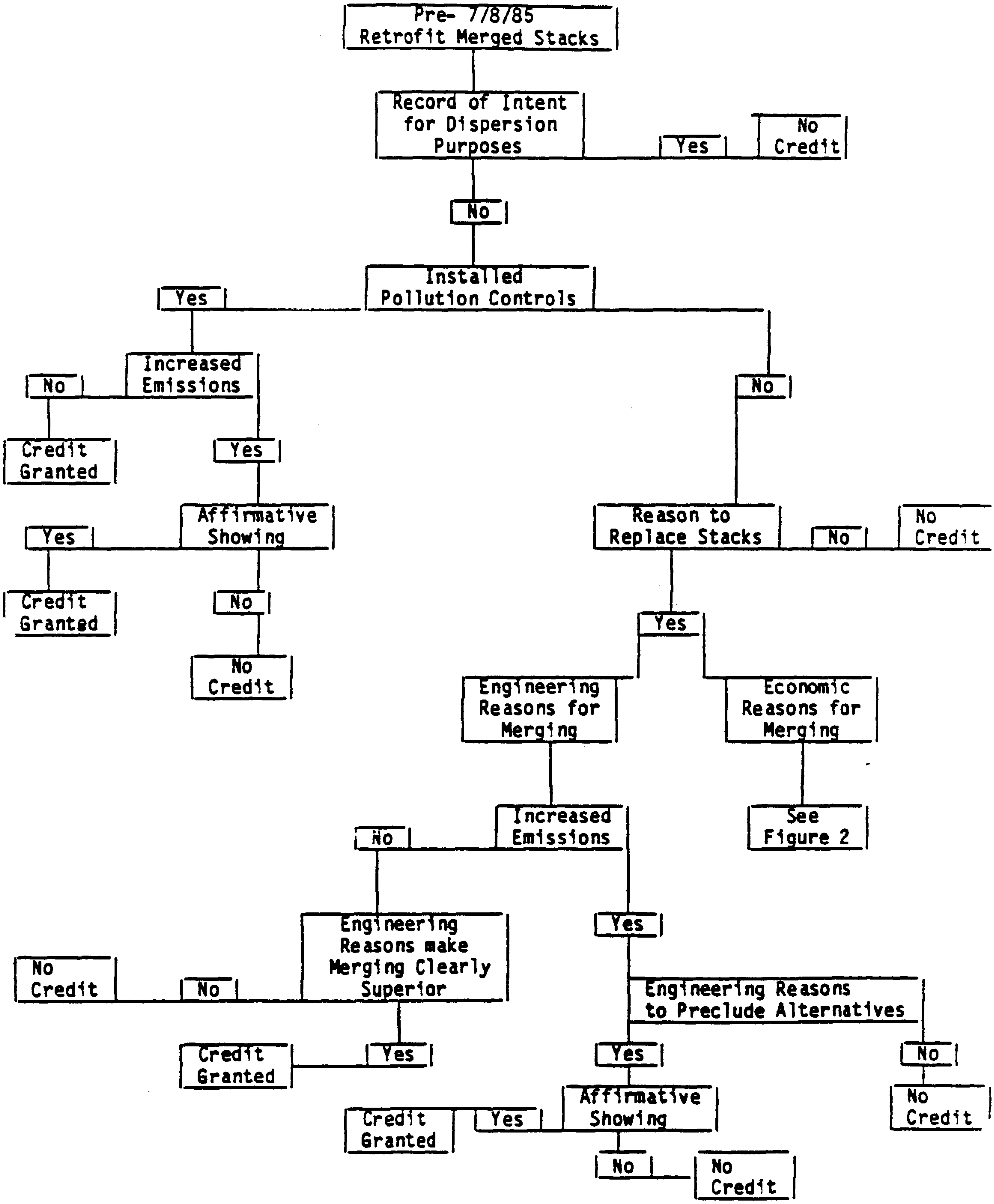
Pre- 7/8/85
Retrofit Merged Stacks
Record of Intent
for Dispersion
Purposes
Yes
No
Credit
No
Installed
Pollution Controls
Yes
Increased
Emissions
No
Credit
Granted
Yes
Affirmative
Showing
Yes
Credit
Granted
No
No
Credit
No
Reason to
Replace Stacks
No
No
Credit
Yes
Engineering
Reasons for
Merging
Economic
Reasons for
Merging
See
Figure 2
Increased
Emissions
No
Engineering
Reasons make
Merging Clearly
Superior
No
Credit
No
Yes
Credit
Granted
Yes
Engineering Reasons
to Preclude Alternatives
Yes
No
No
Credit
Affirmative
Showing
Yes
Credit
Granted
No
No
Credit

Figure 2

Economic Justification

for Merged Stacks

Savings due to Avoidance of More Stringent Emission Limit	No Increase In Emissions	Increase In Emissions
Less than 50% of Total Savings due to Merged Stack Construction	Credit Granted	Affirmative Showing
Exceed 50% of Total Savings due to Merged Stack Construction	Affirmative Showing	No Credit

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

Subparts A-C—[Reserved]

Sec.

Subpart D—Maintenance of National Standards

AQMA Analysis

AQMA Plan

Subpart E—[Reserved]

Subpart F—Procedural Requirements

Subpart G—Control Strategy

Subpart H—Prevention of Air Pollution Emergency Episodes

Subpart I—Review of New Sources and Modifications

Subpart J—Ambient Air Quality Surveillance

Subpart K—Source Surveillance

Subpart L—Legal Authority

Subpart M—Intergovernmental Consultation

Agency Designation

Continuing Consultation Process

Relationship of Plan to Other Planning and Management Programs

Subpart N—Compliance Schedules

Subpart O—Miscellaneous Plan Content Requirements

Subpart P—Protection of Visibility

Subpart Q—Reports

Air Quality Data Reporting

Source Emissions and State Action Reporting

Subpart R—Extensions

Authority: This rulemaking is promulgated under authority of sections 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act 42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a).

Source: 36 FR 22398, Nov. 25, 1971, unless otherwise noted.

Editorial Note: Nomenclature changes affecting Part 51 appear at 44 FR 8237, Feb. 8, 1979 and 51 FR 40661, Nov. 7, 1986.

Subparts A-C—[Reserved]

Subpart D—Maintenance of National Standards

Source: 41 FR 18388, May 3, 1976, unless otherwise noted.

§ 51.40 Scope.

(a) *Applicability.* The requirements of this subpart apply to air quality maintenance areas (AQMAs) identified under § 51.110(i) and to any areas identified under § 51.110(l).

(b) *AQMA Analysis.* Under this subpart, procedures are given for the analysis of the air quality impact of specified pollutant emissions from existing sources and emissions associated with projected growth and development in areas identified under paragraphs (i) and (l) of § 51.110. This analysis is referred to in this subpart as an AQMA analysis.

(c) *AQMA Plan.* Under this subpart, the Administrator will require a revision to the State implementation plan for areas identified under § 51.110(i) or § 51.110(l) when necessary to prevent a national ambient air quality standard

§51.62 AQMA analysis and plan: Data availability.

(a) The State shall retain all detailed data and calculations used in the preparation of AQMA analyses and plans, 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 AQMA analyses and plans shall not be considered a part of the AQMA plan.

§51.63 AQMA analysis and plan: Alternative procedures.

(a) At the request of a State, or under his own initiative, the Administrator, where he determines it appropriate, may approve alternative AQMA analysis and plan development procedures as allowed under §§51.42, 51.44, 51.45, 51.46, 51.48(b), and 51.60(a). He may consider all relevant factors including but not limited to air quality problems, financial and manpower limitations, administrative feasibility, and existing commitments by the State.

(b) The Administrator shall act upon a request for modification within 45 days after receipt of a properly prepared and filed request. Unless a State is notified of a denial, or the Administrator requests additional information, such a request is automatically approved on the forty-sixth day.

(c) The Administrator shall publish in the FEDERAL REGISTER a description of each modification made.

(d) A public hearing on an AQMA plan does not fulfill the public hearing requirements of this part if, subsequent to the hearing, any alternative procedures are approved under this section.

(Secs. 110, 121, 174(a), 301(a), Clean Air Act, as amended (42 U.S.C. 7410, 7421, 7504, and 7601(a)))

[41 FR 18389, May 3, 1976, as amended at 44 FR 35179, June 18, 1979]

Subpart E—[Reserved]

Subpart F—Procedural Requirements

SOURCE: 51 FR 40661, Nov. 7, 1986, unless otherwise noted.

§51.100 Definitions.

As used in this part, all terms not defined herein will have the meaning given them in the Act:

(a) "Act" means the Clean Air Act (42 U.S.C. 7401 *et seq.*, as amended by Pub. L. 91-604, 84 Stat. 1676 Pub. L. 95-95, 91 Stat., 685 and Pub. L. 95-190, 91 Stat., 1399.)

(b) "Administrator" means the Administrator of the Environmental Protection Agency (EPA) or an authorized representative.

(c) "Primary standard" means a national primary ambient air quality standard promulgated pursuant to section 109 of the Act.

(d) "Secondary standard" means a national secondary ambient air quality standard promulgated pursuant to section 109 of the Act.

(e) "National standard" means either a primary or secondary standard.

(f) "Owner or operator" means any person who owns, leases, operates, controls, or supervises a facility, building, structure, or installation which directly or indirectly result or may result in emissions of any air pollutant for which a national standard is in effect.

(g) "Local agency" means any local government agency other than the State agency, which is charged with responsibility for carrying out a portion of the plan.

(h) "Regional Office" means one of the ten (10) EPA Regional Offices.

(i) "State agency" means the air pollution control agency primarily responsible for development and implementation of a plan under the Act.

(j) "Plan" means an implementation plan approved or promulgated under section 110 of 172 of the Act.

(k) "Point source" means the following:

(1) For particulate matter, sulfur oxides, carbon monoxide, volatile organic compounds (VOC) 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 1980 "urban place" population, as defined by the U.S. Bureau of the Census, was equal to or greater than 1 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 1980 "urban place" population, as defined by the U.S. Bureau of the Census, was less than 1 million; or

(2) For lead or lead compounds measured as elemental lead, any stationary source that actually emits a total of 4.5 metric tons (5 tons) per year or more.

(l) "Area source" means any small residential, governmental, institutional, commercial, or industrial fuel combustion operations; onsite solid waste disposal facility; motor vehicles, aircraft vessels, or other transportation facilities or other miscellaneous sources identified through inventory techniques similar to those described in the "AEROS Manual series, Vol. II AEROS User's Manual," EPA-450/2-76-029 December 1976.

(m) "Region" means an area designated as an air quality control region (AQCR) under section 107(c) of the Act.

(n) "Control strategy" means a combination of measures designated to achieve the aggregate reduction of emissions necessary for attainment and maintenance of national standards including, but not limited to, measures such as:

(1) Emission limitations.

(2) Federal or State emission charges or taxes or other economic incentives or disincentives.

(3) Closing or relocation of residential, commercial, or industrial facilities.

(4) Changes in schedules or methods of operation of commercial or industrial facilities or transportation systems, including, but not limited to, short-term changes made in accordance with standby plans.

(5) Periodic inspection and testing of motor vehicle emission control systems, at such time as the Administrator determines that such programs are feasible and practicable.

(6) Emission control measures applicable to in-use motor vehicles, including, but not limited to, measures such as mandatory maintenance, installation of emission control devices, and conversion to gaseous fuels.

(7) Any transportation control measure including those transportation measures listed in section 108(f) of the Clean Air Act as amended.

(8) Any variation of, or alternative to any measure delineated herein.

(9) 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 seconary air quality standard and is approved by the Administrator under section 211(c)(4)(C) of the Act.

(o) "Reasonably available control technology" (RACT) means devices, systems process modifications, or other apparatus or techniques that are reasonably available taking into account (1) the necessity of imposing such controls in order to attain and maintain a national ambient air quality standard, (2) the social, environmental and economic impact of such controls, and (3) alternative means of providing for attainment and maintenance of such standard. (This provision defines RACT for the purposes of §§51.110(c)(2) and 51.341(b) only.)

(p) "Compliance schedule" means the date or dates by which a source or category of sources is required to comply with specific emission limitations contained in an implementation plan and with any increments of progress toward such compliance.

(q) "Increments of progress" means steps toward compliance which will be taken by a specific source, including:

(1) Date of submittal of the source's final control plan to the appropriate air pollution control agency;

(2) Date by which contracts for emission control systems or process modifications will be awarded; or date by which orders will be issued for the purchase of component parts to accomplish emission control or process modification;

(3) Date of initiation of on-site construction or installation of emission control equipment or process change;

(4) Date by which on-site construction or installation of emission control equipment or process modification is to be completed; and

(5) Date by which final compliance is to be achieved.

(r) "Transportation control measure" means any measure that is directed toward reducing emissions of air pollutants from transportation sources. Such measures include, but are not limited to, those listed in section 108(f) of the Clean Air Act.

(s)–(w) [Reserved]

(x) "Time period" means any period of time designated by hour, month, season, calendar year, averaging time, or other suitable characteristics, for which ambient air quality is estimated.

(y) "Variance" means the temporary deferral of a final compliance date for an individual source subject to an approved regulation, or a temporary change to an approved regulation as it applies to an individual source.

(z) "Emission limitation" and "emission standard" mean a requirement established by a State, local government, or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission reduction.

(aa) "Capacity factor" means the ratio of the average load on a machine or equipment for the period of time considered to the capacity rating of the machine or equipment.

(bb) "Excess emissions" means emissions of an air pollutant in excess of an emission standard.

(cc) "Nitric acid plant" means any facility producing nitric acid 30 to 70 percent in strength by either the pressure or atmospheric pressure process.

(dd) "Sulfuric acid plant" means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, or acid sludge, but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.

(ee) "Fossil fuel-fired steam generator" means a furnance or bioler used in the process of burning fossil fuel for the primary purpose of producing steam by heat transfer.

(ff) "Stack" means any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct but not including flares.

(gg) "A stack in existence" means that the owner or operator had (1) begun, or caused to begin, a continuous program of physical on-site construction of the stack or (2) entered into binding agreements or contractual obligations, which could not be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the stack to be completed within a reasonable time.

(hh)(1) "Dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by:

(i) Using that portion of a stack which exceeds good engineering practice stack height:

(ii) Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or

(iii) Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.

(2) The preceding sentence does not include:

(i) The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;

(ii) The merging of exhaust gas streams where:

(A) The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

(B) After July 8, 1985 such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or

(C) Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the reviewing agency shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the reviewing agency shall deny credit for the effects of such merging in calculating the allowable emissions for the source;

(iii) Smoke management in agricultural or silvicultural prescribed burning programs;

(iv) Episodic restrictions on residential woodburning and open burning; or

(v) Techniques under § 51.100(hh)(1)(iii) which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed 5,000 tons per year.

(ii) "Good engineering practice" (GEP) stack height means the greater of:

(1) 65 meters, measured from the ground-level elevation at the base of the stack:

(2)(i) For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable permits or approvals required under 40 CFR Parts 51 and 52.

$H_g = 2.5H$,

provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation:

(ii) For all other stacks,

$H_g = H + 1.5L$,

where

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack,

H = height of nearby structure(s) measured from the ground level elevation at the base of the stack.

L = lesser dimension, height or projected width, of nearby structure(s)

provided that the EPA, State or local control agency may require the use of a field study or fluid model to verify GEP stack height for the source; or

(3) The height demonstrated by a fluid model or a field study approved by the EPA State or local control agency, which ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features.

(jj) "Nearby" as used in § 51.100(ii) of this part is defined for a specific structure or terrain feature and

(1) For purposes of applying the formulae provided in § 51.100(ii)(2) means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than 0.8 km (½ mile), and

(2) For conducting demonstrations under § 51.100(ii)(3) means not greater than 0.8 km (½ mile), except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to 10 times the maximum height (H_t) of the feature, not to exceed 2 miles if such feature achieves a height (H_t) 0.8 km from the stack that is at least 40 percent of the GEP stack height determined by the formulae provided in § 51.100(ii)(2)(ii) of this part or 26 meters, whichever is greater, as measured from the ground-level elevation at the base of the stack. The height of the structure or terrain feature is measured from the ground-level elevation at the base of the stack.

(kk) "Excessive concentration" is defined for the purpose of determining good engineering practice stack height under § 51.100(ii)(3) and means.

(1) For sources seeking credit for stack height exceeding that established under § 51.100(ii)(2) a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of

the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard. For sources subject to the prevention of significant deterioration program (40 CFR 51.166 and 52.21), an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and greater than a prevention of significant deterioration increment. The allowable emission rate to be used in making demonstrations under this part shall be prescribed by the new source performance standard that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible. Where such demonstrations are approved by the authority administering the State implementation plan, an alternative emission rate shall be established in consultation with the source owner or operator.

(2) For sources seeking credit after October 11, 1983, for increases in existing stack heights up to the heights established under § 51.100(ii)(2), either (i) a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects as provided in paragraph (kk)(1) of this section, except that the emission rate specified by any applicable State implementation plan (or, in the absence of such a limit, the actual emission rate) shall be used, or (ii) the actual presence of a local nuisance caused by the existing stack, as determined by the authority administering the State implementation plan; and

(3) For sources seeking credit after January 12, 1979 for a stack height determined under § 51.100(ii)(2) where the authority administering the State implementation plan requires the use of a field study or fluid model to verify GEP stack height, for sources seeking stack height credit after November 9, 1984 based on the aerodynamic influence of cooling towers, and for sources seeking stack height credit after December 31, 1970 based on the aerodynamic influence of structures not adequately represented by the equations in § 51.100(ii)(2), a maximum ground-level concentration due in whole or part to downwash, wakes or eddy effects that is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

(ll)-(mm) [Reserved]

(nn) Intermittent control system (ICS) means a dispersion technique which varies the rate at which pollutants are emitted to the atmosphere according to meteorological conditions and/or ambient concentrations of the pollutant, in order to prevent ground-level concentrations in excess of applicable ambient air quality standards. Such a dispersion technique is an ICS whether used alone, used with other dispersion techniques, or used as a supplement to continuous emission controls (i.e., used as a supplemental control system).

(oo) "Particulate matter" means any airborne finely divided solid or liquid material with an aerodynamic diameter smaller than 100 micrometers.

(pp) "Particulate matter emissions" means all finely divided solid or liquid material, other than uncombined water, emitted to the ambient air as measured by applicable reference methods, or an equivalent or alternative method, specified in this chapter, or by a test method specified in an approved State implementation plan.

(qq) "PM_{10}" means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by a reference method based on Appendix J of Part 50 of this chapter and designated in accordance with Part 53 of this chapter or by an equivalent method designated in accordance with Part 53 of this chapter.

(rr) "PM_{10} emissions" means finely divided solid or liquid material, with an aerodynamic diameter less than or equal to a nominal 10 micrometers emitted to the ambient air as measured by an applicable reference method, or an equivalent or alternative method, specified in this chapter or by a test method specified in an approved State implementation plan.

(ss) "Total suspended particulate" means particulate matter as measured by the method described in Appendix B of Part 50 of this chapter.

[51 FR 40661, Nov. 7, 1986, as amended at 52 FR 24712, July 1, 1987]

§ 51.101 Stipulations.

Nothing in this part will be construed in any manner:

(a) To encourage a State to prepare, adopt, or submit a plan which does not provide for the protection and enhancement of air quality so as to promote the public health and welfare and productive capacity.

(b) To encourage a State to adopt any particular control strategy without taking into consideration the cost-effectiveness of such control strategy in relation to that of alternative control strategies.

(c) To preclude a State from employing techniques other than those specified in this part for purposes of estimating air quality or demonstrating the adequacy of a control strategy, provided that such other techniques are shown to be adequate and appropriate for such purposes.

(d) To encourage a State to prepare, adopt, or submit a plan without taking into consideration the social and economic impact of the control strategy set forth in such plan, including, but not limited to, impact on availability of fuels, energy, transportation, and employment.

(e) To preclude a State from preparing, adopting, or submitting a plan which provides for attainment and maintenance of a national standard through the application of a control strategy not specifically identified or described in this part.

(f) To preclude a State or political subdivision thereof from adopting or enforcing any emission limitations or other measures or combinations thereof to attain and maintain air quality better than that required by a national standard.

(g) To encourage a State to adopt a control strategy uniformly applicable throughout a region unless there is no satisfactory alternative way of providing for attainment and maintenance of a national standard throughout such region.

§ 51.102 Public hearings.

(a) Except as otherwise provided in paragraph (c) of this section, States must conduct one or more public hearings on the following prior to adoption and submission to EPA of:

(1) Any plan or revision of it required by § 51.104(a).

(2) Any individual compliance schedule under (§ 51.260).

(3) Any revision under § 51.104(d).

(b) Separate hearings may be held for plans to implement primary and secondary standards.

(c) No hearing will be required for any change to an increment of progress in an approved individual compliance schedule unless such change is likely to cause the source to be unable to comply with the final compliance date in the schedule. The requirements of §§ 51.104 and 51.105 will be applicable to such schedules, however.

(d) Any hearing required by paragraph (a) of this section will be held only after reasonable notice, which will be considered to include, at least 30 days prior to the date of such hearing(s):

(1) Notice given to the public by prominent advertisement in the area affected announcing the date(s), time(s), and place(s) of such hearing(s);

(2) Availability of each proposed plan or revision for public inspection in at least one location in each region to which it will apply, and the availability of each compliance schedule for public inspection in at least one location in the region in which the affected source is located;

(3) Notification to the Administrator (through the appropriate Regional Office);

(4) Notification to each local air pollution control agency which will be significantly impacted by such plan, schedule or revision;

(5) In the case of an interstate region, notification to any other States included, in whole or in part, in

REFERENCES FOR SECTION 5.8

WORKSHOP ON IMPLEMENTING THE STACK HEIGHT REGULATIONS (REVISED)

OCTOBER 29 TO 30, 1985

by

PEI Associates, Inc.
505 South Duke Street, Suite 503
Durham, North Carolina 27701-3196

CONTROL PROGRAMS DEVELOPMENT DIVISION
OFFICE OF AIR QUALITY PLANNING AND STANDARDS
U.S. ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NORTH CAROLINA 27711

October 1985

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

9 OCT 1987

MEMORANDUM

SUBJECT: Processing of Stack Height Negative Declarations

FROM: G. T. Helms, Chief *G. T. Helms*
Control Programs Operations Branch

TO: Chief, Air Branch
Regions I-X

The purpose of this memorandum is to clarify and revise some points in my September 3, 1987, memorandum entitled "Technical Support for Stack Height Negative Declarations." That memorandum included a list of minimum requirements for determining adequate documentation with three additional guidance documents attached. One of the attachments was the August 28, 1987, memorandum from Charles Carter of the Office of General Counsel (OGC) and me to Bruce Miller of Region IV, entitled "Documentary Support for Deficiencies in Stack Height Review Packages." Because several actions are being delayed by inadequate documentation, we sent copies of the August 28 memorandum to all ten Regions as examples to alert them to these problems.

The Tennessee State implementation plan (SIP) was used as an example because we believed it had deficiencies that were common to other negative declaration packages. The use of the Tennessee evaluation as an example was not intended to single out Region IV as having more problems with documentation than other Regions, although the tone of the memorandum might have given this impression. I am sorry for this misrepresentation.

In a recent conference call with OGC and Region IV, Region IV suggested three clarifications and revisions to the guidance that we included in the August 28, 1987, and September 3, 1987, memorandums. We believe these should be incorporated. They are as follows:

1. The requirement for a list of sources evaluated for negative declarations applies only to sources greater than 65 meters.

2. For grandfathering documentation, the date the source was built is not essential, but the type and date of the documentation that the source was built prior to December 31, 1970, must be listed. However, whenever the actual construction date is submitted by the State, it should be included.

NOTE: Attachments 1 and 2 are not included in the Policy and Guidance Notebook.

3. It is not necessary that a Region give assurances that they are confident the documentation is adequate; however, regional management should be satisfied that the State submission meets the requirements of the stack height regulation.

We also agreed during the conference call that the Delaware negative declaration (#3356) (See Attachment 1) includes a good tabular form to present the good engineering practice (GEP) review in a Federal Register notice or the accompanying technical support document (TSD). Attachments 2 and 3 present expanded tables for stacks over 65 meters and for sources over 5000 tons per year. The notice does not have to include tables in these formats, but the information required in them should be discernable from the notice and/or TSD. For example, the Delaware table in Attachment 1 is a shortened version of Attachment 2, since no stacks exceeded GEP.

I hope this memorandum clarifies my past correspondence and gives you a better understanding of the documentation necessary for processing stack height negative declarations. If you have any questions, please call Ted Creekmore (629-5699) or me (629-5526). Thank you for your patience during the processing of these complex SIP revisions.

Attachments

cc: Charles Carter
Pat Embrey
Sharon Reinders
Richard Roos-Collins
Ted Creekmore
Dave Stonefield
Eric Ginsberg
John Silvasi

ATTACHMENT 1

DELAWARE

Table 1

A summary of applicable sources and the States review.

Name of Company	Grandfathered[1]	GEP[2]	Documentation
Wilmington Finishing Company	X		Map of Wilmingt 1927.
Delmarva Power & Light (Edgemoor)			
Unit #3	X		[3]FERC report 195
Unit #4	X		FERC report 196
Unit #5		X	State Air Permit
Delaware City	X		FERC report 1956
Indian River			
Unit #1	X		FERC report 1957
Unit #2	X		FERC report 1959
Unit #3	X		FERC report 1970
Unit #4		X	State Air Permit
Dupont Seaford	X		Drawing dated 1939
Texaco			
Sulfur Recovery Unit		X	State Air Permit
Fluid Coker	X		Drawing dated 12/2/55
Crude Unit	X		Drawing dated 9/28/55
Catalytic Cracker	X		Drawing dated 5/10/60
Sun Olin Chemical Co. Boiler Stack	X		Purchase order 4/6/61
Allied Corporation Boiler Stack East	X		Drawing dated 9/28/59
Delaware Trust Building	X		Drawing dated 1/12/59
American International Building	X		Drawing dated 10/8/65

[1] Stack was in place or binding contract before 12/31/70.

[2] Source Follows Good Engineering Practice in accordance with the July 8, 1985 Federal Register notice.

...ssion (FERC).

Attachment 2

DRAF.

Stacks over 65 meters

Actual Height	GEP[a]	Grand-fathered	Description of G'fathering Documentation	Post-70 Modification	Modeled[b]	Stack raised to GEP after 10/11/83	Need for stricter control

ate which formula was used

ate whether modeling was done at GEP

planatory Codes

existence or under binding contract on 12/31/87

idence of reliance on 2.5H provided

deled at GEP

Stack ... GEP but emission limit not based ... modeling

Attachme 3 DRAFT

Sources emitting over 5000 tons per year

e	Merged Stacks	Other DT's used	Modeled	Grandfathered	Need for Stricter Controls

planatory Codes

's in existence on 12/31/70

iginal design merged stacks

ıstalled pollution control equipment

›und economic reasons

›und engineering reasons

› credit taken for merging

odeled without merged stack credit

credit taken for DT's

= Dispersion Technique

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

FEB 11 1986

MEMORANDUM

SUBJECT: Clarification of Existing Guidance on Dispersion Modeling Requirements for Plants With "Tall Stacks" and Other Prohibited Dispersion Techniques

FROM: Darryl D. Tyler, Director
Control Programs Development Division (MD-15)

TO: Director, Air Division, Regions I-X

The purpose of this memo is to clarify EPA's guidance on the dispersion analysis requirements that are necessary to implement the revised stack height regulations (see EPA's Stack Height Workshop Manual dated October 1985) and, second, to respond to questions on whether dispersion modeling is required in the context of checking for prohibited dispersion credit if a source's emission limitation was not developed by means of a case-specific dispersion analysis.

In cases where stack height credit and/or dispersion credit changes and a dispersion analysis has been performed in any context, that analysis must to be reviewed to determine if the model inputs reflect credit for stack height(s) above good engineering practice (GEP) or any other prohibited dispersion technique(s). (Review of the model inputs applies to both the specific source(s) for which the analysis is conducted and nearby point sources as performed for a new or renewed permit, a new source review/ prevention of significant deterioration national ambient air quality standard attainment or increment analysis, a State plan to propose revision of its federally approved State implementation plan (SIP) emission limitations, justification of the current SIP limitations, or any attainment/nonattainment redesignation(s), etc.)

If the analysis reflects credit for prohibited dispersion techniques, then the source(s) need to be remodeled without the prohibited credit(s) and revised emission limitation established in the event that the analysis shows an attainment or increment problem. If a source's emission limit was established by ambient air quality considerations such as rollback, modeling is required to demonstrate consistency with the stack height regulation because credit for prohibited dispersion techniques is reflected in the monitored value. If a source has never been analyzed for dispersion, then it is not necessary to conduct a dispersion analysis now.

It is a State responsibility to demonstrate (1) that the SIP limit does not consider the results of dispersion analyses, (2) that the source has never been evaluated for dispersion credit, or (3) that existing or new analyses are consistent with guidance. Regions are encouraged to provide assistance to States in this endeavor if the impacted agency so desires. It is always appropriate for an individual State or Region to request or initiate a modeling analysis where one does not exist if there is reason to believe that a source's emission limitation is inconsistent with the stack height regulations. However, EPA is not calling for an across the board modeling analysis from every source.

Please pass this information along to your States. If you have any questions on implementing this guidance, please call Sharon Reinders at FTS 629-5526 or Eric Ginsburg at FTS 629-5540.

cc: Regional Administrator, Regions I-X
Chief, Air Branch, Region I-X
Regional Stack Height Contact, Regions I-X
R. Brenner
R. Campbell
C. Carter
C. Elkins
G. Emison
T. Helms
D. Rhoads
B. J. Steigerwald
J. Tikvart
P. Wyckoff

REFERENCES FOR SECTION 5.9

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 51

[FRL-3215-8]

Stack Height Emissions Balancing: Final Policy

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final policy statement.

SUMMARY: Reproduced below is a memorandum which sets forth EPA's national policy authorizing use of "emissions balancing" (EB) for compliance with the Agency's revised stack height regulation promulgated July 8, 1985 (50 FR 27892). This policy provides an alternative compliance option which can result in substantial cost savings to electric utility or other sources affected by these regulations or to their customers, while assuring equivalent or greater environmental benefits. It makes final and responds to major comments on a policy proposed December 23, 1985 (50 FR 52418).

EFFECTIVE DATE: This policy is effective on January 7, 1988.

FOR FURTHER INFORMATION CONTACT: For information concerning the policy issues addressed herein, contact J. David Foster, Office of Air and Radiation, (202) 475-8590. For information concerning implementation and processing of emissions balancing state implementation plan revisions, contact G.T. Helms, Office of Air Quality Planning and Standards, (919) 541-5527.

SUPPLEMENTARY INFORMATION:

Docket Statement

Pertinent information concerning this policy is included in Docket Number A-85-05 which has been established as the record of these proceedings. This Docket is maintained in EPA's Central Docket Section, South Conference Center, Room #4, 401 M Street SW., Washington, DC, and may be inspected between 8:00 a.m. and 4:00 p.m. on weekdays. A reasonable fee may be charged for copying materials in this Docket.

I. Introduction and Summary

The stack height regulation revisions promulgated on July 8, 1985 (50 FR 27892) implement the provisions of section 123 of the Clean Air Act, which requires that the degree of emission limitation required for control of any air pollutant under an applicable state implementation plan (SIP) shall not be affected by (1) stack heights in excess of good engineering practice (GEP), or (2) any other dispersion technique. For more detailed discussion, see the July 8, 1985 notice.

Stationary sources of air pollution are subject to emission limitations to assure attainment of the national ambient air quality standards (NAAQS) and to protect prevention of significant deterioration (PSD) increments. These limitations are derived from predictions of ground-level pollutant concentrations that will occur in the area of maximum impact as a result of pollutant emissions from one or more sources. Dispersion-enhancing practices, including excessively tall stacks, lower the predicted ground-level concentrations and may result in emission limitations which allow sources to emit greater total amounts of pollution than if such practices were not employed.

Under the revised stack height regulation, some sources may be subject to emission limitations which are more stringent than those which currently apply. Today's final policy has been developed in consideration of the fact that emission reductions mandated by the stack height regulation may be obtained more cost-effectively by allowing such a source to secure these reductions at (an)other source(s), in lieu of reducing emissions at its own facility. For purposes of this policy, the source which is subject to more stringent emission limits is called the "affected source"; the source which provides the emission reductions needed to satisfy such limits is called the "providing source". This joint satisfaction of an emission reduction obligation is referred to as an "emissions balance."

Under Clean Air Act section 110 and 40 CFR Part 51, a SIP revision establishing emission limits for affected sources must provide for full implementation of (i.e., ultimate compliance with) any required emission reduction as expeditiously as practicable but not later than 3 years from the date EPA approves the SIP revision.

Emissions balances will also be approved through this SIP revision process. To allow sufficient time for arranging balances while assuring prompt ultimate compliance, the final policy requires EB SIP revisions to be submitted to EPA within 9 months after EPA final approval of the stack height SIP revision for the relevant affected source. Use of an emission balance will not be permitted to delay compliance beyond 3 years from the date EPA approves the relevant stack height sip revision.

The EPA is limiting the period during which emission balances can be submitted to avoid delays in compliance with GEP emission limitations. Depending on the extent of required emission reductions, significant lead time may be necessary before actual compliance can be achieved. If a source sought to apply for an emission balance later than 9 months after receiving a revised emission limitation, it might not be possible for the balance SIP revision to be approved and for the providing source to reduce its emissions within the time required for ultimate compliance with the GEP emission limitation.

To ensure that balances will have environmental effects equivalent to stack-by-stack compliance with the July 8 regulation, EPA has concluded that, in light of potential complexities involved in the stack height regulation, the emission reductions from the providing source must be greater than the reductions required of the affected source by the stack height regulation. In order to facilitate prompt approval of sound applications for emission balances, without the potential delay that might otherwise result from intensive verification of baseline and other factors bearing on equivalent emission reductions, the final policy requires 20 percent more emission reductions from the providing source than would have been required from the originally affected source (i.e., a "balancing ratio" of 1 to 1.2), on an annual average basis.

The proposal would have barred balance credit from shutdowns or production curtailments. The final policy similarly does not allow general use in balances of emission reductions from plant shutdowns or operation curtailments, but authorizes their consideration in individual cases employing "lower emissions dispatch" (LED) where stated criteria are met. The concept of LED, which explicitly couples the curtailment of operations at high emitting facilities with the increased use of well-controlled facilities, is currently being analyzed by various states under EPA's State Acid Rain (STAR) grant program, in part to determine whether that approach could be generally authorized in future Agency actions. However, because EPA does not yet know how reductions from LED could be adequately calculated, monitored, and enforced, this approach can only be considered on a case-by-case basis in which applicants fully demonstrate that these concerns will be satisfactorily addressed. As stated at C.3 in the final policy, sources must submit a contingency plan that could take effect if the LED proposal is disapproved. Applicants who elect to pursue this case-by-case approach should be aware that inquiries needed to satisfy such concerns may add delays to an already tight timetable, and that in no case will these delays be considered a justification for extending the 3-year ultimate compliance deadline.

EPA's December 23, 1985 proposal considered placing limits on the relative difference in stack heights of the providing and affected sources. The Agency has subsequently determined that any such limit would both unnecessarily increase the policy's complexity and decrease the effectiveness of the program. The final policy therefore imposes no constraints based on actual or effective stack height differences.

Because of potential administrative and enforcement difficulties with balances that transcend a single state's jurisdiction, today's policy generally limits balances to facilities within state boundaries. However, this policy recognizes a specific exception in the case of interstate air quality control regions (AQCR's). In such interstate areas, states have already developed enforceable interstate processes for attaining and maintaining ambient air quality standards. Therefore, this policy also allows the balancing of emission reductions among sources within an interstate air quality control region.

In brief, today's policy allows an affected source to meet more stringent emission limitations required by the revised stack height regulation by securing emission reductions from another source or sources within the same state or interstate AQCR, subject to a "balancing ratio" of 1 to 1.2 and other safeguards (see sections A and B of the policy) designed to assure that reductions at least equivalent to those expected from stack-by-stack compliance will be obtained.

Analyses of the likely effects of such emissions balancing have consistently indicated that it will produce equal or greater emission reductions at substantially less cost than conventional compliance without balancing.[1]

II. Response to Comments on December 23, 1985 Proposal

EPA received 24 comments addressing the proposed policy. Minor comments have been consolidated according to the issues raised and are summarized along with EPA's responses in a detailed response to comments document included in the docket. Comments which addressed issues fundamental to development of the final policy are briefly summarized and responded to below.

A. Legality

Three commenters asserted that use of emissions balancing would not square with the statute, claiming that section 123's bar on crediting "excess" stack height (i.e., stack height exceeding GEP) when developing applicable SIP emission limits also requires compliance with those limits at the specific stack. They additionally cited *Sierra Club* v. *EPA*, 719 F.2d 436 (D.C. Cir., 1983), which did not address the issues here but generally cautioned EPA to interpret section 123 in a manner which errs on the side of protecting public health.

EPA disagrees with these commenters. It is quite true that excess stack height may not be taken into account when developing SIP emission limits: these limits must treat such stacks exactly as though they were not excessively "tall." However, these comments ignore the fact that once such limits are properly developed, the requirements of section 123 are fulfilled. Resulting emission limits are thereafter no different than any other SIP emission limitation under Clean Air Act section 110, and may generally be satisfied in the same broad range of ways.[2] That is particularly true where, as here, balances may only be used in areas which have either attained and are maintaining the relevant NAAQS and PSD increments, or are implementing EPA-approved plans for doing so (see today's policy section A.5). Section 123 was not written or intended to physically eliminate all dispersion of pollutants, but rather to eliminate reliance on undue dispersion when calculating necessary levels of emission control. Thus, beyond the need to assure the protection of public health and welfare from actual air quality levels in excess of the NAAQS or PSD increments, there is no need to require site-specific control since, in conjunction with the stack height regulation, the policy assures that no undue reliance on dispersion exists.

No different result is required by some commenters' reliance on statutory and regulatory language prohibiting emission limitations that are "affected in any manner" by "so much of the stack height of any source" that exceeds GEP. Section 123 itself refers to "the degree of emission limitations required for control of any air pollutant under an applicable implementation plan," not for control of any air pollutant emitted by a specific source under such a plan. Moreover, the cited passages uniformly refer to the process by which initial SIP limitation must be developed under section 123—process which is necessarily source-specific, since it turns on such factors a the individual source's stack height, plume rise, and interplay with emission from other nearby sources. See, e.g., 40 CFR 51.12(j) (1985). These provisions simply do not reach the question of how such limits, once properly set, may be satisfied. Once those limits are properly set, emission balances change neither the overall degree of emission limitation nor the amount of total reduction required under the applicable plan, other than to provide greater reduction.

Nor is a different result required by comments that "grandfathered" stacks not subject to section 123 should not be allowed to provide reductions for emissions balances. That Congress refused to mandate further restrictions on stacks constructed before 1971 says nothing about their ability to voluntarily reduce emissions further as part of an emission balance. Indeed, securing further, cost-effective reductions from exempted stacks constitutes an additional justification for allowing these sources to be providing sources in an emissions balance.

B. Emissions Balancing Ratio

The proposed policy requested comment on a range of ratios between 1 to 1.2 and 1 to 2, noting without explanation that EPA "preferred" the higher ratio. Two comments supported this 1 to 2 ratio. Ten comments supported a 1 to 1 ratio, asserting that EPA lacked authority to require more than equivalent emission reductions. Three commenters supported 1 to 1.2, stating that this ratio should provide more than adequate environmental equivalence and that any higher ratio would discourage balances and could therefore result in less overall environmental benefit. Seven commenters suggested other ratios or ratioing techniques.

Providing source(s) must reduce emissions of the same pollutant, calculated on an annual average basis, to an extent 1.2 times (i.e., twenty percent more than) the emission reduction required of the affected source (or 1.2 times that portion of the required reduction for which the affected source is seeking an emissions balance). Because of the extremely short time available to develop, approve, and implement emission balances under the three-year deadline, and the potential delays produced by the detailed examination needed to assure equivalence, EPA believes that the 1 to

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[1] *Analysis of the Promulgated Stack-Height Regulations With and Without Emissions Trading*, ICF, Inc., August 1985, Docket Item #IV-A-1.

[2] Compare, e.g., Final Emissions Trading Policy, 51 FR 43814 (Dec. 4, 1986).

1.2 ratio is needed to help ensure overall environmental results at least equivalent to those which would result if all emission reductions had occurred at the affected source. Given that NAAQS and PSD increments are required to be attained, that real reductions from a lower-of-actuals-or-SIP-allowables (or remodeled SIP allowables, if remodeling is required) emissions baseline are required from each providing source, and that the policy contains other safeguards, EPA believes that a 1 to 1.2 ratio provides adequate assurance of equivalence and that no higher ratio is required. The 1 to 1.2 ratio would also yield the least costly reductions from the range of ratios evaluated.

C. Credit for Shutdowns, Curtailments or Lower Emissions Dispatch (LED)

The proposed policy would have barred balancing credit for these possible emission-reducing actions at providing sources, noting potential monitoring and enforcement problems. It further noted that, assuming constant demand, reduced electricity production at one providing facility could result in parallel increases elsewhere.

Eleven of thirteen commenters of this issue recommended that emissions balance credit be given for reductions derived from lower emissions dispatch or some other form of enforceable curtailment of operations at high emitting facilities. One commenter suggested that such credit be given on a case-by-case basis, and one commenter supported the proposed policy.

"Lower emissions dispatch" is the term used in this policy to describe a utility company, holding company, or powerpool management strategy to control emissions by decreasing electricity production at higher emitting (e.g., higher lbs/10^6 Btu) power plants, and increasing electricity production at lower emitting (cleaner) power plants, rather than distributing (dispatching) electricity production solely on the basis of least cost.

Creditable emission reductions in this section 123 context depend not so much on the production level at a given facility as on a detailed analysis of the change in emissions resulting from the transfer of production from one facility with one set of controls to another facility with another set of controls. Without detailed enforceable provisions relating not only to the curtailment of production at a high emitting facility, but also to the transfer of production to and emission limits at an identified second facility, reductions claimed from LED would not, in general, be sufficiently reliable.

None of the commenters demonstrated how these emission reductions could be reliably enforced. Without assurance that emission reductions derived from curtailments at high emitting facilities would be enforceably coupled with increased production at low emitting facilities, or would otherwise assure equivalent or lower emissions, EPA cannot generally authorize emissions balances relying upon curtailment. EPA presently does not know how to calculate reductions from or how to adequately enforce LED. However, EPA will review such proposed methods of achieving reductions for an emissions balance on a case-by-case basis, where applicants fully document and commit to use enforceable, easily monitored procedures for assuring equivalent emission reductions. Applicants should be aware that they bear the burden of proof on such showings, which will not constitute grounds for extending the three-year ultimate compliance date described above and in more detail at subsections F and G below.

D. Relative Stack Height Limits

The proposed policy requested comments on four possible options for relative stack height limitations, ranging from no additional restrictions to a requirement that the effective height (i.e., physical stack height plus plume rise) of the providing source be at least equal to that of the affected source. Eighteen comments supported no stack height restriction. One commenter advocated the most stringent option requiring equal or greater effective stack height, citing concerns that balancing might otherwise increase long range transport.

The final policy does not restrict the relative stack heights of affected and providing sources. The thrust of section 123 is to limit reliance on undue dispersion when calculating appropriate levels of emissions control. No restriction on relative stack height appears necessary to effectuate that purpose, and such restrictions would likely result in fewer and more costly emission reductions that balances could otherwise secure. EPA analyses suggest that emissions balancing without additional stack height restrictions could secure up to 30,000 tpy more SO_2 reduction (with savings up to $50 million per year more) than balancing with additional stack height restrictions.[1]

EPA concludes that balances with no restrictions on relative stack height are likely to provide greater emission reductions and cost savings, as well as being easiest to implement and enforce compared to the other alternatives evaluated.

E. Geographical Boundaries

The proposed policy would have limited balances to sources within the same state or same interstate AQCR. Twelve comments were received discussing the geographical boundaries appropriate for emissions balancing. Five urged interstate balances with few, if any restrictions. Three favored allowing balances in bordering states as well as within the same state. One favored the EPA proposal. Others suggested limiting balances to a single state, or to a geographic area defined to assure that benefits were obtained in the airshed of the affected source. Several of these comments were based on assumptions regarding localized ambient concerns or specialized transport concerns which are not relevant here.

The final policy allows balancing as proposed. The language of section 123 refers to "[t]he degree of emission limitation required * * * under an applicable implementation plan * * *." (underlining added). EPA believes that authorizing emissions balancing within a single state or within a single interstate AQCR will appropriately maintain the policy's environmental and compliance usefulness without sacrificing administrative feasibility. More than half the potentially affected sources are located within interstate AQCR's and many others offer potential balances within single states. Allowing full interstate balancing with no restrictions as to state lines could result in undue administrative and enforcement problems because many states may not be able to enforce and implement an interstate balance in a timely manner. Conversely, limiting balances to a single AQCR or part of a state could severely limit the use and environmental benefits of the policy. That approach would sharply reduce the number of potential providing sources, and could therefore limit the speed and ease with which an affected source could meet the conditions of this policy and of the revised stack height regulation.

F. Emissions Balancing SIP Revision Deadline

The proposal requested comment on the appropriateness of an October 8, 1986 proposed deadline for submittal of emission balancing (EB) SIP revisions as well as alternative approaches. Eleven comments were received on this topic. Ten asserted that the October 8, 1986 deadline for submittal to EPA of EB SIP revisions was too short to be met in light of past experience with the SIP revision process. One commenter supported the proposed deadline. Several of these comments supported a deadline of nine months after final policy promulgation. They further requested clarification that balances need not be submitted with the initial stack height SIP revisions and that this deadline was not for actual source compliance, but only for SIP submittal.

EPA has concluded that sufficient time for development of balances can be accommodated without delaying compliance, in a manner different than that suggested in the proposal. To provide adequate time for development, approval and implementation of emission balances, states will be allowed nine months from the date of EPA final approval of the relevant stack height SIP revision to submit the emissions balancing SIP revision. EB SIP revisions need not be submitted with the stack height SIP revisions. However, in order to assure that required emission reductions are known, a stack height SIP revision for an affected source must be submitted prior to or coincident with an EB SIP revision for that source. EPA agrees that the nine month deadline only applies to submittal of an EB SIP revision, not to actual source compliance, which is not later than three years from the date that EPA approves the affected source's stack height SIP revision.

This approach will not delay ultimate compliance, since the date by which an affected source must meet its revised emission limits will not change as a result of emissions balancing. EPA encourages states to submit EB SIP revisions expeditiously, to provide affected sources sufficient time to comply with these requirements.

C. Source Compliance Date

Two commenters generally stated that the compliance deadline for a source should be determined on a case-by-case basis. One also indicated that case-by-case compliance date determinations were especially appropriate for sources proposing to use innovative technologies as part of balances.

Under the final policy, the compliance date for an emissions balance is the same as provided by 40 CFR 51.110(b)—as expeditious as practicable, but not more than three years from EPA approval of the relevant stack height SIP revision.

Date: December 23, 1987.

Lee M. Thomas,

Administrator.

Memorandum

Subject: Stack Height Emissions Balancing Policy

From: The Administrator (A-100)

To: Regional Administrator, Regions I–X

I. Background

On July 8, 1985 the Environmental Protection Agency (EPA) promulgated the revised stack height regulation required to implement section 123 of the Clean Air Act, 50 FR 27892. The regulation principally affects sources emitting SO_2 and limits the credit these and certain other sources can receive for the height of their stacks and the use of other dispersion techniques in calculating emission limits. Consequently, some of these sources will be required to secure emission reductions in order to comply with the stack height regulation.

The likelihood that some required emission reductions could be obtained in a more cost-effective manner from other sources has given rise to the concept known as "emissions balancing" (EB). This concept would allow sources subject to the stack height regulation to comply in a more cost-effective manner while achieving an equal or greater overall environmental result.

II. Policy Discussion

This policy authorizes a source directly affected by the stack height regulation ("affected source") to obtain any required emission reduction from another source or sources ("providing source"). However, any source which must reduce its emissions because of reliance on a prohibited supplemental or intermittent control strategy cannot meet its requirements by obtaining reductions from (an) other source(s).

Providing source(s) must reduce emissions of the same pollutant, calculated on an annual average basis, to an extent 1.2 times (i.e., twenty percent more than) the emission reduction required of the affected source (or 1.2 times that portion of the required reduction for which the affected source is seeking an emissions balance). This balance factor has been chosen because of the difficulty of ensuring equivalent emission reductions, given the very short time available for affected sources to submit, receive approval of, and implement individual balances.

Partial balancing and balancing with more than one source are also authorized. This means that an affected source may combine emission reductions at its own facilities with emission reductions from (a) providing source(s) to secure the total reduction required. For example, if an affected source is required to reduce its emissions by 10,000 tons per year, it may reduce its own emissions by 5,000 tons per year and develop an emissions balance providing for an additional 6,000 (5,000 times 1.2) tons per year from another source, or it may establish a balance with more than one source to secure the entire reduction.

This policy applies to sources affected by the revised stack height regulation promulgated at 50 FR 27892 (July 8, 1985), which sources were in operation as of that date or for which permits to construct or operate had been issued as of that date.

III. Details of Policy

A. General Conditions for Approvable Emissions Balances

1. Emissions balancing may be permanent or may be used to comply with the regulations temporarily until permanent compliance can be achieved. With respect to temporary balancing, the requirements of this policy would apply for the duration of the temporary balance.

2. An approvable emissions balance must require that the providing source(s) reduce emissions of the same pollutant, calculated on an annual average basis, to an extent 1.2 times the emission reduction required of the affected source by application of the stack height regulation (or 1.2 times that portion of the required reduction for which the affected source is seeking an emissions balance).

3. An emissions balance must take place entirely within the boundaries of a single state or single interstate AQCR. With respect to the latter, interstate balances within the same air quality control region will be acceptable if an enforceable interagency agreement or equivalent provision is incorporated into the SIP's of both States and is approved by EPA. However, the appropriate Regional Office may limit balances to smaller areas on a case-by-case basis if necessary to assure protection of the national ambient air quality standards (NAAQS) or the prevention of significant deterioration (PSD) increments.

4. Emission reductions from the providing source(s) must be stack emissions, not fugitive emissions.

5. Other conditions of an approvable emissions balance are:

• Both the affected and providing sources must be in compliance or on an enforceable schedule for compliance with all applicable federally-approved SIP requirements:

• All NAAQS for the pollutants involved in the balance must either be attained and maintained within the area of the emissions balance, or that area must be implementing an EPA-approved SIP providing for such attainment and maintenance:

• PSD increments must be protected:

• Any applicable SIP requirements for visibility protection must be met: and

• States and/or EPA must assure the adequacy of emission limitations for the affected and/or providing source(s). This may necessitate case-by-case re-evaluation of emission limitations to protect NAAQS or PSD increments. If any remodeling is required to ensure protection of NAAQS or PSD increments, as part of this re-evaluation, it must conform with EPA's current modeling guidelines [1], except that the affected source shall be remodeled using its actual stack height and current SIP (not new GEP) limits. This remodeling is not intended to allow relaxation of the affected source's allowable SIP limits.

6. In addition to any emissions limits needed to ensure protection of NAAQS and PSD increments, sources must demonstrate the following. If the providing source is used to cover the full emission reduction required by application of the stack height regulation to the affected source, that reduction must equal 1.2 times the tons per year of reduction required at the affected source absent the emissions balance.[2] Possible ways to achieve this are by placing an enforceable annual "cap" on the production level of the affected source, together with a "floor" on the production level (i.e., a minimum production level) on the providing source: or by use of a weighted rolling annual average emission limit for the affected and providing sources combined, etc. Because of the long averaging time (annual) involved in emissions balancing, special care should be taken to assure that enforceable means of monitoring compliance are included in the EB SIP revision.

7. The emissions balance must not cause or contribute to adverse impacts on the air quality-related values of any class I area. The Federal Land Manager of the class I area shall receive timely formal notification of any emissions change that may affect management of such lands.

8. Sources involved in an emissions balance, like all other sources, may later be required to make further emission reductions as a result of future SIP revisions determined necessary to attain or maintain NAAQS or PSD increments.

B. Calculation of Emissions Balances

1. The baseline from which emission reductions may be credited at the providing source must be the lowest of actual, current SIP allowable or remodeled SIP allowable emissions, if remodeling is needed, and shall be determined using procedures consistent with those in the EPA Emissions Trading Policy (51 FR 43814, Dec. 4, 1986). Actual emissions are determined by averaging the emissions of the providing source over the most recent representative two calendar years [3] unless circumstances (e.g., the recent installation of a permanent control device) warrant a different period of record. Allowable emissions are those emissions allowed by a federally enforceable SIP limit, preconstruction permit, or other equivalent document which is currently approved by EPA as sufficient to provide for attainment and maintenance of NAAQS and PSD increments.

2. Reductions from the providing source(s) must be obtained through use of control equipment, lower-emitting process changes, or cleaner fuels. Emission reductions from intermittent or supplemental control strategies, or any other strategy inconsistent with the stack height regulation are not acceptable for emissions balances.

3. If at some later date, (a) providing source(s) shuts down or curtails its operations in ways which breach the terms of an emissions balance, the emissions balance will be totally or partially negated, and the affected source must make up the difference by reducing its own emissions and/or by arranging an emissions balance with another source, as explained in C.3 below.

4. The emission reductions from (a) providing source(s) in an emissions balance may not be derived from a control measure: (1) Which is already an approved part of a SIP, (2) for which a commitment for reductions has been approved as a part of a SIP, (3) which has been proposed and is currently under consideration for adoption as a part of a SIP, or (4) which has been adopted at the state or local level as a necessary SIP control measure. As explained in item C.2 below, however, any new emission limitations needed to ensure protection of NAAQS and PSD increments or limitations needed to ensure that the required tons/year emission reduction is achieved by the source(s) as a result of an approved balance will become an enforceable part of the SIP. These provisions are necessary to assure that an emission reduction made for and credited in an emissions balance is not used for other purposes (i.e., is not double-counted).

5. Because of concerns related to potential delay in processing applications and the possibility that emissions might increase elsewhere within the same utility system, emission reductions from shutdowns or load shifting (including lower emissions dispatch (LED), by which utility sources enforceably direct production to better controlled facilities rather than dispatching solely on the basis of least cost) cannot generally be authorized for balance credit at this time (see Preamble Section II.C above). EPA will consider proposed emissions balances involving credit for LED or other load shifting techniques only on a case-by-case basis in which individual applicants demonstrate how and by what procedures these concerns will be satisfied or do not apply. The burden of justifying such proposals by complete, adequate and coherent documentation rests on individual applicants, who should be aware that additional delays in processing balances may result from such proposals and will not be considered grounds for extending the 3-year compliance deadline. Because of this, and other reasons stated at C.3, any affected source must submit a contingency plan that would take effect and be enforceable if the LED proposal is disapproved.

C. Procedural Requirements

1. An emissions balance must be approved through the SIP revision process. Any new emission limitations needed to ensure protection of NAAQS and PSD increments, or limitations needed to ensure that the required tons/year emission reduction is achieved by the sources in an emission balance must be submitted to EPA as a SIP revision within 9 months of approval of the SIP revision required by the revised stack height regulation. This provision in no way extends the requirement to comply with the stack height regulation not later

[1] *Guideline on Air Quality Models (Revised)*, EPA/450/2-78-027R, U.S. EPA, Research Triangle Park, North Carolina, July 1986 (or later editions)

[2] These are reductions over and beyond any required for the purpose of protecting NAAQS or PSD increments. See Section II Policy Discussion in the final EB policy memorandum for the required tons per year emission reduction for a partial balance. Guidance which addresses detailed calculation of emission reductions and "caps" will be provided subsequent to publication of this policy.

[3] The final policy changes the actual emissions averaging period from three years to two years to be consistent with the EPA Modeling Guidelines, and the Emissions Trading Policy, 51 FR 43814, Dec. 4, 1986.

than 3 years after approval of the stack height SIP revision. Emissions balancing proposals must be open to public scrutiny, and the process must provide for full public participation as part of normal SIP revision procedures. To expedite EB SIP approval, states are encouraged to use the SIP parallel processing procedures explained at page 27073 of the June 23, 1982 Federal Register.

2. Any new emission limitations needed to ensure protection of NAAQS and PSD increments or limitations needed to ensure that the required tons/year emission reduction is achieved by the source in an emissions balance will be enforceable SIP limits. The balance must be incorporated into the SIP with an explanation of the interrelationship of these emission limitations. The providing source may not be relieved of its obligations under the emission balance except through the process of a subsequent SIP revision.[4]

[4] However, a subsequent SIP revision is not needed if the EB SIP revision was structured to allow the providing source's previous emission limits to become effective upon proper notice to the state and EPA if the affected source later shuts down, or the balance is terminated. For the previous emission limits to again become effective, an acceptable demonstration must be submitted to the state and EPA showing that no NAAQS or PSD increment will be jeopardized.

3. The SIP emission limits required by application of the stack height regulation for an affected source will remain in the SIP as contingent emission limits that will become automatically effective and enforceable against the affected source if the providing source shuts down or the balance is terminated by the sources or by the state. Consequently, the SIP must contain a contingency plan for an affected source to reduce its emissions to the limits required by the stack height SIP revision unless and until another emissions balance can be arranged and approved. The contingency plan could consist of a measure such as the substitution of lower sulfur fuel.

4. Emission reductions by a providing source which are currently used to meet any other requirements of the Act shall not be creditable for an emissions balance.

5. Emission reductions from a providing source will not be creditable against PSD increments or PSD baseline concentrations.

6. Neither this policy nor individual applications under it shall in any way delay compliance with the revised stack height SIP limitations. In particular, this policy shall not create independent grounds for postponing the ultimate compliance date by which the emission reductions required by the stack height SIP revision are to be achieved. Temporary balances may be used to comply with the deadline for emission reductions at the affected source until permanent means of compliance can be achieved; however, the temporary balance would have to be fully approved and implemented by the original compliance date for the affected source.

D. Effect of This Policy

The emissions balancing policy sets out general principles for approving individual balances affording affected source more flexible, cost-effective ways to meet the requirements of EPA' revised stack height regulation. As a policy statement, it neither alters applicable legal requirements nor establishes conclusively how EPA will determine individual applications or cases. EPA will process any EB SIP revision submitted by a state as a SIP revision under the provisions of Section 110 of the CAA, and 40 CFR Part 51. Interested parties will have full public opportunity to scrutinize application of these principles in specific cases and to seek subsequent judicial review if and when EPA takes final action on a particular EB SIP revision.

[FR Doc. 88-156 Filed 1-6-88; 8:45 am]

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REFERENCES FOR SECTIONS 6.1 AND 6.2

EPA-450/2-89-014

Analysis of State and Federal Sulfur Dioxide Emission Regulations for Combustion Sources (Revised)

by
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Contract No. 68-02-4392
Work Assignment No. 43
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U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Air Quality Management Division
Research Triangle Park, North Carolina 27711

September 1989

EPA-450/2-78-027R

Guideline On Air Quality Models (Revised)

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

July 1986

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

5/23/86

OFFICE OF
AIR AND RADIATION

Ms. Nancy Maloley
Commissioner, Department
Environmental Management
Suite 319
311 West Washington Street
Indianapolis, Indiana 46204

Dear ~~Ms. Maloley~~: Nancy

I enjoyed our recent meeting and I have received your followup letter of April 28, 1986 requesting clarification of the Environmental Protection Agency's policy on use of 30-day averaging as a compliance method for the Indiana State Implementation Plan (SIP) for sulfur dioxide (SO_2). In this connection, you raised the question of the use of a statistically-based method such as the one approved by EPA in the Arizona SO_2 SIP for smelters and upheld in Kamp v. Hernandez, 752 F.2d 1444 (9th Cir. 1985).

I understand the importance of this issue to the coal industry in your state, and of the concern that the significance of coal variability be factored into the establishment of emission limitations and appropriate compliance methods.

As you know, the current National Ambient Air Quality Standard (NAAQS) for SO_2 has both short term (i.e. 3-hour and 24-hour averages) as well as annual average components. Because, under the Clean Air Act, State Implementation Plans (SIPs) must demonstrate attainment of these short-term standards, EPA has had a long-standing policy to require emission limitations to be enforceable on a short-term basis to protect the short-term NAAQS. In recent years, EPA has not approved SO_2 30-day averaging as a compliance method, unless accompanied by a short-term SO_2 limit established by a reference dispersion modeling analysis.

The Agency currently is in the process of reviewing the NAAQS for SO_2, including consideration of a statistical revised standard. As part of that review, EPA also is reviewing the feasibility of using alternative, statistically-based demonstrations related to any such revised SO_2 standard. Because any change in our policy on methodology would have nationwide implications for NAAQS attainment, we do not expect to change the current position, if at all, prior to our completion of the NAAQS review.

You specifically have asked for our position on whether multipoint rollback or other statistical techniques could be used to justify approval of 30-day averaging. As a general matter, we require analytical techniques that are technically and scientifically sound and that are practical and consistently applied in similar circumstances. Based on my current understanding, it appears that multipoint rollback itself would not be applicable for the type of situation presented by the Indiana SIP. You should be aware that EPA approved the multipoint rollback SIP in Arizona several years ago only after expending considerable time and effort on the particulars of each Arizona smelter. Although in most circumstances EPA considers the rollback approach to be technically less sound than approved modeling methods, the Agency finally approved that approach for Arizona as a result of a wide range of factors stemming from the very unusual nature of the smelter emission problems. As you know, the problems of smelters have proven particularly difficult, as demonstrated by Congress' own special treatment of smelters in section 119 of the Clean Air Act.

The Arizona smelters are isolated and are characterized by extreme variations in emission levels, resulting from the particular characteristic of the smelting process, the chemical composition of the ores, and other factors. Use of traditional modeling methods for these sources was complicated by the presence of associated fugitive emission sources and complex or mountainous terrain. Due to these limitations on the use of standard modeling techniques, the State turned to the Arizona rollback approach, which included, for example, collection of additional monitoring and emission data, additions to the existing monitoring network, study and commitment to a State fugitive emission control program, 80-90 percent emission control, and running 3-hour average compliance determined by continuous emission monitors (CEMs).

My understanding is that the Indiana SIP for SO_2, in contrast, is dominated by utility power plants and large industrial boilers, whose emissions do not vary nearly so much as smelters and which do not have large associated fugitive emissions sources or complex terrain. Approved models already exist and have been used nationally to account for multiple source interactions and stack height adjustments (where stack heights greater than GEP must be discounted). The existing air quality modelling methods for establishing emission limitations have been used successfully in different state SIPs which have sources similar to Indiana.

At this point, I cannot give you much encouragement on trying to use the multipoint rollback approach or a similar method for the Indiana SIP. Any attempt to develop a statistical approach, as demonstrated by the Arizona experience, would require significant time and resource commitments from both the state and EPA for activities such as data development and analysis and program review. However, extensive attempts in the past to develop an alternative statistical approach to utility power plant attainment demonstrations did not produce an acceptable technique, so success is unlikely. The end result of any analysis still must be a successful demonstration of compliance with short-term standards when coal sulfur content exceeds the average limit. We prefer that development of a possible statistical approach not be attempted on an ad hoc basis because of the significant nationwide implications and the possible relationship with the SO_2 standard review. We also are concerned that there not be further delay in the time when Indiana will have a federally approved SIP.

The most straightforward way of resolving this issue would be for the state to remove the 30-day averaging method from the state SO_2 rule. Any subsequently developed compliance approach could be submitted as a source specific SIP revision under the alternative compliance method provision of the applicable Indiana regulation. Short-term SIP limitations for each source should be consistent with methods contained in EPA reference guidelines, using source test methods to measure compliance as specified in 40 CFR Part 60 Method 6. The EPA's policy and modeling guidance with regard to the requirements for approvable attainment demonstrations is contained in its Guideline on Air Quality Models.

As a final note, I want to point out a factor which, although unrelated to the merits of the methodology questions, is of concern to me and also should be of concern to your state. A new bill to establish acid rain control plans, H.R. 4567, was recently introduced in Congress with 150 co-sponsors. The Administrator testified on the bill, opposing its passage, while arguing a restrained approach to controls, based on the present uncertainties in our knowledge of acid precipitation. One of the principal reasons advanced by the Administrator for deferring action is that current evidence suggests that SO_2 emissions in the midwest are stable. Thus, we have time for the required further research without the need for additional SO_2 controls at this time. It would be unfortunate if, because of methodology changes or other reasons, some states were perceived to significantly increase SO_2 emissions so that overall SO_2 emissions in the Midwest were to begin to trend upward, since such a trend would support those in Congress who are pressing for additional SO_2 controls before the facts are in. I am sure you are as concerned about this as I am.

I stand ready to discuss these matters further, or to assist you in any way I can to resolve the Indiana SO_2 SIP issue. I am sorry that I cannot be more encouraging on the particular approach used for Arizona smelters, but I hope that at least I have clarified EPA's current policy. Please do not hesitate to call on me if I can be of further service.

Sincerely,

/S/

J. Craig Potter
Assistant Administrator
for Air and Radiation

NOV 24 1986

MEMORANDUM

SUBJECT: Need for A Short-term Best Available Control Technology (BACT) Analysis for the Proposed William A. Zimmer Power Plant

FROM: Gerald A. Emison, Director
Office of Air Quality Planning and Standards (MD-10)

TO: David Kee, Director
Air Management Division, Region V (5AR-26)

This is in response to your November 17, 1986, memorandum, in which you requested comment on Region V's belief that prevention of significant deterioration (PSD) permits must contain short-term emission limits to ensure protection of the applicable national ambient air quality standards (NAAQS) and PSD increments. I concur with your position and emphasize to you that this position reflects our current national policy. Consequently, I recommend that you continue to identify this apparent deficiency to the Ohio Environmental Protection Agency and seek correction of the draft permit for the William A. Zimmer Power Plant.

The PSD regulations clearly require that the application of BACT conform with any applicable standard of performance under 40 CFR Part 60 at a minimum. However, this should not be taken to supersede any additional limitations as needed to enable the source to demonstrate compliance with the NAAQS and PSD increments. In the case of sulfur dioxide (SO_2), source compliance with the 30-day rolling average emission limit under subpart Da does not adequately demonstrate compliance with the short-term NAAQS and PSD increments. Consequently, enforceable limits pertaining to the performance of the flue gas desulfurization system on a short-term basis must also be established. Note, however, that the short-term limits can result from either BACT analyses or the need to protect air quality. Therefore, the short-term limit could be more stringent than the BACT limit.

I recognize that the sulfur variability issue tends to complicate the setting of short-term SO_2 emission limits, but such limits must be defined nevertheless. Continuous emission monitoring data from comparable sources can be used in order to estimate worst-case short-term SO_2 emissions that could occur at the plant. The modeling techniques used to determine compliance with the short-term NAAQS and increments should employ the enforceable short-term SO_2 emission limits which the permitting agency establishes.

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

AUTHORITY: This rulemaking is promulgated under authority of sections 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act 42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a).

SOURCE: 36 FR 22398, Nov. 25, 1971, unless otherwise noted.

EDITORIAL NOTE: Nomenclature changes affecting Part 51 appear at 44 FR 8237, Feb. 8, 1979 and 51 FR 40661, Nov. 7, 1986.

Subparts A-C—[Reserved]

Subpart D—Maintenance of National Standards

SOURCE: 41 FR 18388, May 3, 1976, unless otherwise noted.

§ 51.40 Scope.

(a) *Applicability.* The requirements of this subpart apply to air quality maintenance areas (AQMAs) identified under § 51.110(i) and to any areas identified under § 51.110(l).

(b) *AQMA Analysis.* Under this subpart, procedures are given for the analysis of the air quality impact of specified pollutant emissions from existing sources and emissions associated with projected growth and development in areas identified under paragraphs (i) and (l) of § 51.110. This analysis is referred to in this subpart as an AQMA analysis.

(c) *AQMA Plan.* Under this subpart, the Administrator will require a revision to the State implementation plan for areas identified under § 51.110(i) or § 51.110(l) when necessary to prevent a national ambient air quality standard

ternative control strategies, as well as the costs and benefits of each such alternative for attainment or maintenance of the national standard.

(h) The plan shall identify those areas (counties, urbanized areas, standard metropolitan statistical areas, et cetera) which, due to current air quality and/or projected growth rate, may have the potential for exceeding any national standard within the subsequent 10-year period.

(1) For each such area identified, the plan shall generally describe the intended method and timing for producing the analysis and plan required by paragraph (g) of this section.

(2) The area identification and description of method and timing required by this paragraph shall be submitted no later than May 10, 1974.

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

(i) Based on the information submitted by the State pursuant to paragraph (e) of this section, the Administrator will publish by August 31, 1975, a list of the areas which shall be subject to the requirements of paragraph (g) of this section.

(j) For each area identified by the Administrator pursuant to paragraph (i) of this section, the State shall submit an air quality analysis and, if called for by the Administrator, a plan revision following the procedures of Subpart D.

(k)(1) For all areas of the State, the State implementation plan shall, by May 3, 1978, provide for a procedure for the continual acquisition of information used in projecting emissions.

(2) The plan shall provide that at intervals of no more than 5 years, all areas of the State shall be assessed to determine if any areas are in need of plan revisions.

(3) The State shall retain the data gathered and the written assessment made under paragraphs (h)(1) and (2) of this section, and make them available for public inspection and submit them to the Administrator at his request.

(4) The State shall notify the Administrator if an area is undergoing an amount of development such that it presents the potential for a violation of national standards within a period of 20 years.

(l) Whenever the Administrator calls for a plan revision he may, without publishing the area in Part 52 of this chapter, require the revision be developed in accordance with the procedures of Subpart D.

[51 FR 40661 Nov. 7, 1986 as amended at 51 FR 40665, Nov. 7, 1986]

§ 51.111 Description of control measures.

Each plan must set forth a control strategy which includes the following:

(a) A description of each control measure that is incorporated into the plan, and a schedule for its implementation.

(b) Copies of the enforceable laws and regulations to implement the measures adopted in the plan.

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

(d) A description of enforcement methods including, but not limited to:

(1) Procedures for monitoring compliance with each of the selected control measures,

(2) Procedures for handling violations, and

(3) A designation of agency responsibility for enforcement of implementation.

§ 51.112 Demonstration of adequacy.

(a) Each plan must demonstrate that the measures, rules, and regulations contained in it are adequate to provide for the timely attainment and maintenance of the national standard that it implements. The adequacy of a control strategy shall be demonstrated by means of a proporational model or dispersion model or other procedure which is shown to be adequate and appropriate for such purposes.

(b) The demonstration must include the following:

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

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

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

(4) A description of the dispersion models used to project air quality and to evaluate control strategies.

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

§ 51.113 Time period for demonstration of adequacy.

(a) The demonstration of the adequacy of the control strategy to attain a primary standard required under § 51.112 must cover the following periods:

(1) At least three years from the date by which the Administrator must approve or disapprove the plan, if no extension under Subpart R is granted, or

(2) At least five years from the date by which the Administrator must approve or disapprove the plan. If an extension under Subpart R is granted.

(b) The demonstration of adequacy to attain a secondary standard required under § 51.112 must cover the period of time determined to be reasonable under § 51.110(c) for attainment of such secondary standard.

§ 51.114 Emissions data and projections.

(a) Except for lead, each plan must contain a detailed inventory of emissions from point and area sources. Lead requirements are specified in § 51.117. The inventory must be based upon measured emissions or, where measured emissions are not available, documented emission factors.

(b) Each plan must contain a summary of emission levels projected to result from application of the new control strategy.

(c) Each plan must identify the sources of the data used in the projection of emissions.

§ 51.115 Air quality data and projections.

(a) Each plan must contain a summary of data showing existing air quality.

(b) Each plan must:

(1) Contain a summary of air quality concentrations expected to result from application of the control strategy, and

(2) Identify and describe the dispersion model, other air quality model, or receptor model used.

(c) Actual measurements of air quality must be used where available if made by methods specified in Appendix C to Part 58 of this chapter. Estimated air quality using appropriate modeling techniques may be used to supplement measurements.

(d) For purposes of developing a control strategy, background concentration shall be taken into consideration with respect to particulate matter. As used in this subpart, background concentration is that portion of the measured ambient levels that cannot be reduced by controlling emissions from man-made sources.

(e) In developing an ozone control strategy for a particular area, background ozone concentrations and ozone transported into an area must be considered. States may assume that the ozone standard will be attained in upwind areas.

§ 51.116 Data availability.

(a) The State must retain all detailed data and calculations used in the preparation of each plan or each plan revision, and 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 plan revisions are not considered a part of the plan.

(c) Each plan must provide for public availability of emission data reported by source owners or operators or otherwise obtained by a State or local agency. Such emission data must be correlated with applicable emission limitations or other measures. As used in this paragraph, "correlated" means presented in such a manner as to show the relationship between measured or

20-135 O—88——24

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

JUL 29 1987

MEMORANDUM

SUBJECT: State Implementation Plans for Sulfur Dioxide

FROM: Gerald A. Emison, Director
Office of Air Quality Planning and Standards (MD-10)

TO: Director, Air Management Division
Regions I, III, V, IX
Director, Air and Waste Management Division
Region II
Director, Air, Pesticides, and Toxics Division
Regions IV, VI
Director, Air and Toxics Division
Regions VII, VIII, X

A number of sulfur dioxide (SO_2) State implementation plan (SIP) revision rulemaking actions with potential problems have recently been submitted for SIP processing. Several of these rulemaking actions establish SO_2 emission limitations but lack enforceable SO_2 compliance test methods and procedures.

The Environmental Protection Agency (EPA) requires that SO_2 SIP emission limitations be established consistent with the short-term 3-hour and 24-hour SO_2 national ambient air quality standards (NAAQS). When a State adopts an SO_2 emission limitation for its SIP without a stated averaging period associated with it, EPA has accepted a Method 6 stack gas test as the SIP compliance test method. The EPA also accepts continuous emissions monitoring and short-term fueling sampling and analysis (3-hour and 24-hour) as SO_2 SIP test methods. The EPA will accept separate emission limitations with approved test methods associated with each limitation.

As a minimum, make sure that there is a stack gas compliance test in the State's plan when you review and forward SO_2 rulemaking packages for Headquarters approval. If the action is an SO_2 SIP revision, it may reference the underlying EPA approved SIP for compliance test methods. If so, make sure the underlying SIP contains acceptable test methods and that the methods have been approved by EPA in the SIP.

cc: Air Branch Chief, Regions I-X
John Seitz, SSCD
Darryl Tyler, CPDD

REFERENCES FOR SECTION 6.3

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

MAR 31 1988

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Implementation of Rule Effectiveness Studies

FROM: John S. Seitz, Director
Stationary Source Compliance Division
Office of Air Quality Planning and Standards

TO: Air Management Division Directors
Regions I, III and IX

Air and Waste Management Division Director
Region II

Air, Pesticides, and Toxics Management Division Directors
Regions IV and VI

Air and Radiation Division Director
Region V

Air and Toxics Division Directors
Regions VII, VIII and X

This memorandum transmits the final rule effectiveness protocol and requests that you implement the protocol beginning in FY 89 in your region.

The protocol is the result of several months of development through discussions with many regional, state and local air pollution control personnel and incorporates the study concepts and procedures that are being used successfully in Region IX and California.

As many of you are aware, we initially proposed this procedure as a part of the ozone strategy and it was to be used in large part as the rebuttal for an eighty percent effectiveness for all new ozone SIPs. However, we have made the decision to implement this protocol independent of the ozone strategy because of the general applicability of the procedures and the protocol's usefulness as a logical follow on to the planning and implementation process of any SIP.

I am requesting that each region commit to at least one rule effectiveness evaluation in an ozone non-attainment area for FY 89. The FY 89 regional stationary source budget allocates 15 FTE for 12 evaluations. In addition we earmarked Section 105 monies for the state's use in participation of these studies.

We have not identified a rule or category of sources for evaluation, however, we do recommend that you select a part of the SIP in the nonattainment area that either has suspected problems or contributes at least 5% of the emission reductions of the SIP strategy. I urge you to work closely with your states to identify that part of the program with the highest potential payback.

Lastly, I direct your attention to the national overview section on page three of the protocol. Please forward your proposed final protocol to the national overview manager for comment before going final with a specific study and feel free to consult the manager as questions or issues arise during development of a final study.

Attachment

cc: Jerry Emison
John Calcagni
Air Branch Chiefs

March 24, 1988

Rule Effectiveness Study Protocol

(1) Purpose and Goals

The purpose of this protocol is to provide the States and EPA with criteria and procedures for conducting a rule effectiveness study. In the context of this protocol, "rule effectiveness" means the extent to which a rule actually achieves (or has the capability of achieving) desired emission reductions, both in terms of the reductions projected for that rule, as well as the reductions that would ordinarily be achieved if the rule were properly implemented.

Principal goals of a rule effectiveness study conducted according to this protocol are: (1) to determine the effectiveness of rules for a specific source category in a specific nonattainment area according to the quantitative criteria set forth in this protocol, and (2) to identify specific implementation problems that should be addressed by the State and EPA to achieve greater rule effectiveness in the future.

(2) Application

A State or EPA may use this protocol at its own initiative to evaluate a rule, and to take or require corrective action based on that evaluation. If a State wishes to claim new emissions reduction credits in its SIP based upon corrective action in response to a rule effectiveness study, these credits must first be verified in a subsequent study.

This protocol may not be used to justify a relaxation of minimum program implementation requirements (including, for example, the frequency and quality of inspections, timely enforcement, and the correct application of rules through testing, permitting and other source specific determinations).

(3) General Approach

Any rule effectiveness study conducted by the State or EPA must be conducted in accordance with the provisions of this protocol.

Each study will occur in two phases: a field inspection phase, in which inspections are conducted (after a selective file review) and compliance determinations are made (to the extent possible) for a representative sample of sources in a nonattainment area; and an office investigation phase, in which further analysis is undertaken of program implementation elements that are not susceptible to comprehensive evaluation in a field inspection study.

Field inspections will be used to calculate or measure emissions at sources included in the sample, and to determine the percentage effectiveness of the regulations involved by comparing the actual to the allowable emissions at each source. A separate program effectiveness determination will also be made by comparing the State's projected reductions for the source category to the reductions actually achieved.

A follow-up office investigation will supplement field inspections for the purpose of identifying specific program implementation problems that should be addressed by the State and/or EPA. The following potential program problem areas will be evaluated in both phases of the study: regulatory standards, regulation enforceability, permits, variances, inspection procedures, compliance determinations, enforcement procedures, source and emissions inventories, source files and data management, training, and agency resources management.

This protocol requires that detailed criteria and procedures be developed for conducting each area of evaluation. Example checklists and guidelines for developing these criteria and procedures are included as attachments to the protocol. All detailed criteria and procedures developed as a part of a specific study will be incorporated in the protocol.

(4) <u>Coordination between the State and EPA</u>

Whenever the State or EPA has decided to conduct a rule effectiveness study, the following coordination shall occur.

(a) <u>Opportunity to Participate</u>

An opportunity to participate in the study shall be given to all non-initiating agencies with jurisdiction over the nonattainment area.

(b) <u>Preliminary Notice and Meeting</u>

The initiating agency shall notify other affected agencies of the decision to conduct the study and identify the purpose of the study, the source category(s) and rule(s) affected, and the anticipated study schedule. At the election of any affected agency, a preliminary management level meeting may be called to discuss the study.

(c) <u>Final Protocol Preparation and Review</u>

1. <u>Preparation of Proposed Final Protocol</u>

Whenever a rule effectiveness study will be conducted by the State or EPA, the initiating agency shall prepare and submit to the other agency(s) for prior review a proposed final protocol including the detailed procedures and criteria that will be followed when conducting the study. These criteria and procedures shall address each element of this protocol and shall incorporate, at a minimum, the criteria and procedures included in Attachments A-G, which may be modified as necessary to incorporate unique considerations that apply to the specific State.

The reviewing agency shall review and respond to the proposed final protocol within two weeks of its receipt. In the response, the reviewing agency shall indicate all areas of disagreement or areas warranting clarification and specify areas where the proposed criteria and procedures are considered defective. The initiating agency should then confer with the reviewing agency to resolve all areas of potential disagreement and take appropriate corrective steps to ensure the validity of the study.

2. National Overview

Rule effectiveness study overview will be conducted by the Compliance Monitoring Branch of EPA's Stationary Source Compliance Division. The overview objective will be to promote rule effectiveness study quality and consistency on a national level through protocol review and comment.

Following the completion of a proposed final protocol (including all revisions resulting from prior review), the initiating agency shall forward the protocol to the National Rule Effectiveness Study Overview Manager. The Overview Manager will provide written comments, if any, within two weeks of receipt of the proposed final protocol. He will also forward the protocol to selected State and EPA reviewers, who based on their experience and knowledge may also provide additional verbal or written comments.

Correspondence concerning national overview should be addressed to the National Rule Effectiveness Study Overview Manager, Stationary Source Compliance Division (EN-341), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C., 20460.

3. Final Protocol

The initiating agency is responsible for the development of a final protocol that ensures the validity of a rule effectiveness study.

A State's failure to correct protocol deficiencies identified during protocol review may restrict the use of study results as support for emission reduction credits. Likewise, EPA's failure to correct protocol deficiencies may restrict the use of study results as a justification for requiring corrective action by the State.

A protocol may be revised or amended during a study by agreement of the initiating and reviewing agencies. Following adoption by the initiating agency, a copy of the final protocol, and any revisions or amendments, shall be forwarded to the National Rule Effectiveness Study Overview Manager.

(d) Additional Areas Requiring Prior Coordination and Review

The following areas, in addition to those indicated in subparagraph 4(c), require coordination and review prior to initiating the study.

1. Study Team Identified. The initiating agency shall identify its study team, and provide a description of the background and qualifications of the lead investigator; the specific inspectors included in the study shall also be identified.

2. All Regulations and Policies Identified. All regulations and policies affecting the study should be identified and clearly defined in terms of their applicability to sources included in the study. For example, all express or implied exemptions should be specifically indicated; compliance test procedures should also be specified, along with applicable averaging times, and

all limitations affecting source compliance. In addition, all legal requirements limiting inspection and enforcement activities should be specified.

3. Sources Identified. Sources selected for the field study shall be named, and the reviewing agency shall be given an opportunity to propose further sample stratification to ensure that the sample is representative.

(e) Conflict Resolution

1. During the Investigation

If a conflict occurs during the study regarding the interpretation of agency policies, regulation requirements, inspection procedures, compliance determination criteria, file data, and similar matters, the issue shall be immediately raised to EPA and State managers for resolution. If the conflict must be resolved to complete a specific investigation, the specific investigation shall stop until agreement between the State and EPA is reached. In such a case EPA and State managers shall meet to resolve the conflict within 48 hours. If after 48 hours the conflict is still unresolved, the conflict shall be presented for resolution to the highest level agency managers with direct program implementation responsibility (the EPA Regional Administrator and the State Department Director).

2. After the Investigation

If an unresolvable study team conflict occurs after completion of the investigation phase regarding specific findings and conclusions, and the conflict affects the final percentage effectiveness determination, the conflict shall be resolved in one of two manners: (1) EPA and State managers may resolve the iss by agreement, without further evaluation; or (2) the study team may conduct additional evaluation to resolve the conflict.

(5) Study Team Selection

The study team may include members of the local, State and Regional agencies with jurisdiction over the specific nonattainment area. However, the team shall include a lead technical investigator, who will be responsible for all technical findings. To the extent possible, the lead technical investigator should have no current responsibility for inspecting sources included in the study.

The lead investigator shall be highly skilled and experienced in the implementation of the rule selected for study. Qualifications shall include the capability to conduct all levels of inspection and compliance analysis, including the ability to conduct emissions testing. Qualifications shall also include significant, recent field inspection experience for all or most types of facilities subject to the regulation, and should include enforcement case development experience.

To ensure an effective evaluation of the State's field inspection procedures, the study team should include the inspector normally responsible for inspecting each source selected as a part of the field study.

(6) Source Category Selection

An agency may select any source category for a rule effectiveness evaluation using this protocol. If an agency wishes to study a limited number of source categories to support a SIP call, SIP revision, or other agency action related to a need for additional VOC reductions, the selection of these categories should be based on the following criteria:

- Categories representing the largest quantities of emission credits in the existing SIP.
- Categories where known or suspected implementation deficiencies are correctable and will provide significant emission reductions.
- Categories where implementation deficiencies are identifiable and measurable with a reasonable commitment of agency resources based on the study approach selected.
- Categories where study findings will be transferrable to other similar categories.

(7) Source Selection

The following source selection procedure is intended to ensure that a representative sample of sources is selected for the purpose of quantifying the percentage effectiveness of specific regulations.

(a) Sample Selection

Utilizing the best available source inventory for the selected category, select a sample of sources that is representative for the category, unless a representative sample cannot be obtained. In the latter case, select all sources in the inventory. See Attachment A. This selection will be used for the purpose of quantifying emissions and calculating a percentage effectiveness.

(b) Sample Review

Review the source sample prior to initiation of the study to determine whether major problems throughout the source category have been excluded from consideration. If so, redesign the sampling procedure to include the additional stratification required to ensure appropriate consideration of major problem areas. In such a case, the initiating and reviewing agencies should agree on the modified selection procedure. See Attachment A.

(8) Preliminary File Review

The study team should collect and review all relevant State and EPA regulatory information relating to sources included in the sample. This includes all regulations, permits, variances, enforcement agreements, etc., that establish specific requirements. The study team should also collect and review all State and EPA regulation interpretation guidelines that apply to each source, as well as procedures and policies governing inspections, compliance testing, and enforcement.

(9) Field Inspection Phase

Each source included in the sample will be inspected by the Study Team. If conditions at the source prevent an inspection during normal operating conditions, this should be noted in the inspection report, but the best inspection that is reasonable under the circumstances should occur in any case.

All inspections should be unannounced and designed to apprehend ongoing violations (especially those susceptible to operator control during an inspection). Exceptions may be justified to ensure that a source is operating, to allow for necessary preparation at the source, to ensure that key plant personnel or records will be available, etc. In such a case, prior communication with the source should be made as close in time as possible to the actual inspection.

During the field inspections, the study team shall conduct the following evaluations.

(a) Rule Application Evaluation

1. Deviations from State Requirements

The team shall determine whether the State regulatory requirements that shoul apply to a facility do in fact apply, or whether they have been applied in a mann that results in less or greater than the anticipated control.

2. Deviations from Federal Guidelines

Where the State requirement is different from the Federal guideline (where, for example, the State requirement is more stringent, or the State interprets its requirement so that it is less stringent than EPA's interpretation), the team shall also determine the extent to which the State requirement, as applied, results in less or greater than the control that would be achieved if the Federal guideline applied.

(b) State Inspection Procedures Evaluation

Inspectors should be asked to conduct a normal inspection, or if a normal inspection would not be adequate for the study, to describe how the inspection is normally conducted at each facility. The lead investigator will observe the inspection, but take the necessary steps to ensure that the inspection is adequate to achieve the field inspection study objectives.

The team shall determine whether the normal State inspection procedures are adequate to identify actual or potential violations. Specific failures should be documented and evaluated in terms of potential excess emissions. Failures related to faulty agency guidelines or policies, faulty rules, or faulty procedures conducted at a specific site should be clearly differentiated.

(c) Compliance Determinations

The study team shall determine the compliance status of the facility with the SIP, differentiating between procedural requirements and emission requirements. If the SIP is inconsistent with Federal policy on SIP content, the study team shall also determine whether the facility would be in compliance if the SIP were consistent with Federal policy.

Each SIP violation shall be separately identified and documented. The study team may use its discretion in conducting or requiring stack testing; however, a decision not to require stack testing (where relevant) shall be clearly supported in each inspection report.

(d) Emissions Quantification

The actual and allowable emissions shall be calculated (to the extent possible) for all sources inspected during the study, according to the detailed criteria and procedures reflected in the final study protocol. Allowable emissions shall be defined by the SIP. If the SIP is inconsistent with Federal policy on SIP content, the study team shall also calculate the emissions that would be allowable if the SIP were consistent with Federal policy.

If the study team wishes to identify other reducible emissions for the purpose of documenting potential additional emission reduction credits, these emissions shall also be calculated according to the procedures reflected in the final study protocol, and shall be clearly supported by field inspection results.

(e) Quality Assurance

Effective quality assurance procedures shall be observed in all emissions calculation and measurement related activities and shall be included as a part of the detailed criteria and procedures included in the final protocol.

(f) Inventory Evaluation

Operating and emissions data in the EPA and State source/emission inventories shall be verified by an actual, on-site investigation, and discrepancies shall be clearly identified. Discrepancies affecting the State's attainment strategy shall also be clearly indicated.

(10) Office Investigation Phase

(a) Follow-up to Field Investigations

Deficiencies identified in the field that are related to agency procedures and policies should be confirmed by an office review of the appropriate written documents and by interviews with agency managers responsible for the development and implementation of the procedures and policies.

(b) Minimum Program Implementation Requirements

The detailed criteria and procedures included in the final protocol shall address EPA's minimum program implementation requirements. Where continuing deficiencies are identified, specific corrective measures shall be proposed in the final study report.

If EPA initiates the study, EPA may elect to rely on the most recent National Air Audit as a basis for identifying program implementation deficiencies. If the State conducts the study, the State may propose to rely on the most recent National Air Audit. However, EPA may elect, instead, to conduct a new audit; and if EPA so elects, the latter audit will be controlling.

The State may use this study, if the results so indicate, as support for proposing the modification of EPA minimum program implementation requirements applicable to that State and submit a proposal to that effect as a part of the study report.

It is essential that a State meet minimum EPA program implementation requirements whether or not additional emission reduction credits are justified based on the results of a field study conducted pursuant to this protocol.

(11) Inventory Accuracy Demonstration

An inventory accuracy demonstration for the selected source category shall be conducted as a part of the rule effectiveness study. This demonstration shall include the following elements:

(a) Field Investigation Follow-up

Where the field investigation resulted in inventory discrepancies, the State shall take the following actions.

1. Reconciliation

Reconcile the individual discrepancies and, if appropriate, revise the emissions inventory to reflect this reconciliation.

2. Representativeness Evaluation

Determine whether the discrepancies represent a more extensive problem with the inventory for other sources not included in the sample. If so, take one of the following corrective actions:

- identify and resolve each individual source discrepancy, or
- adjust the inventory baseline and revise the SIP in accordance with EPA guidelines to reflect the reconciliation, assuming that the discrepancies are representative of the entire source category.

(b) Search for Potentially Omitted Sources

1. Survey of Exempt Sources

Conduct a letter survey of exempt sources to determine whether the grounds for exemption still apply. For a large source category, an initial survey may be conducted for a small sample of the sources. If the response indicates a need for general agency follow-up (i.e., exemptions are unwarranted in other than an unusual, isolated case), a complete survey of all exempt sources shall be undertaken.

2. Ground Survey

Conduct a ground survey in a sample grid of the study area to determine whether unregistered sources exist.

3. Other Measures

Conduct a comparison of alternative source lists and take other appropriate steps to determine whether unidentified sources or emissions exist.

4. Results

If the ground survey sample indicates that one percent or more of the real emissions have been omitted from the inventory base for that area, the State shall increase the entire inventory baseline by the percentage identified and revise the SIP in accordance with EPA guidelines. All new emissions identified by the letter survey of exempt sources, the ground survey, and other measures shall be included in the State's emissions inventory.

(12) Corrective Action

(a) Minimum Program Implementation Requirements

Where the study identifies implementation problems that are inconsistent with EPA minimum program implementation requirements, the problems shall be corrected whether or not they may result in additional emission reductions.

(b) Correctable Problems

The study team should determine and identify which problems are clearly correctable, and propose feasible corrective action options, with comments on the advantages and disadvantages of each option. Specific consideration should be given to the relative costs and benefits of each option to the agency. Specific consideration should also be given to options requiring the adoption of more effective control requirements, and to regulation changes that will alleviate compliance monitoring and enforcement constraints (for example, improved record keeping and reporting requirements).

The study team should calculate the emissions reduction that can be achieved by the recommended corrective action, if possible, and state the assumptions upon which this calculation is based.

(c) Uncorrectable Problems/Correctability Unknown

If problems are known not to be correctable, or if the correctability of a problem cannot be determined, this should be clearly indicated along with the basis for that determination.

(d) Study Follow-up

The study shall include a planned follow-up audit within one year after its completion to determine if corrective actions were implemented and whether the actions resulted in the improvements anticipated.

(13) Reports

(a) Inspection Summary Report

A separate summary report shall be completed for each source inspection. This report should include a summary of specific findings and recommendations, and all compliance or emissions calculations with supporting data. See Attachment F.

(b) Final Study Report

A final study report shall be completed which identifies the percentage effectiveness of each regulation evaluated in the study, and which describes all source compliance and agency implementation problems that were identified, whether they are correctable or not, the proposed corrective action, any other required or proposed program implementation improvements, a summary of reasons for why other problems are not (or may not) be correctable, and a summary of reducible emissions associated with specific corrective action and other implementation improvements. The final study report shall also include the schedule for a planned follow-up audit. See Attachment G.

Any deviations from the study protocol should be identified and explained in the final study report.

Members of the study team may provide nonconcurring opinions which will be included as an attachment to the report.

Attachments

Attachment A: Source Inspection Selection Procedures

Attachment B: Example Field Inspection Procedure Checklists -- Graphic Arts

Attachment C: Example Compliance Determination and Emissions Calculation Checklists -- Graphic Arts

Attachment D: Percentage Effectiveness Calculation Guideline

Attachment E: Minimum Program Implementation Requirements

Attachment F: Example Inspection Summary Report Checklist -- Graphic Arts

Attachment G: Example Final Study Report Outline

March 24, 1988

Rule Effectiveness Study Protocol

SUMMARY OF ATTACHMENTS

Attachment A: Source Inspection Selection Procedures

This attachment describes procedures for selecting a statistically representative sample of sources in each category. It is expected as a part of the final protocol development and review process that the initiating and reviewing agencies will agree on the final selection as "representative" for the purposes of each study.

Attachment B: Example Field Inspection Procedure Checklists -- Graphic Arts

This attachment provides checklists for use by a lead investigator in evaluating the adequacy of inspection procedures at facilities covered by CTG's. In addition to outlining compliance evaluation checks, the checklists also provide for an evaluation of agency source files, previous regulation applicability determinations, exemption status, inventory adequacy, and other determinations useful to the overall study.

Attachment C: Example Compliance Determination and Emissions Calculation Checklists -- Graphic Arts

This attachment summarizes accepted EPA methods for measuring emissions and determining compliance for the graphic arts CTG categories as an example to be followed in protocols for other source categories. Only compliance test methods approved as part of a SIP or promulgated by EPA may be used to measure emissions and determine compliance status as part of a rule effectiveness study. These methods should be clearly identified prior to initiating any field investigations and should be incorporated within the final study protocol.

Attachment D: Percentage Effectiveness Calculation Guideline

This attachment outlines the procedure and assumptions for calculating the overall percentage effectiveness of a rule as a result of a rule effectiveness study conducted pursuant to this protocol.

Attachment E: Minimum Program Implementation Requirements

This attachment provides guidance on how to identify relevant EPA minimum program implementation requirements for purposes of a rule effectiveness study.

Attachment F: Example Inspection Summary Report Checklist -- Graphic Arts

This attachment provides an outline of the report for each inspection conducted during the study. The graphic arts category is used for illustration.

Attachment G: Example Final Study Report Outline

This attachment provides a generic outline of a final rule effectiveness study report.

REFERENCES FOR SECTION 6.4

federal register

Wednesday
November 2, 1983

Part V

Environmental Protection Agency

Compliance With the Statutory Provisions of Part D of the Clean Air Act, Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 51 and 52

[AD-FRL 2432-3, Docket A-83-01]

Compliance With the Statutory Provisions of Part D of the Clean Air Act

AGENCY: Environmental Protection Agency.

ACTION: Final action on rulemaking proposals and announcement of policy.

SUMMARY: On February 3, 1983 (48 FR 4972 and 48 FR 5022) the Environmental Protection Agency (EPA) published two rulemaking proposals relating to implementation of the primary national ambient air quality standards under the Clean Air Act. The first package proposed to disapprove State implementation plans and impose construction bans in nonattainment areas that were required to attain the standards by December 31, 1982, but were still experiencing violations. This package also proposed to disapprove plans and impose bans in nonattainment areas that had not received full EPA approval for plan revisions due in 1979.

The second package proposed action on implementation plans submitted in 1982 by nonattainment areas that had obtained extensions of the 1982 deadline for the carbon monoxide or ozone standards. EPA proposed to impose bans in all areas where it was proposing to disapprove 1982 plans.

After evaluating the comments submitted in response to its proposal, EPA has revised its views as to the legal consequences of a failure to meet the 1982 deadline. Today's notice contains two final actions reflecting these changed views. In addition, in Section IV of this notice EPA sets out a general policy for correcting all of the problems identified in both of the proposals published on February 3.

EFFECTIVE DATE: November 2, 1983.

ADDRESSES: Background material for this action is located in Docket No. A-83-01, West Tower Lobby, Gallery 1, U.S. Environmental Protection Agency, Central Docket Section, 401 M Street, S.W., Washington, D.C. 20460. The docket may be examined between 8:00 a.m. and 4:00 p.m. on weekdays. A reasonable fee may be charged for copying. A duplicate copy of the docket is available in each EPA Regional Office.

FOR FURTHER INFORMATION CONTACT: David Stonefield, Chief, Policy Development Section, Office of Air Quality Planning and Standards (MD-15), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, (919) 541-5540.

SUPPLEMENTARY INFORMATION:

I. Introduction

On February 3, 1983, EPA published two large rulemaking proposals relating to implementation of primary national ambient air quality standards (NAAQS) under the Clean Air Act. *See* 48 FR 4972-5021 and 5022-5149. One package spelled out how EPA planned to treat "nonattainment" areas that were to have been free of violations of the relevant primary NAAQS by the end of 1982, but are still experiencing them. The heart of this package was a proposal to impose a ban on new construction in such areas, even if EPA previously had approved the State implementation plan (SIP) that the State had devised for attainment by the end of 1982. The other package consisted of proposals to approve or disapprove numerous implementation plans for another class of nonattainment areas, those that have an extension of the 1982 attainment deadline for the carbon monoxide or ozone standards.

EPA here is taking final action on portions of the first package only. In the main, it is revising its view as to the legal consequences of a failure to meet the 1982 deadline. EPA is not taking any action here on the proposals in the other package, but it sets out the significance of this new view for nonattainment areas that have extensions. Action on those proposals will appear in individual **Federal Register** notices over the next several months.

The balance of this notice gives the background to the first February 3 package, outlines the proposals in that package and the bases for them, summarizes the voluminous comments EPA received in response to the proposals, describes EPA's new interpretation of the Act, elaborates on that view in the form of a policy for all SIP deficiencies in nonattainment areas, and, finally, specifies the final actions EPA is taking today. This notice, it should be emphasized, focuses only on implementation of primary NAAQS.

II. Background

A. 1977 Amendments to the Clean Air Act

In many areas of the country, the first SIPs failed to bring about attainment within the original deadlines established under the 1970 Clean Air Act amendments. In 1976, EPA found these plans to be inadequate under Section 110(a)(2)(H) and called for SIP revisions. *See, e.g.*, 41 FR 28642 (July 13, 1976). EPA later announced that the Act contained a ban on new source construction that would apply in any area that failed to meet the deadlines EPA established for submittal of its SIP revision. *See* 41 FR 55521 (December 21, 1976).

1. *Designations*

When Congress amended the Act in 1977, it addressed the same problem in a similar way. First, Congress set in motion a comprehensive, formal inventory of the attainment status of all areas of the country. A new Section 107(d) required each State to identify immediately areas that were experiencing violations of the standards, areas that were not, and areas that were unclassifiable for lack of adequate data. The section further required EPA to review each identification, make necessary modifications, and promulgate attainment status designations for all areas by February 1978.

2. *Construction Bans and Revised Plans*

Next, Congress conditioned further growth in each nonattainment area on the timely revision of the SIP for the area in accordance with strict new requirements. Section 110(a)(2)(I) required each State to revise its SIP to prohibit the construction or modification of major stationary sources of pollution after July 1, 1979 in any nonattainment area whose SIP did not meet the requirements of a new Part D to Title I of the Act, Sections 171-177. Section 172(a)(1) specified that each SIP for a nonattainment area had to "provide for attainment of the primary NAAQS as expeditiously as practicable, but no later than December 31, 1982. Section 172(b) detailed other requirements Part D plans had to meet.

Section 172(a)(2) allowed areas that demonstrated that it would be impossible to attain either the ozone or carbon monoxide standards by the end of 1982 to obtain attainment date extensions and defer compliance with some of the requirements of Section 172(b). Section 172(c), and Section 129(c) of the 1977 Amendments, however, required areas that received extensions to submit, no later than July 1, 1982, supplemental SIP revisions containing enforceable measures needed to assure attainment no later than December 31, 1987."

3. *Funding Restrictions as Incentives to Plan Revisions*

As a further incentive to the revision of plans for nonattainment areas, Congress provided funding restrictions in Section 176(a) and 316(b). Under

Section 176(a). EPA and the Department of Transportation must restrict funding in any area where transportation controls are needed to provide for attainment by the applicable deadline and a State fails to submit or make reasonable efforts to submit a plan that "considers" each of the Part D requirements. Under Section 316(b), EPA has discretion to limit funds for construction of sewage treatment facilities in any area where a State does not have in effect a plan that accommodates emissions associated with sewage treatment facilities.

4. *Restrictions as Incentives for Implementation*

Congress also sought to ensure that SIPs for nonattainment areas, once revised, would be implemented. It added two construction bans and two funding restrictions that apply in areas where State or local agencies have failed to carry out the SIP. Section 173(4) requires each SIP for a nonattainment area to contain regulations that prohibit new source construction and modification in any area where a State or local agency has failed to carry out its SIP. In addition, Section 113(a)(95) authorizes EPA to prohibit the construction of any major stationary source in any such area. Section 176(b) prohibits EPA from awarding any grants under the Clean Air Act to any such area. EPA may also apply Section 316(b) in such areas.

5. *Calls for Plan Revisions*

Finally, Congress retained Section 110(a)(2)(H), the remedial mechanism EPA used in 1976. Section 110(a)(2)(H) (ii) requires each SIP to require its own revision if EPA finds that a plan is "substantially inadequate" to achieve timely attainment of the national ambient air quality standard that it implements. In 1977 Congress added new language allowing EPA to call for a revision when a plan fails to comply with any requirement of the 1977 amendments.

B. Implementation of the 1977 Amendements

1. *Designations*

In March 1978, EPA designated over 400 areas as nonattainment for one or more primary or secondary NAAQS. 43 FR 8902. EPA adjusted many of these designations in the fall of 1978. *See, e.g.*, 43 FR 40502 (September 12, 1978).

2. *Construction Bans*

By July 1, 1979 almost none of the nonattainment areas had in effect an SIP provision that met the requirements of Sections 110(a)(2)(I) and 173(4). As a result, on July 2, 1979 (44 FR 39471), EPA published a regulation that inserted the Section 110(a)(2)(I) and Section 173(4) construction bans into SIPs that lacked them and clarified the scope of bans in SIPs that had them. EPA described the regulation as an "interpretive rule" that merely implemented the requirements of Section 110(a)(2)(I) and 173(4).

In the same notice EPA announced that the Section 110(a)(2)(I) ban had gone into effect on July 1, 1979 in each nonattainment area that lacked an approved or promulgated Part D plan. EPA explained that the Act imposed this ban automatically in any area that did not have a Part D SIP in effect on that date. EPA announced that it would lift the ban when it approved or promulgated the necessary Part D provisions.

EPA later explained that once it had approved a Part D plan and removed the initial Section 110(a)(2)(I) ban, new bans would not come into effect automatically. EPA concluded that it would have to evaluate an approved plan and find that it no longer satisfied Part D before the Section 110(a)(2)(I) ban could take effect. *See* 46 FR 62651 (December 28, 1981). EPA implied that it would have to publish notice of its finding before the ban would be effective.

In yet another notice EPA took the position that the Section 173(4) ban was not automatic. That ban applies only where EPA finds that a State or local government is not carrying out an approved or promulgated Part D plan. EPA concluded that it should propose a finding of inadequacy and provide an opportunity to comment on its factual basis before imposing this ban. *See* 47 FR 9477 (March 2, 1982).

3. *Action on Revised Plans*

Also on July 2, 1979 (44 FR 38583), EPA announced that it would approve "Conditionally" any Part D revision that contained only minor deficiencies if the State committed to submit corrections promptly on a definite schedule. EPA said that it would lift the Section 110(a)(2)(I) ban upon a conditional approval and that it would disapprove the plan and reimpose the ban upon a failure to meet the schedule for submitting corrections.[1]

The Section 110(a)(2)(I) construction ban still remains in effect in a few nonattainment areas that do not have an attainment date extension. Some of these areas submitted Part D revisions that EPA disapproved for failure to meet one or more of the Part D requirements. In other cases, areas submitted revisions, but EPA has not yet finally determined whether they meet the Part D requirements. And in a few cases, areas have simply not submitted all or part of their Part D revisions.

For the majority of nonattainment, nonextension area, however, EPA has approved fully or conditionally all portions of a Part D plan. All areas that received conditional approvals committed to fulfill their conditions by specific deadlines. Some of these deadlines have not been met, either because the States have not submitted the necessary corrections, or because EPA has not yet determined whether the submitted material meets the relevant Part D requirements.

The approval status of the nonattainment areas that received attainment date extensions parallels roughly the approval status of the nonextension areas. As noted above these areas had to submit Part D revisions in 1979 and supplemental revisions in 1982. In a very few areas the section 110(a)(2)(I) moratorium remains in effect because EPA disapproved a portion of a 1979 submission. In most cases, EPA approved fully or conditionally the 1979 submissions.[2]

Each of the States with extension areas has submitted at least a draft of its supplemental revision, and EPA has proposed action on each submittal. On February 3, EPA proposed to disapprove plans for 17 States. *See* 48 5022–5148. EPA has proposed to approve the remaining 14 submissions.

4. *Funding Restrictions*

(a) *Section 176(a)*. On April 10, 1980 (45 FR 24692), EPA and the Department of Transportation published a joint policy for the implementation of the Section 176(a) funding restrictions. In this policy, the two agencies took the position that the restrictions would apply only in regions that had not submitted (or made reasonable efforts to submit) Part D SIPs for transportation-related pollutants. The policy stated that EPA would judge each region's efforts on a case-by-case basis.

The policy gives EPA discretion to determine whether funding restrictions should apply throughout an entire air

[1] EPA's authority to grant conditional approvals has been upheld, although the U.S. Court of Appeals for the Second Circuit has ruled that EPA may not lift the Section 110(a)(2)(I) Construction ban upon a conditional approval. *Connecticut Fund for the Environment v. EPA*, 672 F.2d 998 (2d Cir. 1982).

[2] Some extension areas apparently have not implemented their 1979 plans. On August 3, 1983 (48 FR 35312) EPA proposed to find that 11 States with extension areas were not implementing vehicle inspection/maintenance programs. EPA proposed to impose contruction moratoriums under Section 173(4) and funding restrictions under Section 176(b).

quality control region, or only in those portions of the region designated nonattainment for a transportation-related pollutant. If restrictions are imposed, EPA has discretion to continue to award air pollution control funds to agencies not directly responsible for the failure to submit a plan. The Department of Transportation has discretion to fund projects meeting the exemptions listed in Section 176(a). The policy provides additional criteria for determining which projects should be exempt.

The policy also sets out procedures for imposing the restrictions, including notice and opportunity to comment. The policy suggests, but does not require, that removal of the restrictions should wait until EPA approves a revised SIP as meeting the Part D requirements. The policy notes that, since Section 176(a) requires action by the State, Federal promulgation of a Part D SIP would not justify removal of the restrictions.

(b) *Section 176(b).* EPA has not issued a formal policy for Section 176(b), which applies when State or local agencies fail to carry out a SIP. However, EPA has taken positions on some issues in its proposals to use Section 176(b). For example, where different levels of government share SIP responsibilities, EPA has stated that it may continue to fund agencies in the level of government that is not responsible for the implementation problem. *See* 47 FR 9477 (March 5, 1982) and 48 FR 35312 (August 3, 1983). EPA has requested comment on alternative formulas for computing the amount of funding that is intended for use in the area where the SIP is not being carried out. Under one of these formulas, EPA would withhold the amount of funds EPA needs to implement the program that the State has not implemented. *See* 48 FR 35312.

Procedurally, EPA has determined that it should provide notice and an opportunity to comment on both the factual basis of its finding and the amount of funding to be withheld. *See* 47 FR 9477 and 48 FR 35312. EPA will also provide an opportunity for a hearing as required under Section 105(e).

(c) *Section 316(b).* EPA published a policy for Section 316(b) on August 11, 1980 (45 FR 53382). The Policy adopts a "reasonable efforts" approach to judging State efforts to submit and implement Part D plans. It also exempts from any restrictions projects needed to meet existing health needs that will not expand capacity by more than 1 million gallons per day, and projects that would improve treatment, but not expand capacity. The policy adopts the procedures developed for imposing and removing Section 176(a) restrictions.

C. EPA's February 3 Proposals for Nonattainment, Nonextension Areas

1. Proposals to Disapprove and Impose the Section 110(a)(2)(I) Construction Ban

On February 3, 1983, EPA proposed two sets of findings for SIPs for nonattainment, nonextension areas. First, EPA proposed to find as a factual matter that many of these SIPs had failed to meet one or more Part D requirements. Second, EPA proposed that the legal consequences of such failures should be disapproval and the imposition of a construction ban under Section 110(a)(2)(I). EPA also solicited comment on applying funding restrictions.

EPA's factual proposals addressed three Part D planning problems.

(a) *Failure To Attain by December 31, 1982.* First, EPA proposed to find that SIPs for 111 areas, many of which had received approval or conditional approval of their Part D SIP revisions, had failed to bring about attainment by the end of 1982.[3] For a list of these areas, *see* the first column in "Appendix D" to the proposal, 48 FR 5005–5021. EPA took the position that any area that failed to attain by 1982 could not be said to satisfy Section 172(a)(1), which requires the plan for any nonextension area to "provide for" attainment by the end of 1982. Consequently, EPA proposed to disapprove these SIPs and impose the ban under Section 110(a)(2)(I).

Following this logic, EPA also proposed to disapprove plans for nonattainment areas that it had designated nonattainment after the first round of designations in 1978 and that it thought would continue to experience violations after 1982. EPA announced that the 1982 attainment deadline would apply even to areas it designated as nonattainment after 1982. EPA also stated that the Section 110(a)(2)(I) ban would apply immediately in areas designated nonattainment after 1982, since the designation itself would show that the plan had failed to assure timely attainment and, therefore, was not meeting the requirements of Part D.

EPA earlier had interpreted the Act to allow areas designated nonattainment after July 1, 1979 one year to develop a Part D plan and six months to obtain EPA approval before a construction ban would apply. In 1980, EPA promulgated a regulation postponing the application of any moratorium in such an area for eighteen months. *See* 40 CFR 52.24(k) (1982). On February 3, EPA proposed to revoke this regulation.

In contrast to the above proposals EPA proposed to exempt from disapproval two groups of nonattainment, nonextension areas for which it projected violations after 1982. One was ozone nonattainment areas that could demonstrate that they (1) would have attained the primary NAAQS for ozone "but for" the impact of ozone transported from other areas and (2) had met all other Part D requirements. *See* 48 FR 4975–4976. To implement this exemption, EPA omitted rural ozone nonattainment areas from its list of areas considered not likely to attain. EPA had previously recognized that violations in such areas typically are caused by ozone transported from urban areas. *See* 44 FR 20372 (April 4, 1979).

The second group of areas were those that could demonstrate that they would have achieved the primary NAAQS in question "but for" emissions of a source that had obtained a compliance date extension beyond 1982 under Section 113 or Section 119 of the Act. These areas also had to show that all other sources in the area were complying with applicable SIP requirements. EPA did not identify any nonattainment area in this second group.

(b) *Failure to Fulfill Conditions.* Next, EPA proposed to find that 41 areas had not met conditions EPA imposed while approving their 1979 plans. For a list of these areas, see the second column of the chart in "Appendix D", 48 FR 5005–5021. EPA also proposed to disapprove plans and impose Section 110(a)(2)(I) bans in these areas.

(c) *Failure To Have in Effect Approved or Conditionally Approved Part D Plans.* Finally, EPA proposed to find that 53 areas did not have in effect fully or conditionally approved Part D SIPs. A few of these areas had never submitted a Part D plan to EPA for review; others had made only partial submittals. A few areas had submitted plan revisions that EPA had not yet approved or disapproved. The remaining areas had submitted plans, but received disapprovals.

The Section 110(a)(2)(I) ban EPA imposed in 1979 is still in effect in almost all of these areas. Consequently, EPA was proposing to maintain the status quo in these areas.

[3] EPA based its preliminary conclusion that these areas had failed to attain by the end of 1982 on estimates of the likelihood that they would experience violations after 1982. EPA, in turn, based these estimates on (1) the most recent available monitoring data for each nonattainment area, generally only data from 1981 and the first two quarters of 1982, and (2) projections of the effectiveness of control measures scheduled for implementation in late 1982.

2. Funding Restrictions and Other Construction Bans

In the February 3 notice, EPA solicited comment on whether the funding restrictions of Sections 176(a), 176(b) and 316 of the Act should apply in any area where EPA disapproved a plan for failure to attain or failure to meet the Part D planning requirements. EPA also requested comment on whether there might be circumstances justifying the application of these restrictions without prior notice and opportunity to comment. EPA did not, however, propose to restrict funds in any area. Similarly, EPA did not propose to impose either the Section 173(4) ban or the Section 113(a)(5) ban.

3. *Other Issues*

(a) *Requests for Attainment Date Extensions.* EPA also announced that it would disapprove any new request for an extension of the attainment date for the ozone or carbon monoxide standards for either an "original" or a newly-designated nonattainment area. EPA explained that Section 172(a)(2) requires all extension requests to have been submitted on or before January 1, 1979. EPA acknowledged that it had approved extension requests submitted after that date when they accompanied an areas's original Part D submittal, but asserted that Section 172(a)(2) could not be read to permit extensions any later in the planning process.

(b) *Pending Revisions to NAAQS.* EPA also announced that it could provide no exemptions from construction or funding restrictions for any nonattainment area based on possible changes to any of the NAAQS.

(c) *Areas Expected to Attain by December 31, 1982.* EPA's February 3 proposal also listed all nonattainment, nonextension areas that EPA expected to meet the December 31, 1982 attainment deadline. To confirm that these areas had in fact attained, EPA proposed to require each area to submit by July 1, 1984, a request for redesignation to attainment. EPA implied that it would disapprove the plan for any area that could not demonstrate that it had attained the standards by that time. For a list of areas that EPA expected to meet the 1982 attainment deadline, see "Appendix C" of the February 3 notice, 48 FR 4979–5003.

D. Comments on February 3 Proposals for Nonattainment, Nonextension Areas

1. *Proposed Disapprovals and Construction Moratoriums*

(a) *Failure to Attain by December 31, 1982.*

• *General Legal Issues.* Nearly all of the commenters that addressed these proposals protested EPA's proposal to disapprove already approved plans and reimpose the construction ban for failure to attain by the end of 1982. The commenters asserted that the purpose of Section 110(a)(2)(I) and Part D was not to ensure attainment by the end of 1982, but to induce States that had missed the attainment dates set by the 1970 amendments to the Clean Air Act to revise their plans.

Some commenters, focusing on the language and history of Section 110(a)(2)(I) and Part D, pointed out that Part D merely requires plans to "provide for" attainment by the end of 1982. *See* Section 172(a)(1). They argued that Congress easily could have chosen a stronger word, such as "achieve" or "assure," if it had meant Part D to require actual attainment.

One commenter used legislative history to show that Congress chose to use "provide for" precisely because it is less demanding. As originally drafted, the provision that became Section 172(a)(1) required Part D plans to "assure" attainment. The sponsor of the amendment that replaced "assure" with "provided for" stated that he wanted to ensure that States would not have to guarantee that their revised plans would actually bring about attainment. (Transcript of Senate Clean Air Act Mark-up, May 4, 1977, pages 13–14.)

Other commenters noted that Section 110(a)(2)(I) only requires areas to "plan" for attainment to escape the construction ban. They asserted that the legislative history describes the ban as an inducement to timely planning, rather than a penalty for unsuccessful planning.

Still other commenters, focusing on prior EPA action, reminded EPA that, when SIPs submitted under the 1970 amendments failed to bring about attainment, EPA called for SIP revisions under Section 110(a)(2)(H) instead of disapproving plans for failure to "provide for" attainment under Section 110(a)(1). Moreover, at that time, EPA interpreted the Act as prohibiting new source construction only in areas that failed to submit revised SIPs within the deadlines established by EPA. These commenters argued that EPA should follow the same process for plans that failed to "provide for" attainment under Section 172(a)(1). They felt that the existence of this alternative remedy made it unnecessary to adopt what they regarded as strained interpretations of Sections 110(a)(2)(I) and 172(a)(1).

Most commenters that urged EPA to use Section 110(a)(2)(H) conceded that a construction ban should apply if an area failed to revise its plan in response to a notice of inadequacy. A few, however, argued that EPA should promulgate plan revisions under Section 110(c)(1)(C) instead of imposing a ban.

• *General factual issues.* Many commenters protested EPA's use of projections based on monitoring data from 1981 and 1982. They urged EPA to wait until 1983 data becomes available. One commenter supported the proposed procedure, but argued that EPA had not made sufficient allowance for unusual meteorological conditions that might have caused violations. A few commenters argued that EPA had not given enough information on its selection of data to provide a meaningful opportunity to comment.

• *Ozone transport issues.* Many commenters supported the proposal to exempt ozone areas that can demonstrate that their continued violations are caused by transported pollution. Four commenters, however, felt that it was impossible to make such demonstrations using current data and modeling techniques. Others wanted to expand the exemption to other pollutants.

• *Compliance date extension issues.* All of the comments on this issue supported the idea of exempting areas that could demonstrate that they would have attained but for a source that received a compliance date extension beyond 1982. Many commenters urged EPA to expand the exemptions to other situations. One commenter felt EPA's two-pronged test was too burdensome. This commenter favored relaxing the requirement that all other sources in the area must be in compliance and eliminating the requirement for a demonstration that the area would have attained but for the compliance date extension.

• *Removal of construction ban.* Commenters responded variously to EPA's request for comment on when to remove construction bans. The most common suggestion was that EPA should remove the ban as soon as it approved a revised SIP curing the deficiency that caused EPA to disapprove the plan. Other suggestions included removal upon mere submittal of a revised plan, removal upon commencement of good faith efforts toward submitting a revised plan, and removal upon submittal of a request for redesignation to attainment. One commenter also suggested that the ban could be lifted when a source obtained sufficient offsets to show a net reduction in emissions.

These comments addressed not only disapprovals for failure to attain, but also disapprovals for failure to fulfill conditions and disapprovals for failure to have in effect by now a fully or conditionally approved plan.

b. *Failure to Fulfill Conditions.* No comment addressed this issue directly. Several commenters, however, argued that EPA should not disapprove a plan in an area that probably attained in 1982, even if the plan failed to meet some of the other Part D Requirements. Since the construction ban and the Part D requirements do not apply in areas designated attainment under Section 107(d), the commenters argued that EPA should not apply them in areas where attainment is considered likely.

c. *Failure to Have in Effect an Approved or Conditionally Approved SIP.* Commenters generally agreed that the construction ban should apply in areas that apparently failed to attain and that lack fully or conditionally approved Part D plans. Some commenters argued however, that the ban should not apply in areas which probably attained the standards in 1982.

d. *Proposals for Newly-Designated Nonattainment Areas.* All of the commenters that addressed this issue objected to EPA's proposals to revoke 40 C.F.R. 52.24(k) and require areas designated nonattainment after the first round of designations to meet the 1982 deadline for attainment. They felt that the proposals would produce absurd results, especially in areas designated nonattainment after December 31, 1982.

Many of the commenters argued that Section 107(d) and Part D do not apply to these areas. They suggested that EPA should issue a notice of deficiency under Section 110(a)(2)(H) if it discovers violations in an area designated attainment or unclassified. A few commenters suggested that EPA should continue to use the time intervals between the specific dates in Section 107(d) and Part D.

2. *Funding Restrictions*

(a) *General legal issues.* All commenters on this issue opposed the use of funding restrictions in areas with approved Part D plans that apparently failed to attain by December 31, 1982, unless EPA could show that a State had failed to carry out its plan. These commenters argued that there was no support in the language of Sections 176(a), 176(b), or 316 for applying the restrictions in an area that had implemented an approved plan but had failed to attain. The commenters also asserted that the legislative history showed that Congress intended EPA to impose Section 176(a) only where a State failed to submit a plan, not where a State failed to bring about attainment.

(b) *Procedural issues.* Many commenters argued that EPA had no authority to impose funding restrictions without providing prior notice and opportunity to comment. Some commenters added that Section 105(e) requires EPA to provide an opportunity for a hearing before it withholds any grants for air pollution control programs. Others urged EPA to follow the special policy and procedures developed by EPA and the Department of Transportation for Section 176(a).

3. *Other issues*

(a) *Attainment date extensions for carbon monoxide and ozone.* All but one of the commenters addressing this provision opposed EPA's proposal to interpret Section 172(a)(2) as prohibiting extensions unless requests were submitted with 1979 plan revisions. Most of these commenters cited a 1979 policy memorandum which stated that EPA would grant extensions later in the planning process. They also argued that it would be unfair to penalize areas that had carried out approved plans in good faith.

The commenter that did not favor extensions suggested that areas that failed to attain should be given an opportunity to revise their plans before any restrictions were imposed.

(b) *Effect of pending revisions to standards.* All comments on this issue urged EPA to refrain from disapproving plans and imposing restrictions in particulate matter nonattainment areas. One commenter suggested that EPA disapprove plans only in those areas that would be nonattainment under a revised particulate matter standard.

(c) *Areas expected to attain by December 31, 1982.* Several commenters supported EPA's proposal to presume nonattainment for any area listed in Appendix C of the February 3 notice that failed to submit a request for redesignation by July 1, 1984. One commenter asked EPA to relax the deadline to October 1984.

A fairly large number of commenters asked EPA to clarify its policy on the data needed to support a redesignation request.

E. Congressional Action

In June 1983 Congress added to the HUD-Independent Agencies Appropriations Bill for fiscal year 1984 a provision which provides:

> None of the funds provided in this Act may be obligated or expended to impose sanctions under the Clean Air Act with respect to any area for failure to attain any national ambient air quality standard established under Section 109 of such Act (42 U.S.C. 7409) by the applicable dates set forth in Section 172(a) of such Act (42 U.S.C. 7502(a)).

Pub. L. 98-45, 97 Stat. 226 (July 12, 1983). The bill, including this measure, was passed by both houses and signed on July 12, 1983. It will limit EPA's ability to impose construction and funding restrictions during fiscal year 1984.

The legislative history shows that Congress enacted this measure largely as a response to EPA's February 3 proposal to disapprove approved and implemented plans that failed to bring about attainment by the end of 1982. *See, e.g.*, 129 Cong. Rec. S8818 (daily ed., June 21, 1983 (remarks of Senator Randolph); 129 Cong. Rec. H3506 (daily) ed. June 2, 1983) (remarks of Representative Dingell). It also shows that Congress intended to prohibit only those "sanctions" imposed for failures to attain. Construction bans and funding restrictions for failures to submit plans or carry out plans are still authorized. *See* 129 Cong. Rec. S8816 (remarks of Senator Randolph); 129 Cong. Rec. H3503-3504, (daily ed. June 2, 1983) (remarks of Representative Waxman); 129 Cong. Rec. H3513 (remarks of Representative Broyhill). In fact, one of the chief spokesmen for the Senate amendment made it clear that EPA could still limit construction and funding in an area with an approved and implemented Part D plan that failed to bring about attainment if the State failed to revise the plan within a reasonable time. *See* 129 Cong. Rec. S8817 (daily ed. June 21, 1983) (remarks of Senator Stafford).

III. Response to Comments

This section provides EPA's response to the major comments on legal and policy issues. EPA will respond to comments on factual issues in the final notices of inadequacy and final disapprovals that it will publish in the near future.

A. Proposed Disapprovals and Construction Bans

1. *Failure to Attain by December 31, 1982*

EPA has been persuaded to change its view on the legal consequences of finding that a nonattainment, nonextension area with a fully approved and implemented Part D plan failed to attain by December 31, 1982. EPA now agrees that the better interpretation of the Act is that Section 110(a)(2)(I) and Part D were intended to produce revised plans that appeared to "provide for" attainment by the 1982 or 1987 deadlines. EPA agrees that the language and legislative history of Section 172(a)(1) suggest that SIPs were only expected to "provide for" attainment in a prospective or planning sense. Furthermore, EPA agrees that its decision not to apply bans immediately in areas that missed the original attainment deadlines is a significant precedent. In fact, EPA has determined that Congress quite probably endorsed this approach in enacting the 1977 amendments.

Moreover, EPA believes that the legislative history of the construction ban, while not conclusive, suggests that the primary purpose of the ban was to provide an incentive for submitting revised plans that met the Part D requirements. Imposing bans in areas with approved plans that missed the 1982 attainment deadline would do little to further this goal, because these areas have already met the requirements of Part D. This reasoning is set out at greater length in an opinion of the General Counsel dated July 12, 1983, which has been included in the docket for this rulemaking.

EPA is withdrawing its proposals to disapprove plans and impose Section 110(a)(2)(I) bans in areas with approved and implemented Part D plans. Moreover, EPA is promulgating an addition to 40 CFR 52.24(a) that will prevent the Section 110(a)(2)(I) ban from applying in such areas.

EPA, however, will find that approved Part D plans that failed to bring about attainment by 1982 are inadequate under Section 110(a)(2)(H). EPA will call for plan revisions, and impose bans under Section 173(4) and funding restrictions under Section 176(b) in any area that fails to submit a revision in a timely manner.

EPA is retaining the exemptions for ozone transport and compliance date extensions that commenters favored. EPA will not issue findings of inadequacy for areas that can demonstrate that they would have attained but for ozone transport or extended compliance schedule. EPA, however, is eliminating from both exemptions the requirements relating to compliance by other sources. These other requirements are not relevant to the purpose of the exemptions. Where other sources are not in compliance because plans are not being carried out, EPA may impose restrictions for failure to implement under the policy outlined in Section IV of this notice.

2. *Failure to Fulfill Conditions*

EPA is not changing its views on the legal consequences of a failure to fulfill a condition of approval, even for areas that may have attained by 1982. So long as an area is designated nonattainment under Section 107(d), the Act requires compliance with all of the Part D requirements. EPA believes the States should bear the burden of demonstrating attainment. Furthermore, so long as any doubt exists, it better serves the Act's health protection purposes to continue to require compliance with Part D.

3. *Failure to Have in Effect an Approved or Conditionally Approved Part D SIP*

Commenters generally supported EPA's proposal to retain existing disapprovals and bans in these areas. As explained in Section IV of this notice, EPA has decided to retain this proposal.

4. *Newly-Designated Nonattainment Areas*

EPA has been persuaded to retain 40 CFR 52.24(k) and allow newly-designated nonattainment areas a reasonable time to submit Part D plans and provide for attainment. EPA is convinced that Congress could not have intended the 1979 and 1982 dates to apply to areas designated attainment long after the original designations in 1978. Moreover, EPA has concluded that the best way to provide sufficient time is to retain the approach long established by Section 52.24(k) and use the time intervals suggested by Section 110(a)(2)(i) and Part D to establish dates for plan submittal and attainment.

B. Funding Restrictions

After reviewing the comments, EPA agrees that none of the funding restrictions in the Act apply to areas with approved and implemented Part D plans that only missed the 1982 attainment date. Furthermore, if EPA imposes restrictions for other reasons, it will first provide notice and opportunity to comment. EPA will not restrict any Clean Air Act funds under Sections 176(a) or 176(b) without also providing an opportunity for a hearing as required by Section 105(e).

C. Other Issues

1. *Attainment Date Extensions*

EPA is modifying the interpretation of Section 172(a)(2) that it proposed on February 3 to allow newly-designated nonattainment areas for carbon monoxide and ozone to obtain extensions if they submit their requests with their first Part D submissions. Allowing them to request extensions at this time will be more consistent with the practice EPA established for the "original" nonattainment areas. Furthermore, it is consistent with the general approach to dates in Part D that EPA is adopting for newly-designated areas.

EPA did not find that any commenters presented a sound rationale for expanding Section 172(a)(2) to permit areas to request extensions later in the process. Although the legislative history does not explain why Congress imposed a January 1, 1979 deadline on extension requests, it seems likely that Congress wanted to force States to make decisions on extensions early in the planning process, to ensure that there would be sufficient time to implement the stringent controls needed for an area where "reasonable measures" would not provide for attainment. This purpose would not be served by allowing areas to obtain extensions after they submit their initial Part D plans.

2. *Pending Revisions to Standards*

No commenter offered a convincing legal rationale that would allow EPA to stay implementation of the existing particulate matter standard. EPA is considering the possibility of focusing the particulate matter standard on small particles. In an attempt to accommodate the commenters' equitable concerns, EPA intends to allow States to structure their particulate matter revisions so they will concentrate on smaller particulates first.

3. *Areas Expected to Attain by December 31, 1982*

Although the comments generally supported the proposal to require redesignation requests from all areas considered likely to attain, EPA has decided to withdraw the proposal. Some States might wish to retain the stricter Part D regime even in areas that come into attainment. Section 116 of the Act makes it clear that States are always entitled to regulate more strictly than the Act requires. Consequently, EPA has no clear authority to require a State to redesignate and give up its Part D program.

IV. Policy for Correction of Part D SIPs for Nonattainment Areas

A. Introductory Comments

This section describes the approach EPA wants States to take to remedy SIP deficiencies in nonattainment areas. It addresses both the specific deficiencies indentified in the February 3 proposals and deficiencies that may be identified in the future. Also, it describes EPA's revised view of the legal consequences of a failure to correct a deficiency.

In most cases, EPA wants to give States an opportunity either to show that their SIPs are not deficient or to remedy their deficiencies before construction and funding restrictions apply. States may show that SIPs are not deficient by requesting redesignation to attainment under Section 107(d). States may remedy deficiencies by either implementing or revising their existing SIPs. EPA is preparing comprehensive guidance for areas that need to implement or revise their plans. EPA expects this guidance to be available later this fall.

If a State neither submits a redesignation request nor cures its SIP deficiencies, EPA will propose construction and funding restrictions. If a State commits to remedy its deficiency by a specific date and, at the same time, shows that it cannot possibly move any more quickly, EPA may defer final action until that date, unless it learns later that the State will not meet its commitment. EPA does not anticipate that any State will need more than one year to correct any of the SIP deficiencies identified in the February 3 proposal.

If a State fails to redesignate or solve its problems within the time limits described below, EPA will publish a notice in the **Federal Register** announcing that appropriate construction and funding restrictions apply.

If EPA imposes construction and funding restrictions, it will remove them when it approves a redesignation request or finds that the State has cured its deficiency. If the State must submit a plan revision, EPA will remove restrictions only when it approves the State's revision or promulgates a Federal revision. If the State must implement an approved plan, EPA will remove restrictions only when it finds that the State has completed all actions needed to carry out the plan.

Where a SIP is deficient because it lacks needed control measures, EPA will consider promulgating the measures. Resource constraints will almost certainly make it impossible for EPA to promulgate Federal plan revisions immediately in all areas where they might be needed. Consequently, EPA will promulgate first in those areas where air grant funds have been restricted and where it believes that Federal action will be most effective. EPA will remove construction bans if it promulgates a plan revision that brings the area into full compliance with Part D. Promulgation, however, will not remove funding restrictions. To remove these restrictions, States will have to submit or implement their own plans or formally adopt the EPA plans as their own. *See e.g.*, 46 FR 24692 (April 10, 1980) (Section 176(a) policy).

EPA will administer this policy in accordance with the objectives that the Administrator announced in his June 23, 1983 speech to the Air Pollution Control Association. These objectives are:

(1) Carry out the Clean Air Act.

(2) Move the nation closer to the health goals of the Act.

(3) Strengthen Federal, State, and local air pollution control programs.

(4) Treat all parties fairly.

(5) Provide incentives for States to fulfill their planning and implementation obligations rather than punishments for failures.

(6) Avoid unnecessary economic disruption.

B. Policy

EPA has classified SIP deficiencies for nonattainment areas into the following categories:

1. Nonattainment areas without attainment date extensions.

(a) Areas with fully approved 1979 plans or portions of plans.

(i) Areas that failed to implement.

(ii) Areas that failed to attain by the end of 1982.

(b) Areas that failed to fullfill conditions of approval on 1979 plans.

(c) Areas lacking approved or conditionally approved 1979 plans.

(i) Areas that failed to submit plans.

(ii) Areas that received disapprovals.

(iii) Areas that submitted plans that EPA has not acted upon.

(d) Areas with approved and implemented plans that are expected to attain.

2. Nonattainment areas with attainment date extensions.

(a) 1979 plans.

(b) 1982 plans.

(i) Plans proposed for approval.

(ii) Plans proposed for disapproval.

(iii) Plans not submitted.

(iv) Areas that do not implement plans.

3. Newly-designated nonattainment areas with and without extensions.

Each nonattainment area must correct each deficiency that applies to it. Some areas will need to correct more than one deficiency for the same plan. Also, since some areas are nonattainment for more than one pollutant, they may need to revise more than one plan.

1. Nonattainment Areas Without Attainment Date Extensions

(a) *Areas With Approved 1979 Part D Plans or Portions of Plans.*

(i) *Areas that did not implement approved plan provisions.* EPA did not propose on February 3, 1983 to find that any nonattainment, nonextension area had failed to carry out an approved Part D plan provision. EPA, however, may discover that some areas failed to carry out their plans. If EPA discovers such problems, it will propose to find that the area is not implementing its plan and propose to limit construction and funding under Sections 173(4) and 176(b). The timing of restrictions and the remedy will vary with the type of provision that is not being implemented.

• *Schedules for adoption of additional control measures.* EPA approved some Part D plans containing schedules that required areas to adopt additional control measures needed to assure attainment. For example, some particulate matter nonattainment plans require areas to study nontraditional sources of particulate matter and adopt additional controls.

If IPA learns that an area has not carried out such a schedule, EPA promptly will propose to find that the area is not implementing its approved Part D SIP. Simultaneously, EPA will propose to limit construction under Section 173(4) and air pollution control funding under Section 176(b). EPA will provide an opportunity to comment and an opportunity to request a hearing.

If, during the comment period, an area commits to a new deadline for adopting the necessary control measures as quickly as possible, EPA will defer its final action until that deadline. To ensure that areas implement their plans expeditiously, EPA will not accept deadlines more than one year from the date of the proposed nonimplementation finding.

If an area misses its deadline for submitting new control measures, EPA will take final action to find that the area has failed to implement and impose the construction and funding restrictions. If, however, an area submits new control measures within its deadlines, EPA may continue to defer action while it evaluates the new measures. If EPA approves the new measures as revisions to the Part D plan, EPA will withdraw the proposed non-implementation finding, construction limitations, and funding restrictions. If EPA disapproves the measures, EPA will impose the restrictions immediately.

• *Implementation or enforcement of existing measures.* All approved Part D plans require areas to implement or enforce adopted control measures. For example, a plan for an ozone area may require a State or local government to construct high-occupancy vehicle lanes. Other plan provisions may require the State or local government to enforce emission limitations for stationary sources. EPA will propose nonimplementation findings and construction and funding restrictions for any area that has failed to carry out either type of requirement. EPA will proceed generally as described above in the discussion of plans requiring the adoption of control measures. EPA expects, however, that areas would need much less than one year to adopt new policies or procedures or commit new resources to implement existing measures; consequently, it does not anticipate that it will defer final action as long as it would for an area that needs to adopt new control measures. EPA will withdraw proposed or final restrictions when an area shows that it has completed all steps needed to implement the measure that it has neglected.

• *Approvals with understanding.* In some cases EPA approved a Part D plan with the understanding that an area would take additional actions needed to meet a Part D requirement. Where areas submitted commitments to take the additional actions by specific dates, and EPA noted these commitments in its rulemaking actions, EPA will treat a failure to meet a commitment as a failure to implement an approved plan provision. If EPA discovers that areas have failed to meet these commitments, it will propose nonimplementation findings, construction limitations, and funding restrictions as described above.

(ii) *Areas with approved plans that did not attain by December 31, 1982.* On February 3 EPA proposed to disapprove plans for nonattainment, nonextension areas that appeared to have failed to attain by December 31, 1982. As explained earlier in this notice, EPA has decided that the Clean Air Act does not require disapprovals in such cases. Consequently, EPA will proceed as described below.

• *Call for SIP revisions.* Where a fully approved Part D plan failed to bring about attainment by the end of 1982, EPA will treat the plan as "substantially inadequate" to assure attainment under Section 110(a)(2)(H) and call for a SIP revision. EPA will provide one year for the submittal of the new revision under Section 110(c)(1)(C). The revisions will have to provide for attainment as expeditiously as practicable and may need to meet new requirements beyond the scope of Part D. EPA will discuss these requirements in the detailed guidance document that it is preparing.

EPA will treat the disapprovals it proposed on February 3 as proposed findings of inadequacy under Section 110(a)(2)(H). The factual findings concerning pollution levels that supported the proposed disapprovals will also serve as bases for finding of inadequacy. After reviewing all comments that addressed individual areas, EPA will, as appropriate, withdraw its proposed findings of inadequacy or publish final findings and call for SIP revisions. EPA intends to complete its review of comments and act on these proposals in the near future. EPA will provide up to one year from the date of any final finding for the submittal of a plan.

• *Consequences of failing to submit a SIP revision.* If an area fails to meet the deadline for submittal of its plan revisions, EPA will propose immediately to find that the State has failed to implement the provision to its SIP that, in accordance with Section 110(a)(2)(H), requires the State to revise the SIP upon a finding of inadequacy. At the same time, EPA will propose construction and funding restrictions under Sections 173(4) and 176(b). In some cases, EPA may also propose to impose funding restrictions under Section 316(b). Because it is essential to induce States to produce plans providing for attainment as quickly as possible, EPA will take final action as quickly as possible while providing an adequate, but minimal opportunity for comment, including an opportunity to request a hearing.

If an area submits a revision before EPA takes final action on these nonimplementation sanctions, EPA may defer action until it evaluates and acts on the submittal. EPA may, if appropriate, propose approval of a plan containing draft regulations and defer final action until the regulations are formally adopted. If EPA approves a revision, it will withdraw the proposals. If EPA disapproves the plan, it will take final action immediately to impose the restrictions it proposed. The disapproval notice will explain why the Agency rejected the new submittal.

Once restrictions are imposed, they will be lifted only upon approval of a revised SIP or promulgation of a Federal SIP revision.

• *Exceptions.* On February 3, EPA proposed to exempt from disapproval areas that could show that they would have attained "but for" ozone transport or compliance date extensions. For the reasons explained in the February 3 notice, EPA will not call for SIP revisions in areas that can demonstrate that they would have attained but for these reasons.

(b) *Areas with Conditionally Approved 1979 Plans that Did Not Meet Conditions.* On February 3 EPA proposed to disapprove plans and impose Section 110(a)(2)(I) bans in nonattainment, nonextension areas that had failed to fulfill conditions EPA imposed on its approval of 1979 plans. EPA plans to retain these proposals, but modify its final actions as described below.

Many areas with conditionally approved plans also failed to attain by the end of 1982. Fulfilling the condition may not be enough to bring about attainment as expeditiously as practicable. These areas will need to submit further plan revisions following the guidelines above for areas that failed to attain.

• *Review of conditions.* EPA plans to review all outstanding conditions to determine whether they are still germane to attainment or maintenance of the NAAQS or to meeting Part D requirements. EPA will revoke any unnecessary conditions and withdraw its proposals to disapprove and impose the construction ban. Where EPA finds that a condition is necessary [4] it will

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[4] EPA is not at this time planning to call for rule revisions to comply with certain conditions requiring States to meet new source review rules EPA promulgated on August 7, 1980 (45 FR 52676). In February 1982 EPA signed a settlement agreement in which it agreed to propose to revise several of these rules. *Chemical Manufacturers Association v. EPA*, D.C. Cir. No. 79-1112. Because of this agreement, EPA conditionally approved several State programs which generally met EPA's 1980 regulations, but which did not meet some of the rules covered by the settlement agreement. The conditions require the States to revise their nonconforming rules within one year unless EPA changes its own rules so that the State rules would be acceptable. *See, e.g.*, 48 FR 9859 (March 9, 1983) (Alabama new source review regulations). EPA has further conditioned approval of these regulations by requiring interim implementation in conformance to the Agency's current rules.

The uncertainty created by the settlement agreement still exists. EPA did promulgate a change to its definition of "source" for nonattainment areas but this revision was successfully challenged in the U.S. Court of Appeals for the District of Columbia Circuit. *NRDC v. Gorsuch*, 685 F. 2d 718 (D.C. Cir. 1982). The Supreme Court has accepted EPA's petition for certiorari to review this decision. In addition, on August 25, 1983 (48 FR 38745), EPA proposed to make several other revisions contemplated by the agreement. Accordingly, EPA finds it appropriate to postpone calling for regulatory changes to comply with these conditions. However, States must continue to meet all conditions concerning requirements for interim implementation.

EPA does not intend to postpone calling for compliance with earlier conditions imposed on areas that had not yet begun to adopt regulations meeting EPA's 1980 new source review rules. Areas subject to these earlier conditions must meet existing deadlines for adopting regulations that conform to EPA's 1980 rules. If these areas adopt rules that conform to all portions of EPA's 1980 rules except those covered by the settlement agreement, EPA will issue new conditional approvals [illegible] described above.

[illegible] EPA's 1980 [illegible] approval for their new source review programs [illegible] intends to impose conditions on these areas that [illegible] compatible with all portions of the 1980 rules except those affected by the settlement agreement. EPA will issue new conditional approvals which deal with the CMA portions of 1980 regulations.

notify the area and proceed as described below.

EPA intends to complete its review of conditions by the end of 1983. As part of the review, EPA will consider all comments on particular conditions submitted in response to the February 3 proposal.

• *Consequences of not meeting germane conditions.*

—*Disapprovals and Section 110(a)(2)(I) bans.* EPA expects that it will find that many areas proposed for disapproval on February 3 will still need to meet their conditions.

Where the condition involves a serious plan deficiency and is long overdue, EPA may issue a final disapproval and impose a Section 110(a)(2)(I) construction ban immediately after it completes its review of conditions. If the deficiency is less serious, and if the area commits to meet the condition by a new date, EPA may defer final action until that date. Areas that want to commit to new dates may submit their commitments while EPA is reviewing the conditions. In no case does EPA expect to defer action for more than one year after the completion of its review of conditions.

If a State makes a submittal intended to satisfy the condition before EPA disapproves the plan, EPA will continue to defer action while it reviews the submittal. If EPA approves the submittal, it will withdraw the proposed restrictions. If EPA disapproves the submittal, it will disapprove the plan and proceed with the appropriate funding restriction.

Where a ban is imposed, EPA will remove it only when it takes final action finding that the condition has been met or redesignates the area to attainment.

—*Funding restrictions for ozone, carbon monoxide and nitrogen dioxide plans.* Where an area has failed to meet a condition for a Part D plan for ozone, carbon monoxide, or nitrogen dioxide, EPA will consider restricting highway and air pollution control funds under Section 176(a). EPA will propose to impose Section 176(a) restrictions where areas have not made reasonable efforts to fulfill their conditions. EPA will provide opportunity to comment and an opportunity for a hearing before it takes final action. As described above for the construction ban, EPA may defer final action for up to one year if an area commits to a new date for meeting its condition. EPA will remove restrictions in accordance with its April 1980 policy.

—*Funding restrictions for other pollutants.* Section 176(a) does not apply to plans for non-transportation related pollutants. Because EPA believes it is essential to have all areas to meet necessary conditions, it intends to propose funding restrictions under Section 176(b) and a construction ban under Section 173(4) where areas have not met conditions for other pollutants. More specifically, EPA will consider its conditional approval as the equivalent of a finding of inadequacy and a call for a SIP revision under Section 110(a)(2)(H). Any area which has failed to meet the condition has failed to carry out the provision in its SIP that requires a revision when EPA makes a finding of inadequacy. Accordingly, EPA will be able to use Section 176(b) and 173(4), which apply in areas that have not carried out approved plans. EPA will propose to impose these nonimplementation restrictions at the same time it disapproves or proposes to disapprove a plan. As described above for the Section 110(a)(2)(I) construction ban, EPA may defer action if an area commits to a new date for meeting its condition. EPA will review new submittals, impose restrictions and remove restrictions as described above for the construction ban.

(c) *Areas Lacking Approved or Conditionally Approved 1979 Plans.*

(i) *Plan not submitted.*

• *Requirements for plan approval.* All areas designated as nonattainment in 1978 were required to have in effect by July 1, 1979 plans that met the Part D requirements. EPA wants areas that have not obtained approval or conditional approval fo their Part D plans to do whatever is necessary to obtain approval. In most cases, this will require new plan revisions.

Although it will no longer be possible for these areas to submit plans that "provide for" attainment by the end of 1982, EPA has concluded that it may approve plans that "provide for" attainment as expeditiously as practicable while meeting all other Part D requirements. Upon approving such a plan, EPA will remove the existing Section 110(a)(2)(I) ban and withdraw any proposed or final funding restrictions.

• *Consequences of failing to submit plans*

—*Section 110(a)(2)(I) construction ban.* In each nonattainment, nonextension area that has failed to submit all or part of a 1979 Part D plan, the Section 110(a)(2)(I) ban went into effect on July 2, 1979 and remains in effect today. As EPA proposed on February 3, it will leave this ban in effect until it approves or promulgates a plan for the area as meeting the requirements of Part D.

—*Funding restrictions for ozone, carbon monoxide and nitrogen dioxide plans.* Where an area has not made reasonable efforts to submit a Part D plan for an ozone, carbon monoxide, or nitrogen dioxide nonattainment area, EPA will propose in the near future to restrict highway and air pollution control funding under Section 176(a). If an area commits to submit a Part D plan at the earliest possible date, EPA will defer action on the proposal until that date so long as the area makes measureable progress. In no case will EPA defer final action for more than one year from the date it proposes to impose funding restrictions. If, however, a State submits a plan to EPA within one year, EPA will continue to postpone final action on the restrictions until it takes final action on the plan. If EPA approves the plan, it will withdraw the proposed funding restrictions. EPA will impose the restrictions if it disapproves the plan.

—*Funding restrictions for plans for other pollutants.* EPA intends to use the Section 176(b) funding restrictions for areas that are nonattainment for other pollutants. For these areas, EPA will treat the February 3 notice as a proposed finding of inadequacy under Section 110(a)(2)(H). As soon as possible after issuing this policy, EPA will publish final findings of inadequacy and call for plan revisions. EPA intends to set a deadline for submittal of these revisions within 60 days from the date of the final finding. These plans were originally due over four years ago; consequently, EPA is providing the shortest deadline suggested by Section 110(c)(1)(C).

If an area does not submit a Part D plan within this 60 days, EPA will promptly publish a propose finding of nonimplementation, propose to restrict funds under Section 176(b), and propose a limit construction under Section 173(4). If an area commits to a schedule for submitting a revised plan, EPA will postpone final action on the funding restrictions for up to one year after the date of its final finding of inadequacy. If an area submits a plan revision on time, EPA will defer action on the funding restrictions as described above in the discussion of 176(a).

(ii) *Plan disapproved.* In virtually all areas that received disapprovals on their 1979 plans, the Section 110(a)(2)(I) ban remains in effect.[6] As proposed on February 3, these bans will remain in effect until EPA approves a plan as meeting the requirements of Part D

EPA intends to follow the same policy for using funding restrictions to obtain

[6] EPA has discovered a few areas where it disapproved a Part D plan but neglected to reimpose the Section 110(a)(2)(I) ban. EPA intends to publish notices imposing the ban in these areas as soon as possible after it issues this policy.

new plans that is outlined above for areas that did not submit Part D plans. The rationale for approving revised plans described in that section will also apply to these areas.

(iii) *Plan submitted but no final action by EPA.* For these areas, too, the Section 110(a)(2)(I) moratorium is in effect and will remain in effect until EPA approves a plan as meeting the Part D requirements.

Before EPA and the States can take further action on these plans, EPA must complete its review of the submitted revisions. EPA has proposed action on all of these plans. It currently intends to take final action or, if necessary, to propose different action no later than December 31, 1983. If EPA approves a plan, it will remove the Section 110(a)(2)(I) ban. If EPA disapproves a plan, it will propose funding restrictions as described above in the Section on areas that did not submit Part D plans.

If a State chooses to withdraw a plan before EPA takes final action, EPA will return the plan and proceed under the policy described above for areas that did not submit Part D plans.

(d) *Areas With Approved and Implemented 1979 Plans That Probably Attained.* EPA did not propose to disapprove plans or impose restrictions for these areas on February 3. EPA, however, will continue to monitor air quality data for these areas to determine whether they did attain the standards. If EPA discovers a violation of the standard for which the area is designated nonattainment, EPA will propose to find the plan to be inadequate and call for a plan revision as described above for areas which failed to attain.

These areas may request redesignation to attainment any time that they can submit data meeting EPA's policy requirements. For more information on these requirements, *see* the April 21, 1983 memorandum "Section 107 Designation Policy Summary", from Sheldon Meyers to EPA Regional Air Directors.

2. Nonattainment Areas With Attainment Date Extensions

Part D required areas with attainment date extensions for ozone or carbon monoxide to submit plan revisions in 1979 and again in 1982. Either or both of these plan revisions may be deficient.

(a) *1979 Plan Revisions.* None of EPA's February 3 proposals addressed the 1979 plans for extension areas. Nevertheless, these plans may suffer from some of the deficiencies described above. An area may have failed to fulfill a condition of approval or may have failed to submit a portion of a plan. EPA may have disapproved a portion of a 1979 submittal. If EPA finds such deficiencies, it will follow the policies outlined above for nonextension areas.

Extension areas may also have failed to carry out approved portions of their 1979 plans. On August 3, 1983 (48 FR 35312), EPA proposed to find that eleven areas were not implementing approved schedules for motor vehicle inspection/maintenance programs. EPA proposed to restrict construction and funding under Sections 173(4) and 176(b). EPA will publish similar proposals if it finds other implementation failures.

(b) *1982 Plan Revisions.* EPA has proposed action on all 1982 plans for extension areas. The second set of notices published on February 3 contained EPA's proposals for 27 of the 31 States that have areas with attainment date extensions.

(i) *Plans submitted and proposed for approval.* EPA did not propose any construction or funding restrictions for plans which it proposed to approve. EPA currently intends to consider all comments and publish final approvals by March 1, 1984.

In some areas, EPA may find it necessary to change its course and disapprove a plan. Where disapproval will require a reproposal, EPA plans to publish the new proposal by March 1. EPA expects to take final action on any reproposal by September 30, 1984. If EPA disapproves the plan, it will proceed as described below.

(ii) *Plans submitted and proposed for disapproval.* EPA intends to take final action on all proposed disapprovals early next year. Where circumstances warrant, EPA will issue a new proposal and complete its action before the end of next year. Disapproval of a 1982 plan will trigger a construction ban under Section 110(a)(2)(I).

EPA wants to encourage areas where plans are disapproved to submit revised plans meeting the Part D requirements. Accordingly, EPA will consider restricting highway and air grant funding under Section 176(a). EPA will propose restrictions where it finds that an area has not made reasonable efforts to submit an approvable plan. If EPA proposes restrictions, it may defer action for up to one year if an area commits to an expeditious schedule for the submittal of new revisions.

Once EPA imposes construction and funding restrictions, it will lift them only when it approves or promulgates a plan as meeting the Part D requirements for extension areas.

(iii) *Plans not submitted.* In many cases EPA evaluated and proposed action on draft plans. Some States have not yet submitted final plans containing adopted control measures and official commitments. EPA cannot approve plans that do not contain adopted, enforceable measures and commitments. If an area fails to submit its final plan before EPA's internal deadline for final action, EPA will disapprove on the ground that the area failed to meet the Part D requirements for 1982 plans. This disapproval will trigger a construction moratorium under Section 110(a)(2)(I). It may also lead to funding restrictions under Section 176(a) as described above.

EPA will remove any construction or funding restrictions when it approves a final submittal as meeting the applicable Part D requirements.

(iv) *Areas that do not implement approved plans or portions of plans.* Areas with approved plans or portions of plans will be subject to restrictions for failure to implement if they fail to carry out their plans. EPA will monitor closely all approved schedules for the submittal of additional control measures. EPA will also monitor compliance by stationary sources. It will propose findings of nonimplementation and construction and funding restrictions under Sections 173(4) and 176(b) as soon as it sees significant slippage.

3. Newly-Discovered Nonattainment Areas With and Without Extensions

(a) *Deadlines for plans and attainment.* EPA has concluded that Congress intended that newly-discovered nonattainment areas should meet the Part D requirements, but have a reasonable amount of time to do so. Accordingly, EPA intends to require newly discovered nonattainment areas to follow the time periods, but not the dates, from Section 110(a)(2)(I) and Part D. Any new nonattainment area will have one year to develop a Part D plan. To obtain approval, that plan must "provide for" attainment as expeditiously as practicable, but no later than five years after the date of the nonattainment designation.

Although EPA does not expect a significant number of new ozone and carbon monoxide nonattainment areas which will be unable to attain standards in five years, an attainment date extension can be granted provided that an area can show that it is impossible to attain carbon monoxide or ozone standards despite the implementation of all reasonably available control measures. The extension is not automatic; it must be requested and it must be accompanied by a demonstration of need that is forwarded with the initial Part D submittal. The extension may provide up to five additional years to provide for attainment. Areas that receive extensions will have to submit supplemental SIP revisions no later than four and one-half years from the date of the designation.

(b) *Consequences of failures to submit plans.*

• *Construction ban.* Under 40 CFR 52.24(k), a Section 110(a)(2)(I) ban will apply eighteen months after the date of the designation in any area designated nonattainment after July 1, 1979, unless the area has in effect an approved or conditionally approved Part D plan. This ban will apply automatically, but EPA intends to publish in the **Federal Register** a notice advising the area that the ban has come into effect.

Approval of an initial plan as meeting the Part D requirements will lift the ban. Disapproval will maintain or impose the ban. Disapproval of a supplemental submittal for an extension area will also maintain the ban (or impose it, if EPA approved the initial submittal).

• *Funding restrictions for ozone, carbon monoxide and nitrogen dioxide plans.* If an ozone, carbon monoxide or nitrogen dioxide area fails to make reasonable efforts to submit either an original or supplemental Part D revision, EPA will propose funding restrictions under Section 176(a). It the area commits to a schedule for submitting a plan revision, EPA may postpone action on final restrictions for as much as one year.

• *Funding restrictions for plans for other pollutants.* To ensure timely submittal of plans for newly-designated nonattainment areas for other pollutants, EPA will issue a notice of inadequacy and call for a plan revision under Section 110(a)(2)(H) at the time it redesignates the area as nonattainment. If the area fails to submit an approvable Part D plan, EPA will be in a position to find that the area is not implementing its SIP and to propose funding restrictions under Section 176(b) and construction restrictions under Section 173(4).

(c) *Consequences of not implementing approved plans or not attaining.* If EPA approves the Part D plan for a newly discovered nonattainment area, but the area subsequently fails to implement its plan, EPA will propose a finding of nonimplementation as described above in the discussion of 1979 plans that fails to implement. Similarly, if an approved plan fails to bring about attainment by the applicable deadline, EPA will propose a finding of inadequacy under Section 110(a)(2)(H).

(d) *Remedial actions for areas designated nonattainment after July 1, 1979, but before the publication of this policy.* A few areas were designated nonattainment after July 1, 1979, but before the publication of this policy. EPA intends, to the extent possible, to put these areas on equal footing with areas designated nonattainment in the future. For example, EPA will approve qualifying extension requests that accompanied an area's first Part D submittal. Also, where uncertainty about this policy caused a construction ban to come into effect because EPA failed to act on a Part D plan submittal, EPA will move as quickly as possible to act on the plan. If EPA approves the plan, it will remove the moratorium. If the plan is disapproved, the moratorium will continue.

At the same time, EPA wants these newly-discovered nonattainment areas to face the same consequences for failing to submit plans. Accordingly, for nonattainment areas for non-transportation related pollutants, EPA will treat the February 3 proposed disapprovals as proposed findings of inadequacy. This will allow EPA to issue a final finding of inadequacy and propose construction and funding restrictions under Sections 173(4) and 176(b) if an area misses its deadline for submittal of a Part D plan.

C. Other Issues

1. Definition of "Reasonable Efforts" in Section 176(a)

EPA's April 1980 policy states that EPA will determine whether a State is making "reasonable efforts" to submit a Part D plan on a case-by-case basis. In making such decisions, EPA will consider the legislative history of Section 176(a). This history suggests that Congress did not intend the funding restrictions to apply in areas unable to meet the 1982 or 1987 attainment deadlines, if those areas make reasonable attempts to provide for attainment. *See* 123 Cong. Rec. S9437–S9439 (June 10, 1977).

2. Scope of Restrictions on Clean Air Act Funding under Sections 176(a) and (b)

As mentioned in Section II of this notice, on August 3, 1983 EPA asked for comment on the idea of using funds withheld under Section 176(b) to implement the part of a plan that a State is not implementing. EPA cannot take a final position on this issue until it reviews all comments. If EPA decides that this approach is feasible under Section 176(b), it may use a similar approach under Section 176(a), using funds withheld for EPA promulgation.

3. Section 316(b) Funding Restrictions

EPA has discretionary authority under Section 316(b) to restrict sewage treatment funding where an area does not have a Part D plan in effect or is failing to carry out its SIP. EPA may propose to add Section 316 restrictions in areas where further inducements to action are needed. EPA is currently reviewing its August 11, 1980 policy (45 FR 53382) regarding implementation of Section 316. The 1980 policy, however, will remain in effect until revised or rescinded. The revised policy will reflect the current construction grants programs and identify those types of situations where sanctions could be imposed. Any revision will be proposed and will seek public comment by notice in the **Federal Register**.

4. Section 113(a)(5) Construction Ban

Section 113(a)(5) gives EPA discretion to impose a construction ban for nonimplementation. EPA intends generally not to exercise this authority. Section 173(4) covers most of the cases that Section 113(a)(5) covers. In addition, imposition of a ban in the remaining cases, where the company has received a construction permit already, would be unnecessarily unfair, except in extreme cases of nonimplementation. For example, EPA might consider using this section where a State issues a permit in violation of a construction ban.

5. Emissions Trading

Current EPA policy allows existing-source emissions trades in nonattainment areas lacking adequate attainment demonstrations 47 FR 15076 (April 7, 1982). EPA, however, is re-examining that policy. On August 31, 1983 (48 FR 39580), EPA requested further comment on several issues concerning this interim emissions trading policy, including whether, and under what circumstances, EPA should approve existing-source trades in nonattainment areas that lack fully or conditionally approved Part D plans or in areas with approved plans that missed the 1982 deadline.

EPA invited all interested persons to submit comments before October 31, 1983, in response to the August 31, 1983 emissions trading notice. EPA will evaluate all comments on this issue as quickly as possible after the close of that comment period. EPA expects to announce its position on this issue in both the guidance for correction of Part D SIP's and the final emissions trading policy.

In the interim, existing sources considering trades in such areas should be aware that EPA has requested comment on grand-fathering issues. However, sources that traded might eventually be subject to additional emission reduction requirements needed to bring an area into attainment, depending upon the control strategy which the State selects.

6. *Pending Review of Standards*

EPA must enforce all existing standards unless and until they are revised. However, to accommodate concerns about the pending review of the particulate matter standard, EPA will consider approving revised plans that consist of enforceable schedules that phase in the adoption and implementation of controls for particulate matter sources. States will be able to address sources of smaller particles first. EPA, however, does not intend to allow any particulate matter nonattainment area to relax existing requirements under this policy.

V. Final Actions

EPA is taking only two final actions today. First, EPA is promulgating a rule that sets out the Agency's new view of the legal consequences of a failure to attain by the deadlines in Part D. Specifically, EPA is amending 40 CFR 52.24(a) to clarify that the Section 110(a)(2)(I) ban does not apply in nonattainment, nonextension areas with fully approved Part D plans that failed to attain by December 31, 1982. This amendment also provides that the moratorium will not apply in extension areas with fully approved 1979 and 1982 Part D submittals.

Second, EPA is withdrawing its proposal to amend 40 CFR 52.24(k). This will continue to postpone construction bans for eighteen months in areas designated nonattainment after July 1, 1979.

EPA regards these actions as interpretive rules of nationwide scope and applicability that restate some of the Act's requirements for all nonattainment areas. Consequently, they are effective upon publication. Under Section 307(b), any petition for review of these actions must be filed in the U.S. Court of Appeals for the District of Columbia Circuit within 60 days of the date this notice appears in the **Federal Register.**

VI. Miscellaneous

A. Executive Order 12291 and Regulatory Flexibility Act

Under Executive Order 12291, the final actions EPA is taking today are not "Major" because they have no immediate impact in any area. In addition, they limit the scope of the construction ban under the Clean Air Act. T‥ actions have been submitted to the O‥e of Management and Budget (OMB) for review. Any comments from OMB to EPA and any response are available for public inspection in the docket.

Under the Regulatory Flexibility Act, 5 U.S.C. 600 *et seq.*, EPA must prepare a regulatory flexibility analysis unless the Agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. As noted above, today's final actions do not impose construction bans or have any other impacts on any small entities. Consequently, the Agency certifies that today's action has no significant impacts.

List of Subjects in 40 CFR Part 52

Air pollution control, Ozone, Sulfur oxides, Nitrogen dioxide, Lead, Particulate matter, Carbon monoxide, Hydrocarbons.

Authority: Sections 101, 107, 110, 116, 171-178, 301(a) and 316 of the Clean Air Act, as amended (42 U.S.C. 7401, 7407, 7410, 7416, 7501–08, 7601(a), and 7616); Section 129(a) of the Clean Air Act Amendments of 1977 (Pub. L. No. 95–95, 91 Stat. 685 (August 7, 1977).

Dated: October 27, 1983.

William D. Ruckelshaus,

Administrator

PART 52—[AMENDED]

Part 52 of Title 40 of the Code of Federal Regulations is amended as follows:

1. Section 52.24 is amended by revising paragraph (a) to read as follows:

§ 52.24 Statutory restriction on new sources.

(a) After June 30, 1979, no major stationary source shall be constructed or modified in any nonattainment area as designated in 40 CFR Part 81, Subpart C ("nonattainment area") to which any State implementation plan applies, if the emissions from such facility will cause or contribute to concentrations of any pollutant for which a national ambient air quality standard is exceeded in such area, unless, as of the time of application for a permit for such construction, such plan meets the requirements of Part D, Title I, of the Clean Air Act, as amended (42 U.S.C. 7501 *et seq.*) ("Part D"). This section shall not apply to any nonattainment area once EPA has fully approved the State implementation plan for the area as meeting the requirements of Part D.

* * * * *

[FR Doc. 83-29725 Filed 11-1-83; 8:45 am]
BILLING CODE 6560-50-M

REFERENCES FOR SECTION 7.1

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

AUTHORITY: This rulemaking is promulgated under authority of sections 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act 42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a).

SOURCE: 36 FR 22398, Nov. 25, 1971, unless otherwise noted.

EDITORIAL NOTE: Nomenclature changes affecting Part 51 appear at 44 FR 8237, Feb. 8, 1979 and 51 FR 40661, Nov. 7, 1986.

Subparts A–C—[Reserved]

Subpart D—Maintenance of National Standards

SOURCE: 41 FR 18388, May 3, 1976, unless otherwise noted.

§ 51.40 Scope.

(a) *Applicability.* The requirements of this subpart apply to air quality maintenance areas (AQMAs) identified under § 51.110(i) and to any areas identified under § 51.110(l).

(b) *AQMA Analysis.* Under this subpart, procedures are given for the analysis of the air quality impact of specified pollutant emissions from existing sources and emissions associated with projected growth and development in areas identified under paragraphs (i) and (l) of § 51.110. This analysis is referred to in this subpart as an AQMA analysis.

(c) *AQMA Plan.* Under this subpart, the Administrator will require a revision to the State implementation plan for areas identified under § 51.110(i) or § 51.110(l) when necessary to prevent a national ambient air quality standard

ternative control strategies, as well as the costs and benefits of each such alternative for attainment or maintenance of the national standard.

(h) The plan shall identify those areas (counties, urbanized areas, standard metropolitan statistical areas, et cetera) which, due to current air quality and/or projected growth rate, may have the potential for exceeding any national standard within the subsequent 10-year period.

(1) For each such area identified, the plan shall generally describe the intended method and timing for producing the analysis and plan required by paragraph (g) of this section.

(2) The area identification and description of method and timing required by this paragraph shall be submitted no later than May 10, 1974.

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

(i) Based on the information submitted by the State pursuant to paragraph (e) of this section, the Administrator will publish by August 31, 1975, a list of the areas which shall be subject to the requirements of paragraph (g) of this section.

(j) For each area identified by the Administrator pursuant to paragraph (f) of this section, the State shall submit an air quality analysis and, if called for by the Administrator, a plan revision following the procedures of Subpart D.

(k)(1) For all areas of the State, the State implementation plan shall, by May 3, 1976, provide for a procedure for the continual acquisition of information used in projecting emissions.

(2) The plan shall provide that at intervals of no more than 5 years, all areas of the State shall be assessed to determine if any areas are in need of plan revisions.

(3) The State shall retain the data gathered and the written assessment made under paragraphs (h)(1) and (2) of this section, and make them available for public inspection and submit them to the Administrator at his request.

(4) The State shall notify the Administrator if an area is undergoing an amount of development such that it presents the potential for a violation of national standards within a period of 20 years.

(l) Whenever the Administrator calls for a plan revision he may, without publishing the area in Part 52 of this chapter, require the revision be developed in accordance with the procedures of Subpart D.

[51 FR 40661 Nov. 7, 1986 as amended at 51 FR 40665, Nov. 7, 1986]

§ 51.111 Description of control measures.

Each plan must set forth a control strategy which includes the following:

(a) A description of each control measure that is incorporated into the plan, and a schedule for its implementation.

(b) Copies of the enforceable laws and regulations to implement the measures adopted in the plan.

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

(d) A description of enforcement methods including, but not limited to:

(1) Procedures for monitoring compliance with each of the selected control measures,

(2) Procedures for handling violations, and

(3) A designation of agency responsibility for enforcement of implementation.

§ 51.112 Demonstration of adequacy.

(a) Each plan must demonstrate that the measures, rules, and regulations contained in it are adequate to provide for the timely attainment and maintenance of the national standard that it implements. The adequacy of a control strategy shall be demonstrated by means of a proporational model or dispersion model or other procedure which is shown to be adequate and appropriate for such purposes.

(b) The demonstration must include the following:

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

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

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

(4) A description of the dispersion models used to project air quality and to evaluate control strategies.

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

§ 51.113 Time period for demonstration of adequacy.

(a) The demonstration of the adequacy of the control strategy to attain a primary standard required under § 51.112 must cover the following periods:

(1) At least three years from the date by which the Administrator must approve or disapprove the plan, if no extension under Subpart R is granted, or

(2) At least five years from the date by which the Administrator must approve or disapprove the plan, if an extension under Subpart R is granted.

(b) The demonstration of adequacy to attain a secondary standard required under § 51.112 must cover the period of time determined to be reasonable under § 51.110(c) for attainment of such secondary standard.

§ 51.114 Emissions data and projections.

(a) Except for lead, each plan must contain a detailed inventory of emissions from point and area sources. Lead requirements are specified in § 51.117. The inventory must be based upon measured emissions or, where measured emissions are not available, documented emission factors.

(b) Each plan must contain a summary of emission levels projected to result from application of the new control strategy.

(c) Each plan must identify the sources of the data used in the projection of emissions.

§ 51.115 Air quality data and projections.

(a) Each plan must contain a summary of data showing existing air quality.

(b) Each plan must:

(1) Contain a summary of air quality concentrations expected to result from application of the control strategy, and

(2) Identify and describe the dispersion model, other air quality model, or receptor model used.

(c) Actual measurements of air quality must be used where available if made by methods specified in Appendix C to Part 58 of this chapter. Estimated air quality using appropriate modeling techniques may be used to supplement measurements.

(d) For purposes of developing a control strategy, background concentration shall be taken into consideration with respect to particulate matter. As used in this subpart, background concentration is that portion of the measured ambient levels that cannot be reduced by controlling emissions from man-made sources.

(e) In developing an ozone control strategy for a particular area, background ozone concentrations and ozone transported into an area must be considered. States may assume that the ozone standard will be attained in upwind areas.

§ 51.116 Data availability.

(a) The State must retain all detailed data and calculations used in the preparation of each plan or each plan revision, and 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 plan revisions are not considered a part of the plan.

(c) Each plan must provide for public availability of emission data reported by source owners or operators or otherwise obtained by a State or local agency. Such emission data must be correlated with applicable emission limitations or other measures. As used in this paragraph, "correlated" means presented in such a manner as to show the relationship between measured or

submitted in accordance with § 51.6(d). Substantive revisions shall include but are not limited to changes in stack-test procedures for determining compliance with applicable regulations, modifications in the projected total manpower needs to carry out the approved plan, and all changes in responsibilities given to local agencies to carry out various portions of the plan.

§ 51.327 Enforcement orders and other State actions.

(a) Any State enforcement order, including any State court order, must be submitted to the Administrator within 60 days of its issuance or adoption by the State.

(b) A State enforcement order or other State action must be submitted as a revision to the applicable implementation plan pursuant to § 51.104 and approved by the Administrator in order to be considered a revision to such plan.

[36 FR 22398, Nov. 25, 1971, as amended at 51 FR 40675, Nov. 7, 1986]

§ 51.328 [Reserved]

Subpart R—Extensions

SOURCE: 51 FR 40675, Nov. 7, 1986, unless otherwise noted.

§ 51.340 Request for 2-year extension.

(a) The Governor of a State may, at the time of submission of a plan to implement a primary standard, request the Administrator to extend, for a period not exceeding 2 years, the 3-year period prescribed by the Act for attainment of the primary standard in such region.

(b) Any such request regarding an interstate region must be submitted jointly with the requests of Governors of all States in the region, or shall show that the Governor of each State in the region has been notified of such a request.

(c) Any such request regarding attainment of a primary standard must be submitted together with a plan which shall:

(1) Set forth a control strategy adequate for attainment of such primary standard.

(2) Show that the necessary techology or alternatives will not be available soon enough to permit full implementation of such control strategy within such 3-year period, i.e., one or more emission sources or classes of sources will be unable to comply with applicable portions of the control strategy.

(3) Provide for attainment of such primary standard as expeditiously as practicable, but in no case later than 5 years after the date of the Administrator's approval of such plan.

(d) Any showing pursuant to paragraph (c) of this section must include the following:

(1) A clear identification of stationary emission sources or classes of moving sources which will be unable to comply with the applicable portions of such control strategy within a 3-year period because the necessary technology or alternatives will not be available soon enough to permit such compliance.

(2) A clear identification and justification of any assumptions made with the respect to the time at which the necessary technology or alternatives will be available.

(3) A clear identification of any alternative means of attainment of such primary standard which were considered and rejected.

(4) A showing that stationary emission sources or classes of moving sources other than those identified pursuant to paragraph (d)(1) of this section will be required to comply, within such 3-year period, with any applicable portions of such control strategy.

(5) A showing that reasonable interim control measures are provided for in such plan with respect to emissions from the source(s) identified pursuant to paragraph (d)(1) of this section.

§ 51.341 Request for 18-month extension.

(a) Upon request of the State made in accordance with this section, the Administrator may, whenever he determines necessary, extend, for a period not to exceed 18 months, the deadline for submitting that portion of a plan that implements a secondary standard.

(b) Any such request must show that attainment of the secondary standards will require emission reductions exceeding those which can be achieved through the application of reasonably available control technology.

(c) Any such request for extension of the deadline with respect to any State's portion of an interstate region must be submitted jointly with requests for such extensions from all other States within the region or must show that all such States have been notified of such request.

(d) Any such request must be submitted sufficiently early to permit development of a plan prior to the deadline in the event that such request is denied.

APPENDICES A-K—[Reserved]

APPENDIX L—EXAMPLE REGULATIONS FOR PREVENTION OF AIR POLLUTION EMERGENCY EPISODES

The example regulations presented herein reflect generally recognized ways of preventing air pollution from reaching levels that would cause imminent and substantial endangerment to the health of persons. States are required under Subpart H to have emergency episodes plans but they are not required to adopt the regulations presented herein.

1.0 *Air pollution emergency.* This regulation is designed to prevent the excessive buildup of air pollutants during air pollution episodes, thereby preventing the occurrence of an emergency due to the effects of these pollutants on the health of persons.

1.1 *Episode criteria.* Conditions justifying the proclamation of an air pollution alert, air pollution warning, or air pollution emergency shall be deemed to exist whenever the Director determines that the accumulation of air pollutants in any place is attaining or has attained levels which could, if such levels are sustained or exceeded, lead to a substantial threat to the health of persons. In making this determination, the Director will be guided by the following criteria:

(a) "Air Pollution Forecast": An internal watch by the Department of Air Pollution Control shall be actuated by a National Weather Service advisory that Atmospheric Stagnation Advisory is in effect or the equivalent local forecast of stagnant atmospheric condition.

(b) "Alert": The Alert level is that concentration of pollutants at which first stage control actions is to begin. An Alert will be declared when any one of the following levels is reached at any monitoring site:

SO_2—800 µg/m³ (0.3 p.p.m.), 24-hour average.

PM_{10}—350 µg/m³, 24-hour average.

CO—17 mg/m³ (15 p.p.m.), 8-hour average.

Ozone (O_3)=400 µg/m³ (0.2 ppm)-hour average.

NO_2—1130 µg/m³ (0.6 p.p.m.), 1-hour average, 282 µg/m³ (0.15 p.p.m.), 24-hour average.

In addition to the levels listed for the above pollutants, meterological conditions are such that pollutant concentrations can be expected to remain at the above levels for twelve (12) or more hours or increase, or in the case of ozone, the situation is likely to reoccur within the next 24-hours unless control actions are taken.

(c) "Warning": The warning level indicates that air quality is continuing to degrade and that additional control actions are necessary. A warning will be declared when any one of the following levels is reached at any monitoring site:

SO_2—1,600 µg/m³ (0.6 p.p.m.), 24-hour average.

PM_{10}—420 µg/m³, 24-hour average.

CO—34 mg/m³ (30 p.p.m.), 8-hour average.

Ozone (O_3)—800 µg/m³ (0.4 p.p.m.), 1-hour average.

NO_2—2,260 µg/m³ (1.2 ppm)—1-hour average; 565µg/m³ (0.3 ppm), 24-hour average.

In addition to the levels listed for the above pollutants, meterological conditions are such that pollutant concentrations can be expected to remain at the above levels for twelve (12) or more hours or increase, or in the case of ozone, the situation is likely to reoccur within the next 24-hours unless control actions are taken.

(d) "Emergency": The emergency level indicates that air quality is continuing to degrade toward a level of significant harm to the health of persons and that the most stringent control actions are necessary. An emergency will be declared when any one of the following levels is reached at any monitoring site:

SO_2—2,100 µg/m³ (0.8 p.p.m.), 24-hour average.

PM_{10}—500 µg/m³, 24-hour average.

CO—46 mg/m³ (40 p.p.m.), 8-hour average.

Ozone (O_3)—1,000 µg/m³ (0.5 p.p.m.), 1-hour average.

NO_2-3,000 µg/m³ (1.6 ppm), 1-hour average; 750 µg/m³ (0.4 ppm), 24-hour average.

In addition to the levels listed for the above pollutants, meterological conditions are such that pollutant concentrations can be expected to remain at the above levels for twelve (12) or more hours or increase, or in the case of ozone, the situation is likely the regions which are significantly impacted by such plan or schedule or revision.

(6) In the case of hearings on AQMA plans:

(i) Notification to the chief executives of affected local governments, planning agencies, transportation agencies, environmental control agencies, economic development agencies, and any other affected States, and

(ii) Public notice of alternative analysis and plan development procedures approved under § 51.63.

(e) The State must prepare and retain, for inspection by the Administrator upon request, a record of each hearing. The record must contain, as a minimum, a list of witnesses together with the text of each presentation.

(f) The State must submit with the plan, revision, or schedule a certification that the hearing required by paragraph (a) of this section was held in accordance with the notice required by paragraph (d) of this section.

(g) Upon written application by a State agency (through the appropriate Regional Office), the Administrator may approve State procedures for public hearings. The following criteria apply:

(1) Procedures approved under this section shall be deemed to satisfy the requirement of this part regarding public hearings.

(2) Procedures different from this part may be approved if they—

(i) Ensure public participation in matters for which hearings are required; and

(ii) Provide adequate public notification of the opportunity to participate.

(3) The Administrator may impose any conditions on approval he or she deems necessary.

§ 51.103 Submission of plans, preliminary review of plans.

(a) The State makes an official submission to the Administrator when it delivers five copies of the plan to the appropriate Regional Office and a letter to the Administrator giving notice of such action. The State must adopt the plan and the Governor or his designee, must submit it to the Administrator as follows:

(1) For any primary standard, or revision thereof, within 9 months after promulgation of such standard.

(2) For any secondary standard, or revision thereof, within 9 months after promulgation of such secondary standard or by such later date prescribed or by such later date prescribed by the Administrator under Subpart R of this part.

(b) Upon request of a State, the Administrator will provide preliminary review of a plan or portion thereof submitted in advance of the date such plan is due. Such requests must be made in writing to the appropriate Regional Office and must be accompanied by five copies of the materials to be reviewed. Requests for preliminary review do not relieve a State of the responsibility of adopting and submitting plans in accordance with prescribed due dates.

§ 51.104 Revisions.

(a) The plan shall be revised from time to time, as may be necessary, to take account of:

(1) Revisions of national standards,

(2) The availability of improved or more expeditious methods of attaining such standards, such as improved technology or emission charges or taxes, or

(3) A finding by the Administrator that the plan is substantially inadequate to attain or maintain the national standard which it implements, or to otherwise comply with any applicable additional requirements established under the Clean Air Act Amendments of 1977.

(b) The State must revise the plan within 60 days following notification by the Administrator under paragraph (a)(3) of this section, or by such later date prescribed by the Administrator after consultation with the State.

(c) States may revise the plan from time to time consistent with the requirements applicable to implementation plans under this part.

(d) The States must submit any revision of any regulation or any compliance schedule under paragraph (c) of this section to the Administrator no later than 60 days after its adoption.

(e) The State must identify and describe revisions other than those covered by paragraphs (a) and (d) of this section.

(f) EPA will approve revisions only after applicable hearing requirements of § 51.102 have been satisfied.

(g) In order for a variance to be considered for approval as a revision to the State implementation plan, the State must submit it in accordance with the requirements of this section.

§ 51.105 Approval of plans.

The Administrator will approve any plan, or portion thereof, or any revision of such plan, or portion thereof, if he or she determines that it meets the requirements of the Act. Revisions of a plan, or any portion thereof, will not be considered part of an applicable plan until such revisions have been approved by the Administrator in accordance with this part.

Subpart G—Control Strategy

SOURCE: 51 FR 40665, Nov. 7, 1986, unless otherwise noted.

§ 51.110 Attainment and maintenance of national standards.

(a) Each plan must set forth a control strategy that provides the degree of emission reductions necessary for attainment and maintenance of the national air quality standards. The emission reductions must be sufficient to offset any increases in air quality concentrations that are expected to result from emission increases due to projected growth of population, industrial activity, motor vehicle traffic, or other factors.

(b) Each plan providing for the attainment of a primary standard or revision of it must do so as expeditiously as practicable. The attainment period must not be longer than three years after the date of the Administrator's approval of the plan, unless the State obtains an extension under Subpart R of this part. Each plan must also provide for the maintenance of the standard after it has been attained.

(c)(1) Each plan must provide for the attainment of a secondary standard within a reasonable time after the date of the Administrator's approval of the plan, and must provide for the maintenance of the standard after it has been attained.

(2) "Reasonable time" is defined in two ways as follows:

(i) "Reasonable time" for attainment of a secondary standard must not be more than three years from plan submission unless the State shows that good cause exists for postponing application of the control technology. This definition applies only in a region where the degree of emission reduction necessary for attainment of the secondary standard can be achieved through the application of reasonably available control technology.

(ii) "Reasonable time" will depend on the degree of emission reduction needed for attainment of the secondary standard and on the social, economic, and technological problems involved in carrying out a control strategy adequate for attainment of the secondary standard. This definition applies only in a region where application of reasonably available control technology will not be sufficient for attainment of the secondary standard in three years.

(d) Each plan providing for the attainment of a primary or secondary standard must specify the projected attainment date.

(e) The plan for each Region must have adequate provisions to ensure that stationary sources from within that Region will not:

(1) Prevent attainment and maintenance of any national standard in any portion of an interstate Region or any other Region.

(2) Interfere with measures required to be included in the applicable implementation plan for any such Region to prevent significant deterioration of air quality or to protect visibility.

(f) For purposes of developing a control strategy, data derived from measurements of existing ambient levels of a pollutant may be adjusted to reflect the extent to which occasional natural or accidental phenomena, e.g., dust storms, forest fires, industrial accidents, demonstrably affected such ambient levels during the measurement period.

(g) During developing of the plan, EPA encourages States to identify al-

ternative control strategies, as well as the costs and benefits of each such alternative for attainment or maintenance of the national standard.

(h) The plan shall identify those areas (counties, urbanized areas, standard metropolitan statistical areas, et cetera) which, due to current air quality and/or projected growth rate, may have the potential for exceeding any national standard within the subsequent 10-year period.

(1) For each such area identified, the plan shall generally describe the intended method and timing for producing the analysis and plan required by paragraph (g) of this section.

(2) The area identification and description of method and timing required by this paragraph shall be submitted no later than May 10, 1974.

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

(i) Based on the information submitted by the State pursuant to paragraph (e) of this section, the Administrator will publish by August 31, 1975, a list of the areas which shall be subject to the requirements of paragraph (g) of this section.

(j) For each area identified by the Administrator pursuant to paragraph (i) of this section, the State shall submit an air quality analysis and, if called for by the Administrator, a plan revision following the procedures of Subpart D.

(k)(1) For all areas of the State, the State implementation plan shall, by May 3, 1978, provide for a procedure for the continual acquisition of information used in projecting emissions.

(2) The plan shall provide that at intervals of no more than 5 years, all areas of the State shall be assessed to determine if any areas are in need of plan revisions.

(3) The State shall retain the data gathered and the written assessment made under paragraphs (k)(1) and (2) of this section, and make them available for public inspection and submit them to the Administrator at his request.

(4) The State shall notify the Administrator if an area is undergoing an amount of development such that it presents the potential for a violation of national standards within a period of 20 years.

(l) Whenever the Administrator calls for a plan revision he may, without publishing the area in Part 52 of this chapter, require the revision be developed in accordance with the procedures of Subpart D.

[51 FR 40661 Nov. 7, 1986 as amended at 51 FR 40665, Nov. 7, 1986]

§ 51.111 Description of control measures.

Each plan must set forth a control strategy which includes the following:

(a) A description of each control measure that is incorporated into the plan, and a schedule for its implementation.

(b) Copies of the enforceable laws and regulations to implement the measures adopted in the plan.

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

(d) A description of enforcement methods including, but not limited to:

(1) Procedures for monitoring compliance with each of the selected control measures,

(2) Procedures for handling violations, and

(3) A designation of agency responsibility for enforcement of implementation.

§ 51.112 Demonstration of adequacy.

(a) Each plan must demonstrate that the measures, rules, and regulations contained in it are adequate to provide for the timely attainment and maintenance of the national standard that it implements. The adequacy of a control strategy shall be demonstrated by means of a proporational model or dispersion model or other procedure which is shown to be adequate and appropriate for such purposes.

(b) The demonstration must include the following:

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

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

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

(4) A description of the dispersion models used to project air quality and to evaluate control strategies.

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

§ 51.113 Time period for demonstration of adequacy.

(a) The demonstration of the adequacy of the control strategy to attain a primary standard required under § 51.112 must cover the following periods:

(1) At least three years from the date by which the Administrator must approve or disapprove the plan, if no extension under Subpart R is granted, or

(2) At least five years from the date by which the Administrator must approve or disapprove the plan. If an extension under Subpart R is granted.

(b) The demonstration of adequacy to attain a secondary standard required under § 51.112 must cover the period of time determined to be reasonable under § 51.110(c) for attainment of such secondary standard.

§ 51.114 Emissions data and projections.

(a) Except for lead, each plan must contain a detailed inventory of emissions from point and area sources. Lead requirements are specified in § 51.117. The inventory must be based upon measured emissions or, where measured emissions are not available, documented emission factors.

(b) Each plan must contain a summary of emission levels projected to result from application of the new control strategy.

(c) Each plan must identify the sources of the data used in the projection of emissions.

§ 51.115 Air quality data and projections.

(a) Each plan must contain a summary of data showing existing air quality.

(b) Each plan must:

(1) Contain a summary of air quality concentrations expected to result from application of the control strategy, and

(2) Identify and describe the dispersion model, other air quality model, or receptor model used.

(c) Actual measurements of air quality must be used where available if made by methods specified in Appendix C to Part 58 of this chapter. Estimated air quality using appropriate modeling techniques may be used to supplement measurements.

(d) For purposes of developing a control strategy, background concentration shall be taken into consideration with respect to particulate matter. As used in this subpart, background concentration is that portion of the measured ambient levels that cannot be reduced by controlling emissions from man-made sources.

(e) In developing an ozone control strategy for a particular area, background ozone concentrations and ozone transported into an area must be considered. States may assume that the ozone standard will be attained in upwind areas.

§ 51.116 Data availability.

(a) The State must retain all detailed data and calculations used in the preparation of each plan or each plan revision, and 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 plan revisions are not considered a part of the plan.

(c) Each plan must provide for public availability of emission data reported by source owners or operators or otherwise obtained by a State or local agency. Such emission data must be correlated with applicable emission limitations or other measures. As used in this paragraph, "correlated" means presented in such a manner as to show the relationship between measured or

REFERENCES FOR SECTION 7.2

SUBCHAPTER C—AIR PROGRAMS

PART 50—NATIONAL PRIMARY AND SECONDARY AMBIENT AIR QUALITY STANDARDS

AUTHORITY: Secs. 109 and 301(a), Clean Air Act, as amended (42 U.S.C. 7409, 7601(a)).

SOURCE: 36 FR 22384, Nov. 25, 1971, unless otherwise noted.

§ 50.1 Definitions.

(a) As used in this part, all terms not defined herein shall have the meaning given them by the Act.

(b) "Act" means the Clean Air Act, as amended (42 U.S.C. 1857-18571, as amended by Pub. L. 91-604).

(c) "Agency" means the Environmental Protection Agency.

(d) "Administrator" means the Administrator of the Environmental Protection Agency.

(e) "Ambient air" means that portion of the atmosphere, external to buildings, to which the general public has access.

(f) "Reference method" means a method of sampling and analyzing the ambient air for an air pollutant that is specified as a reference method in an appendix to this part, or a method that has been designated as a reference method in accordance with Part 53 of this chapter; it does not include a method for which a reference method designation has been cancelled in accordance with § 53.11 or § 53.16 of this chapter.

(g) "Equivalent method" means a method of sampling and analyzing the ambient air for an air pollutant that has been designated as an equivalent method in accordance with Part 53 of this chapter; it does not include a method for which an equivalent method designation has been cancelled in accordance with § 53.11 or § 53.16 of this chapter.

(h) "Traceable" means that a local standard has been compared and certified either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM), or a USEPA/NBS-approved Certified Reference Material (CRM).

[36 FR 22384, Nov. 25, 1971, as amended at 41 FR 11253, Mar. 17, 1976; 48 FR 2529, Jan. 20, 1983]

§ 50.2 Scope.

(a) National primary and secondary ambient air quality standards under section 109 of the Act are set forth in this part.

(b) National primary ambient air quality standards define levels of air quality which the Administrator judges are necessary, with an adequate margin of safety, to protect the public health. National secondary ambient air quality standards define levels of air quality which the Administrator judges necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Such standards are subject to revision, and additional primary and secondary standards may be promulgated as the Administrator deems necessary to protect the public health and welfare.

(c) The promulgation of national primary and secondary ambient air quality standards shall not be considered in any manner to allow significant deterioration of existing air quality in any portion of any State.

(d) The proposal, promulgation, or revision of national primary and secondary ambient air quality standards shall not prohibit any State from establishing ambient air quality standards for that State or any portion thereof which are more stringent than the national standards.

§ 50.3 Reference conditions.

All measurements of air quality are corrected to a reference temperature of 25° C. and to a reference pressure of 760 millimeters of mercury (1,013.2 millibars).

§ 50.4 National primary ambient air quality standards for sulfur oxides (sulfur dioxide).

The national primary ambient air quality standards for sulfur oxides measured as sulfur dioxide by the reference method described in Appendix A to this part, or by an equivalent method, are:

(a) 80 micrograms per cubic meter (0.03 p.p.m.)—annual arithmetic mean.

(b) 365 micrograms per cubic meter (0.14 p.p.m.)—Maximum 24-hour concentration not to be exceeded more than once per year.

§ 50.5 National secondary ambient air quality standards for sulfur oxides (sulfur dioxide).

The national secondary ambient air quality standard for sulfur oxide measured as sulfur dioxide by the reference method described in Appendix A to this part, or by any equivalent method is 1,300 micrograms per cubic meter (0.5 p.p.m.) maximum 3-hour concentration not to be exceeded more than once per year.

[38 FR 25681, Sept. 14, 1973]

§ 50.6 National primary and secondary ambient air quality standards for particulate matter.

(a) The level of the national primary and secondary 24-hour ambient air quality standards for particulate matter is 150 micrograms per cubic meter ($\mu g/m^3$), 24-hour average concentration. The standards are attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$, as determined in accordance with Appendix K to this part, is equal to or less than one.

(b) The level of the national primary and secondary annual standards for particulate matter is 50 micrograms per cubic meter ($\mu g/m^3$), annual arithmetic mean. The standards are attained when the expected annual arithmetic mean concentration, as determined in accordance with Appendix K to this part, is less than or equal to 50 $\mu g/m^3$.

(c) For the purpose of determining attainment of the primary and secondary standards, particulate matter shall be measured in the ambient air as PM_{10} (particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers) by:

(1) A reference method based on Appendix J and designated in accordance with Part 53 of this chapter, or

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EPA-450/2-78-027R

Guideline On Air Quality Models (Revised)

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

July 1986

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

Authority: This rulemaking is promulgated under authority of sections 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act 42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a).

Source: 36 FR 22398, Nov. 25, 1971, unless otherwise noted.

Editorial Note: Nomenclature changes affecting Part 51 appear at 44 FR 8237, Feb. 8, 1979 and 51 FR 40661, Nov. 7, 1986.

Subparts A-C—[Reserved]

Subpart D—Maintenance of National Standards

Source: 41 FR 18388, May 3, 1976, unless otherwise noted.

§ 51.40 Scope.

(a) *Applicability.* The requirements of this subpart apply to air quality maintenance areas (AQMAs) identified under § 51.110(i) and to any areas identified under § 51.110(l).

(b) *AQMA Analysis.* Under this subpart, procedures are given for the analysis of the air quality impact of specified pollutant emissions from existing sources and emissions associated with projected growth and development in areas identified under paragraphs (i) and (l) of § 51.110. This analysis is referred to in this subpart as an AQMA analysis.

(c) *AQMA Plan.* Under this subpart, the Administrator will require a revision to the State implementation plan for areas identified under § 51.110(i) or § 51.110(l) when necessary to prevent a national ambient air quality standard

Office of Air Quality Planning and Standards, (MD-15) Research Triangle Park, NC 27711.))

(E) All emission reductions claimed as offset credit shall be federally enforceable;

(F) Procedures relating to the permissible location of offsetting emissions shall be followed which are at least as stringent as those set out in 40 CFR Part 51 Appendix S section IV.D.

(G) Credit for an emissions reduction can be claimed to the extent that the reviewing authority has not relied on it in issuing any permit under regulations approved pursuant to 40 CFR Part 51 Subpart I or the State has not relied on it in demonstration attainment or reasonable further progress.

(4) Each plan may provide that the provisions of this paragraph do not apply to a source or modification that would be a major stationary source or major modification only if fugitive emission to the extent quantifiable are considered in calculating the potential to emit of the stationary source or modification and the source does not belong to any of the following categories:

(i) Coal cleaning plants (with thermal dryers);

(ii) Kraft pulp mills;

(iii) Portland cement plants;

(iv) Primary zinc smelters;

(v) Iron and steel mills;

(vi) Primary aluminum ore reduction plants;

(vii) Primary copper smelters;

(viii) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(ix) Hydrofluoric, sulfuric, or citric acid plants;

(x) Petroleum refineries;

(xi) Lime plants;

(xii) Phosphate rock processing plants;

(xiii) Coke oven batteries;

(xiv) Sulfur recovery plants;

(xv) Carbon black plants (furnace process);

(xvi) Primary lead smelters;

(xvii) Fuel conversion plants;

(xviii) Sintering plants;

(xix) Secondary metal production plants;

(xx) Chemical process plants;

(xxi) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(xxii) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(xxiii) Taconite ore processing plants;

(xxiv) Glass fiber processing plants;

(xxv) Charcoal production plants;

(xxvi) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

(xxvii) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

(5) Each plan shall include enforceable procedures to provide that:

(i) Approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provision of the plan and any other requirements under local, State or Federal law.

(ii) At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforcement limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of regulations approved pursuant to this section shall apply to the source or modification as though construction had not yet commenced on the source or modification;

(b)(1) Each plan shall include a preconstruction review permit program or its equivalent to satisfy the requirements of section 110(a)(2)(D)(i) of the Act for any new major stationary source or major modification as defined in paragraphs (a)(1) (iv) and (v) of this section. Such a program shall apply to any such source or modification that would locate in any area designated as attainment or unclassifiable for any national ambient air quality standard pursuant to section 107 of the Act, when it would cause or contribute to a violation of any national ambient air quality standard.

(2) A major source or major modification will be considered to cause or contribute to a violation of a national ambient air quality standard when such source or modification would, at a minimum, exceed the following significance levels at any locality that does not or would not meet the applicable national standard:

	Annual	Averaging time (hours)			
		24	8	3	1
Pollutant					
SO_2	1.0 µg/m³	5 µg/m³		25 µg/m³	
PM_{10}	1.0 µg/m³	5 µg/m³			
NO_2	1.0 µg/m³				
CO			0.5 mg/m³		2 mg/m³

(3) Such a program may include a provision which allows a proposed major source or major modification subject to paragraph (b) of this section to reduce the impact of its emissions upon air quality by obtaining sufficient emission reductions to, at a minimum, compensate for its adverse ambient impact where the major source or major modification would otherwise cause or contribute to a violation of any national ambient air quality standard. The plan shall require that, in the absence of such emission reductions, the State or local agency shall deny the proposed construction.

(4) The requirements of paragraph (b) of this section shall not apply to a major stationary source or major modification with respect to a particular pollutant if the owner or operator demonstrates that, as to that pollutant, the source or modification is located in an area designated as nonattainment pursuant to section 107 of the Act.

[51 FR 40669, Nov. 7, 1986, as amended at 52 FR 24713, July 1, 1987; 52 FR 29386, Aug 7, 1987]

§ 51.166 Prevention of significant deterioration of air quality.

(a)(1) *Plan requirements.* In accordance with the policy of section 101(b)(1) of the act and the purposes of section 160 of the Act, each applicable State implementation plan shall contain emission limitations and such other measures as may be necessary to prevent significant deterioration of air quality.

(2) *Plan Revisions.* If a State Implementation Plan revision would result in increased air quality deterioration over any baseline concentration, the plan revision shall include a demonstration that it will not cause or contribute to a violation of the applicable increment(s). If a plan revision proposing less restrictive requirements was submitted after August 7, 1977 but on or before any applicable baseline date and was pending action by the Administrator on that date, no such demonstration is necessary with respect to the area for which a baseline date would be established before final action is taken on the plan revision. Instead, the assessment described in paragraph (a)(4) of this section, shall review the expected impact to the applicable increment(s).

(3) *Required plan revision.* If the State or the Administrator determines that a plan is substantially inadequate to prevent significant deterioration or that an applicable increment is being violated, the plan shall be revised to correct the inadequacy or the violation. The plan shall be revised within 60 days of such a finding by a State or within 60 days following notification by the Administrator, or by such later date as prescribed by the Administrator after consultation with the State.

(4) *Plan assessment.* The State shall review the adequacy of a plan on a periodic basis and within 60 days of such time as information becomes available that an applicable increment is being violated.

(5) *Public participation.* Any State action taken under this paragraph shall be subject to the opportunity for public hearing in accordance with procedures equivalent to those established in § 51.102.

(6) *Amendments.* (i) Any State required to revise its implementation plan by reason of an amendment to this section, including any amendment adopted simultaneously with this paragraph, shall adopt and submit such plan revision to the Administrator for approval within 9 months after the effective date of the new amendments.

(ii) Any revision to an implementation plan that would amend the provisions for the prevention of significant air quality deterioration in the plan shall specify when and as to what sources and modifications the revision is to take effect.

(iii) Any revision to an implementation plan that an amendment to this section required shall take effect no later than the date of its approval and may operate prospectively.

(b) *Definitions.* All state plans shall use the following definitions for the purposes of this section. Deviations from the following wording will be approved only if the state specifically demonstrates that the submitted definition is more stringent, or at least as stringent, in all respects as the corresponding definitions below:

(1)(i) "Major stationary source" means:

(*a*) Any of the following stationary sources of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any pollutant subject to regulation under the Act: Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants, and charcoal production plants;

(*b*) Notwithstanding the stationary source size specified in paragraph (b)(1)(i)(*a*) of this section, any stationary source which emits, or has the potential to emit, 250 tons per year or more of any air pollutant subject to regulation under the Act; or

(*c*) Any physical change that would occur at a stationary source not otherwise qualifying under paragraph (b)(1) of this section, as a major stationary source if the change would constitute a major stationary source by itself.

(ii) A major source that is major for volatile organic compounds shall be considered major for ozone.

(iii) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this section whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

(*a*) Coal cleaning plants (with thermal dryers);

(*b*) Kraft pulp mills;

(*c*) Portland cement plants;

(*d*) Primary zinc smelters;

(*e*) Iron and steel mills;

(*f*) Primary aluminum ore reduction plants;

(*g*) Primary copper smelters;

(*h*) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(*i*) Hydrofluoric, sulfuric, or nitric acid plants;

(*j*) Petroleum refineries;

(*k*) Lime plants;

(*l*) Phosphate rock processing plants;

(*m*) Coke oven batteries;

(*n*) Sulfur recovery plants;

(*o*) Carbon black plants (furnace process);

(*p*) Primary lead smelters;

(*q*) Fuel conversion plants;

(*r*) Sintering plants;

(*s*) Secondary metal production plants;

(*t*) Chemical process plants;

(*u*) Fossil-fuel boilers (or combination thereof) totaling more than 250

million British thermal units per hour heat input;

(*v*) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(*w*) Taconite ore processing plants;

(*x*) Glass fiber processing plants;

(*y*) Charcoal production plants;

(*z*) Fossil fuel-fired steam electric plants of more that 250 million British thermal units per hour heat input;

(*aa*) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

(2)(i) "Major modification" means any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.

(ii) Any net emissions increase that is significant for volatile organic compounds shall be considered significant for ozone.

(iii) A physical change or change in the method of operation shall not include:

(*a*) Routine maintenance, repair, and replacement;

(*b*) Use of an alternative fuel or raw material by reason of any order under section 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plan pursuant to the Federal Power Act;

(*c*) Use of an alternative fuel by reason of an order or rule under section 125 of the Act;

(*d*) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(*e*) Use of an alternative fuel or raw material by a stationary source which:

(*1*) The source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975 pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or § 51.166; or

(*2*) The source is approved to use under any permit issued under 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.166;

(*f*) An increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975, pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or § 51.166.

(*g*) Any change in ownership at a stationary source.

(3)(i) "Net emissions increase" means the amount by which the sum of the following exceeds zero:

(*a*) Any increase in actual emissions from a particular physical change or change in the method of operation at a stationary source; and

(*b*) Any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable.

(ii) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs within a reasonable period (to be specified by the state) before the date that the increase from the particular change occurs.

(iii) An increase or decrease in actual emissions is creditable only if the reviewing authority has not relied on it in issuing a permit for the source under regulations approved pursuant to this section, which permit is in effect when the increase in actual emissions from the particular change occurs.

(iv) An increase or decrease in actual emissions of sulfur dioxide or particulate matter which occurs before the applicable baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available.

(v) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

(vi) A decrease in actual emissions is creditable only to the extent that:

(*a*) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

(*b*) It is federally enforceable at and after the time that actual construction on the particular change begins; and

(*c*) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

(vii) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

(4) "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

(5) "Stationary source" means any building, structure, facility, or installation which emits or may emit any air pollutant subject to regulation under the Act.

(6) "Building, structure, facility, or installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same two-digit code) as described in the *Standard Industrial Classification Manual, 1972*, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively).

(7) "Emissions unit" means any part of a stationary source which emits or would have the potential to emit any pollutant subject to regulation under the Act.

(8) "Construction" means any physical change or change in the method of operation (including fabrication, erection, installation, demolition, or modification of an emissions unit) which would result in a change in actual emissions.

(9) "Commence" as applied to construction of a major stationary source or major modification means that the owner or operator has all necessary preconstruction approvals or permits and either has:

(i) Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

(ii) Entered into binding agreements or contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time.

(10) "Necessary preconstruction approvals or permits" means those permits or approvals required under federal air quality control laws and regulations and those air quality control laws and regulations which are part of the applicable State Implementation Plan.

(11) "Begin actual construction" means, in general, initiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipework, and construction of permanent storage structures. With respect to a change in method of operation this term refers to those on-site activities, other than preparatory activities, which mark the initiation of the change.

(12) "Best available control technology" means an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Act which would

be emitted from any proposed major stationary source or major modification which the reviewing authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combination techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61. If the reviewing authority determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.

(13)(i) "Baseline concentration" means that ambient concentration level which exists in the baseline area at the time of the applicable baseline date. A baseline concentration is determined for each pollutant for which a baseline date is established and shall include:

(*a*) The actual emissions representative of sources in existence on the applicable baseline date, except as provided in paragraph (b)(13)(ii) of this section;

(*b*) The allowable emissions of major stationary sources which commenced construction before January 6, 1975, but were not in operation by the applicable baseline date.

(ii) The following will not be included in the baseline concentration and will affect the applicable maximum allowable increase(s):

(*a*) Actual emission from any major stationary source on which construction commenced after January 6, 1975; and

(*b*) Actual emissions increases and decreases at any stationary source occurring after the baseline date.

(14)(i) "Baseline date" means the earliest date after August 7, 1977, that:

(*a*) A major stationary source or major modification subject to 40 CFR 52.21 submits a complete application under that section; or

(*b*) A major stationary source or major modificatioin subject to regulations approved pursuant to 40 CFR 51.166 submits a complete application under such regulations.

(ii) The baseline date is established for each pollutant for which increments or other equivalent measures have been established if:

(*a*) The area in which the proposed source or modification would construct is designated as attainment or unclassifiable under section 107(d)(1) (D) or (E) of the Act for the pollutant on the date of its complete application under 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.166; and

(*b*) In the case of a major stationary source, the pollutant would be emitted in significant amounts, or, in the case of a major modification, there would be a significant net emissions increase of the pollutant.

(15)(i) "Baseline area" means any intrastate area (and every part thereof) designated as attainment or unclassifiable under section 107(d)(1) (D) or (E) of the Act in which the major source or major modification establishing the baseline date would construct or would have an air quality impact equal to or greater than 1 $\mu g/m^3$ (annual average) of the pollutant for which the baseline date is established.

(ii) Area redesignations under section 107(d)(1) (D) or (E) of the Act cannot intersect or be smaller than the area of impact of any major stationary source or major modification which:

(*a*) Establishes a baseline date; or

(*b*) Is subject to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.166, and would be constructed in the same state as the state proposing the redesignation.

(16) "Allowable emissions" means the emissions rate of a stationary source calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable limits which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

(i) The applicable standards as set forth in 40 CFR Parts 60 and 61;

(ii) The applicable State Implementation Plan emissions limitation, including those with a future compliance date; or

(iii) The emissions rate specified as a federally enforceable permit condition.

(17) "Federally enforceable" means all limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable State Implementation Plan, and any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.18 or 51.166.

(18) "Secondary emissions" means emissions which occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. For the purposes of this section, secondary emissions must be specific, well defined, quantifiable, and impact the same general areas the stationary source modification which causes the secondary emissions. Secondary emissions include emissions from any offsite support facility which would not be constructed or increase its emissions except as a result of the construction or operation of the major stationary source or major modification. Secondary emissions do not include any emissions which come directly from a mobile source, such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel.

(19) "Innovative control technology" means any system of air pollution control that has not been adequately demonstrated in practice, but would have a substantial likelihood of achieving greater continuous emissions reduction than any control system in current practice or of achieving at least comparable reductions at lower cost in terms of energy, economics, or nonair quality environmental impacts.

(20) "Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

(21)(i) "Actual emissions" means the actual rate of emissions of a pollutant from an emissions unit, as determined in accordance with paragraphs (b)(21)(ii) through (iv) of this section.

(ii) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operation. The reviewing authority may allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

(iii) The reviewing authority may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(iv) For any emissions unit which has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

(22) "Complete" means, in reference to an application for a permit, that the application contains all the information necessary for processing the application. Designating an application complete for purposes of permit processing does not preclude the reviewing authority from requesting or accepting any additional information.

(23)(i) "Significant" means, in reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant and Emissions Rate

Carbon monoxide: 100 tons per year (tpy)
Nitrogen oxides: 40 tpy
Sulfur dioxide: 40 tpy
Particulate matter: 25 tpy of particulate matter emissions. 15 tpy of PM_{10} emissions.
Ozone: 40 tpy of volatile organic compounds
Lead: 0.6 tpy
Asbestos: 0.007 tpy
Beryllium: 0.0004 tpy
Mercury: 0.1 tpy
Vinyl chloride: 1 tpy
Fluorides: 3 tpy
Sulfuric acid mist: 7 tpy
Hydrogen sulfide (H_2S): 10 tpy
Total reduced sulfur (including H_2S): 10 tpy
Reduced sulfur compounds (including H_2S): 10 tpy

(ii) "Significant" means, in reference to a net emissions increase or the potential of a source to emit a pollutant subject to regulation under the Act that paragraph (b)(23)(i) of this section, does not list, any emissions rate.

(iii) Notwithstanding paragraph (b)(23)(i) of this section, "significant" means any emissions rate or any net emissions increase associated with a major stationary source or major modification, which would construct within 10 kilometers of a Class I area, and have an impact on such area equal to or greater than 1 μg/m³ (24-hour average).

(24) "Federal Land Manager" means, with respect to any lands in the United States, the Secretary of the department with authority over such lands.

(25) "High terrain" means any area having an elevation 900 feet or more above the base of the stack of a source.

(26) "Low terrain" means any area other than high terrain.

(27) "Indian Reservation" means any federally recognized reservation established by Treaty, Agreement, Executive Order, or Act of Congress.

(28) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

(c) *Ambient air increments.* The plan shall contain emission limitations and such other measures as may be necessary to assure that in areas designated as Class I, II, or III, increases in pollutant concentration over the baseline concentration shall be limited to the following:

Pollutant	Maximum allowable increase (micrograms per cubic meter)
CLASS I	
Particulate matter:	
TSP, annual geometric mean	5
TSP, 24-hr maximum	10
Sulfur dioxide:	
Annual arithmetic mean	2
24-hr maximum	5
3-hr maximum	25
CLASS II	
Particulate matter:	
TSP, annual geometric mean	19
TSP, 24-hr maximum	37
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	512
Class III	
Particulate matter:	
TSP, annual geometric mean	37
TSP, 24-hr maximum	75
Sulfur dioxide:	
Annual arithmetic mean	40
24-hr maximum	182
3-hr maximum	700

For any period other than an annual period, the applicable maximum allowable increase may be exceeded during one such period per year at any one location.

(d) *Ambient air ceilings.* The plan shall provide that no concentration of a pollutant shall exceed:

(1) The concentration permitted under the national secondary ambient air quality standard, or

(2) The concentration permitted under the national primary ambient air quality standard, whichever concentration is lowest for the pollutant for a period of exposure.

(e) *Restrictions on area classifications.* The plan shall provide that—

(1) All of the following areas which were in existence on August 7, 1977, shall be Class I areas and may not be redesignated:

(i) International parks,

(ii) National wilderness areas which exceed 5,000 acres in size,

(iii) National memorial parks which exceed 5,000 acres in size, and

(iv) National parks which exceed 6,000 acres in size.

(2) Areas which were redesignated as Class I under regulations promulgated before August 7, 1977, shall remain Class I, but may be redesignated as provided in this section.

(3) Any other area, unless otherwise specified in the legislation creating such an area, is initially designated Class II, but may be redesignated as provided in this section.

(4) The following areas may be redesignated only as Class I or II:

(i) An area which as of August 7, 1977, exceeded 10,000 acres in size and was a national monument, a national primitive area, a national preserve, a national recreational area, a national wild and scenic river, a national wildlife refuge, a national lakeshore or seashore; and

(ii) A national park or national wilderness area established after August 7, 1977, which exceeds 10,000 acres in size.

(f) *Exclusions from increment consumption.* (1) The plan may provide that the following concentrations shall be excluded in determining compliance with a maximum allowable increase:

(i) Concentrations attributable to the increase in emissions from stationary sources which have converted from the use of petroleum products, natural gas, or both by reason of an order in effect under section 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) over the emissions from such sources before the effective date of such an order;

(ii) Concentrations attributable to the increase in emissions from sources which have converted from using natural gas by reason of natural gas curtailment plan in effect pursuant to the Federal Power Act over the emissions from such sources before the effective date of such plan;

(iii) Concentrations of particulate matter attributable to the increase in emissions from construction or other temporary emission-related activities of new or modified sources;

(iv) The increase in concentrations attributable to new sources outside the United States over the concentrations attributable to existing sources which are included in the baseline concentration; and

(v) Concentrations attributable to the temporary increase in emissions of sulfur dioxide or particulate matter from stationary sources which are affected by plan revisions approved by the Administrator as meeting the criteria specified in paragraph (f)(4) of this section.

(2) If the plan provides that the concentrations to which paragraph (f)(1) (i) or (ii) of this section, refers shall be excluded, it shall also provide that no exclusion of such concentrations shall apply more than five years after the effective date of the order to which paragraph (f)(1)(i) of this section, refers or the plan to which paragraph (f)(1)(ii) of this section, refers, whichever is applicable. If both such order and plan are applicable, no such exclusion shall apply more than five years after the later of such effective dates.

(3) No exclusion under paragraph (f) of this section shall occur later than 9 months after August 7, 1980, unless a State Implementation Plan revision meeting the requirements of 40 CFR 51.166 has been submitted to the Administrator.

(4) For purposes of excluding concentrations pursuant to paragraph (f)(1)(v) of this section, the Administrator may approve a plan revision that:

(i) Specifies the time over which the temporary emissions increase of sulfur dioxide or particulate matter would occur. Such time is not to exceed two years in duration unless a longer time is approved by the Administrator;

(ii) Specifies that the time period for excluding certain contributions in accordance with paragraph (f)(4)(i) of this section, is not renewable;

(iii) Allows no emissions increase from a stationary source which would:

(*a*) Impact a Class I area or an area where an applicable increment is known to be violated; or

(*b*) Cause or contribute to the violation of a national ambient air quality standard;

(iv) Requires limitations to be in effect the end of the time period specified in accordance with paragraph (f)(4)(i) of this section, which would ensure that the emissions levels from stationary sources affected by the plan revision would not exceed those levels occurring from such sources before the plan revision was approved.

(g) *Redesignation.* (1) The plan shall provide that all areas of the State (except as otherwise provided under paragraph (e) of this section) shall be designated either Class I, Class II, or Class III. Any designation other than Class II shall be subject to the redesignation procedures of this paragraph. Redesignation (except as otherwise precluded by paragraph (e) of this section) may be proposed by the respective States or Indian Governing Bodies, as provided below, subject to approval by the Administrator as a revision to the applicable State implementation plan.

(2) The plan may provide that the State may submit to the Administrator a proposal to redesignate areas of the State Class I or Class II: *Provided,* That:

(i) At least one public hearing has been held in accordance with procedures established in § 51.102.

(ii) Other States, Indian Governing Bodies, and Federal Land Managers whose lands may be affected by the proposed redesignation were notified at least 30 days prior to the public hearing;

(iii) A discussion of the reasons for the proposed redesignation, including a satisfactory description and analysis of the health, environmental, economic, social, and energy effects of the proposed redesignation, was prepared and made available for public inspection at least 30 days prior to the hearing and the notice announcing the hearing contained appropriate notification of the availability of such discussion;

(iv) Prior to the issuance of notice respecting the redesignation of an area that includes any Federal lands, the State has provided written notice to the appropriate Federal Land Manager and afforded adequate opportunity (not in excess of 60 days) to confer with the State respecting the redesignation and to submit written comments and recommendations. In redesignating any area with respect to which any Federal Land Manager had submitted written comments and recommendations, the State shall have published a list of any inconsistency between such redesignation and such comments and recommendations (together with the reasons for making such redesignation against the recommendation of the Federal Land Manager); and

(v) The State has proposed the redesignation after consultation with the elected leadership of local and other substate general purpose governments in the area covered by the proposed redesignation.

(3) The plan may provide that any area other than an area to which paragraph (e) of this section refers may be redesignated as Class III if—

(i) The redesignation would meet the requirements of provisions established in accordance with paragraph (g)(2) of this section;

(ii) The redesignation, except any established by an Indian Governing Body, has been specifically approved by the Governor of the State, after consultation with the appropriate committees of the legislature, if it is in session, or with the leadership of the legislature, if it is not in session (unless State law provides that such redesignation must be specifically approved by State legislation) and if general purpose units of local government representing a majority of the residents of the area to be redesignated enact legislation (including resolutions where appropriate) concurring in the redesignation;

(iii) The redesignation would not cause, or contribute to, a concentration of any air pollutant which would exceed any maximum allowable increase permitted under the classification of any other area or any national ambient air quality standard; and

(iv) Any permit application for any major stationary source or major modification subject to provisions established in accordance with paragraph (l) of this section which could receive a permit only if the area in question were redesignated as Class III, and any material submitted as part of that application, were available, insofar as was practicable, for public inspection prior to any public hearing on redesignation of any area as Class III.

(4) The plan shall provide that lands within the exterior boundaries of Indian Reservations may be redesignated only by the appropriate Indian Governing Body. The appropriate Indian Governing Body may submit to the Administrator a proposal to redesignate areas Class I, Class II, or Class III: *Provided*, That:

(i) The Indian Governing Body has followed procedures equivalent to those required of a State under paragraphs (g) (2), (3)(iii), and (3)(iv) of this section; and

(ii) Such redesignation is proposed after consultation with the State(s) in which the Indian Reservation is located and which border the Indian Reservation.

(5) The Administrator shall disapprove, within 90 days of submission, a proposed redesignation of any area only if he finds, after notice and opportunity for public hearing, that such redesignation does not meet the procedural requirements of this section or is inconsistent with paragraph (e) of this section. If any such disapproval occurs, the classification of the area shall be that which was in effect prior to the redesignation which was disapproved.

(6) If the Administrator disapproves any proposed area designation, the State or Indian Governing Body, as appropriate, may resubmit the proposal after correcting the deficiencies noted by the Administrator.

(h) *Stack heights*. The plan shall provide, as a minimum, that the degree of emission limitation required for control of any air pollutant under the plan shall not be affected in any manner by—

(1) So much of a stack height, not in existence before December 31, 1970, as exceeds good engineering practice, or

(2) Any other dispersion technique not implemented before then.

(i) *Review of major stationary sources and major modifications—source applicability and exemptions.*

(1) The plan shall provide that no major stationary source or major modification shall begin actual construction unless, as a minumum, requirements equivalent to those contained in paragraphs (j) through (r) of this section have been met.

(2) The plan shall provide that the requirements equivalent to those contained in paragraphs (j) through (r) of this section shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the Act that it would emit, except as this section would otherwise allow.

(3) The plan shall provide that requirements equivalent to those contained in paragraphs (j) through (r) of this section apply only to any major stationary source or major modification that would be constructed in an area which is designated as attainment or unclassifiable under section 107(a)(1)(D) or (E) of the Act; and

(4) The plan may provide that requirements equivalent to those contained in paragraphs (j) through (r) of this section do not apply to a particular major stationary source or major modification if:

(i) The major stationary source would be a nonprofit health or nonprofit educational institution or a major modification that would occur at such an institution; or

(ii) The source or modification would be a major stationary source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit of the stationary source or modification and such source does not belong to any following categories:

(*a*) Coal cleaning plants (with thermal dryers);

(*b*) Kraft pulp mills;

(*c*) Portland cement plants;

(*d*) Primary zinc smelters;

(*e*) Iron and steel mills;

(*f*) Primary aluminum ore reduction plants;

(*g*) Primary copper smelters;

(*h*) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(*i*) Hydrofluoric, sulfuric, or nitric acid plants;

(*j*) Petroleum refineries;

(*k*) Lime plants;

(*l*) Phosphate rock processing plants;

(*m*) Coke oven batteries;

(*n*) Sulfur recovery plants;

(*o*) Carbon black plants (furnace process);

(*p*) Primary lead smelters;

(*q*) Fuel conversion plants;

(*r*) Sintering plants;

(*s*) Secondary metal production plants;

(*t*) Chemical process plants;

(*u*) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(*v*) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(*w*) Taconite ore processing plants;

(*x*) Glass fiber processing plants;

(*y*) Charcoal production plants;

(*z*) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

(*aa*) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act; or

(iii) The source or modification is a portable stationary source which has previously received a permit under requirements equivalent to those contained in paragraphs (j) through (r) of this section, if:

(*a*) The source proposes to relocate and emissions of the source at the new location would be temporary; and

(*b*) The emissions from the source would not exceed its allowable emissions; and

(*c*) The emissions from the source would impact no Class I area and no area where an applicable increment is known to be violated; and

(*d*) Reasonable notice is given to the reviewing authority prior to the relocation identifying the proposed new location and the probable duration of operation at the new location. Such notice shall be given to the reviewing authority not less than 10 days in advance of the proposed relocation unless a different time duration is previously approved by the reviewing authority.

(5) The plan may provide that requirements equivalent to those contained in paragraphs (j) through (r) of this section do not apply to a major stationary source or major modification with respect to a particular pollutant if the owner or operator demonstrates that, as to that pollutant, the source or modification is located in an area designated as nonattainment under section 107 of the Act.

(6) The plan may provide that requirements equivalent to those contained in paragraphs (k), (m), and (o) of this section do not apply to a proposed major stationary source or major modification with respect to a particular pollutant, if the allowable emissions of that pollutant from a new source, or the net emissions increase of that pollutant from a modification, would be temporary and impact no Class I area and no area where an applicable increment is known to be violated.

(7) The plan may provide that requirements equivalent to those contained in paragraphs (k), (m), and (o) of this section as they relate to any maximum allowable increase for a Class II area do not apply to a modification of a major stationary source that was in existence on March 1, 1978, if the net increase in allowable emissions of each pollutant subject to regulation under the Act from the modification after the application of best available control technology would be less than 50 tons per year.

(8) The plan may provide that the reviewing authority may exempt a proposed major stationary source or major modification from the requirements of paragraph (m) of this section, with respect to monitoring for a particular pollutant, if:

(i) The emissions increase of the pollutant from a new stationary source or the net emissions increase of the pollutant from a modification would cause, in any area, air quality impacts less than the following amounts:

(*a*) Carbon monoxide—575 ug/m^3, 8-hour average;

(*b*) Nitrogen dioxide—14 ug/m^3, annual average;

(*c*) Particulate matter—10 $\mu g/m^3$ TSP, 24-hour average.—10 $\mu g/m^3$ PM_{10}, 24-hour average.

(*d*) Sulfur dioxide—13 ug/m^3, 24-hour average;

(e) Ozone; [1]

(f) Lead—0.1 μg/m³, 3-month average.

(g) Mercury—0.25 ug/m³, 24-hour average;

(h) Beryllium—0.001 μg/m³, 24-hour average;

(i) Fluorides—0.25 ug/m³, 24-hour average;

(j) Vinyl chloride—15 ug/m³, 24-hour average;

(k) Total reduced sulfur—10 ug/m³, 1-hour average;

(l) Hydrogen sulfide—0.2 μg/m³, 1-hour average:

(m) Reduced sulfur compounds—10 ug/m³, 1-hour average; or

(ii) The concentrations of the pollutant in the area that the source or modification would affect are less than the concentrations listed in (i)(8)(i) of this section; or

(iii) The pollutants is not listed in paragraph (i)(8)(i) of this section.

(9) If EPA approves a plan revision under 40 CFR 51.166 as in effect before August 7, 1980, any subsequent revision which meets the requirements of this section may contain transition provisions which parallel the transition provisions of 40 CFR 52.21(i)(9), (i)(10) and (m)(1)(v) as in effect on that date, which provisions relate to requirements for best available control technology and air quality analyses. Any such subsequent revision may not contain any transition provision which in the context of the revision would operate any less stringently than would its counterpart in 40 CFR 52.21.

(10) If EPA approves a plan revision under § 51.166 as in effect [before July 31, 1987], any subsequent revision which meets the requirements of this section may contain transition provisions which parallel the transition provisions of § 52.21 (i)(11), and (m)(1)(vii) and (viii) of this chapter as in effect on that date, these provisions being related to monitoring requirements for particulate matter. Any such subsequent revision may not contain any transition provision which in the context of the revision would operate any less stringently than would its counterpart in § 52.21 of this chapter.

(j) *Control technology review.* The plan shall provide that:

(1) A major stationary source or major modification shall meet each applicable emissions limitation under the State Implementation Plan and each applicable emission standards and standard of performance under 40 CFR Parts 60 and 61.

(2) A new major stationary source shall apply best available control technology for each pollutant subject to regulation under the Act that it would have the potential to emit in significant amounts.

(3) A major modification shall apply best available control technology for each pollutant subject to regulation under the Act for which it would be a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit.

(4) For phased construction projects, the determination of best available control technology shall be reviewed and modified as appropriate at the least reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source.

(k) *Source impact analysis.* The plan shall provide that the owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reduction (including secondary emissions) would not cause or contribute to air pollution in violation of:

(1) Any national ambient air quality standard in any air quality control region; or

[1] No *de minimis* air quality level is provided for ozone. However, any net increase of 100 tons per year or more of volatile organic compounds subject to PSD would be required to perform and ambient impact analysis, including the gathering of ambient air quality data.

(2) Any applicable maximum allowable increase over the baseline concentration in any area.

(l) *Air quality models.* The plan shall provide for procedures which specify that—

(1) All estimates of ambient concentrations required under this paragraph shall be based on the applicable air quality models, data bases, and other requirements specified in the "Guideline on Air Quality Models (Revised)" (1986) and Supplement A (1987) which are incorporated by reference. The guideline (EPA Publication No. 450/2-78-027R) and Supplement A (1987) are for sale from the U.S. Department of Commerce, National Technical Information Service, 5825 Port Royal Road, Springfield, Virginia 22161. They are also available for inspection at the Office of the Federal Register Information Center, Room 8301, 1100 L Street NW., Washington, DC 20408. These materials are incorporated as they exist on the date of approval and a notice of any change will be published in the Federal Register.

(2) Where an air quality impact model specified in the "Guideline on Air Quality Models (Revised)" (1986) and Supplement A (1987) are inappropriate, the model may be modified or another model substituted. Such a modification or substitution of a model may be made on a case-by-case basis or, where appropriate, on a generic basis for a specific state program. Written approval of the Administrator must be obtained for any modification or substitution. In addition, use of a modified or substituted model must be subject to notice and opportunity for public comment under procedures developed in accordance with paragraph (q) of this section.

(m) *Air quality analysis*—(1) *Preapplication analysis.* (i) The plan shall provide that any application for a permit under regulations approved pursuant to this section shall contain an analysis of ambient air quality in the area that the major stationary source or major modification would affect for each of the following pollutants:

(*a*) For the source, each pollutant that it would have the potential to emit in a significant amount;

(*b*) For the modification, each pollutant for which it would result in a significant net emissions increase.

(ii) The plan shall provide that, with respect to any such pollutant for which no National Ambient Air Quality Standard exists, the analysis shall contain such air quality monitoring data as the reviewing authority determines is necessary to assess ambient air quality for that pollutant in any area that the emissions of that pollutant would affect.

(iii) The plan shall provide that with respect to any such pollutant (other than nonmethane hydrocarbons) for which such a standard does exist, the analysis shall contain continuous air quality monitoring data gathered for purposes of determining whether emissions of that pollutant would cause or contribute to a violation of the standard or any maxiumum allowable increase.

(iv) The plan shall provide that, in general, the continuous air monitoring data that is required shall have been gathered over a period of one year and shall represent the year preceding receipt of the application, except that, if the reviewing authority determines that a complete and adequate analysis can be accomplished with monitoring data gathered over a period shorter than one year (but not to be less than four months), the data that is required shall have been gathered over at least that shorter period.

(v) The plan may provide that the owner or operator of a proposed major stationary source or major modification of volatile organic compounds who satisfies all conditions of 40 CFR Part 51 Appendix S, section IV may provide postapproval monitoring data for ozone in lieu of providing preconstruction data as required under paragraph (m)(1) of this section.

(2) *Post-construction monitoring.* The plan shall provide that the owner or operator of a major stationary source or major modification shall, after construction of the stationary source or modification, conduct such ambient monitoring as the reviewing authority determines is necessary to determine the effect emissions from the stationary source or modification

may have, or are having, on air quality in any area.

(3) *Operation of monitoring stations.* The plan shall provide that the owner or operator of a major stationary source or major modification shall meet the requirements of Appendix B to Part 58 of this chapter during the operation of monitoring stations for purposes of satisfying paragraph (m) of this section.

(n) *Source information.* (1) The plan shall provide that the owner or operator of a proposed source or modification shall submit all information necessary to perform any analysis or make any determination required under procedures established in accordance with this section.

(2) The plan may provide that such information shall include:

(i) A description of the nature, location, design capacity, and typical operating schedule of the source or modification, including specifications and drawings showing its design and plant layout;

(ii) A detailed schedule for construction of the source or modification;

(iii) A detailed description as to what system of continuous emission reduction is planned by the source or modification, emission estimates, and any other information as necessary to determine that best available control technology as applicable would be applied;

(3) The plan shall provide that upon request of the State, the owner or operator shall also provide information on:

(i) The air quality impact of the source or modification, including meteorological and topographical data necessary to estimate such impact; and

(ii) The air quality impacts and the nature and extent of any or all general commercial, residential, industrial, and other growth which has occurred since August 7, 1977, in the area the source or modification would affect.

(o) *Additional impact analyses.* The plan shall provide that—

(1) The owner or operator shall provide an analysis of the impairment to visibility, soils, and vegetation that would occur as a result of the source or modification and general commercial, residential, industrial, and other growth associated with the source or modification. The owner or operator need not provide an analysis of the impact on vegetation having no significant commercial or recreational value.

(2) The owner or operator shall provide an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the source or modification.

(p) *Sources impacting Federal Class I areas—additional requirements*—(1) *Notice to EPA.* The plan shall provide that the reviewing authority shall transmit to the Administrator a copy of each permit application relating to a major stationary source or major modification and provide notice to the Administrator of every action related to the consideration of such permit.

(2) *Federal Land Manager.* The Federal Land Manager and the Federal official charged with direct responsibility for management of Class I lands have an affirmative responsibility to protect the air quality related values (including visibility) of any such lands and to consider, in consultation with the Administrator, whether a proposed source or modification would have an adverse impact on such values.

(3) *Denial—impact on air quality related values.* The plan shall provide a mechanism whereby a Federal Land Manager of any such lands may present to the State, after the reviewing authority's preliminary determination required under procedures developed in accordance with paragraph (r) of this section, a demonstration that the emissions from the proposed source or modification would have an adverse impact on the air quality-related values (including visibility) of any Federal mandatory Class I lands, notwithstanding that the change in air quality resulting from emissions from such source or modification would not cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the State concurs with such demonstration, the reviewing authority shall not issue the permit.

(4) *Class I Variances.* The plan may provide that the owner or operator of a proposed source or modification may

demonstrate to the Federal Land Manager that the emissions from such source would have no adverse impact on the air quality related values of such lands (including visibility), notwithstanding that the change in air quality resulting from emissions from such source or modification would cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the Federal Land Manager concurs with such demonstration and so certifies to the State, the reviewing authority may: *Provided,* That applicable requirements are otherwise met, issue the permit with such emission limitations as may be necessary to assure that emissions of sulfur dioxide and particulate matter would not exceed the following maximum allowable increases over baseline concentration for such pollutants:

	Maximum allowable increase (micrograms per cubic meter)
Particulate matter:	
TSP, annual geometric mean	19
TSP, 24-hr maximum	37
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr. maximum	91
3-hr. maximum	325

(5) *Sulfur dioxide variance by Governor with Federal Land Manager's concurrence.* The plan may provide that—

(i) The owner or operator of a proposed source or modification which cannot be approved under procedures developed pursuant to paragraph (q)(4) of this section may demonstrate to the Governor that the source or modification cannot be constructed by reason of any maximum allowable increase for sulfur dioxide for periods of twenty-four hours or less applicable to any Class I area and, in the case of Federal mandatory Class I areas, that a variance under this clause would not adversely affect the air quality related values of the area (including visibility);

(ii) The Governor, after consideration of the Federal Land Manager's recommendation (if any) and subject to his concurrence, may grant, after notice and an opportunity for a public hearing, a variance from such maximum allowable increase; and

(iii) If such variance is granted, the reviewing authority may issue a permit to such source or modification in accordance with provisions developed pursuant to paragraph (q)(7) of this section: *Provided,* That the applicable requirements of the plan are otherwise met.

(6) *Variance by the Governor with the President's concurrence.* The plan may provide that—

(i) The recommendations of the Governor and the Federal Land Manager shall be transferred to the President in any case where the Governor recommends a variance in which the Federal Land Manager does not concur;

(ii) The President may approve the Governor's recommendation if he finds that such variance is in the national interest; and

(iii) If such a variance is approved, the reviewing authority may issue a permit in accordance with provisions developed pursuant to the requirements of paragraph (q)(7) of this section: *Provided,* That the applicable requirements of the plan are otherwise met.

(7) *Emission limitations for Presidential or gubernatorial variance.* The plan shall provide that in the case of a permit issued under procedures developed pursuant to paragraph (q) (5) or (6) of this section, the source or modification shall comply with emission limitations as may be necessary to assure that emissions of sulfur dioxide from the source or modification would not (during any day on which the otherwise applicable maximum allowable increases are exceeded) cause or contribute to concentrations which would exceed the following maximum allowable increases over the baseline concentration and to assure that such emissions would not cause or contribute to concentrations which exceed the otherwise applicable maximum allowable increases for periods of exposure of 24 hours or less for more than 18 days, not necessarily consecutive, during any annual period:

MAXIMUM ALLOWABLE INCREASE

[Micrograms per cubic meter]

Period of exposure	Terrain areas	
	Low	High
24-hr maximum	36	62
3-hr maximum	130	221

(q) *Public participation.* The plan shall provide that—

(1) The reviewing authority shall notify all applicants within a specified time period as to the completeness of the application or any deficiency in the application or information submitted. In the event of such a deficiency, the date of receipt of the application shall be the date on which the reviewing authority received all required information.

(2) Within one year after receipt of a complete application, the reviewing authority shall:

(i) Make a preliminary determination whether construction should be approved, approved with conditions, or disapproved.

(ii) Make available in at least one location in each region in which the proposed source would be constructed a copy of all materials the applicant submitted, a copy of the preliminary determination, and a copy or summary of other materials, if any, considered in making the preliminary determination.

(iii) Notify the public, by advertisement in a newspaper of general circulation in each region in which the proposed source would be constructed, of the application, the preliminary determination, the degree of increment consumption that is expected from the source or modification, and of the opportunity for comment at a public hearing as well as written public comment.

(iv) Send a copy of the notice of public comment to the applicant, the Administrator and to officials and agencies having cognizance over the location where the proposed construction would occur as follows: any other State or local air pollution control agencies, the chief executives of the city and county where the source would be located; any comprehensive regional land use planning agency, and any State, Federal Land Manager, or Indian Governing body whose lands may be affected by emissions from the source or modification.

(v) Provide opportunity for a public hearing for interested persons to appear and submit written or oral comments on the air quality impact of the source, alternatives to it, the control technology required, and other appropriate considerations.

(vi) Consider all written comments submitted within a time specified in the notice of public comment and all comments received at any public hearing(s) in making a final decision on the approvability of the application. The reviewing authority shall make all comments available for public inspection in the same locations where the reviewing authority made available preconstruction information relating to the proposed source or modification.

(vii) Make a final determination whether construction should be approved, approved with conditions, or disapproved.

(viii) Notify the applicant in writing of the final determination and make such notification available for public inspection at the same location where the reviewing authority made available preconstruction information and public comments relating to the source.

(r) *Source obligation.* (1) The plan shall include enforceable procedures to provide that approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the plan and any other requirements under local, State or Federal law.

(2) The plan shall provide that at such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of paragraphs (j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification.

(s) *Innovative control technology.* (1) The plan may provide that an owner or operator of a proposed major stationary source or major modification may request the reviewing authority to approve a system of innovative control technology.

(2) The plan may provide that the reviewing authority may, with the consent of the governor(s) of other affected state(s), determine that the source or modification may employ a system of innovative control technology, if:

(i) The proposed control system would not cause or contribute to an unreasonable risk to public health, welfare, or safety in its operation or function;

(ii) The owner or operator agrees to achieve a level of continuous emissions reduction equivalent to that which would have been required under paragraph (j)(2) of this section, by a date specified by the reviewing authority. Such date shall not be later than 4 years from the time of startup or 7 years from permit issuance;

(iii) The source or modification would meet the requirements equivalent to those in paragraphs (j) and (k) of this section, based on the emissions rate that the stationary source employing the system of innovative control technology would be required to meet on the date specified by the reviewing authority;

(iv) The source or modification would not before the date specified by the reviewing authority:

(a) Cause or contribute to any violation of an applicable national ambient air quality standard; or

(b) Impact any Class I area; or

(c) Impact any area where an applicable increment is known to be violated;

(v) All other applicable requirements including those for public participation have been met.

(3) The plan shall provide that the reviewing authority shall withdraw any approval to employ a system of innovative control technology made under this section, if:

(i) The proposed system fails by the specified date to achieve the required continuous emissions reduction rate; or

(ii) The proposed system fails before the specified date so as to contribute to an unreasonable risk to public health, welfare, or safety; or

(iii) The reviewing authority decides at any time that the proposed system is unlikely to achieve the required level of control or to protect the public health, welfare, or safety.

(4) The plan may provide that if a source or modification fails to meet the required level of continuous emissions reduction within the specified time period, or if the approval is withdrawn in accordance with paragraph (s)(3) of this section, the reviewing authority may allow the source or modification up to an additional 3 years to meet the requirement for the application of best available control technology through use of a demonstrated system of control.

(Secs. 101(b)(1), 110, 160-169, 171-178, and 301(a), Clean Air Act, as amended (42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a)); sec. 129(a), Clean Air Act Amendments of 1977 (Pub. L. 95-95, 91 Stat. 685 (Aug. 7, 1977)))

[43 FR 26382, June 19, 1978; 43 FR 40010, Sept. 8, 1978, as amended at 44 FR 27569, May 10, 1979; 45 FR 52729, Aug. 7, 1980; 47 FR 27560, June 25, 1982; 49 FR 43209, Oct. 26, 1984; 51 FR 32176, Sept. 9, 1986. Redesignated and amended at 51 FR 40669, 40675, Nov. 7, 1986; 52 FR 24713, July 1, 1987; 52 FR 29386, Aug. 7, 1987; 53 FR 390, Jan. 6, 1988]

Subpart J—Ambient Air Quality Surveillance

AUTHORITY: Secs. 110, 301(a), 313, 319, Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

§ 51.190 Ambient air quality monitoring requirements.

The requirements for monitoring ambient air quality for purposes of the plan are located in Subpart C of Part 58 of this chapter.

[44 FR 27569, May 10, 1979]

Subpart K—Source Surveillance

SOURCE: 51 FR 40673, Nov. 7, 1986, unless otherwise noted.

REFERENCES FOR SECTION 7.3

Authority: Secs. 1–19, 48 Stat. 31, as amended; 7 U.S.C. 601–674.

2. Section 959.229 is added to read as follows:

§ 959.229 Expenses and assessment rate.

Expenses of $372,675 by the South Texas Onion Committee are authorized and an assessment rate of $0.056 per 50-pound container or equivalent quantity of regulated onions is established for the fiscal period ending July 31, 1989. Unexpended funds may be carried over as a reserve.

Dated: January 13, 1989.

William J. Doyle,

Associate Deputy Director, Fruit and Vegetable Division.

[FR Doc. 89–1250 Filed 1–18–89; 8:45 am]

BILLING CODE 3410–02–M

DEPARTMENT OF THE TREASURY

31 CFR Part 103

Extension of Time for Comments on Proposed Bank Secrecy Act Regulations

AGENCY: Departmental Offices, Treasury.

ACTION: Advance notice of proposed rulemaking, extension of comment period.

SUMMARY: Notice is hereby given that the Department of the Treasury is extending the comment period on the Advance Notice of Proposed Rulemaking Relating to Identification Requirements Required to Purchase Bank Checks, Cashier's Checks, Traveler's Checks and Money Orders, published in the **Federal Register** on December 23, 1988 (53 FR 51846). The Treasury Department has determined that more time is needed for the public to review and comment on the proposal.

DATE: Comments now will be accepted through February 15, 1989.

ADDRESS: Comments should be addressed to Amy G. Rudnick, Director, Office of Financial Enforcement, Department of the Treasury, Room 4320, 1500 Pennsylvania Avenue, NW., Washington, DC 20220.

FOR FURTHER INFORMATION CONTACT: Kathleen A. Scott, Attorney Advisor, Office of the Assistant General Counsel (Enforcement), (202) 566–8947.

Dated: January 13, 1989.

Salvatore R. Martoche,

Assistant Secretary (Enforcement).

[FR Doc. 89–1204 Filed 1–18–89; 8:45 am]

BILLING CODE 4810–25–M

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 51

[FRL–3428–2]

State Implementation Plan Completeness Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of Proposed Rulemaking.

SUMMARY: This notice describes the procedure for assessing whether a State implementation plan (SIP) submittal is adequate to trigger the Clean Air Act requirement that EPA review and take action the submittal. The notice describes, among other things, the criteria for determining the "completeness" of the submittal. EPA is concerned that uncertainty and excessive delays in reviewing SIPs frustrate the development of an optimum State/Federal partnership, cause confusion for sources regarding applicable regulations, and generally dampen initiative in State regulatory programs. Prompted by this concern, EPA is instituting a wide range of SIP processing reforms as described elsewhere in this Federal Register. The proposed rulemaking described below is one of these reforms.

EPA's previous SIP processing procedures provided no mechanism to reject or otherwise eliminate essentially unreviewable SIP submittals (i.e., those missing information necessary to make a reasonable decision as to their procedural and environmental adequacy). Heretofore, SIP submittals that lacked required basic information such as evidence of legal authority or of properly conducted public hearings, or technical support information sufficient to describe a proposed change, generally went through full notice and comment rulemaking (proposed and final) before being rejected. Today's proposal provides a procedure and screening criteria to enable States to prepare adequate SIP submittals, and to enable EPA reviewers to promptly screen SIP submittals, identify those that are incomplete, and return them to the State for corrective action without having to go through rulemaking.

EPA believes that this change, together with those described elsewhere in this Federal Register, should enable SIP submittals to be prepared and processed more efficiently and, overall, should improve the quality of SIP submittals.

DATE: All comments should be submitted to EPA at the address shown below by March 6, 1989.

ADDRESSES: Interested parties may submit written comments in duplicate to Public Docket No. A–88–18 at: Central Docket Section (A–130), South Conference Center, Room 4, U.S. Environmental Protection Agency, Attention: Docket No. A–88–18, 401 M. Street, SW., Washington, DC 20460.

Materials relevant to this rulemaking have been placed in Docket No. A–88–18 by EPA and are available for inspection at the above address between 8:00 a.m. and 3:30 p.m., Monday through Friday. The EPA may charge a reasonable fee for copying.

FOR FURTHER INFORMATION CONTACT: Mr. James Weigold, Office of Air Quality Planning and Standards (MD-11), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; Telephone (919) 541-5642 or (FTS) 629-5642.

SUPPLEMENTARY INFORMATION:

Background

The 1970 Clean Air Act (CAA) established the air quality management process as a basic philosophy for air pollution control in this country. Under this system, EPA establishes air quality goals (National Ambient Air Quality Standards—NAAQS) for common pollutants. There are now standards for 6 pollutants: ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, particulate matter (PM_{10}), and lead. States then develop control programs to attain and maintain these NAAQS. These programs are defined by State Implementation Plans (SIPs) which are approved formally by EPA and are legally enforceable by the Agency. Under section 110(a)(2), a SIP must demonstrate attainment, describe a control strategy, contain legally enforceable regulations, include an emission inventory and procedures for new source review, outline a program for monitoring, and show adequate resources. In addition, there can be many other requirements specific to the pollutant being considered. Under section 110(a)(3), revisions to a SIP must not interfere with the SIPs ability to meet these requirements. The consequences of State failure to get SIP approval may be serious; they include Federal promulgation of control regulations and economic sanctions.

Affirmative action is required by EPA on essentially all aspects of every SIP and SIP revision. Since EPA's final decision comes after a regulation already is adopted and implemented at the State level, excessive delay in the review process often is a major source of friction in EPA's relations with State and local agencies. SIP processing at EPA has a schedule goal of 5/2–5/2 for final action. That is, the Regions nominally have 5 months to review submittals in both the proposal and promulgation phases; Headquarters nominally has 2 months in each phase. However, SIP actions often take considerably longer than the total 14 months allocated to publish a final decision.[1]

The lengthy decision process has resulted in strong criticism from sources both inside and outside the EPA. In response, the Deputy Administrator commissioned in July 1987 a senior level task group to assess the problems inherent in the process and to recommend solutions. The task group conducted its assessment and presented recommendations to the Deputy Administrator. The recommendations were approved fully and are described in a companion notice in today's Federal Register. One of these recommendations concerns a procedure and criteria for identifying a "complete" SIP package, thereby providing States with guidance on preparing adequate SIP revisions and EPA with a clearly defined mechanism to keep essentially unreviewable SIP revisions out of the review process.

This is important because if a State submits a SIP change without properly stated emission limits, legal authority or compliance schedules, or which contains other obvious deficiencies, it can enter the full EPA review system. Such a SIP either will be eventually disapproved, or languish while the State is required (perhaps months later) to supply essential data. Heretofore, EPA's procedures did not provide in any comprehensive way prompt rejection for incompleteness. Independently, however, some Regional Offices have tried to deal with this problem, and have developed procedures wherein SIP submittals are judged against a set of completeness criteria. The purpose of these procedures has been to keep incomplete packages out of the more extensive review system, thereby saving both EPA and the State valuable time and resources. Today, EPA is proposing to institute an EPA-wide procedure for completeness review of all SIP submittals.

Completeness Review

In order to free EPA resources that would otherwise be consumed in processing incomplete and inherently unapprovable SIPs, EPA has created a completeness review process. Under this process, EPA will review a SIP for completeness when it is initially submitted to determine if all the necessary components have been included to allow the agency to properly review and act on the substance of the SIP revision. This will be a quick screen that will assess the reviewability of a SIP submittal, not its ultimate approvability. EPA will then promptly inform the submitting State whether the agency will proceed to process the SIP revision or if it must be modified by the State because it is incomplete.

There are several benefits to an early determination of completeness. First, the State is informed promptly as to the reviewability of the submittal, a current source of uncertainty in the SIP process. Second, SIP submittals that are inadequate for processing are returned to the State to be corrected, rather than going through the review process only to be disapproved because of a lack of information. Third, unreviewable SIPs are removed from the process early so that resources at the Federal level are allocated to processing only SIPs that are adequate for review. Finally, the completeness criteria provide the States with guidelines on how to prepare reviewable SIPs. It is expected that once the agencies involved (State and local, EPA) become accustomed to the completeness review process, the number of unreviewable submittals will diminish sharply.

Screening criteria have been developed that define the essential elements of an acceptable package, that will avoid obvious inadequacies, and that can be applied uniformly with limited subjective judgement and review. The criteria were developed by EPA Regional Offices already using a list of criteria to determine completeness of SIP packages in an informal way. On March 18, 1988 a policy for determining completeness of SIP submittals was issued by Gerald A. Emison, Director, Office of Air Quality Planning and Standards (OAQPS), to the Regional Offices (a copy has been placed in the docket as item II–B–4). The policy includes basic criteria for determining completeness, and sample letters for accepting and rejecting SIP submittals. This policy will be followed by EPA until today's proposed regulation is made final.

As part of this action, the Administrator is proposing to add these criteria for determining the completeness of State submittals to 40 CFR Part 51 as Appendix V. In addition, EPA proposes to modify § 51.103(a) such that State submissions that do not meet the criteria are not considered official plan submissions for purposes of meeting the requirements of Part 51. In order to be considered as a complete SIP submission or an official submission for Part 51, each plan must meet the criteria described below and in Appendix V. The basic criteria are adaptable for use in parallel processing of State regulations by EPA.[2]

EPA is creating this completeness review process under the authority of Section 301 of the Clean Air Act, which authorizes the Administrator to prescribe such regulations as are necessary to carry out his functions under the Act. EPA is interpreting the terms "plan" in section 110(a)(1) and (2) and "revision" in Section 110(a)(3) to be only those plans and revisions that contain all of the components necessary to allow EPA to adequately review and take action on such plan or revision under section 110 (and, where applicable, Part D). EPA believes that Congress would not have intended to require EPA to review and take action on SIP submittals that were simply not reviewable because they were lacking important components. Therefore, the Administrator concludes that Section 110(a) requires him to act only on complete State submittals.

Completeness Criteria

The criteria for determining whether a submittal by the State is complete have been separated into two categories: (a) Administrative information and (b) technical support information. Administrative information includes the documentation necessary to demonstrate that the basic administrative procedures have been adhered to by the State during the adoption process. Technical support information includes the documentation that adequately identifies all of the required technical components of the plan submission.

Administrative Information

The administrative information required by the criteria are those basic

[1] Note that section 110(a)(2) of the Clean Air Act requires that "The Administrator shall, within four months after the date required for submission of a [SIP], approve, or disapprove such [SIP] for each portion thereof." Under the Agency's present processing workload, such a time limit is literally impossible to meet for all but the most trivial of actions. EPA maintains that this deadline does not apply to SIP revisions, but rather only to the initial SIP, submitted after EPA promulgates a NAAQS. Some courts have supported EPA's position; other courts have held that a 4-month review period applies to a SIP revision.

[2] Parallel processing is a procedure by which EPA processes, as a proposal, State rules which have not yet been fully adopted by the State in order to expedite the final review process.

documents that demonstrate that the State has properly followed the administrative requirements called for by the Clean Air Act for the adoption of State implementation plans. These include a letter from the Governor or his designee requesting that EPA approve the SIP revision, and evidence that the revision has been adopted by the State in final form, either as part of the State code if the revision is a regulation, or as appropriate source specific documentation in the form of a permit, order, or a consent agreement. The State also must provide documentation that the necessary legal authority exists within the State to adopt and implement the plan revision, must include the requisite copies of the actual revision (regulation, permit, order, etc.), and must indicate that the revision is enforceable by the State. Finally, the State must submit information indicating that the program administrative procedures have been followed, including evidence of public notice and hearings, a compilation of the public comments, and the State's response to these comments.

Technical Support

The purpose of the technical support information is to identify the State's view of the impact of the revision on the environment. The components are intended to demonstrate that the applicable requirements, such as those for attainment and maintenance of ambient standards, increment consumption, and control technology, are in conformance with basic statutory and EPA requirements. In order for EPA to make a reasonable decision concerning the adequacy of a proposed SIP revision, certain information at a minimum must be included in each submittal. Therefore, for purposes of determining the completeness of a SIP submission the implementation plan revision must include an adequate description of the:

(a) Pollutants involved;

(b) Source location and attainment status of the area;

(c) Emissions changes;

(d) Demonstration that standards/increments are protected;

(e) Information used for any modeling demonstration;

(f) Evidence of continuous emissions controls;

(g) Evidence of emissions limitations and other restrictions necessary to ensure emission levels;

(h) Compliance strategies; and

(i) Technological and economic justification for the change where applicable.

Upon receipt of the plan revision, the Regional Office will objectively examine the revision for inclusion of the administrative and technical support information. When the revision is determined complete, the formal review of the adequacy of the information and the approvability of the revision will proceed. In those situations where the submission does not meet the basic criteria as discussed above and set forth in Part 51, Appendix V, the submission will be returned to the State with a letter indicating the deficiencies found. In accordance with the change proposed in 40 CFR 51.103(a), any submission that does not meet the criteria of Appendix V will not be considered an official submission triggering the Act's requirements for EPA review and action. The basic requirements are similar for sequential and parallel processing, varying only in form dictated by the method of processing. In order to be effective, the determination of completeness should be made expeditiously. The Regional Office generally will make a determination of completeness within 45 days of receiving a SIP revision, using the criteria to make an objective decision.

After the decision has been made on completeness, the Regional Offices will process the SIP revision if the submission is complete, or return the SIP revision to the State if it is incomplete. A letter will be sent to the State, informing the State of the completeness status of the SIP revision. If a SIP submittal is incomplete, the deficiencies will be detailed in the letter to the State. If a SIP submittal is complete, the Regional Office will include EPA's expected processing schedule in the letter to the State.

Administrative Requirements

The docket is an organized and complete file of all the information considered by EPA in the development of these SIP processing changes. The docket is a dynamic file because material is added throughout the notice preparation and comment process. The docketing system is intended to allow members of the public and industries involved to identify and locate documents so that they can effectively participate in the process. Along with the statement of basis and purpose of the SIP processing changes and EPA responses to significant comments, the contents of the docket, except for interagency review materials, will serve as the record in case of judicial review (see Clean Air Act, section 307(d)(7)(A), 42 U.S.C. 7607(d)(7)(A).

Section 317(a) of the Clean Air Act, 42 U.S.C. 7617(a), states that economic impact assessments are required for revisions to standards or regulations when the Administrator determines such revisions to be substantial. The changes described today do not change the substantive requirements for preparing and submitting an adequate SIP package. No increase in cost as a result of complying with the changes described today is expected; moreover, the monitoring, recordkeeping, and reporting requirements have been determined to be insubstantial. Because the expected economic effect of the changes is not substantial, no detailed economic impact assessment has been prepared.

The information collection requirements of these changes are considered to be no different than those currently required by the Clean Air Act and EPA procedures. Thus, the public reporting burden resulting from today's notice is estimated to be unchanged from existing requirements. The public is invited to send comments regarding the burden estimate or other aspect of information collection, including suggestions for reducing any burden, to the docket and the following: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA."

Under Executive Order 12291, EPA is required to judge whether an action is "major" and therefore subject to the requirement of a regulatory impact analysis (RIA). The Agency has determined that the SIP processing changes announced today would result in none of the significant adverse economic effects set forth in section 1(b) of the Order as grounds for a finding of "major." The Agency has, therefore, concluded that this action is not a "major" action under Executive Order 12291.

This rule was submitted to OMB for review consistent with section 307(d) of the Clean Air Act. A copy of the draft rule as submitted to OMB, any documents accompanying the draft, any written comment received from other agencies (including OMB), and any written responses to those comments have been included in the docket.

The Regulatory Flexibility Act of 1980, 5 U.S.C. 601–612, requires the identification of potentially adverse impacts of Federal actions upon small business entities. The Act requires the completion of a regulatory flexibility analysis for every action unless the Administrator certifies that the action will not have a significant economic impact on a substantial number of small

entities. For reasons described above, I hereby certify that the final rule will not have a significant impact on a substantial number of small entities.

Date: January 9, 1989.

Lee M. Thomas,

Administrator.

For the reasons set out in the preamble, 40 CFR Part 51 is proposed to be amended as follows:

PART 51—[AMENDED]

1. The authority citation for Part 51 continues to read as follows:

Authority: This rulemaking is promulgated under authority of Sections 101(b)(1), 110, 160–69, 171–178, and 301(a) of the Clean Air Act. 42 U.S.C. 7401(b)(1), 7410, 7420–7429, 7501–7508, and 7601(a).

2. Section 51.103 is proposed to be amended by revising paragraph (a) introductory text to read as follows:

§ 51.103 Submission of plans, preliminary review of plans.

(a) The State makes an official plan submission to EPA when the plan conforms to the requirements of Appendix V to this part, and the State delivers five copies of the plan to the appropriate Regional office, with a letter giving notice of such action. The State must adopt the plan and the Governor or his designee must submit it to EPA as follows:

* * * * *

3. Part 51 is proposed to be amended by adding Appendix V to read as follows:

Appendix V—Criteria for Determining the Completeness of Plan Submissions.

1.0. Purpose

This Appendix V sets forth the minimum criteria for determining whether a State implementation plan submitted for consideration by EPA is an official submission for purpose of review under § 51.103.

1.1. The EPA shall return to the submitting official any plan or revision thereof which fails to meet the criteria set forth in this Appendix V, or otherwise request corrective action, identifying the component(s) absent or insufficient to perform a review of the submitted plan.

1.2. The EPA shall inform the submitting official when a plan submission meets the requirements of this Appendix V, such determination resulting in the plan being an official submission for purposes of § 51.103.

2.0. Criteria

The following shall be included in plan submissions for review by EPA:

2.1. Administrative Materials

(a) A formal letter of submittal from the Governor or his designee, requesting EPA approval of the plan or revision thereof (hereafter "the plan").

(b) Evidence that the State has adopted the plan in the State code or body of regulations; or issued the permit, order, consent agreement (hereafter document) in final form. That evidence shall include the date of adoption or final issuance as well as the effective date of the plan if different from the adoption/issuance date.

(c) Evidence that the State has the necessary legal authority under State law to adopt and implement the plan.

(d) A copy of the actual regulation, or document submitted for approval and incorporation by reference into the plan, including indication of the changes made to the existing approved plan, where applicable. The submittal shall be a copy of the official State regulation/document signed, stamped, dated by the appropriate State official indicating that it is fully enforceable by the State. The effective date of the regulation/document shall, whenever possible, be indicated in the document itself.

(e) Evidence that the State followed all of the procedural requirements of the State's laws and constitution in conducting and completing the adoption/issuance of the plan.

(f) Evidence that public notice was given of the proposed change consistent with procedures approved by EPA, including the date of publication of such notice.

(g) Certification that public hearing(s) were held in accordance with the information provided in the public notice and the State's laws and constitution, if applicable.

(h) Compilation of public comments and the State's response thereto.

2.2. Technical Support

(a) Identification of all regulated pollutants affected by the plan.

(b) Identification of the locations of affected sources including the EPA attainment/nonattainment designation of the locations and the status of the attainment plan for the affected areas(s).

(c) Quantification of the changes in plan allowable emissions from the affected sources; estimates of changes in current actual emissions from affected sources or, where appropriate, quantification of changes in actual emissions from affected sources through calculations of the differences between certain baseline levels and allowable emissions anticipated as a result of the revision.

(d) The State's demonstration that the National Ambient Air Quality Standards, prevention of significant deterioration increments, reasonable further progress demonstration, and visibility, are protected if the plan is approved and implemented.

(e) Modeling information required to support the proposed revision, including input data, output data, models used, justification of model selections, ambient monitoring data used, meteorological data used, justification for use of offsite data (where used), modes of models used, assumptions, and other information relevant to the determination of adequacy of the modeling analysis.

(f) Evidence, where necessary, that emission limitations are based on continuous emission reduction technology.

(g) Evidence that the plan contains emission limitations, work practice standards and recordkeeping/reporting requirements, where necessary, to ensure emission levels.

(h) Compliance/enforcement strategies, including how compliance will be determined in practice.

(i) Special economic and technological justifications required by any applicable EPA policies.

2.3. Exceptions

2.3.1. The EPA, for the purposes of expediting the review of the plan, has adopted a procedure referred to as "parallel processing." Parallel processing allows a State to submit the plan prior to actual adoption by the State and provides an opportunity for the State to consider EPA comments prior to submission of a final plan for final review and action. Under these circumstances the plan submitted will not be able to meet all of the requirements of paragraph 2.1 (all requirements of paragraph 2.2 will apply). As a result, the following exceptions apply to plans submitted explicitly for parallel processing:

(a) The letter required by paragraph 2.1(a) shall request that EPA propose approval of the proposed plan by parallel processing.

(b) In lieu of paragraph 2.1(b) the State shall submit a schedule for final adoption or issuance of the plan.

(c) In lieu of paragraph 2.1(d) the plan shall include a copy of the proposed/draft regulation or document.

(d) The requirements of paragraphs 2.1(e)–2.1(h) shall not apply to plans submitted for parallel processing.

2.3.2. The exceptions granted in paragraph 2.3.1 shall apply only to EPA's determination of proposed action and all requirements of paragraph 2.1 shall be met prior to publication of EPA's final determination of plan approvability.

[FR Doc. 89-1007 Filed 1-18-89; 8:45 am]

BILLING CODE 6560-50-M

FEDERAL EMERGENCY MANAGEMENT AGENCY

Federal Insurance Administration

44 CFR Part 67

[Docket No. FEMA-6946]

Proposed Flood Elevation Determinations

AGENCY: Federal Emergency Management Agency.

ACTION: Proposed rule.

SUMMARY: Technical information or comments are solicited on the proposed base (100-year) flood elevations and proposed base flood elevation modifications listed below for selected locations in the nation. These base (100-year) flood elevations are the basis for the floodplain management measures that the community is required to either adopt or show evidence of being already in effect in order to qualify or remain qualified for participation in the

Appendix—Continued

Certificate docket No.	Former certificate holder	FERC gas rate schedule No.	Purchaser
CI87-22	do	22	Do.
CI87-23	do	23	Do.
CI87-24	do	24	Do.
CI87-25	do	25	Do.
CI87-26	do	26	Do.
CI87-27	do	27	Do.
CI87-261	do	28	Do.
CI87-261	do	29	Do.
CI87-261	do	30	Do.
CI87-261	do	31	Do.
CI87-261	do	32	Do.
CI87-261	do	33	Do.
CI87-261	do	34	Do.
CI87-261	do	35	Do.

[FR Doc. 89-1218 Filed 1-18-89; 8:45 am]

BILLING CODE 6717-01-M

ENVIRONMENTAL PROTECTION AGENCY

[FRL-3505-8]

State Implementation Plan Processing Reform

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of procedural changes.

SUMMARY: This notice describes changes being implemented in the way State implementation plans (SIPs) are processed at EPA. The Act requires States to develop plans for attaining and maintaining the six national ambient air quality standards established by EPA. These SIPs, including all revisions to such plans, are reviewed and approved or disapproved by EPA. This process of State plan preparation, submittal to EPA, and subsequent EPA review has been very time-consuming and resource-intensive. The EPA is concerned that uncertainty and excessive delays in processing SIPs frustrate the development of an optimum State/Federal partnership, cause confusion for sources regarding applicable regulations, and generally dampen intitiative in State regulatory programs. Prompted by this concern, the Deputy Administrator called for an assessment by senior officials of the processing of SIPs at EPA. The purpose of the assessment was to identify problems and propose solutions.

The problems identified centered on an excessive concern by EPA for the potential precedent-setting value of individual SIP revisions, manifested by excessive delay in reaching decisions on many SIP actions and in uncertainty on the part of sources and State/local agencies as to the outcome of the SIP review process. The changes being implemented, described in detail below, focus on tailoring EPA review to the significance of the action, and adhering to established procedures for processing SIPs within EPA in order to promptly identify problems with SIP submittals and to geneally improve the certainty of the process itself. These changes include, among others: review of SIP submittals for completeness against specific criteria, and requiring prompt modification of incomplete submittals; delegation of SIP decision authority to EPA Regional Administrators for a range of SIP actions which are not nationally significant; and providing for the option to "grandfather" SIP submittals that were prepared in good faith by a State but which may become deficient to some degree because of a change in EPA policy subsequent to State adoption.

EPA believes that these changes will produce a number of important benefits. SIP submittals should be processed more efficiently and review decisions made more quickly and equitably; overall, the quality of SIP submittals should be improved. By working more closely, relations between EPA Regional Offices and State/local agencies will be improved, enhancing the effectiveness of air quality management programs generally. Finally, the changes should result in a more accessible and accountable system, enabling parties outside EPA to determine more easily the status of SIP submittals.

DATES: This action will be effective January 19, 1989. All comments should be submitted to EPA at the address shown below by March 6, 1989.

ADDRESSES: Interested parties may submit written comments in duplicate to Public Docket No. A-88-18 at: Central Docket Section (A-130), South Conference Center, Room 4, U.S. Environmental Protection Agency, Attention: Docket No. A-88-18, 401 M. Street, SW., Washington, DC 20460.

Materials relevant to this notice have been placed in Docket No. A-88-18 by EPA and are available for inspection at the above address between 8:00 a.m. and 3:30 p.m., Monday through Friday. The EPA may charge a reasonable fee for copying.

FOR FURTHER INFORMATION CONTACT: Mr. James Weigold, Office of Air Quality Planning and Standards (MD-11), U. S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; Telephone (919) 541-5642 or (FTS) 629-5642.

SUPPLEMENTARY INFORMATION:

Background

The 1970 Clean Air Act (CAA) established the air quality management process as a basic philosophy for air pollution control in this country. Under this system, EPA establishes air quality goals (National Ambient Air Quality Standards—NAAQS) for common pollutants. There a re now standards for 6 pollutants: ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide, particulate matter (PM_{10}), and lead. States then develop control programs to attain and maintain these NAAQS. These programs are defined by State Implementation Plans (SIPs) which are approved or disapproved formally by EPA and, to the extent they are approved, are legally enforceable by EPA. A SIP must demonstrate attainment and maintenance of the applicable NAAQS, describe a control strategy, contain legally enforceable regulations, include an emission inventory and procedures for the preconstruction review of new pollution sources, outline a program for monitoring, and show adequate resources for the State to implement the SIP. In addition, there can be many other requirements specific to the pollutant being considered. The consequences of State failure to get SIP approval may be serious, including Federal promulgation of control regulations and sanctions.

Affirmative action is required by EPA on essentially all aspects of every SIP action. Since EPA's final decision comes after a regulation already is adopted and implemented at the State level, excessive delay in the review process often is a major source of frinction in EPA's relations with State and local agencies.

There can also be differences of opinion between EPA's Regional Offices and Headquarters. Regions provide guidance and support to States in writing SIPs and then must review them and recommend approval or disapproval. The need for flexibility in dealing with each State and situation is important to the Regions. On the other hand, Headquarters' offices have a major responsibility to ensure basic national consistency on legal, policy, and technical issues. Thus, SIP deicisons are under constant pressure because they are visible and quantitative tests of the elusive balance sought between State flexibility and the firmness and consistency provided by national directives.

More than 1600 SIP related actions have been processed from 1983 to the present, averaging almost 380 per year. Many of these involved multiple issues. About 75 percent of the actions fall into three categories: attainment demonstrations, single source actions, and (although technically not SIP revisions) actions involving redesignation of attainment status. Most of the remainder involved new source review actions and emission trades.

A rough assessment has been made of the future SIP load. With the promulgation of a national ambient air quality standard for PM_{10}, and the proposed post-1987 ozone and CO attainment policy, the number of SIP submittals will increase significantly over the next few years. About 100 attainment SIPs and more than 180 "committal" type actions for PM_{10} will have to be reviewed. Shortly thereafter, attainment SIPs for ozone (60–70 areas) and for CO (another 50–60 areas) will be sumitted. Potential revisions to EPA's 1985 stack height regulations resulting from the court decision in *NRDC v. Thomas*, 838 F. 2d 1224 (D.C. Cir. 1988), could require review of SIP emission limits for as many as 300 stationary sources. In addition, it is possible that about 30 Section 111(d) SIPs on control of municipal waste combustors will be developed during this period. The preceding are in addition to the average load of 350 submittals per year.

The Current Review Process at EPA

A comprehensive system has been set up for processing SIPs at EPA, involving full notice and comment rulemaking. The major steps are summarized below.

(1) State prepares the SIP, gets necessary approval under State law, provides justification and documentation, and submits it to the Regional Office for the Governor or his designee. The SIP can range in size from a few to hundreds of pages.

(2) EPA Regions comprehensively evaluate the submittal for policy, legal and technical adequacy, prepare a Technical Support Document (TSD), and prepare a proposed final rule indicating approval or disapproval of the action. The rule is signed by the Regional Administrator, if it is a proposal, and sent on for review by EPA Headquarters. The Headquarters' offices thereupon undertake an evaloation of the Regional Office package, regardless of the significance of the SIP action.

(3) The Office of Air Quality Planning and Standards (OAQPS) in Durham, North Carolina manages the Headquarters' review, coordinating the technical, policy and legal evaluation with all relevant Headquarters offices. These may include the Office of General Counsel and the Office of Policy, Planning and Evaluation, as well as several groups within the Office of Air and Radiation (OAR).

Each group, concurs with comment, or nonconcurs. Negotiation with the Regions over SIP issues or interpretation frequently is a part of Headquarters' review.

(4) Proposals are sent to the Assistant Administrator for Air and Radiation for concurrence. Disapprovals and partial approvals of SIPs must undergo Office of Management and Budget review (under Executive Order 12291) before being sent to the Office of the Federal Register (OFR) for publication.

(5) After review by the Assistant Administrator for OAR, all final actions go to the Administrator for signature and then are sent to the OFR.

SIP processing at EPA has a scheduled goal of 5/2–5/2 for final action. That is, the Region nominally have 5 months to review submittals in both the proposal and promulgation phases; Headquarters nominally has 2 months in each phase. However, SIP actions often take considerably longer than the total 14 months allocated to publish a final decision.[8]

The lengthy decision process has resulted in strong criticism from sources both inside and outside the EPA. In response, the Deputy Administrator commissioned in July, 1987 a senior level task group to assess the problems inherent in the process and to recommend solutions. The task group conducted its assessment and presented recommendations to the Deputy Administrator.[9] The recommendations were approved fully and are described herein. However, before discussing the steps being taken by EPA to reform its SIP processing procedures, it is useful to examine the approach taken by the task group, and the problems uncovered.

The Assessment

The project involved a three-level approach. It included (1) formation of a senior-level task group on SIP Processing which met throughout the four-month project, (2) direct discussions with staff intimately involved in SIP processing, both individually (or in small groups) and at a day-long Headquarters/Regional Office workshop, and (3) interviews with senior executives (Deputy Regional Administrators, Office Directors) now at EPA, and former policy makers with EPA and State air agencies. In addition, a few limited analytical assessments (e.g., historical SIP activity, number and distribution of SIPs currently at EPA) were done to better characterize the issue.

The task group consisted of senior officials from EPA's Regional Offices, Headquarters' groups associated with SIP processing, and State air agencies. The group met three times, first to discuss the general problem to be addressed, agree on a course of action, and assign special short-term projects. The second meeting was primarily concerned with process update and with presentations by Regional Office and State agency representatives to give their unique prespectives on the issues.

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[8] Note that section 110(a)(2) of the Clean Air Act requires that "The Administrator shall, within four months after the date required for submission of a [SIP], approve, or disapprove such [SIP] for each portion thereof." Under the Agency's present processing workload, such a time limit is laterally impossible to meet for all but the most trivial of actions. EPA maintains that this deadline does not apply to SIP revisions, but rather only to the initial SIP, submitted after EPA promulgates a NAAQS. Some courts have supported EPA's position; other courts have held that a 4-month review period applies to a SIP revision.

[9] The report on this project is entitled "Final Report of the Task Group on SIP Processing," October 1987. A copy is located in the docket as Item II-B-2.

Finally, at the third meeting, results of analytic studies were presented, and the range of options for improving the process was discussed. These meetings led to the SIP processing changes that are being announced today.

The work of the task group was reinforced by discussions with people directly involved with SIP review in order to get an operations view of the issues. This included a comprehensive one-day workshop attended by approximately 50 EPA staff personnel. This group, intimately familiar with the processing and review of SIP packages, exchanged ideas on both issues and potential solutions during the workshop.

To gain yet another perspective, a series of interviews was conducted with persons currently or recently involved with SIP processing from a broader policy sense. For example, the persons interviewed included a former EPA Deputy Administrator, the former heads of State and local air programs, senior industry officials, several past EPA Assistant Administrators, and four current Deputy Regional Administrators. (The complete list of persons interviewed and their summarized views are contained in an appendix to the task group report.)

Significantly, there was a noticeable degree of consistency among those interviewed both in terms of their perception of major problems and in terms of the general thrust of solutions to be pursued. Almost all believed that EPA is too cautious in making SIP decisions, that SIPs vary widely in importance and EPA should tailor its review accordingly, and that the current SIP review system is operated too informally. They also believed that the "moving target" problem (a change in the technical or policy basis for EPA decisions after a SIP has been submitted) needed to be addressed.

Problems Identified

It is clear that the process of reviewing and judging SIPs has been a constant struggle for EPA and the States and is a source of increasing tension. Concerns voiced by participants during the assessment indicated problems at each level of SIP preparation and review. Some cited abuse of the system by the States to relax source limits. Others believed EPA was too inflexible and overzealous, resulting in major processing delays for minor benefits.

It is likely that present problems, if left unattended, will become worse because of continuing resource constraints and plans that call for significant increases in SIP activity over the next few years, particularly in the complex areas of ozone, CO, and PM_{10}.

In a relatively recent development, some enforcement actions have been affected by courts which have ruled that EPA cannot enforce the current federally approved SIP against a source for violations occurring more than four months after a SIP revision affecting the source has been submitted to EPA, unless EPA has finally acted on the submittal.

As a result of the discussions and projects described earlier, it was possible to identify a number of fundamental problems that appear to be associated with SIP processing. Some of these problems are concerned primarily with the procedural aspects of SIP review, while others relate more to the underlying philosophy of the SIP review process (i.e., what is the process supposed to accomplish), and the attitudes of the SIP reviewers. For example, there is within EPA a strong concern for consistency in SIP decisions, and a fear that each decision may have important consequences in terms of establishing national precedent. However, such concern may be appropriate for only a small percentage of actions reviewed. Moreover, it appears that the SIP process has been depended upon as a vehicle to identify, resolve, and articulate national policy issues, often at the expense of timely decision making.

The issues identified fall into three basic categories: inordinate concern for the consequences of individual decisions; excessive EPA review, including full review for minor or clearly deficient actions; and uncertainty concerning the outcome of review. These problem categories are discussed briefly below.

A. Inordinate Concern for Individual Actions

As noted, the current process places a premium on consistency, stemming in large part from a fear that a decision statement or explanation concerning a specific State or source may force similar decisions in other States for similar sources. Although there is a need for consistency at some level (e.g., concerning the basic components of an ozone attainment program or a new PM_{10} SIP), it may not be necessary for the results of all decisions to be similar State to State and source to source. It must be remembered that SIPs are intended to be tailored by the States to their specific air quality problems, and the mix of sources from which emissions reductions can be obtained, within the constraints of the Clean Air Act (such as the requirement for reasonably available control technology in nonattainment areas). Although it is important for policy and broad technical requirements to be applied consistently, it is not necessary that the result of their application to localized problems turn out the same.

Because of the emphasis on consistency and the fear of setting precedent with individual decisions, SIP reviewers have been reluctant to risk making mistakes on any SIP change; this, considering the number of actions EPA must review, inhibits rapid review and decision making. There needs to be a greater willingness on the part of all concerned with the process to risk an occasional noncritical mistake in return for more rapid processing and earlier identification of the outcome of the review.

B. Excessive Review

Some SIP packages deserve the full attention of EPA staff and management; as noted, certainly the basic State programs for post-1987 ozone attainment and programs to achieve the newly promulgated PM_{10} ambient air quality standard will need such review. Similarly, SIP revisions for new programs that dictate consistent national implementation, or that involve complex and evolving policy issues, such as generic bubble regulations, should receive review and sign-off by EPA Headquarters. But the same cannot be said for changes to an emission limit on a local printing plant, composition of State boards, or negative declarations under section 111(d). Under EPA's current approach to SIP review, all changes receive Regional Office and Headquarters' review prior to both proposal and final approval (except for those SIPs, aobut 20 percent of the total, processed as direct final [8]). All final actions, no matter how trivial, currently are signed by the Administrator.

There are several problems with this multiple review for all actions: it inherently takes longer than processing only at the Regional Office level; it ties up the scarce Headquarters' resources available for SIP review (thus making a long process even longer); and by introducing more reviewers into the process, it increases the chance of rejection for procedural or other reasons which have no impact on air quality.

There are other aspects to the excessive review problem. If a State

[8] Under this procedure, EPA publishes a single Federal Register notice which indicates that the SIP action will be final in 60 days unless an interested party requests the opportunity to provide adverse comment. If a party does wish to provide adverse comment, EPA then follows the normal SIP processing procedure of notice of proposal and subsequent final rulemaking.

submits a SIP change without properly stated emission limits, legal authority or compliance schedules, or which contains other obvious deficiencies, it can enter the system and be subject to complete EPA review and disapproval. EPA's procedures did not provide in any comprehensive way for immediate rejections for incompleteness. Independently, however, some Regional Offices have tried to deal with this problem. For example, Region I has developed a set of completeness criteria their States must follow; Region VII provides States with an extensive checklist describing the information the Region will look for in a wide range of SIP actions. The purpose is to keep incomplete packages out of the more extensive review system.

On the other hand, even if the submittal is prepared correctly, some actions seem unsuited for full review. Examples include simple recodification of regulations, address changes, or changing modeling or stack test methods to conform to revised EPA guidelines. In such actions, the State is doing exactly what is required and appropriate. Although such changes can be processed as direct final, even that is probably more resource intensive than they are worth. However, there is presently no better way to treat such changes administratively, or keep them out of the system entirely.

Finally, several members of the Task Group believed that, in addition to being concerned with SIP processing, EPA should also examine the SIP process in a more basic way. Specifically, there was debate and interest expressed by some in promoting direct acceptance of operating permits or other State single source emission limits. This would be conditioned on EPA approval of the State's overall framework and strategy for achieving an ambient air quality standard. EPA's continuing role would be to track a State's overall progress and periodically audit the State's implementation of the permit process, taking corrective action as necessary. Some initial steps are being taken in this direction. For example, in response to the "federal enforceability" issue contained in the Chemical Manufacturers Association (CMA) consent agreement concerning challenges to EPA's new source review regulations, EPA is considering the possibility of allowing State operating permits to be deemed federally enforceable in certain situations provided that the State's operating permits program has been incorporated into the SIP and approved by EPA. However, full implementation of a system involving direct acceptance of State permits or other limits requires much conceptual discussion concerning State/EPA regulations and fundamental changes to other parts of the national air program, and may require changes to the Clean Air Act.

C. Uncertainty Concerning the Outcome of the Process

It might be expected that processing a revision to a SIP, given the EPA's years of experience, would be a fairly routine process. However, that often is not the case. The fate of a given SIP revision, in terms of both the nature and timing of the ultimate decision, can be uncertain for a number of reasons. Important information necessary for decision making may be left out of a SIP package, or the format and justification for the change may be deficient. This can result not only from inexperience and lack of training at the State and local level, but also from a lack of clear policy guidance from EPA and timely issue resolution. Policies important to SIP preparation and approval may be unstated or poorly documented. In some cases, there may be no policy at all to address a specific SIP issue, and the SIP process itself, through the aggregation of a series of similar actions, is used to evolve a policy. This situation, in part, derives from sporadic management involvement in the SIP process. Constant attention is needed to assure that packages are moved through the system, that problems are promptly identified, and that policy issues are discussed and resolved.

An overt manifestation of uncertainty in the outcome of SIP review is the moving target syndrome. Under current practice, a SIP may be under review at EPA for months and eventually be deemed inappropriate because it doesn't conform to a newly evolved policy, even though it conformed to the policy in place when it was submitted. This not only frustrates the State but results in confusion for the source because until the State actually changes its submittal, it often continues to implement the regulations disapproved by EPA.

Another factor contributing to uncertainty and delay is the reliance on informal communication in processing SIPs. The system traditionally has been characterized by nurturing, not judgmental, interactions. Headquarters and Regional Office personnel are reluctant to formally reject packages, but rather try to work with their colleagues in the processing chain by phone calls and often protracted negotiation. This stems in part from reluctance to compromise others that may have acted in good faith. Also, the documentation needed to support a more formal process on a large number of SIP actions can become an excessive burden. Unfortunately, in many cases the informal process prolongs the review time substantially and results in poor documentation for use in similar situations. In addition, the informal process frequently is criticized by States and sources because they can't adequately track the progress of the change once it gets into EPA review.

Solutions Devised

Based on the task group assessment and the problems identified, EPA has devised a number of changes to the SIP processing system which it will begin implementing today. The changes are designed to tailor SIP review to the significance of the action involved, and to improve the certainty of the SIP review process. The changes, including the legal rationale supporting them, are described briefly below and in depth in the next section of this notice.

A. Tailor Review to Significance of Action

EPA has devised a SIP review system under which increasingly intense review procedures will be applied to increasingly significant actions. Minor actions will undergo relatively little review while major actions will continue to receive full Regional Office and Headquarters review. By tailoring the intensity of review to the significance of the action, this hierarchy of procedures will generally decrease SIP processing times by dramatically shortening review periods for minor SIPs and freeing EPA resources to enable major SIP processing to proceed without existing delays.

1. Completeness Criteria

EPA found that many SIP revision submittals were processed through full EPA review despite the fact that they were missing major components which effectively prevented EPA approval. For example, a State might submit an emission limitation without compliance testing procedures. To free EPA resources that would otherwise be consumed processing such deficient SIPs, EPA has created a completeness review process which is being proposed for public comment in an accompanying notice in today's Federal Register. Under this process, a SIP will be reviewed for completeness against certain basic criteria when it is initially submitted to determine if all the necessary components have been included to allow proper review and an ultimate decision on the substance of the SIP revision. This will be a quick process that will look at the reviewability of an SIP submittal, not its approvability. EPA will then promptly inform the submitting State by letter whether EPA will proceed to process the SIP revision or whether it must be returned to the State because it is incomplete.

EPA is creating this completeness review process under the authority of Section 301 of the Clean Air Act which authorizes the Administrator to prescribe such regulations as are necessary to carry out his functions under the Act. EPA is interpreting the terms "plan" in section 110(a) (1) and (2) and "revision" in section 110(a)(3) to be only those plans and revisions that contain all of the components necessary to allow EPA to adequately review and take action on such plan or revision. EPA believes that Congress would not have intended to require EPA to review and take action on SIP submittals that were simply not reviewable because they were lacking important components. Therefore, the Administrator concludes that section 110(a) requires him to act only on complete State submittals.

EPA recently issued a guidance memorandum to the Regional Offices establishing this completeness review procedure, including a list of completeness criteria, on an interim basis pending notice and comment rulemaking. *See* Memorandum, Gerald A. Emison, Director, Office of Air Quality Planning and Standards, to Regional Office Air Division Directors, March 18, 1988 (a copy is included in the docket as item II-B-4). The Regional Offices are currently using this guidance to conduct completeness reviews. However, elsewhere in today's **Federal Register**, EPA is proposing to codify these criteria in regulatory form to provide clear benchmarks for States in preparing complete SIP submittals. Specifically, EPA proposes to add the completeness criteria to 40 CFR Part 51 as Appendix V. EPA also proposes to amend § 51.103(a) to specify that State submissions will not be considered official SIP suibmissions upon which EPA is required to act under section 110(a) unless they meet the requirements of Appendix V. The details of the completeness criteria are described fully in the accompanying notice.

2. Letter Notice

EPA is creating a new SIP processing procedure for relatively insignificant SIP revisions that the EPA believes are of essentially no interest to the general public. Historically EPA has processed all SIP revisions through full notice and comment rulemaking in the **Federal Register**. For insignificant actions of no public interest, this has been costly and time consuming with no apparent benefit. Under the new letter notice procedure for such insignificant revisions, EPA will simply inform the State and directly affected parties by letter that the submitted SIP revision has been approved. The EPA may not publish a notice of proposed rulemaking and opportunity for public comment or an individual notice of final rulemaking in the **Federal Register**.

EPA's duties to publish proposed and final rulemaking notices and provide opportunity for public comment stem from the Administrative Procedures Act (APA). However, the APA specifically provides that an agency need not provide notice of proposed rulemaking or opportunity for public comment when the agency for good cause finds that it is impracticable, unnecessary, or contrary to the public interst. *See* 5 U.S.C. section 553(b). EPA concludes that it is unnecessary to provide for comment on insignificant SIP revisions because they are of no interest to the general public. Further, in such cases, the delays associated with providing for comment where none would be forthcoming would be contrary to the public interest in expediting SIP processing.

The legislative history of section 553 indicates that the good cause exemption from notice and comment requirements appropriately applies to insignificant SIP revisions. See Senate Comm. on the Judiciary, Administrative Procedure Act: Legislative History, S. Doc. No. 248, 79th Cong., 2d Sess. 200 (1946) ("Unnecessary" means unnecessary so far as the public is concerned, as would be the case if a minor or merely technical amendment in which the public is not particularly interested were involved. "Public interest" supplements the terms "impracticable" or "unnecessary"; it requires that public rulemaking procedures shall not prevent an agency from operating and that, on the other hand, lack of public interest in rulemaking warrants an agency to dispense with public procedure). A number of courts have also held that notice and comment procedures are not required in analagous circumstances. *See, e.g., National Nutritional Foods Association v. Kennedy*, 572 F.2d 377, 385 (2d Cir. 1978); *Texaco, Inc. v. FPC*, 412 F.2d 740, 743 (3d Cir. 1979); *United States v. U.S. Trucking Co.*, 317 F. Supp. 69, 71 (S.D.N.Y. 1970).

Although EPA will not seek comment on letter notice actions or publish individual notices of final rulemaking, in order to keep the general public informed of all SIP actions EPA will publish periodically in the **Federal Register** a summary list of all actions taken under the letter notice procedure. The effective date of all letter notice actions will, however, be the date of the letter itself rather than that of the subsequent summary **Federal Register** notice.

EPA will only use the letter notice procedure for insignificant SIP actions such as recodifications or minor technical amendments that EPA feels confident are of no interest to the general public. Further discussion of the SIP categories to be processed under letter notice can be found below in the implementation section of this notice.

3. Increased Use of Direct Final

For some time EPA has used a SIP processing procedure referred to as direct final rulemaking. In the past, EPA has generally used this procedure mostly for insignificant actions that it considered noncontroversial and on which EPA did not anticipate receiving any adverse comment. EPA is now expanding the use of this historically effective direct final procedure to speed processing for a wider range of such minor SIP actions.

Under the direct final procedure EPA still continues to offer the opportunity for public comment as required by the APA. As before, the procedure merely provides a shortcut for final action where no comment is expected. Moreover, those insignificant SIP actions which are truly of no interest to the public will now be processed under the letter notice procedure described immediately above. Further discussion of the potential categories of SIPs to be processed under the expanded use of direct final procedures is included below in the implementation section.

4. SIP Decision Authority

Historically, all SIP revision actions have been thoroughly reviewed at both the Regional Offices and Headquarters, whether or not the action involved was truly of national significance. This has led to the greatest delays in the SIP processing system, and the task group assessment indicated that overall such duplicative review did not appear to contribute substantially to improved SIP content in many cases. The EPA has concluded that all SIP actions that are not nationally significant, and for which Headquarters has prepared guidance for SIP processing, will now be reviewed only at the Regional Offices. Consequently, the Administrator is delegating his authority under section 110(a) of the Clean Air Act to act on such SIP submittals to the Regional

Administrators. Both proposed and final Federal Register notices for these actions will henceforth be signed by the Regional Administrators.

Section 301(a)(1) of the Act authorizes the Administrator to delegate any of his powers and duties under the Act to other EPA employees except "the making of regulations." In an early interpretation of this statutory provision EPA concluded that, while proposed SIP rulemaking did not constitute "the making of regulations", any final action on a SIP would fall within this prohibition. Upon further reflection, EPA now concludes that the prohibition on delegation applies only to regulations initially promulgated by EPA, not to plans prepared by States that EPA merely approves or disapproves.

The natural reading of the statutory phrase "the making of regulations" extends only to regulations that the Administrator himself promulgates. Although in approving a SIP revision the Administrator does incorporate State promulgated regulations into the federally enforceable SIP, he still cannot properly be said to be "making" regulations within the meaning of the section 301(a) prohibition on delegation. As a practical matter, EPA has acquiesced in those judicial decisions holding that EPA must follow the rulemaking procedures of the Administrative Procedures Act (APA), 5 U.S.C. 553, when it approves or disapproves State implementation plans. However, even if SIP review is "rulemaking" under the APA, EPA believes these actions do not constitute "the making of regulations * * *" Thus, while section 301(a)(1) of the Clean Air Act prohibits the Administrator from delegating his authority to make federal regulations, it does not prohibit delegation of his authority to act upon regulations made at the State level.

The implementation section of this notice contains a detailed listing of those categories of SIP actions that the Administrator currently is delegating to the Regional Administrators, those categories the Administrator is delegating but which should still receive some input from Headquarters at this time, and those categories that will continue to receive full Headquarters review for the time being. These categories may change over time as Headquarters prepares additional guidance and Regional Offices become more familiar with new issues.

B. Improve Certainty of Process

The second major focus of EPA's changes in the SIP processing system is to improve processing procedures so that individual actions can be handled with greater certainty. These changes involve increased management control and clarified processing guidelines.

1. Adherence to Formal Procedures

EPA has for some time had detailed procedures for processing SIPs through the existing SIP review system. These procedures include time schedules, default provisions, and issue resolution mechanisms. However, for a number of reasons these procedures have often not been followed precisely in the past. With the adoption of the processing reforms described herein, EPA will be revising its procedures to establish guidelines for each type of SIP review mechanism. When the new guidelines are issued, senior management will make clear that in the future they are to be adhered to more rigorously. This will ensure that State submittals move quickly through EPA's review process, with any major issues being raised promptly for resolution.

2. Grandfathering Policy

In the past, a number of States have submitted SIP revisions that were consistent with EPA requirements (regulations, policies, legal interpretations, etc.) in effect at the time of State adoption of the revision. However, in some cases, because of processing delays and policy evolution, the applicable requirements would change before the revisions received EPA approval. The EPA's past procedure was to return the plan to the State for revision or disapprove the action. Not only did this add more time to an already lengthy process, it also strained EPA/State/local agency relations. Moreover, there was the basic question of fairness involved. In such cases, the State submitted the revision in good faith and in accordance with the rules and policies in effect at the time of submission, only to see months go by and find out the change was rejected due to factors totally beyond its control.

EPA has determined that in general it would better serve the States and the interests of the SIP processing system to continue to process most State submittals based on the requirements in effect at the time the State adopted the change to the SIP. To this end, EPA recently issued guidance on grandfathering entitled "Grandfathering of Requirements for Pending SIP Revisions", sent from Gerald Emison, Director, OAQPS, to EPA Regional Office Air Division Directors, June 27, 1988 (a copy is included in the docket as item II–B–5).

The guidance provides a structure for grandfathering pending SIP actions to the extent allowed by law. The law in this area indicates that whenever a new requirement is created by Congress (via statute) or by EPA (via regulation or policy), it becomes generally applicable unless the authority establishing the requirement provides otherwise. When Congress enacts a new statute, it applies to all matters then pending before an agency unless Congress specifically provides otherwise in the statute. The EPA has no authority to grandfather any matter from the new statutory requirements without explicit provisions in the statute.

When EPA issues new regulations, they are also generally applicable unless the regulations themselves include grandfathering provisions. If grandfathering provisions are not explicit in the regulations, courts will apply the new rules to matters pending before EPA. *Thorpe* v. *Housing Authority of Durham*, 393 U.S. 268 (1969). However, an agency does have some flexibility to provide grandfathering provisions in new regulations. Such provisions are usually appropriate where they meet a four-part test. First, the new rule represents an abrupt departure from well-established practice. Second, affected parties have relied on the old rule. Third, the new rules impose a large burden on those affected. Fourth, there is no strong statutory interest in applying the new rule generally. *Sierra Club* v. *EPA*, 719 F.2d 436 (D.C. Cir 1982), cert. den. 468 U.S. 1204 (1984). In the past, EPA has included explicit grandfathering provisions in new regulations where appropriate.

An agency has broad authority to decide how and when to issue new guidance, since as a purely legal matter guidance is not absolutely binding on subsequent proceedings. *Pacific Gas and Electric Co.* v. *FPC*, 506 F.2d 33 (D.C. Cir. 1974). Historically, however, EPA has provided only limited grandfathering from significant guidance primarily due to the importance of the new guidance to EPA's control programs.

EPA's expanded grandfathering guidance states that complete pending SIP actions generally should be subject only to the requirements in effect at the time the State submittal was prepared. However, the guidance includes a number of exceptions to the general rule. The EPA would not grandfather a pending action where a court ruling has changed a requirement, where a court has convinced EPA that a requirement is no longer supportable, where the Administrator determines that grandfathering is not appropriate, where an imminent and substantial adverse environmental impact would result, where grandfathering would foreclose EPA's ability to exercise its authority under the Clean Air Act, or where the State has not acted in good faith in submitting a plan.

The guidance also states the EPA will analyze the need for grandfathering provisions in all new EPA requirements, and will include such provisions in all cases to the extent appropriate.

3. Improved Guidance and Communication

In order to facilitate implementation of the various SIP processing changes EPA is instituting, existing guidance will be upgraded and new guidance prepared wherever needed. Headquarters offices have committed to provide adequate guidance to Regional Offices and to be available for consultation to assist the Regions in implementing the new programs.

EPA will also be improving communications between Headquarters and Regional Offices, and among different Regional Offices, to effectively implement the decentralized SIP processing system. Improved communication techniques, described in the implementation section, include identifying regional SIP contacts, the "regional staff expert" concept, a SIP clearinghouse, a computerized tracking system, periodic conference calls, and national meetings.

4. SIP Processing Management System

The final change EPA is instituting in the SIP processing system is a new SIP processing management system. Under this system EPA managers will maintain close supervision over the SIP processing system to ensure that SIPs move smoothly through the new procedures. The new management system, described in full in the final section of today's notice, includes both an internal and external audit system, an expanded computerized tracking system, and a SIP processing deviation review system.

Implementation of the Changes

The following discussion focuses on the more significant aspects of the implementation of the SIP processing changes announced today; the final portion addresses improvements in the management system which are being instituted to assure the announced changes are properly implemented.

A. Tailor Review to Significance of Action

1. Completeness Criteria

Screening criteria have been developed that define the essential elements of an acceptable SIP package, that will avoid obvious inadequacies, and that can be applied uniformly with limited subjective judgment and review. The criteria were developed by EPA Regional Offices already using a list of criteria to determine completeness of SIP packages in an informal way. The benefits of using completeness criteria to reject deficient packages include improved consistency and quality in the State submittals received for processing, fewer SIPs disapproved for fundamental inadequacies, more effective use of limited resources at both the Federal and State level, and improved guidelines for new State personnel on how to prepare adequate SIPs. As noted earlier, an interim policy for determining completeness of SIP submittals was issued to the EPA Regional Offices. The policy includes basic criteria for determining completeness, and sample letters for accepting and rejecting SIP submittals.

In a separate notice in today's Federal Register, the Administrator is proposing to add these criteria and procedure for determining the completeness of State submittals to 40 CFR Part 51. EPA will continue to use the interim policy to assess SIP submittals until final rulemaking action is taken on today's accompanying proposal.

The criteria for determining whether a submittal by the State is complete have been separated into two categories: (a) Administrative information and (b) technical support information. Administrative information includes the documentation necessary to demonstrate that the basic administrative procedures have been adhered to by the State during the adoption process. Technical support information includes the documentation that adequately identifies the technical components of the plan submission.

2. Letter Notice

Using a letter notice for non-substantial actions, which EPA will begin doing after today, is a new process where EPA will merely inform a State and directly affected parties by letter that EPA has approved a given SIP revision. The objective of the letter notice approach is to achieve prompt action by EPA on non-substantial actions where the public interest is not served by full notice and comment processing. By using letter notices, EPA's limited resources can be allocated to the expeditious processing of more significant SIP actions.

Under letter notice, as soon as a revision has been deemed approvable, the Regional Administrator or his designee will send a letter to the State and affected parties, informing them of the approval. The EPA may not publish a notice of proposal and provide an opportunity for public comment beyond that already provided for by the State. In order to keep the public informed of these actions, EPA will publish periodically (annually at a minimum) in the Federal Register a summary list of all letter notice actions recently taken, with information concerning the change and the sources affected, as appropriate. These actions will be effective from the date of the letter notice, rather than the eventual summary publication date. The Regional Offices will make the decision whether to process a SIP revision as a letter notice.

EPA intends to use discretion in the application of letter notice processing to insignificant SIP revisions. The following are examples of such revisions. Frequently, States/local agencies will recodify existing regulations into a new structure or to improve the understanding of the program. These changes are superficial from the perspective of the air quality management program and are of little interest to the general public. Other revisions to implementation plans incorporate amended or revised national guidance documents pursuant to EPA directives and are made merely to conform to revised requirements. In other cases, many States have programs using renewable operating permits for the purpose of source regulation. Usually, the permit is renewed without change and the permit action is of little public interest.

Technical amendments, administrative actions, and minor wording changes are further examples of SIP revisions that are suitable for processing by letter notice. It is expected that the list of SIP revisions that can be processed by letter notice will be expanded as experience is gained with the process. EPA specifically requests comment on the appropriateness of using letter notice processing for these and other potential categories.

3. Increased Use of Direct Final

On June 23, 1982 (47 FR 27073), EPA announced procedures to shorten and streamline the SIP review process. One of these procedures was the direct final rulemaking approach. This program has been shown to reduce the SIP processing review time by about 50 percent. Since its inception, many revisions have been published as direct final rules with very few receiving notice from the public of the desire to comment. The following are some types of SIPs that have been processed successfully as direct finals:

- Amendments to definitions to conform to EPA requirements
- Changes in monitoring/modeling procedures to reference new EPA guidelines
- Revisions to incorporate new test methods by reference
- Single source SIP revisions that make a State's requirements more stringent
- Public availability of emissions data
- Permit fees
- Compliance schedules for section 111(D) plans
- Visibility plans
- Volatile organic compound (VOC) consent orders
- Prevention of significant deterioration (PSD) modeling regulations
- Minor changes to inspection and maintenance (I/M) programs
- New opacity regulations
- Variances
- Operating permits for lead SIPs.

Of 134 SIP revisions processed most recently as direct finals, only two required republishing as proposed rules because of public comment. This history of very little public comment on direct final rules suggested that EPA could use this effective tool more often to speed up the SIP process.

For this reason, EPA issued a memorandum dated December 23, 1987 entitled "Expanded Use of Direct Final SIP Processing," from Gerald A. Emison, Director, OAQPS, to EPA's Regional Offices (a copy is included in the docket as item II–B–2). For the reasons stated above, this memorandum recommended that the direct final rulemaking approach could be used more frequently by the Regional Offices. It is possible that EPA's plan to expand the application of the direct final rulemaking approach may result in an increase in the number of SIPs being withdrawn and subjected to full notice and comment rulemaking because of the desire by the public to comment. However, any increase in the number of direct final actions withdrawn and converted to proposals should be more than offset by the overall improvement in timely processing of total SIP actions.

4. SIP Decision Authority

A cornerstone of the recommendations of the SIP processing task group is the tailoring of review to the significance of the change. To this end, the Administrator is today delegating signature authority for those SIP revisions that are not of national significance to the EPA Regional Administrators.

Eliminating the serial review by the Regional and Headquarters offices for selected categories of SIPs is potentially the most effective recommendation made by the task group. This recommendation is designed to delegate approval/disapproval authority for the majority of SIPs to the Regional Administrators. As noted earlier, all SIP revisions have received both Regional Office and Headquarters review in the past. The Regional Office would review the State submittal and prepare a recommendation to Headquarters either approving or disapproving a rulemaking action. The implementation plan revision would then be forwarded to EPA Headquarters for another round of technical, legal, and policy review. Except for those SIPs processed as direct final rules, all proposed and final rules receive the full Regional Office and Headquarters review. Historically, the second level Headquarters review rarely changed the final recommendation of the Regional Office, although it often contributed to the legal and technical rationale for an action.

Certain plan revisions clearly can have a significant impact on the implementation of national programs, such as basic strategies for demonstrating attainment with ambient standards. In addition, there are programs where a high level of national consistency is important, or which involve emerging programs where major issues on program implementation may as yet be unresolved. Such actions should receive both a Regional Office and a Headquarters review; the latter will ensure consistent policy application for these nationally significant SIPs. SIP actions which initially will continue to be decided by the Administrator are listed in Table 1. This list and the other lists described below are not intended to be permanent—that is, SIP categories may be shifted among them over time. For example, it is EPA's intention to delegate some of the SIP categories on Table 1 to the Regional Administrators as experience with the new process is gained and policies mature. Conversely, if the Regional Offices have difficulty with a delegated category, such SIP actions may be withdrawn from delegation and be subject to full Headquarters review.

TABLE 1

The following SIP actions must undergo full Regional Office and Headquarters review, with decision and signoff by the Administrator (proposed and final):

- O_3 redesignations and O_3 attainment plans (including I&M programs)
- CO attainment plans dealing with area-wide problems
- CO redesignations except those relating to point-source only problems or hot spots
- Group I PM_{10} plans (attainment demonstrations) including those resulting from commital SIPs
- New area-wide VOC regulations (e.g., per CTG requirements, or Post-87 requirements)
- VOC revisions with long-term averaging (i.e., greater than 24-hour)
- SO_2 revisions involving (a) unresolved national issues (e.g., stack height remands, statistical attainment demonstrations, expected exceedances methodology), (b) more than one Regional Office, (c) international issues.
- SIP revisions proposing or revising State-developed air quality dispersion model guidelines, and SIP revisions based on the use of non-approved models or deviations form EPA's modeling guidance.
- SIP revisions where EPA is under a court-ordered schedule (e.g., Indiana SO_2 SIP)
- SO_2 Statewide plans (all elements)
- SIPs for new generic State-wide programs (e.g., bubbles, PSD/NSR)
- PSD/NSR SIPs submitted to comply with Post-87 O_3/CO policy
- PSD/NSR SIPs for PM_{10} group I areas
- PSD/NSR SIPs submitted to comply with Alabama Power decisions
- Bubbles which trade off growth allowances
- Visibility plans that address existing impairment
- Any FIP
- Any action proposing or imposing a sanction
- Any SIP revision, approval/disapproval of which would significantly deviate from national policy

A second category of SIP revisions, listed in Table 2, are actions where some Headquarters review is deemed appropriate prior to final action. This category was developed to address those SIPs where guidance is relatively new and thus it is prudent for Headquarters to monitor the decision process at the Regional Office level. This category serves as a transition between Headquarters review and Regional Office review and will provide an opportunity for Headquarters oversight without adding a significant review requirement. Although the Regional Administrators will have decision authority for these SIPs, the Headquarters offices will have 30 days from the date the SIP revision package (including the draft Federal Register notice and support material) is received at Headquarters, to prepare and send comments to the Regional Office. This review is not intended to be a veto authority by Headquarters but rather to provide Headquarters reviewers an opportunity to provide comments to Regional Office decisionmakers.

TABLE 2

The following SIP actions are delegated for Regional Administrator decision and signoff (proposed and final) but require a 30-day opportunity for Headquarters' review before signoff.

- Particulate matter emissions relaxations
- VOC revisions with extended compliance schedules affecting nonattainment areas
- CO attainment plans dealing with hotspots
- CO redesignations relating to point-source only problems and hot spots
- SO_2 area-wide and source-specific SIP revisions and redesignations, where the source(s) or background sources in the aggregate have allowable emissions of 25,000 TPY or more (except primary nonferrous smelters or emission trading)
- SO_2 revisions with (a) averaging times greater than the short-term SO_2-NAAQS; (b) revised emission limits due to changes in stack height credits
- Visibility SIPs involving regional haze
- Direct final rulemaking in categories identified for Administrator signoff (see Table 1)
- Any other action not listed elsewhere

Decision authority for all remaining SIPs is being delegated to the Regional Administrators, with no requirement for consultation with Headquarters prior to signoff. The primary criterion used to judge which SIPs could be delegated to the Regional Administrator for decision was the significance of the action. Another criterion was the availability of appropriate policy memoranda/guidance to the Regions for making decisions on the approvability of a SIP. The categories of SIPs initially to be delegated to the Regional Administrator for final approval authority are listed in Table 3. Although these revisions are being delegated for the Regional Administrator's signature, the Headquarters SIP reviewers will be available for discussions with the Regional Offices on any of the categories of SIP revisions. The Regional Offices also have the option of sending SIP submissions which come under any of these categories to Headquarters for the full review, especially where the Regional Office reviews indicate that national issues may be of concern.

TABLE 3

The following SIP actions are delegated for Regional Administrator decision and signoff (proposed and final). Headquarters review is not required but may be requested by the Regional Office.

- All other bubbles and all other single-source regs.
- VOC extended compliance schedules (except those affecting nonattainment areas)
- PM_{10} Group II and III SIPs TSP redesignations
- Lead attainment plans and revisions
- All other SO_2 SIPs, including redesignations; ambient monitoring plans; malfunction rules; State AAQS
- State stack height regulations and negative declarations
- All other PSD/NSR SIPs
- All other visibility plans
- 111(d) plans/negative declarations
- All other direct final rulemaking
- All letter notice actions

SIP issues (and revisions) in categories of potential national significance will continue to be reviewed in Headquarters and signed by the Administrator. The categories of SIPs delegated to the Regional Administrator for decision and sign-off are inherently localized in scope and do not have potential for national impact. (Obviously, an unusual SIP revision in a delegated category could involve broad issues; the changes in procedure announced today provide for full consultation between the Regional Office and Headquarters, and even for the forwarding of such an unusual action for full Headquarters review.) Thus, except for unusual cases, decisions made by a Regional Administrator will be based on local factors, reflect local issues, and may indeed yield varying results, although Regional Offices will apply policies consistently. Such decisions are, therefore, intended to be non-transferable, i.e., do not set precedents for other Regions. For example, an emission limit for a particulate matter source in a State may require a specific value to conform to the State's demonstration of attainment. The same type of plant in another State, however, might have a different limit imposed based on its location and site-specific factors. In short, it is expected that the outcome of the decision process for similar SIP actions can vary from Region to Region. Each such local action must be judged on its own merits. This is acceptable, provided that national policy and guidance applicable to such actions are applied consistently by all Regions involved.

To provide the Regional Office with the necessary support, EPA is completing a comprehensive compilation of policy statements, guidance, and memoranda applicable to those actions where significant Headquarters review is being eliminated. Moreover, to maintain oversight of this decentralized process, EPA will institute more intensive management systems, designed to ensure national consistency in policy application (see discussion on Management Systems later in this notice).

B. Improve Certainty of the Process

1. Adherence of Formal Procedures

Detailed procedures exist for processing and reviewing SIP revisions. Among other things, the procedures provide for firm schedules, default provisions, and mechanisms for issue resolution. The procedures frequently are not following for a variety of reasons. In some cases, a Regional Office may believe that infomally working/negotiating with the State would provide information or result in changes to the submission that would enable EPA to approve the plan revisions. This can occur because there is an inherent reluctance by reviewers to disapprove a plan into which a State or local agency has put considerable effort. The goal of this informal approach was to enhance the relationship with the State, although the ultimate effect may have been the opposite.

The current guidance and procedures for SIP processing are being reviewed, modified as necessary to stress the need for more formal implementation, and will be republished with a clear senior management directive on their importance. Further, the management system decribed below will help ensure that the reviewing offices follow the formal procedures. This, along with increased management attention to the SIP process, should enable those interested in the results of the SIP review process, internally and externally to EPA, to follow more effectively the progress of individual actions.

2. Grandfathering Guidance

EPA issued grandfathering guidance to the Regional Offices as described earlier. The guidance is to be considered in each rulemaking action on a SIP revision and in all new or revised requirements for SIP's issued by EPA. EPA believes that it deals with the fairness issue, will not have noticeable environmental impact and will strengthen EPA's working relationships with the States and local agencies. Under the guidance, a SIP revision may remain subject to the requirements in effect generally on the date of State adoption of the change. The decision to grandfather will be made by either the Administrator or the appropriate Regional Administrator where decision authority has been delegated.

All SIP revisions potentially subject to grandfathering will be reviewed to determine to what extent the submission complies with the new and revised requirements. For such revisions, EPA will address the impact of the grandfathering decision (positive or negative) in the SIP rulemaking action. In addition, the basis for grandfathering future submittals will be described in all new requirements issued by EPA, addressing the impact on previously approved, pending, and newly submitted SIPs. Such grandfathering provisions generally will have effective dates which are 60 days from the date of signature to allow states to have a reasonable time to complete processing and submit revisions to EPA that may be subject to grandfathering.

Although grandfathering will be considered whenever possible, blancing equity considerations and short-term environmental impacts, it is not automatic and may not be appropriate in all circumstances. These include situations where:

1. The State has not acted in good faith in submitting a plan;
2. A court ruling has changed a federal requirement or has convinced EPA that a previous requirement is no longer supportable;
3. The Administrator determines that it is not appropriate to grandfather under a new EPA policy;
4. A decision to grandfather would have an imminent and substantial adverse environmental impact or foreclose the ability of EPA to exercise its authority under the Clean Air Act (e.g., apply sanctions under Part D).

This guidance builds on existing grandfathering guidance (e.g., air quality dispersion modeling) to establish the general concept of grandfathering where equity dictates such action.

Where grandfathering would render the SIP as a whole substantially inadequate to protect the NAAQS or otherwise to comply with the Act, grandfathering may be allowed only if justified by an individual analysis under the four-part Sierra Club test described earlier, and the grandfathering action would have only a limited life (generally two years). Within that time, the grandfathered revision must terminate (e.g., expiration of a temporary variance), or the State must submit a complete, approvable revision to the SIP to bring it into full compliance with all statutory requirements.

3. Improved Guidance and Communication

Improved guidance and communication is basic to improved certainty in SIP decisionmaking. Many of the recommendations of the task group on SIP processing required new guidance from EPA Headquarters before they could be implemented. These include: the completeness criteria; increased use of direct final; letter notice for nonsubstantial actions; and signature authority for the Regional Administrators. All of these items are discussed elsewhere in this notice.

Logically, when the final sign-off authority is delegated to the Regional Administrator, up-to-date policy and guidance pertinent to the specific categories of SIPs should be assembled and made available to Regional Office reviewers (see section on "SIP Approval Authority" for categories of SIPs). The necessary guidance is being assembled for these categories of SIPs for use by the Regional Offices in the absence of Headquarters review. In addition, alternatives for more timely and systematic update of such guidance are being explored.

Complete and up-to-date guidance is a traditional form of communication between EPA Headquarters and the Regional Offices. EPA recognizes that effective communication will become more important with the implementation of the SIP processing reforms announced today, not only between Headquarters and the Regional Offices, but also between the Regional Offices themselves. It is essential that information on SIP review activities, problems and problem resolution be shared promptly by Headquarters and the Regions so that consistent application of policy and guidance can be assured. Several actions are underway in this regard.

The existing SIP tracking system, "SIP TRAX," which presently only follows SIP submittals from their receipt at Headquarters, is being expanded to track a SIP submittal from receipt by the Regional Office to ultimate disposition (see further discussion under the "Management System" below). Data contained in the system will be refined and adjusted as experience is gained under the new procedures. In parallel with this tracking system change, greater emphasis will be placed on the "key SIP contact" persons in the Regional Offices. Already in place, these persons will have expanded responsibility as the Regional Offices do more of the decisionmaking on SIP submittals. It is expected that more frequent use of conference calls, between some or all Regions, will be made, and a workshop on SIP processing issues will be instituted in conjunction with the Headquarters/Regional Office air program staff conference held annually in North Carolina.

To ensure that effective dialogue takes place periodically, EPA is considering the establishment of a Regional Office SIP Council. Such a Council would be composed of Regional Office SIP review staff, chaired on a rotating basis by one of the offices. The chair would establish a meeting frequency (by teleconference) which could be monthly or at some similar regular period. The purpose of the meetings would be for each Region to discuss SIP processing activities for the period, to highlight unusual issues that arose, and to identify/resolve points of contention between Regions. Headquarters staff would participate in these Council meetings as advisors and to provide policy/technical expertise. Significant results of such meetings would be posted on an electronic bulletin board for future reference and guidance.

Other initiatives are being considered. These include creation of "policy hotlines" establishing Headquarters experts in various program areas to provide quick response to Regional Office inquiries. As an extension of this concept, Regional Office "experts" are expected to emerge over time who would serve the same function for their colleagues. Although the full scope of improved communications techniques has not been fully defined at this time (indeed, should never be finalized since communications flow inherently should be dynamic), EPA is aware of the importance of this function and is giving it high priority.

4. SIP Processing Management System

Effective management of the SIP review process within EPA, including review by both the Regional Offices and Headquarters, is vital to ensure that implementation plans submitted by States are processed expeditiously. As part of this action to improve SIP processing within EPA, the management system is being revised to monitor the processing of implementation plan revisions under the changes described today. A basic goal of this revised management system is to ensure an appropriate degree of consistency between all reviewers in interpreting and implementing the SIP processing guidance and air quality management program policy. The management system will also evaluate the reviewers' conformance to established review procedures. In addition, an outgrowth of the management system will be the identification of issues and problems in implementation plan guidance, policies, and procedures at both Headquarters and Regional Offices. With such information, EPA can ensure the timely update of policy and processing guidance.

The management program is designed to ensure the adequacy of the processing procedures and to facilitate the review of implementation plans. Identification of program deficiencies is not intended to result in recriminations but to improve the process. The effect of the improved management program should be increased public confidence in the air quality management program, and more certainty on the part of States and industry regarding the operation of the SIP review process.

Audits

A key feature of the management system is the development of an audit program. The audit program is designed to review actions, generally after processing is complete and final action is taken, to determine whether processing procedures and program policy have been adhered to during the review of the implementation plan. It is not the intent of the management program to review, or second-guess, every SIP action that is processed within EPA.

The frequency of program audits will be based upon several factors. One factor is the total number of implementation plan revisions processed by a particular office. This is important because significant processing deviations are more likely to result when the number of actions is high. A second factor to be considered in determining the frequency of the audit cycle is the type of actions processed—newly implemented programs with a significant level of complexity should receive greater attention than programs which are well established. Another element in determining the frequency of audits will be the prior performance o the reviewing office. Those that have demonstrated problems should receive greater attention and thus more frequent audit than areas with demonstrated capabilities. As a corollary, in addition to examining performance of specific organizations, the audit program will identify program areas where several organizations are demonstrating a lack of understanding, indicating the possible need for improved guidance.

The audit program must be designed such that the interval between audits is not too lengthy. With reasonable frequency, the management system must be able to obtain an overview of the basic program and the personnel responsible for implementing the program. Such a review is necessary to ensure that the skills and knowledge to effectively process all types of plan revisions are maintained; this is necessary even where few and/or routine plan revisions are received.

The audit program will employ two basic sources of information: (1) Records and documents submitted or prepared as part of the formal submittal and review process; and (2) discussions with the individuals in Headquarters and/or Regional Offices involved with processing of plans in general and associated with specific SIP actions. Through review of the processing documentation and the implementation plan submittal, the auditor can determine independently the procedures followed, how specific policies were applied, conformance to national policy and guidance, etc. Discussions with the individual responsible for the processing and review of SIP actions will provide information related to deficiencies that exist in the processing guidance, difficulties in conforming to program policy for specific actions, and elements missing from EPA guidance that should receive attention at the national level.

The Regional Offices will need to maintain the full documentation and history of each SIP action processed. In the majority of cases this will not result in any extra work load since most of this information is contained in the files already maintained by the appropriate Regional Office. In addition to the currently maintained manual records, EPA intends to expand an operational microcomputer-based system for maintaining the status of currently active implementation plans. The current system tracks SIP revisions for maintaining the status of SIP actions upon receipt of the package by Headquarters and contains no information on plan revisions at the Regional Office; the system will be expanded to maintain information on the status of SIP actions under review by any EPA organizational element. This will permit the rapid transfer of information between Regional Offices and Headquarters on the status of all actions which are active within EPA.

There are two types of audit functions anticipated by this program—internal and external. An internal program audit involves the routine audit of the SIP review process by those individuals within the reviewing organization who are directly responsible for the review of the SIP. This internal audit will occur at both Headquarters and the Regional Offices on an ongoing basis. Rather than mandate the procedures to be used by each Regional Office and appropriate Headquarters office for the internal audit, each office will establish audit procedures that are appropriate based upon resources, capabilities, and the nature of SIP revisions processed. For example, it may consist of senior staff familiar with the program requirements reviewing a selected portion of the revisions processed by the SIP review staff. The Regional Offices will focus their internal audit efforts on those actions to be signed by the Regional Administrators.

The external audit is designed to obtain an independent overview of the program. This audit will be conducted by Headquarters individuals with experience in SIP review but who do not take an active role in the process. The external audit will address all facets of the program including adherence to processing procedures, interpretation of EPA policy, the impact of air quality management, and the effectiveness of the revised procedures in expediting the processing of State submissions. In addition, Headquarters offices will be audited on how well new policy is distributed and explained to the Regional Offices. Audit guidelines will be developed and distributed to all offices responsible for SIP review, identifying in advance the major points of emphasis in the audit program. The external audit will examine not only program deficiencies but also the positive aspects of implementation of the program, providing a report both on how program deficiencies can be improved and on how innovative solutions have increased the efficiency of the SIP review process. An important output of the audit program is the identification of training needs for those individuals responsible for SIP review.

Recordkeeping System

As previously mentioned, EPA has implemented a microcomputer-based data system for tracking the progress of SIPs during Headquarters review. This system, "SIP TRAX," currently tracks specific milestones of the Headquarters review process. These include:

(1) When the revision was received in Headquarters;
(2) Date of staff concurrence;
(3) Date of approval by the Assistant Administrator/Administrator;
(4) Date published in the **Federal Register**.

The system is accessible by the Regional Offices through a microcomputer-based bulletin board system and is updated on a weekly basis. SIP TRAX will be expanded to incorporate the initial phases of SIP review that occur in the Regional Offices before the implementation plan is forwarded to Headquarters for review. This is important since the process of transfer of SIP decision responsibilities will result in many SIP actions not coming to Headquarters and thus would not be entered in a system tracking only Headquarters review.

There are several reasons for maintaining such a system. In order for the various Headquarters offices responsible for program development to maintain a sense of the major SIP issues being addressed, a method of summarizing SIP actions processed is necessary. The development of a data base system that can provide such information will reduce the resource burden of soliciting input from Regional Offices. In addition, EPA is frequently asked about the specific status of implementation plan revisions in process by the public, industries, and members of Congress. Since the system will be regularly updated to contain information on all SIP actions, the data base will be more complete and accurate than one solely relying on Regional Offices' responses to periodic inquiries. Overall, an integrated system will allow EPA to determine more accurately the status of, and time and resource commitments allocated to, SIP review wherever it occurs.

Processing Deviations

In addition to the basic program oversight, an important function of the audit will be to identify those circumstances where deviations from processing guidance have occurred. These processing deviations will be examined from the perspective of the potential impact of the action. The identification of processing deviations could result in varying responses, ranging from simple improvements in the review process to those few cases expected where the State may be required to submit a corrective SIP action to resolve a deficiency. The specific corrective action to be taken will be determined on a case-by-case basis.

The majority of implementation plan revisions submitted by States are associated with source specific actions, are administrative in nature, or are in direct response to EPA mandates to incorporate explicit regulatory provisions or language. In most cases, the environmental effect of SIP processing deviations are expected to be insignificant, and thus there should be no need to require the State to submit additional information or to make further revisions to a specific submittal. However, for recurring problems, the State will be notified that a particular aspect of submitting implementation plan revisions should be modified to avoid the problems identified.

More important deviations may include actions where the potential exists for significant environmental impact. As previously stated, SIP actions that are likely to affect the program on a national basis will receive full EPA review and decision by the Administrator. As a result, the actual number of environmentally significant deviations should be limited. Nevertheless, the audit process is designed to identify such situations so that appropriate actions to limit the impact can be taken promptly. In these cases, corrective action will depend on the problem. For proposed actions, EPA may need to withdraw the proposal and reverse the proposed approval/disapproval action. Alternatively, where EPA has fully processed and approved a revision to the implementation plan, it may be necessary to issue a notice of SIP deficiency requiring the State to submit a revision to correct the identified problem. The response to each case will be decided based upon the specific merits of the plan revision involved and the potential environmental impact.

Administrative Requirements

The docket is an organized and complete file of all the information considered by EPA in the development of these SIP processing changes. The docket is a dynamic file because material is added throughout the notice preparation and comment process. The docketing system is intended to allow members of the public and industries involved to identify and locate documents so that they can effectively participate in the process. Along with the statement of basis and purpose of the SIP processing changes and EPA responses to significant comments, the contents of the docket, except for interagency review materials, will serve as the record in case of judicial review (see Clean Air Act, section 307(d)(7)(A), 42 U.S.C. 7607(d)(7)(A)).

The effective date of these changes is January 19, 1989.

Section 317(a) of the Clean Air Act, 42 U.S.C. 7617(a), states that economic impact assessments are required for revisions to standards or regulations when the Administrator determines such revisions to be substantial. The changes described today do not change the substantive requirements for preparing and submitting an adequate SIP package. No increase in the cost as a result of complying with the changes described today is expected; moreover, the monitoring, recordkeeping, and reporting requirements have been determined to be insubstantial. Because the expected economic effect of the changes is not substantial, no detailed economic impact assessment has been prepared.

The information collection requirements of these changes are considered to be no different than those currently required by the Clean Air Act and EPA procedures. Thus, the public reporting burden resulting from today's notice is estimated to be unchanged from existing requirements. The public is invited to send comments regarding the burden estimate or other aspect of information collection, including suggestions for reducing any burden, to the docket and to the following: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA."

Under Executive Order 12291, EPA is required to judge whether an action is "major" and therefore subject to the requirement of a regulatory impact analysis (RIA). The Agency has determined that the SIP processing changes announced today would result in none of the significant adverse economic effects set forth in section 1(b) of the Order as grounds for a finding of "major." The Agency has, therefore, concluded that this action is not a "major" action under Executive Order 12291.

This notice was submitted to OMB for review consistent with section 307(d) of the Clean Air Act. A copy of the draft notice as submitted to OMB, any documents accompanying the draft, any written comment received from other agencies (including OMB), and any written responses to those comments have been included in the docket.

The Regulatory Flexibility Act of 1980, 5 U.S.C. 601-612, requires the identification of potentially adverse impacts of Federal actions upon small business entities. The act requires the completion of a regulatory flexibility analysis for every action unless the Administrator certifies that the action will not have a significant economic impact on a substantial number of small entities. For reasons described above, I hereby certify that the final rule will not have a significant economic impact on a substantial number of small entities.

Date: January [illegible], 1989.

Lee M. Thomas,

Administrator.

[FR Doc. 89-[illegible] Filed 1-18-89; 8:45 am]

BILLING CODE [illegible]

[ER-FRL-3507-1]

Environmental Impact Statements; Availability

Responsible Agency: Office of Federal Activities, General Information (202) 382-5076 or (202) 382-5075.

Availability of Environmental Impact Statements Filed January 9, 1989 Through January 13, 1989 Pursuant to 40 CFR 1506.9.

EIS No. 890004, Final, COE, TX, Applewhite Dam/Reservoir and Leon Creek Diversion Dam/Lake Water Supply Project, Permit Application, Implementation, Section 404 and 10 Permits, Bexar County, TX, Due: February 21, 1989, Contact: Timothy L. Tandy (817) 334-2095.

EIS No. 890005, Final, AFS, CA, Eldorado National Forest, Land and Resource Management Plan, Amador, Alpine, Eldorado and Placer Counties, CA, Due: February 21, 1989, Contact: Jerald N. Hutchins (916) 622-5061.

EIS No. 890006, Draft, EPA, LA, Mississippi River Gulf Outlet Ocean Dredged Material Disposal Site (ODMDS) Designation, Plaquemines Parish, LA, Due: March 6, 1989, Contact: Norm Thomas (214) 655-2260.

EIS No. 890007, DSuppl, AFS, CO, Routt National Forest Land and Resource Management Plan, Incorporation of the Derach Report, Implementation, Routt, Garfield, Grand, Moffat, Rio Blanco, Jackson and Summit Counties, CO, Due: April 17, 1989, Contact: Reese Pope (303) 879-1722.

EIS No. 890008, Final, IBR, UT, Weber Basin Project, Willard Reservoir Water Use Change, Irrigation to Municipal and Industrial Water Supply Conversion, Implementation, Davis and Weber Counties, UT, Due: February 21, 1989, Contact: Harold Sersland (801) 524-5580.

EIS No. 890009, Draft, AFS, CA, Doe Ridge Golf Course Development and Operation, Special Use Permit, Inyo National Forest, Mono County, CA, Due: March 6, 1989, Contact: Dean McAlister (619) 934-2505.

EIS No. 890010, Draft, UMC, NC, Oak Grove Marine Corps Outlying Field, AV-8B Forward Training Facility Construction and Operation, Implementation, Jones County, NC, Due: March 6, 1989, Contact: Diori Kreske (804) 445-2334.

Dated: January 13, 1989.

William D. Dickerson,

Deputy Director, Office of Federal Activities.

[FR Doc. 89-1283 Filed 1-18-89; 8:45 am]

BILLING CODE 6560-50-M

[FRL-3506-8]

Office of Policy, Planning and Evaluation; Candidates for Regulatory Negotiation: Extension of Time

This notice announces the extension of the comment period for suggesting candidates for regulatory negotiation. The notice dated December 12, 1988 (53 FR 51008) announced the opening of a 30 day comment period to suggest candidates for regulatory negotiation with the Environmental Protection Agency. This notice announces that the comment period is extended an additional 60 days until March 20, 1989. Candidate suggestions should be made to: Chris Kirtz, U.S. Environmental Protection Agency, PM 223, 401 M Street SW., Washington, DC 20460; (202) 382-7565. Additional information on EPA's Regulatory Negotiation Project can be obtained by writing or calling Chris Kirtz or Deborah Dalton at the above address and phone number.

Thomas Kelly,

Director, Office of Standards and Regulations.

[FR Doc. 89-1282 Filed 1-18-89; 8:45 am]

BILLING CODE 6560-50-M

FEDERAL MINE SAFETY AND HEALTH REVIEW COMMISSION

Interest Rate Applicable to Discrimination and Compensation Awards

AGENCY: Federal Mine Safety and Health Review Commission.

ACTION: Notice.

SUMMARY: The Commission has adopted a new method for calculating the rate of interest applicable to monetary awards in discrimination and compensation cases.

DATES: This action is effective for Commission cases in which decisions are issued after November 28, 1988.

ADDRESSES: Requests for copies of the Commission's decision should be addressed to Richard L. Baker, Executive Director, Federal Mine Safety and Health Review Commission, 1730 K Street, NW., 6th Floor, Washington, DC 20006.

FOR FURTHER INFORMATION CONTACT: L. Joseph Ferrara, General Counsel, Office of the General Counsel, 1730 K Street, NW., 6th Floor, Washington, DC 20006, telephone: 202-653-5610 (202-566-2673 for TDD Relay). These are not toll-free numbers.

SUPPLEMENTARY INFORMATION: The Federal Mine Safety and Health Review Commission has adopted a new method for calculating the rate of interest applicable to monetary awards to prevailing complainants in discrimination and compensation cases arising under sections 105(c) and 111 respectively of the Federal Mine Safety and Health Act of 1977. This action was taken in *Loc. U. 2274, UMWA* v. *Clinchfield Coal Co.*, 10 FMSHRC 1493 (November 28, 1988), *pet. for review filed*, No. 88-1873 (D.C. Cir. Dec. 16, 1988).

Section 105(c) of the Mine Act, 30 U.S.C. 815(c), prohibits discrimination against miners for engaging in protected activities under the Mine Act. Under sections 105(c)(2) and (3), a miner who has been found to have been discriminated against is statutorily entitled to appropriate relief, including back pay and interest. 30 U.S.C. 815(c)(2) and (3). Section 111 of the Mine Act, 30 U.S.C. 821, requires an operator to pay certain amounts of compensation to miners who have been idled by a withdrawal order issued by the Secretary of Labor. In adjudications arising under section 111, the Commission also awards interest on back pay awards. *Clinchfield Coal Co., supra.*

In the past, the Commission's rate of interest on monetary awards in discrimination proceedings, as announced in *Secretary on behalf of Bailey* v. *Arkansas-Carbona Co.*, 5 FMSHRC 2042 (December 1983), was based on the "adjusted prime rate" announced semi-annually by the Internal Revenue Service ("IRS") under formerly applicable versions of 26 U.S.C. 6621 for purposes of fixing interest on overpayment and underpayment of taxes. However, as of January 1, 1987, as a result of the Tax Reform Act of 1986, Pub. L. 99-514, 100 Stat. 2085 (1986), the IRS discontinued its use of the "adjusted prime rate" and now uses the "short-term Federal rate" as the rate of interest on overpayment and underpayment of taxes. 26 U.S.C.A. 6621 (Supp. 1988).[1]

[1] The "short-term Federal rate" is determined by the Secretary of the Treasury based on the average market yield on outstanding marketable obligations of the United States with remaining periods to maturity of three years or less. 26 U.S.C.A. 1274(d)(1)(C)(i) (Supp. 1988). The "short-term Federal rate" is determined for the first month in each calendar quarter and applies during the first calendar quarter beginning after such month. 26 U.S.C.A. 6621(b) (Supp. 1988). The rates are rounded to the nearest full percent. 26 U.S.C.A. 6621(b)(3) (Supp. 1988). The overpayment interest rate (paid by the IRS on tax refunds) is the short-term Federal rate plus 2 percentage points and the underpayment rate (paid by the taxpayer on additional taxes) is the short-term Federal rate plus 3 percentage points. 26 U.S.C.A. 6621(a) (Supp. 1988).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

JUN 27 1988

PN 110-88-06-27-095

MEMORANDUM

SUBJECT: "Grandfathering" of Requirements for Pending SIP Revisions

FROM: Gerald A. Emison, Director
Office of Air Quality Planning and Standards (MD-10)

TO: Director, Air Management Division
Regions I, III, IX
Director, Air and Waste Management Division
Region II
Director, Air, Pesticides and Toxics Division
Region IV, VI
Director, Air and Radiation Division
Region V
Director, Air and Toxics Division
Region VII, VIII, X

Recommendations for improving SIP processing generally at EPA were presented to the Deputy Administrator and approved fully. It is the intention of the Agency's management that the recommendations be implemented promptly. This is being done by an Intra-Agency Work Group composed of Headquarters and Regional Office persons. This memorandum provides guidance on applying previously applicable standards to pending SIP revisions where the relevant requirements have changed since the state prepared the SIP submittal (i.e., "grandfathering").

In a number of cases, States have submitted SIP packages that were consistent with the EPA "requirements" (i.e., standards, regulations, policies, legal interpretations, guidances, and clarifications) in effect at the time. As a result of processing delays and policy evolution, the applicable requirements were revised before the proposed SIP change received EPA approval. When the revised requirements did not contain an appropriate grandfathering provision (e.g., a provision allowing SIP packages to be acted upon based on the requirements in effect at the time of State adoption), SIP reviewers assumed that the appropriate action was to disapprove the SIP revision and/or return it to the State for changes.

Not only can this delay rulemaking, but it also may be inequitable and serve as an irritant to effective EPA/State/local agency cooperation. Moreover, such action usually results in an ineffective use of resources by the State and EPA. Consequently, we are today extending the concept of grandfathering contained in existing guidance (e.g., for modeling), as described in the enclosure. It is the intent of EPA management that grandfathering be applied where it is warranted and appropriate. Today's guidance was developed in conjunction with the Regional Offices and the Office of General Counsel. We believe that it deals with the equity issue, will not have a noticeable environmental impact overall, will strengthen the Agency's working relationship with its State and local partners, and does not conflict with either the Clean Air Act or the Administrative Procedures Act.

Attachment

cc: Air Branch Chiefs, Regions I-X
Regional Counsel (Air Branch Chiefs), Regions I-X
Don Clay
Alan Eckert
Mike Alushin
John Seitz
Robert Cahill
John Calcagni
Bob Wayland
Dick Wilson
Bill Laxton
Charles Gray

bcc: Work Group Members
Jack Farmer
Rich Ossias
Peter Wyckoff
Bern Steigerwald

GUIDANCE ON GRANDFATHERING OF

REQUIREMENTS FOR PENDING SIP REVISIONS

June 1988

Introduction

EPA is expanding its guidance on how to apply previously applicable requirements in two general situations where the issue may arise: (1) when new or newly revised "requirements" (i.e., standards, regulations, policies, legal interpretations, guidances, or clarifications) for SIPs are issued by the Agency and (2) when rulemaking action is taken on a "SIP revision" (i.e., a State-specific EPA rulemaking under the Clean Air Act). This guidance will be in effect for complete SIP revisions submitted to EPA and for requirements issued and/or revised by EPA after today. In general, all SIP revisions submitted before today will continue to be reviewed based on EPA's current policy, which is to decide each SIP revision based on the requirements in existence at the time of EPA's rulemaking.

Grandfathering is not to be considered mandatory or automatic. In determining whether grandfathering should apply, and what the appropriate date should be, the decision maker should keep in mind the thrust of this guidance, i.e., to honor good faith effort on the part of the State/local agency submitting the revision, balancing equity with other considerations. This guidance expressly is not intended as a vehicle to allow circumvention of tighter requirements or to facilitate the avoidance of difficult decisions.

Legal Background

Whenever a new requirement is established by Congress (via statute) or by EPA (via regulation or policy), it becomes generally applicable unless the authority establishing the requirement provides otherwise. When Congress enacts a new statute, it applies to all matters then pending before an agency unless Congress specifically provides otherwise in the statute. The Agency has no authority to grandfather any matter from the new statutory requirements without explicit provisions in the statute.

When EPA issues new regulations, they are also generally applicable unless the regulations themselves include grandfathering provisions. If grandfathering provisions are not explicit in the regulations and absent a contrary interpretation by the Agency, courts will apply the new rules to matters pending before the Agency. <u>Thorpe v.</u> <u>Housing Authority of</u>

Durham, 393 U.S. 268 (1969). However, an agency does have some flexibility to provide grandfathering provisions in new regulations. Generally, such provisions are appropriate where they meet a four-part test. First, the new rule represents an abrupt departure from well-established practice. Second, affected parties have relied on the old rule. Third, the new rule imposes a large burden on those affected. Fourth, there is no strong statutory interest in applying the new rule generally. Sierra Club v. EPA, 719 F.2d 436 (D.C. Cir. 1982), cert. den. 468 U.S. 1204 (1984). In the past, EPA has generally included explicit grandfathering provisions in new regulations where appropriate. Under this guidance, EPA will affirmatively consider the need for grandfathering provisions in all new regulations.

An agency has very broad authority to decide how and when to issue new guidance, since as a purely legal matter guidance is not absolutely binding on subsequent proceedings. Pacific Gas and Electric Co. v. FPC, 506 F.2d 33 (D.C. Cir. 1974). Historically, EPA has provided only limited grandfathering from revised guidance. This document establishes a detailed framework for grandfathering pending SIP revisions from all future EPA requirements.

The Guidance

The following will be considered in deciding whether to apply grandfathering to an individual SIP revision and in developing appropriate grandfathering provisions for each EPA SIP requirement:

A. General Guidance: A SIP revision generally will remain subject to the requirements in effect either (a) on the date that the State adopts the SIP revision (provided a complete, fully adopted revision is submitted promptly, generally within 60 days of the adoption), or (b) on the date that the USEPA proposes the SIP revision under the parallel processing procedure. However, in specific cases, EPA will apply different dates as appropriate (e.g., see memorandum, J. Tikvart to Regional Modeling Contacts, January 2, 1985, concerning grandfathering modeling requirements). A discussion of what constitutes a complete, fully adopted SIP revision is found in the memorandum, G. Emison to Regional Air Directors, March 18, 1988.

B. There are certain exceptions to the general grandfathering guidance:

1. Grandfathering should not be considered if the State has not acted in good faith in preparing and submitting a SIP revision. For example, an incomplete revision hurriedly submitted to avoid coverage under a new or revised EPA requirement should not be grandfathered. Similarly, grandfathering should not be considered when a SIP revision is submitted

substantially in excess of 60 days after State adoption as specified in paragraph A.

2. Grandfathering of SIP revisions may not be appropriate or possible when a court ruling has explicitly changed a current federal requirement or has convinced EPA that a previous requirement is no longer supportable. Under these circumstances, the Office of General Counsel (OGC), in consultation with the Office of Enforcement and Compliance Monitoring (OECM) and the Office of Air and Radiation (OAR), will define the limits of the court's decision and how it may affect EPA's requirements and SIP revisions, including previously approved SIP revisions, pending SIP revisions, and SIP revisions which are to be submitted in the future. OGC will make its best effort to issue such an opinion within 60 days from the date of the court's decision.

Based on this analysis, OAR will issue a decision on the appropriateness of grandfathering and the continued use of the pre-court ruling requirement on pending and future SIP revisions. This decision will generally be issued within 90 days from the date of the court's decision. OAR will also issue a decision on the appropriate action to take, e.g., notice of SIP deficiency or "no action" needed at this time, on previously approved SIP revisions.

3. The Administrator may determine that grandfathering is not appropriate under a certain new policy. He could conclude that the old policy was ill-founded, or simply not wish to grandfather due to the importance of the new policy to EPA's programs. Where a new policy issued by the Administrator specifically states that grandfathering is not appropriate or establishes a particular grandfathering provision that differs from this guidance, such provisions would of course supersede this guidance.

4. Grandfathering of a particular SIP revision or requirement is not appropriate if a decision to grandfather it would have an imminent and substantial adverse environmental impact or could permanently foreclose the continued use of the provisions and/or sanctions of Part D of the Clean Air Act, e.g., changes in Section 107 designations or the full approval of Part D plans, both of which may foreclose the future use of sanctions to assure the correction of any deficiency arising from the change in EPA requirements.

5. Action on a SIP revision which comports with the revised requirements but not the original requirements may be based on the revised requirements.

6. If a SIP revision complies with the original but not the revised requirements, and such lack of compliance renders the SIP as a whole substantially inadequate to assure the attainment and maintenance of the National Ambient Air Quality Standards (NAAQS) under the revised requirements, an individual analysis of the appropriateness of grandfathering under the four-part test established in the Sierra Club case discussed above under Legal Background must be conducted. If the analysis concludes that grandfathering of the particular SIP revision is appropriate, action may be based on the original requirements. In such an event, however, additional actions may be necessary depending upon the nature of the SIP revision being considered.

a. For SIP revisions (e.g., variances and interim emission limits) which would have an effective lifetime of 2 years or less from the date of EPA final rulemaking, no additional action will generally be taken, because of the length of time it would take for the State and EPA to change the action to comport with the revised requirements. Any subsequent requests for the continuation of grandfathering (i.e., beyond the effective lifetime of the original SIP revision) should be rejected.

b. For SIP revisions which would otherwise have an effective lifetime of greater than 2 years, other rulemaking actions will be necessary to assure that the SIP ultimately comports with the revised requirements.

(i) Elements in plans that have been "conditionally" approved will be approved subject to the further condition that the plan as a whole be corrected as necessary to assure full compliance with all requirements of the Clean Air Act. For a discussion of EPA's original policy on conditional approval, see 44 FR 20372 (April 4, 1979), 44 FR 38583 (July 2, 1979) and 44 FR 67182 (November 23, 1979).

(ii) Elements in fully approved plans will be approved with the simultaneous issuance of a CAA Section 110(a)(2)(H) notice of deficiency.

Under either of these circumstances, the approval of the particular SIP revision should contain a sunset provision that terminates the effectiveness of the approval within a predetermined period, generally 2 years. In addition, the Region should make an affirmative effort to assure that the timeframe (generally 2 years) for complete, fully adopted State rulemaking action involved with either the notice of SIP deficiency or conditional approval is strictly adhered to. If a State does not adhere to this schedule, the Region will initiate appropriate steps to ensure ultimate compliance, e.g., performance-based grant actions, sanctions, and EPA promulgations.

7. Certain classes of changes are only indirectly related to attainment and maintenance of national ambient air quality standards. Such changes may involve PSD/NSR rules, stack height provisions, permit fees and similar generic requirements which are clearly not intended to be permanently grandfathered. Changes of this type are to be handled as described in paragraph 6 above.

C. All new requirements issued by OAR or OGC will address their impact on SIP revisions previously approved or pending, and SIP revisions to be submitted in the future. New requirements will contain provisions incorporating the general grandfathering guidance (paragraph A above) whenever appropriate and possible. Generally, changes in EPA's requirements will have effective dates which are 60 days from the date of signature to allow States to adjust their pending rulemaking actions before they are finally adopted and submitted. Longer effective dates should be used when the changed requirements affect fundamental, long-term air quality strategy development tools and the requirements of the change are resource intensive.

D. SIP revisions framed to meet major requirements currently being reconsidered by EPA or currently under litigation should proceed and will not be held back from rulemaking until the issues are decided. SIP revisions approved under these circumstances will be addressed, if necessary, as described in paragraph B(6)(b) above for revised EPA SIP requirements and by paragraph B(2) for requirements being changed because of court decisions.

E. Staff personnel making grandfathering decisions should coordinate with Offices of Regional Counsel or OGC on application of this guidance as appropriate, especially in connection with the analysis required under paragraph B(6) above.

F. Each Federal Register notice for action on a SIP revision will state the rationale for which requirements were applied.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

DATE: JUN 12 1980

SUBJECT: Information Required in Federal Register Packages

FROM: Richard G. Rhoads, Director RGR
Control Programs Development Division (MD-15)

TO: Director, Air and Hazardous Materials Division, Regions I-V, and VII

An April 29, 1980 memo from Walt Barber asked that all SIP revisions dealing with SO_2 relaxations be submitted through the "special action" procedures. The purpose of that request was to allow the Agency to more carefully scrutinize the nature of each relaxation and its multi-regional impact. A copy of this memo is attached.

In order to allow us to assess the relative impact of each SO_2 relaxation more accurately, I ask that the following information be included in each action memo.

1. Plant name and location.

2. Size of the facility (including the number of boilers) expressed in megawatts or Btu/hour firing capacity (design).

3. Amount, type, and sulfur content of actual fuel combusted during the previous year.

4. The revised SO_2 emission limit, the existing SIP limit, and the corresponding averaging times for these limits.

5. The "paper" as well as actual increase or decrease in emissions.

The calculations involved in determining the increase of emissions should assume status quo operating conditions of the source. There is no need to consider increased or decreased utilization of the source's capacity.

In addition, because of the ongoing development of policy on the issue of good engineering practice (GEP) stack height, all Federal Register packages addressing the stack height issue should be submitted through the "special action" procedures. Furthermore, I ask that your staff inform Bob Schell (629-5365) of my staff of any Federal Register packages involving stack height increases which are currently under development and projected to be forwarded for 14-day review within the next few weeks.

The following information should be included in each action memo which involves increased stack height.

1. Height of the old stack as well as that of the new.

2. If GEP stack height is determined, the methodology used to determine it, and the stack height considered to be GEP.

Your cooperation and assistance in dealing with these sensitive issues are greatly appreciated.

Attachment

cc: David Hawkins
    Walt Barber
    Mike James
    Ed Reich

REFERENCES FOR SECTION 7.4

§ 51.153 Reevaluation of episode plans.

(a) States should periodically reevaluate priority classifications of all Regions or portion of Regions within their borders. The reevaluation must consider the three most recent years of air quality data. If the evaluation indicates a change to a higher priority classification, appropriate changes in the episode plan must be made as expeditiously as practicable.

Subpart I—Review of New Sources and Modifications

SOURCE: 51 FR 40669, Nov. 7, 1986, unless otherwise noted.

§ 51.160 Legally enforceable procedures.

(a) Each plan must set forth legally enforceable procedures that enable the State or local agency to determine whether the construction or modification of a facility, building, structure or installation, or combination of these will result in—

(1) A violation of applicable portions of the control strategy; or

(2) Interference with attainment or maintenance of a national standard in the State in which the proposed source (or modification) is located or in a neighboring State.

(b) Such procedures must include means by which the State or local agency responsible for final decisionmaking on an application for approval to construct or modify will prevent such construction or modification if—

(1) It will result in a violation of applicable portions of the control strategy; or

(2) It will interfere with the attainment or maintenance of a national standard.

(c) The procedures must provide for the submission, by the owner or operator of the building, facility, structure, or installation to be constructed or modified, of such information on—

(1) The nature and amounts of emissions to be emitted by it or emitted by associated mobile sources;

(2) The location, design, construction, and operation of such facility, building, structure, or installation as may be necessary to permit the State or local agency to make the determination referred to in paragraph (a) of this section.

(d) The procedures must provide that approval of any construction or modification must not affect the responsibility to the owner or operator to comply with applicable portions of the control strategy.

(e) The procedures must identify types and sizes of facilities, buildings, structures, or installations which will be subject to review under this section. The plan must discuss the basis for determining which facilities will be subject to review.

(f) The procedures must discuss the air quality data and the dispersion or other air quality modeling used to meet the requirements of this subpart.

§ 51.161 Public availability of information.

(a) The legally enforceable procedures in § 51.160 must also require the State or local agency to provide opportunity for public comment on information submitted by owners and operators. The public information must include the agency's analysis of the effect of construction or modification on ambient air quality, including the agency's proposed approval or disapproval.

(b) For purposes of paragraph (a) of this section, opportunity for public comment shall include, as a minimum—

(1) Availability for public inspection in at least one location in the area affected of the information submitted by the owner or operator and of the State or local agency's analysis of the effect on air quality;

(2) A 30-day period for submittal of public comment; and

(3) A notice by prominent advertisement in the area affected of the location of the source information and analysis specified in paragraph (b)(1) of this section.

(c) Where the 30-day comment period required in paragraph (b) of this section would conflict with existing requirements for acting on requests for permission to construct or modify, the State may submit for approval a comment period which is consistent with such existing requirements.

(d) A copy of the notice required by paragraph (b) of this section must also be sent to the Administrator through the appropriate Regional Office, and to all other State and local air pollution control agencies having jurisdiction in the region in which such new or modified installation will be located. The notice also must be sent to any other agency in the region having responsibility for implementing the procedures required under this subpart. For lead, a copy of the notice is required for all point sources. The definition of point for lead is given in § 51.100(k)(2).

§ 51.162 Identification of responsible agency.

Each plan must identify the State or local agency which will be responsible for meeting the requirements of this subpart in each area of the State. Where such responsibility rests with an agency other than an air pollution control agency, such agency will consult with the appropriate State or local air pollution control agency in carrying out the provisions of this subpart.

§ 51.163 Administrative procedures.

The plan must include the administrative procedures, which will be followed in making the determination specified in paragraph (a) of § 51.160.

§ 51.164 Stack height procedures.

Such procedures must provide that the degree of emission limitation required of any source for control of any air pollutant must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique, except as provided in § 51.118(b). Such procedures must provide that before a State issues a permit to a source based on a good engineering practice stack height that exceeds the height allowed by § 51.100(ii) (1) or (2), the State must notify the public of the availability of the demonstration study and must provide opportunity for public hearing on it. This section does not require such procedures to restrict in any manner the actual stack height of any source.

§ 51.165 Permit requirements.

(a) State Implementation Plan provisions satisfying sections 172(b)(6) and 173 of the Act shall meet the following conditions:

(1) All such plans shall use the specific definitions. Deviations from the following wording will be approved only if the state specifically demonstrates that the submitted definition is more stringent, or at least as stringent, in all respects as the corresponding definition below:

(i) "Stationary source" means any building, structure, facility, or installation which emits or may emit any air pollutant subject to regulation under the Act.

(ii) "Building, structure, facility, or installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same two-digit code) as described in the *Standard Industrial Classification Manual, 1972,* as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively).

(iii) "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

(iv)(A) "Major stationary source" means:

(*1*) Any stationary source of air pollutants which emits, or has the potential to emit 100 tons per year or more of any pollutant subject to regulation under the Act, or

(*2*) Any physical change that would occur at a stationary source not qualifying under paragraph (a)(1)(iv)(A)(*1*) as a major stationary source, if the change would constitute a major stationary source by itself.

(B) A major stationary source that is major for volatile organic compounds shall be considered major for ozone

(C) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this paragraph whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

(*1*) Coal cleaning plants (with thermal dryers);

(*2*) Kraft pulp mills;

(*3*) Portland cement plants;

(*4*) Primary zinc smelters;

(*5*) Iron and steel mills;

(*6*) Primary aluminum ore reduction plants;

(*7*) Primary copper smelters;

(*8*) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(*9*) Hydrofluoric, sulfuric, or nitric acid plants;

(*10*) Petroleum refineries;

(*11*) Lime plants;

(*12*) Phosphate rock processing plants;

(*13*) Coke oven batteries;

(*14*) Sulfur recovery plants;

(*15*) Carbon black plants (furnace process);

(*16*) Primary lead smelters;

(*17*) Fuel conversion plants;

(*18*) Sintering plants;

(*19*) Secondary metal production plants;

(*20*) Chemical process plants;

(*21*) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(*22*) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(*23*) Taconite ore processing plants;

(*24*) Glass fiber processing plants;

(*25*) Charcoal production plants;

(*26*) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input; and

(*27*) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

(v)(A) "Major modification" means any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.

(B) Any net emissions increase that is considered significant for volatile organic compounds shall be considered significant for ozone.

(C) A physical change or change in the method of operation shall not include:

(*1*) Routine maintenance, repair and replacement;

(*2*) Use of an alternative fuel or raw material by reason of an order under sections 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plan pursuant to the Federal Power Act;

(*3*) Use of an alternative fuel by reason of an order or rule section 125 of the Act;

(*4*) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(*5*) Use of an alternative fuel or raw material by a stationary source which:

(*i*) The source was capable of accommodating before December 21, 1976, unless such change would be prohibited under any federally enforceable permit condition which was established after December 12, 1976 pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or § 51.166, or

(*ii*) The source is approved to use under any permit issued under regulations approved pursuant to this section;

(*6*) An increase in the hours of operation or in the production rate, unless such change is prohibited under any

federally enforceable permit condition which was established after December 21, 1976 pursuant to 40 CFR 52.21 or regulations approved pursuant to 40 CFR Part 51 Subpart I or 40 CFR 51.166.

(*7*) Any change in ownership at a stationary source.

(vi)(A) "Net emissions increase" means the amount by which the sum of the following exceeds zero:

(1) Any increase in actual emissions from a particular physical change or change in the method of operation at a stationary source; and

(2) Any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable.

(B) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs before the date that the increase from the particular change occurs;

(C) An increase or decrease in actual emissions is creditable only if:

(*1*) It occurs within a reasonable period to be specified by the reviewing authority; and

(*2*) The reviewing authority has not relied on it in issuing a permit for the source under regulations approved pursuant to this section which permit is in effect when the increase in actual emissions from the particular change occurs.

(D) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

(E) A decrease in actual emissions is creditable only to the extent that:

(*1*) The old level of actual emission or the old level of allowable emissions whichever is lower, exceeds the new level of actual emissions;

(*2*) It is federally enforceable at and after the time that actual construction on the particular change begins; and

(*3*) The reviewing authority has not relied on it in issuing any permit under regulations approved pursuant to 40 CFR Part 51 Subpart I or the state has not relied on it in demonstrating attainment or reasonable further progress;

(*4*) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

(F) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

(vii) "Emissions unit" means any part of a stationary source which emits or would have the potential to emit any pollutant subject to regulation under the the Act.

(viii) "Secondary emissons" means emissions which would occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. For the purpose of this section, secondary emissions must be specific, well defined, quantifiable, and impact the same general area as the stationary source or modification which causes the secondary emissions. Secondary emissions include emissions from any offsite support facility which would not be constructed or increase its emissions except as a result of the construction of operation of the major stationary source of major modification. Secondary emissions do not include any emissions which come directly from a mobile source such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel.

(ix) "Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening.

(x) "Significant" means, in reference to a net emissions increase or the potential of a source to emit any of the following pollutions, as rate of emissions that would equal or exceed any of the following rates:

Pollutant Emission Rate

Carbon monoxide: 100 tons per year (tpy)
Nitrogen oxides: 40 tpy
Sulfur dioxide: 40 tpy
Ozone: 40 tpy of volatile organic compounds

Lead: 0.6 tpy

(xi) "Allowable emissions" means the emissions rate of a stationary source calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable limits which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

(A) The applicable standards set forth in 40 CFR Part 60 or 61;

(B) Any applicable State Implementation Plan emissions limitation including those with a future compliance date; or

(C) The emissions rate specified as a federally enforceable permit condition, including those with a future compliance date.

(xii)(A) "Actual emissions" means the actual rate of emissions of a pollutant from an emissions unit as determined in accordance with paragraphs (a)(1)(xii) (B) through (D) of this section.

(B) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operation. The reviewing authority shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

(C) The reviewing authority may presume that the source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(D) For any emissions unit which has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

(xiii) "Lowest achievable emission rate" means, for any source, the more stringent rate of emissions based on the following:

(A) The most stringent emissions limitation which is contained in the implementation plan of any State for such class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or

(B) The most stringent emissions limitation which is achieved in practice by such class or category of stationary sources. This limitation, when applied to a modification, means the lowest achievable emissions rate for the new or modified emissions units within or stationary source. In no event shall the application of the term permit a proposed new or modified stationary source to emit any pollutant in excess of the amount allowable under an applicable new source standard of performance.

(xiv) "Federally enforceable" means all limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable State Implementation Plan, and any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to this section, 40 CFR Part 51 Subpart I, or § 51.166.

(xv) "Begin actual construction" means in general, initiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipework, and construction of permanent storage structures. With respect to a change in method of operating this term refers to those on-site activities other than preparatory activities which mark the initiation of the change.

(xvi) "Commence" as applied to construction of a major stationary source or major modification means that the owner or operator has all necessary preconstruction approvals or permits and either has:

(A) Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

(B) Entered into binding agreements or contractual obligations, which cannot be canceled or modified with-

out substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time.

(xvii) "Necessary preconstruction approvals or permits" means those Federal air quality control laws and regulations and those air quality control laws and regulations which are part of the applicable State Implementation Plan.

(xviii) "Construction" means any physical change or change in the method of operation (including fabrication, erection, installation, demolition, or modification of an emissions unit) which would result in a change in actual emissions.

(2) Each plan shall adopt a preconstruction review program to satisfy the requirements of sections 172(b)(6) and 173 of the Act for any area designated nonattainment for any national ambient air quality standard under 40 CFR 81.300 *et seq.* Such a program shall apply to any new major stationary source or major modification that is major for the pollutant for which the area is designated nonattainment, if the stationary source or modification would locate anywhere in the designated nonattainment area.

(3)(i) Each plan shall provide that for sources and modifications subject to any preconstruction review program adopted pursuant to this subsection the baseline for determining credit for emissions reductions is the emissions limit under the applicable State Implementation Plan in effect at the time the application to construct is filed, except that the offset baseline shall be the actual emissions of the source from which offset credit is obtained where;

(A) The demonstration of reasonable further progress and attainment of ambient air quality standards is based upon the actual emissions of sources located within a designated nonattainment area for which the preconstruction review program was adopted; or

(B) The applicable State Implementation Plan does not contain an emissions limitation for that source or source category.

(ii) The plan shall further provide that:

(A) Where the emissions limit under the applicable State Implementation Plan allows greater emissions than the potential to emit of the source, emissions offset credit will be allowed only for control below this potential;

(B) For an existing fuel combustion source, credit shall be based on the allowable emissions under the applicable State Implementation Plan for the type of fuel being burned at the time the application to construct is filed. If the existing source commits to switch to a cleaner fuel at some future date, emissions offset credit based on the allowable (or actual) emissions for the fuels involved is not acceptable, unless the permit is conditioned to require the use of a specified alternative control measure which would achieve the same degree of emissions reduction should the source switch back to a dirtier fuel at some later date. The reviewing authority should ensure that adequate long-term supplies of the new fuel are available before granting emissions offset credit for fuel switches,

(C) Emissions reductions achieved by shutting down an existing source or permanently curtailing production or operating hours below baseline levels may be credited, provided that the work force to be affected has been notified of the proposed shutdown or curtailment. Source shutdowns and curtailments in production or operating hours occurring prior to the date the new source application is filed generally may not be used for emissions offset credit. However, where an applicant can establish that it shut down or curtailed production after August 7, 1977, or less than one year prior to the date of permit application whichever is earlier, and the proposed new source is a replacement for the shutdown or curtailment credit for such shutdown or curtailment may be applied to offset emissions from the new source.

(D) No emissions credit may be allowed for replacing one hydrocarbon compound with another of lesser reactivity, except for those compounds listed in Table 1 of EPA's "Recommended Policy on Control of Volatile Organic Compounds" (42 FR 35314, July 8, 1977; (This document is also available from Mr. Ted Creekmore,

Office of Air Quality Planning and Standards, (MD-15) Research Triangle Park, NC 27711.))

(E) All emission reductions claimed as offset credit shall be federally enforceable;

(F) Procedures relating to the permissible location of offsetting emissions shall be followed which are at least as stringent as those set out in 40 CFR Part 51 Appendix S section IV.D.

(G) Credit for an emissions reduction can be claimed to the extent that the reviewing authority has not relied on it in issuing any permit under regulations approved pursuant to 40 CFR Part 51 Subpart I or the State has not relied on it in demonstration attainment or reasonable further progress.

(4) Each plan may provide that the provisions of this paragraph do not apply to a source or modification that would be a major stationary source or major modification only if fugitive emission to the extent quantifiable are considered in calculating the potential to emit of the stationary source or modification and the source does not belong to any of the following categories:

(i) Coal cleaning plants (with thermal dryers);

(ii) Kraft pulp mills;

(iii) Portland cement plants;

(iv) Primary zinc smelters;

(v) Iron and steel mills;

(vi) Primary aluminum ore reduction plants;

(vii) Primary copper smelters;

(viii) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(ix) Hydrofluoric, sulfuric, or citric acid plants;

(x) Petroleum refineries;

(xi) Lime plants;

(xii) Phosphate rock processing plants;

(xiii) Coke oven batteries;

(xiv) Sulfur recovery plants;

(xv) Carbon black plants (furnace process);

(xvi) Primary lead smelters;

(xvii) Fuel conversion plants;

(xviii) Sintering plants;

(xix) Secondary metal production plants;

(xx) Chemical process plants;

(xxi) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(xxii) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(xxiii) Taconite ore processing plants;

(xxiv) Glass fiber processing plants;

(xxv) Charcoal production plants;

(xxvi) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

(xxvii) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

(5) Each plan shall include enforceable procedures to provide that:

(i) Approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provision of the plan and any other requirements under local, State or Federal law.

(ii) At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforcement limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of regulations approved pursuant to this section shall apply to the source or modification as though construction had not yet commenced on the source or modification;

(b)(1) Each plan shall include a preconstruction review permit program or its equivalent to satisfy the requirements of section 110(a)(2)(D)(i) of the Act for any new major stationary source or major modification as defined in paragraphs (a)(1) (iv) and (v) of this section. Such a program shall apply to any such source or modification that would locate in any area designated as attainment or unclassifiable for any national ambient air quality standard pursuant to section 107 of the Act, when it would cause or contribute to a violation of any national ambient air quality standard.

(2) A major source or major modification will be considered to cause or contribute to a violation of a national ambient air quality standard when such source or modification would, at a minimum, exceed the following significance levels at any locality that does not or would not meet the applicable national standard:

	Annual	Averaging time (hours)			
		24	8	3	1
Pollutant					
SO_2	1.0 µg/m³	5 µg/m³		25 µg/m³	
PM_{10}	1.0 µg/m³	5 µg/m³			
NO_2	1.0 µg/m³				
CO			0.5 mg/m³		2 mg/m³

(3) Such a program may include a provision which allows a proposed major source or major modification subject to paragraph (b) of this section to reduce the impact of its emissions upon air quality by obtaining sufficient emission reductions to, at a minimum, compensate for its adverse ambient impact where the major source or major modification would otherwise cause or contribute to a violation of any national ambient air quality standard. The plan shall require that, in the absence of such emission reductions, the State or local agency shall deny the proposed construction.

(4) The requirements of paragraph (b) of this section shall not apply to a major stationary source or major modification with respect to a particular pollutant if the owner or operator demonstrates that, as to that pollutant, the source or modification is located in an area designated as nonattainment pursuant to section 107 of the Act.

[51 FR 40669, Nov. 7, 1986, as amended at 52 FR 24713, July 1, 1987; 52 FR 29386, Aug. 7, 1987]

§ 51.166 Prevention of significant deterioration of air quality.

(a)(1) *Plan requirements.* In accordance with the policy of section 101(b)(1) of the act and the purposes of section 160 of the Act, each applicable State implementation plan shall contain emission limitations and such other measures as may be necessary to prevent significant deterioration of air quality.

(2) *Plan Revisions.* If a State Implementation Plan revision would result in increased air quality deterioration over any baseline concentration, the plan revision shall include a demonstration that it will not cause or contribute to a violation of the applicable increment(s). If a plan revision proposing less restrictive requirements was submitted after August 7, 1977 but on or before any applicable baseline date and was pending action by the Administrator on that date, no such demonstration is necessary with respect to the area for which a baseline date would be established before final action is taken on the plan revision. Instead, the assessment described in paragraph (a)(4) of this section, shall review the expected impact to the applicable increment(s).

(3) *Required plan revision.* If the State or the Administrator determines that a plan is substantially inadequate to prevent significant deterioration or that an applicable increment is being violated, the plan shall be revised to correct the inadequacy or the violation. The plan shall be revised within 60 days of such a finding by a State or within 60 days following notification by the Administrator, or by such later date as prescribed by the Administrator after consultation with the State.

(4) *Plan assessment.* The State shall review the adequacy of a plan on a periodic basis and within 60 days of such time as information becomes available that an applicable increment is being violated.

(5) *Public participation.* Any State action taken under this paragraph shall be subject to the opportunity for public hearing in accordance with procedures equivalent to those established in § 51.102.

quired report shall include, as a minimum, the data stipulated in this appendix.

4.2 For opacity measurements, the summary shall consist of the magnitude in actual percent opacity of all one-minute (or such other time period deemed appropriate by the State) averages of opacity greater than the opacity standard in the applicable plan for each hour of operation of the facility. Average values may be obtained by integration over the averaging period or by arithmetically averaging a minimum of four equally spaced, instantaneous opacity measurements per minute. Any time period exempted shall be considered before determining the excess averages of opacity (e.g., whenever a regulation allows two minutes of opacity measurements in excess of the standard, the State shall require the source to report all opacity averages, in any one hour, in excess of the standard, minus the two-minute exemption). If more than one opacity standard applies, excess emissions data must be submitted in relation to all such standards.

4.3 For gaseous measurements the summary shall consist of emission averages, in the units of the applicable standard, for each averaging period during which the applicable standard was exceeded.

4.4 The date and time identifying each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of system repairs or adjustments shall be reported. The State may require proof of continuous monitoring system performance whenever system repairs or adjustments have been made.

4.5 When no excess emissions have occurred and the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be included in the report.

4.6 The State plan shall require owners or operators of affected facilities to maintain a file of all information reported in the quarterly summaries, and all other data collected either by the continuous monitoring system or as necessary to convert monitoring data to the units of the applicable standard for a minimum of two years from the date of collection of such data or submission of such summaries.

5.0 DATA REDUCTION

The State plan shall require owners or operators of affected facilities to use the following procedures for converting monitoring data to units of the standard where necessary.

5.1 For fossil fuel-fired steam generators the following procedures shall be used to convert gaseous emission monitoring data in parts per million to g/million cal (lb/million BTU) where necessary:

5.1.1 When the owner or operator of a fossil fuel-fired steam generator elects under paragraph 2.1.4 of this appendix to measure oxygen in the flue gases, the measurements of the pollutant concentration and oxygen concentration shall each be on a dry basis and the following conversion procedure used:

$$E=CF\ [20.9/20.9-\%O_2]$$

5.1.2 When the owner or operator elects under paragraph 2.1.4 of this appendix to measure carbon dioxide in the flue gases, the measurement of the pollutant concentration and the carbon dioxide concentration shall each be on a consistent basis (wet or dry) and the following conversion procedure used:

$$E=CF_c\ (100/\%\ CO_2)$$

5.1.3 The values used in the equations under paragraph 5.1 are derived as follows:

E = pollutant emission, g/million cal (lb/million BTU),

C = pollutant concentration, g/dscm (lb/dscf), determined by multiplying the average concentration (ppm) for each hourly period by 4.16×10^{-8} M g/dscm per ppm (2.64×10^{-9} M lb/dscf per ppm) where M = pollutant molecular weight, g/g-mole (lb/lb-mole). M = 64 for sulfur dioxide and 46 for oxides of nitrogen.

$\%O_2$, $\%CO_2$ = Oxygen or carbon dioxide volume (expressed as percent) determined with equipment specified under paragraph 4.1.4 of this appendix,

F, F_c = a factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted (F), and a factor representing a ratio of the volume of carbon dioxide generated to the calorific value of the fuel combusted (F_c) respectively. Values of F and F_c are given in § 60.45(f) of Part 60, as applicable.

5.2 For sulfuric acid plants the owner or operator shall:

5.2.1 establish a conversion factor three times daily according to the procedures to § 60.84(b) of this chapter;

5.2.2 multiply the conversion factor by the average sulfur dioxide concentration in the flue gases to obtain average sulfur dioxide emissions in Kg/metric ton (lb/short ton); and

5.2.3 report the average sulfur dioxide emission for each averaging period in excess of the applicable emission standard in the quarterly summary.

5.3 For nitric acid plants the owner or operator shall:

5.3.1 establish a conversion factor according to the procedures of § 60.73(b) of this chapter;

5.3.2 multiply the conversion factor by the average nitrogen oxides concentration in the flue gases to obtain the nitrogen oxides emissions in the units of the applicable standard;

5.3.3 report the average nitrogen oxides emission for each averaging period in excess of the applicable emission standard, in the quarterly summary.

5.4 Any State may allow data reporting or reduction procedures varying from those set forth in this appendix if the owner or operator of a source shows to the satisfaction of the State that his procedures are at least as accurate as those in this appendix. Such procedures may include but are not limited to, the following:

5.4.1 Alternative procedures for computing emission averages that do not require integration of data (e.g., some facilities may demonstrate that the variability of their emissions is sufficiently small to allow accurate reduction of data based upon computing averages from equally spaced data points over the averaging period).

5.4.2 Alternative methods of converting pollutant concentration measurements to the units of the emission standards.

6.0 SPECIAL CONSIDERATION

The State plan may provide for approval, on a case-by-case basis, of alternative monitoring requirements different from the provisions of Parts 1 through 5 of this appendix if the provisions of this appendix (i.e., the installation of a continuous emission monitoring system) cannot be implemented by a source due to physical plant limitations or extreme economic reasons. To make use of this provision, States must include in their plan specific criteria for determining those physical limitations or extreme economic situations to be considered by the State. In such cases, when the State exempts any source subject to this appendix by use of this provision from installing continuous emission monitoring systems, the State shall set forth alternative emission monitoring and reporting requirements (e.g., periodic manual stack tests) to satisfy the intent of these regulations. Examples of such special cases include, but are not limited to, the following:

6.1 Alternative monitoring requirements may be prescribed when installation of a continuous monitoring system or monitoring device specified by this appendix would not provide accurate determinations of emissions (e.g., condensed, uncombined water vapor may prevent an accurate determination of opacity using commercially available continuous monitoring systems).

6.2 Alternative monitoring requirements may be prescribed when the affected facility is infrequently operated (e.g., some affected facilities may operate less than one month per year).

6.3 Alternative monitoring requirements may be prescribed when the State determines that the requirements of this appendix would impose an extreme economic burden on the source owner or operator.

6.4 Alternative monitoring requirements may be prescribed when the State determines that monitoring systems prescribed by this appendix cannot be installed due to physical limitations at the facility.

[40 FR 46247, Oct. 6, 1975, as amended at 51 FR 40675, Nov. 7, 1986]

APPENDICES Q-R—[Reserved]

APPENDIX S—EMISSION OFFSET INTERPRETATIVE RULING

I. INTRODUCTION

This appendix sets forth EPA's Interpretative Ruling on the preconstruction review requirements for stationary sources of air pollution (not including indirect sources) under 40 CFR Subpart I and section 129 of the Clean Air Act Amendments of 1977, Pub. L. 95-95, (note under 42 U.S.C. 7502). A major new source or major modification which would locate in an area designated in 40 CFR 81.300 *et. seq.* as nonattainment for a pollutant for which the source or modification would be major may be allowed to construct only if the stringent conditions set forth below are met. These conditions are designed to insure that the new source's emissions will be controlled to the greatest degree possible; that more than equivalent offsetting emission reductions ("emission offsets") will be obtained from existing sources; and that there will be progress toward achievement of the NAAQS.

For each area designated as exceeding an NAAQS (nonattainment area) under 40 CFR 81.300 *et seq.*, this Interpretative Ruling will be superseded after June 30, 1979—(a) by preconstruction review provisions of the revised SIP, if the SIP meets the requirements of Part D, Title 1, of the Act; or (b) by a prohibition on construction under the applicable SIP and section 110(a)(2)(I) of the Act, if the SIP does not meet the requirements of Part D. The Ruling will remain in effect to the extent not superseded under the Act. This prohibition on major new source construction does not apply to a source whose permit to construct was applied for during a period when the SIP was in compliance with Part D, or before the deadline for having a revised SIP in effect that satisfies Part D.

The requirement of this Ruling shall not apply to any major stationary source or major modification that was not subject to the Ruling as in effect on January 16, 1979, if the owner or operator

A. Obtained all final Federal, State, and local preconstruction approvals or permits necessary under the applicable State Implementation Plan before August 7, 1980;

B. Commenced construction within 18 months from August 7, 1980, or any earlier time required under the applicable State Implementation Plan; and

C. Did not discontinue construction for a period of 18 months or more and completed construction within a reasonable time.

II. INITIAL SCREENING ANALYSES AND DETERMINATION OF APPLICABLE REQUIREMENTS

A. *Definitions*—For the purposes of this Ruling:

1. "Stationary source" means any building, structure, facility, or installation which emits or may emit any air pollutant subject to regulation under the Act.

2. "Building, structure, facility or installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same two digit code) as described in the *Standard Industrial Classification Manual, 1972*, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively).

3. "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

4. (i) "Major stationary source" means:

(*a*) Any stationary source of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any pollutant subject to regulation under the Act; or

(*b*) Any physical change that would occur at a stationary source not qualifying under paragraph 5.(i)(*a*) of section II of this appendix as a major stationary source, if the change would constitute a major stationary source by itself.

(ii) A major stationary source that is major for volatile organic compounds shall be considered major for ozone.

(iii) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this ruling whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

(*a*) Coal cleaning plants (with thermal dryers);

(*b*) Kraft pulp mills;

(*c*) Portland cement plants;

(*d*) Primary zinc smelters;

(*e*) Iron and steel mills;

(*f*) Primary aluminum ore reduction plants;

(*g*) Primary copper smelters;

(*h*) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(*i*) Hydrofluoric, sulfuric, or nitric acid plants;

(*j*) Petroleum refineries;

(*k*) Lime plants;

(*l*) Phosphate rock processing plants;

(*m*) Coke oven batteries;

(*n*) Sulfur recovery plants;

(*o*) Carbon black plants (furnace process);

(*p*) Primary lead smelters;

(*q*) Fuel conversion plants;

(*r*) Sintering plants;

(*s*) Secondary metal production plants;

(*t*) Chemical process plants;

(*u*) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(*v*) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(*w*) Taconite ore processing plants;

(*x*) Glass fiber processing plants;

(*y*) Charcoal production plants;

(*z*) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

(*aa*) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act."

5. (i) "Major modification" means any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.

(ii) Any net emissions increase that is considered significant for volatile organic compounds shall be considered significant for ozone.

(iii) A physical change or change in the method of operation shall not include:

(*a*) Routine maintenance, repair, and replacement;

(*b*) Use of an alternative fuel or raw material by reason of an order under section 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a

natural gas curtailment plan pursuant to the Federal Power Act;

(*c*) Use of an alternative fuel by reason of an order or rule under section 125 of the Act;

(*d*) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(*e*) Use of an alternative fuel or raw material by a stationary source which:

(*1*) The source was capable of accommodating before December 21, 1976, unless such change would be prohibited under any federally enforceable permit condition which was established after December 21, 1976, pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or § 51.166; or

(*2*) The source is approved to use under any permit issued under this ruling;

(*f*) An increase in the hours of operation or in the production rate, unless such change is prohibited under any federally enforceable permit condition which was established after December 21, 1976 pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or § 51.166;

(*g*) Any change in ownership at a stationary source.

6. (i) "Net emissions increase" means the amount by which the sum of the following exceeds zero:

(*a*) Any increase in actual emissions from a particular physical change or change in the method of operation at a stationary source; and

(*b*) Any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable.

(ii) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between:

(*a*) The date five years before construction on the particular change commences and

(*b*) The date that the increase from the particular change occurs.

(iii) An increase or decrease in actual emissions is creditable only if the Administrator has not relied on it in issuing a permit for the source under this Ruling which permit is in effect when the increase in actual emissions from the particular change occurs.

(iv) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

(v) A decrease in actual emissions is creditable only to the extent that:

(*a*) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

(*b*) It is federally enforceable at and after the time that actual construction on the particular change begins;

(*c*) The reviewing authority has not relied on it in issuing any permit under regulations approved pursuant to 40 CFR 51.18; and

(*d*) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

(vi) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

7. "Emissions unit" means any part of a stationary source which emits or would have the potential to emit any pollutant subject to regulation under the Act.

8. "Secondary emissions" means emissions which would occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. For the purpose of this Ruling, secondary emissions must be specific, well defined, quantifiable, and impact the same general area as the stationary source or modification which causes the secondary emissions. Secondary emissions include emissions from any offsite support facility which would not be constructed or increase its emissions except as a result of the construction or operation of the major stationary source or major modification. Secondary emissions do not include any emissions which come directly from a mobile source, such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel.

9. "Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

10. (i) "Significant" means, in reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant and Emissions Rate

Carbon monoxide: 100 tons per year (tpy)
Nitrogen oxides: 40 tpy
Sulfur dioxide: 40 tpy
Particulate matter: 25 tpy of particulate matter emissions
Ozone: 40 tpy of volatile organic compounds
Lead: 0.6 tpy

11. "Allowable emissions" means the emissions rate calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable

limits which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

(i) Applicable standards as set forth in 40 CFR Parts 60 and 61;

(ii) Any applicable State Implementation Plan emissions limitation, including those with a future compliance date; or

(iii) The emissions rate specified as a federally enforceable permit condition, including those with a future compliance date.

12. "Federally enforceable" means all limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable State Implementation Plan, and any permit requirements established pursuant to this Ruling, 40 CFR 52.21, or under regulations approved pursuant to 40 CFR Subpart I or § 51.166.

13. (i) "Actual emissions" means the actual rate of emissions of a pollutant from an emissions unit as determined in accordance with paragraphs 16, (ii) through (iv) of Section II.A. of this appendix.

(ii) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operation. The reviewing authority shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored or combusted during the selected time period.

(iii) The reviewing authority may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(iv) For any emissions unit which has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

14. "Construction" means any physical change or change in the method of operation (including fabrication, erection, installation, demolition, or modification of an emissions unit) which would result in a change in actual emissions.

15. "Commence" as applied to construction of a major stationary source or major modification means that the owner or operator has all necessary preconstruction approvals or permits and either has:

(i) Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

(ii) Entered into binding agreements or contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time.

16. "Necessary preconstruction approvals or permits" means those permits or approvals required under federal air quality control laws and regulations and those air quality control laws and regulations which are part of the applicable State Implementation Plan.

17. "Begin actual construction" means, in general, initiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipework, and construction of permanent storage structures. With respect to a change in method of operating this term refers to those on-site activities other than preparatory activities which mark the initiation of the change.

18. "Lowest achievable emission rate" means, for any source, the more stringent rate of emissions based on the following:

(i) The most stringent emissions limitation which is contained in the implementation plan of any State for such class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or

(ii) The most stringent emissions limitation which is achieved in practice by such class or category of stationary source. This limitation, when applied to a modification, means the lowest achievable emissions rate for the new or modified emissions units within the stationary source. In no event shall the application of this term permit a proposed new or modified stationary source to emit any pollutant in excess of the amount allowable under applicable new source standards of performance.

19. "Resource recovery facility" means any facility at which solid waste is processed for the purpose of extracting, converting to energy, or otherwise separating and preparing solid waste for reuse. Energy conversion facilities must utilize solid waste to provide more than 50 percent of the heat input to be considered a resource recovery facility under this Ruling.

B. *Review of all sources for emission limitation compliance.* The reviewing authority must examine each proposed major new source and proposed major modification [1] to

[1] Hereafter the term "source" will be used to denote both any source and any modification.

determine if such a source will meet all applicable emission requirements in the SIP, any applicable new source performance standard in 40 CFR Part 60, or any national emission standard for hazardous air pollutants in 40 CFR Part 61. If the reviewing authority determines that the proposed major new source cannot meet the applicable emission requirements, the permit to construct must be denied.

C. *Review of specified sources for air quality impact.* In addition, the reviewing authority must determine whether the major stationary source or major modification would be constructed in an area designated in 40 CFR 81.300 *et seq.* as nonattainment for a pollutant for which the stationary source or modification is major.

D.—E. [Reserved]

F. *Fugitive emissions sources.* Section IV. A. of this Ruling shall not apply to a source or modification that would be a major stationary source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit of the stationary source or modification and the source does not belong to any of the following categories:

(1) Coal cleaning plants (with thermal dryers);

(2) Kraft pulp mills;

(3) Portland cement plants;

(4) Primary zinc smelters;

(5) Iron and steel mills;

(6) Primary aluminum ore reduction plants;

(7) Primary copper smelters;

(8) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(9) Hydrofluoric, sulfuric, or nitric acid plants;

(10) Petroleum refineries;

(11) Lime plants;

(12) Phosphate rock processing plants;

(13) Coke oven batteries;

(14) Sulfur recovery plants;

(15) Carbon black plants (furnace process);

(16) Primary lead smelters;

(17) Fuel conversion plants;

(18) Sintering plants;

(19) Secondary metal production plants;

(20) Chemical process plants;

(21) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(22) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(23) Taconite ore processing plants;

(24) Glass fiber processing plants;

(25) Charcoal production plants;

(26) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

(27) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

G. *Secondary emissions.* Secondary emissions need not be considered in determining whether the emission rates in Section II.C. above would be exceeded. However, if a source is subject to this Ruling on the basis of the direct emissions from the source, the applicable conditions of this Ruling must also be met for secondary emissions. However, secondary emissions may be exempt from Conditions 1 and 2 of Section IV. Also, since EPA's authority to perform or require indirect source review relating to mobile sources regulated under Title II of the Act (motor vehicles and aircraft) has been restricted by statute, consideration of the indirect impacts of motor vehicles and aircraft traffic is not required under this Ruling.

III. Sources Locating in Designated Clean or Unclassifiable Areas Which Would Cause or Contribute to a Violation of a National Ambient Air Quality Standard

A. This section applies only to major sources or major modifications which would locate in an area designated in 40 CFR 81.300 *et seq.* as attainment or unclassifiable in a state where EPA has not yet approved the state preconstruction review program required by 40 CFR 51.165(b), if the source or modification would exceed the following significance levels at any locality that does not meet the NAAQS:

Pollutant	Annual	Averaging time (hours)			
		24	8	3	1
SO_2	1.0 µg/m³	5 µg/m³		25 µg/m³	
TSP	1.0 µg/m³	5 µg/m³			
NO_2	1.0 µg/m³				
CO			0.5 mg/m³		2 mg/m³

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B. *Sources to which this section applies* must meet Conditions 1, 2, and 4 of Section IV.A. of this ruling.[2] However, such sources may be exempt from Condition 3 of Section IV.A. of this ruling.

C. *Review of specified sources for air quality impact.* For "stable" air pollutants (i.e. SO_2, particulate matter and CO), the determination of whether a source will cause or contribute to a violation of an NAAQS generally should be made on a case-by-case basis as of the proposed new source's start-up date using the source's allowable emissions in an atmospheric simulation model (unless a source will clearly impact on a receptor which exceeds an NAAQS).

For sources of nitrogen oxides, the initial determination of whether a source would cause or contribute to a violation of the NAAQS for NO_2 should be made using an atmospheric simulation model assuming all the nitric oxide emitted is oxidized to NO_2 by the time the plume reaches ground level. the initial concentration estimates may be adjusted if adequate data are available to account for the expected oxidation rate.

For ozone, sources of volatile organic compounds, locating outside a designated ozone nonattainment area, will be presumed to have no significant impact on the designated nonattainment area. If ambient monitoring indicates that the area of source location is in fact nonattainment, then the source may be permitted under the provisions of any state plan adopted pursuant to section 110(a)(2)(D) of the Act until the area is designated nonattainment and a State Implementation Plan revision is approved. If no state plan pursuant to section 110(a)(2)(D) has been adopted and approved, then this Ruling shall apply.

As noted above, the determination as to whether a source would cause or contribute to a violation of an NAAQS should be made as of the new source's start-up date. Therefore, if a designated nonattainment area is projected to be an attainment area as part of an approved SIP control strategy by the new source start-up date, offsets would not be required if the new source would not cause a new violation.

D. *Sources locating in "clean areas," but would cause a new violation of an NAAQS.* If the reviewing authority finds that the emissions from a proposed source would cause a new violation of an NAAQS, but would not contribute to an existing violation, approval may be granted only if both of the following conditions are met:

Condition 1. The new source is required to meet a more stringent emission limitation[3] and/or the control of existing sources below allowable levels is required so that the source will not cause a violation of any NAAQS.

Condition 2. The new emission limitations for the new source as well as any existing sources affected must be enforceable in accordance with the mechanisms set forth in Section V of this appendix.

IV. Sources That Would Locate in a Designated Nonattainment Area

A. *Conditions for approval.* If the reviewing authority finds that the major stationary source or major modification would be constructed in an area designated in 40 CFR 81.300 *et seq* as nonattainment for a pollutant for which the stationary source or modification is major, approval may be granted only if the following conditions are met:

Condition 1. The new source is required to meet an emission Limitation[4] which specifies the lowest achievable emission rate for such source.[5]

Condition 2. The applicant must certify that all existing major sources owned or operated by the applicant (or any entity controlling, controlled by, or under common control with the applicant) in the same State as the proposed source are in compliance with all applicable emission limitations and standards under the Act (or are in compliance with an expeditious schedule which is Federally enforceable or contained in a court decree).

Condition 3. Emission reductions ("offsets") from existing sources[6] in the area of the proposed source (whether or not under the same ownership) are required such that there will be reasonable progress toward attainment of the applicable NAAQs.[7]

Only intrapollutant emission offsets will be acceptable (e.g., hydrocarbon increases may not be offset against SO_2 reductions).

Condition 4. The emission offsets will provide a positive net air quality benefit in the affected area (see Section IV.D. below).[8] Atmospheric simulation modeling is not necessary for volatile organic compounds and NO_x. Fulfillment of Condition 3 and Section IV.D. will be considered adequate to meet this condition.

B. *Exemptions from certain conditions.* The reviewing authority may exempt the following sources from Condition 1 under Section III or Conditions 3 and 4. Section IV.A.:

(i) Resource recovery facilities burning municipal solid waste, and (ii) sources which must switch fuels due to lack of adequate fuel supplies or where a source is required to be modified as a result of EPA regulations (e.g., lead-in-fuel requirements) and no exemption from such regulation is available to the source. Such an exemption may be granted only if:

1. The applicant demonstrates that it made its best efforts to obtain sufficient emission offsets to comply with Condition 1 under Section III or Conditions 3 and 4 under Section IV.A. and that such efforts were unsuccessful;

2. The applicant has secured all available emission offsets; and

3. The applicant will continue to seek the necessary emission offsets and apply them when they become available.

Such an exemption may result in the need to revise the SIP to provide additional control of existing sources.

Temporary emission sources, such as pilot plants, portable facilities which will be relocated outside of the nonattainment area after a short period of time, and emissions resulting from the construction phase of a new source, are exempt from Conditions 3 and 4 of this section.

C. *Baseline for determining credit for emission and air quality offsets.* The baseline for determining credit for emission and air quality offsets will be the SIP emission limitations in effect at the time the application to construct or modify a source is filed. Thus, credit for emission offset purposes may be allowable for existing control that goes beyond that required by the SIP. Emission offsets generally should be made on a pounds per hour basis when all facilities involved in the emission offset calculations are operating at their maximum expected or allowed production rate. The reviewing agency should specify other averaging periods (e.g., tons per year) in addition to the pounds per hour basis if necessary to carry out the intent of this Ruling. When offsets are calculated on a tons per year basis, the baseline emissions for existing sources providing the offsets should be calculated using the actual annual operating hours for the previous one or two year period (or other appropriate period if warranted by cyclical business conditions). Where the SIP requires certain hardware controls in lieu of

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[2] The discussion in this paragraph is a proposal, but represents EPA's interim policy until final rulemaking is completed.

[3] If the reviewing authority determines that technological or economic limitations on the application of measurement methodology to a particular class of sources would make the imposition of an enforceable numerical emission standard infeasible, the authority may instead prescribe a design, operational or equipment standard. In such cases, the reviewing authority shall make its best estimate as to the emission rate that will be achieved and must specify that rate in the required submission to EPA (see Part V). Any permits issued without an enforceable numerical emission standard must contain enforceable conditions which assure that the design characteristics or equipment will be properly maintained (or that the operational conditions will be properly performed) so as to continuously achieve the assumed degree of control. Such conditions shall be enforceable as emission limitations by private parties under section 304. Hereafter, the term "emission limitation" shall also include such design, operational, or equipment standards.

[4] If the reviewing authority determines that technological or economic limitations on the application of measurement methodology to a particular class of sources would make the imposition of an enforceable numerical emission standard infeasible, the authority may instead prescribe a design, operational or equipment standard. In such cases, the reviewing authority shall make its best estimate as to the emission rate that will be achieved and must specify that rate in the required submission to EPA (see Part V). Any permits issued without an enforceable numerical emission standard must con-

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tain enforceable conditions which assure that the design characteristics or equipment will be properly maintained (or that the operational conditions will be properly performed) so as to continuously achieve the assumed degree of control. Such conditions shall be enforceable as emission limitations by private parties under section 304. Hereafter, the term "emission limitation" shall also include such design, operational, or equipment standards.

[5] Required only for those pollutants for which the increased allowable emissions exceed 50 tons per year, 1000 pounds per day, or 100 pounds per hour, although the reviewing authority may address other pollutants if deemed appropriate. The preceding hourly and daily rates shall apply only with respect to a pollutant for which a national ambient air quality standard, for a period less than 24 hours or for a 24-hour period, as appropriate, has been established.

[6] Subject to the provisions of section IV.C. below.

[7] The discussion in this paragraph is a proposal, but represents EPA's interim policy until final rulemaking is completed.

[8] Required only for those pollutants for which the increased allowable emissions exceed 50 tons per year, 1000 pounds per day, or 100 pounds per hour, although the reviewing authority may address other pollutants if deemed appropriate. The preceding hourly and daily rates shall apply only with respect to a pollutant for which a national ambient air quality standard, for a period less than 24 hours or for a 24-hour period, as appropriate, has been established.

an emission limitation (e.g., floating roof tanks for petroleum storage), baseline allowable emissions should be based on actual operating conditions for the previous one or two year period (i.e., actual throughput and vapor pressures) in conjunction with the required hardware controls.

1. *No meaningful or applicable SIP requirement.* Where the applicable SIP does not contain an emission limitation for a source or source category, the emission offset baseline involving such sources shall be the actual emissions determined in accordance with the discussion above regarding operating conditions.

Where the SIP emission limit allows greater emissions than the uncontrolled emission rate of the source (as when a State has a single particulate emission limit for all fuels), emission offset credit will be allowed only for control below the uncontrolled emission rate.

2. *Combustion of fuels.* Generally, the emissions for determining emission offset credit involving an existing fuel combustion source will be the allowable emissions under the SIP for the type of fuel being burned at the time the new source application is filed (i.e., if the existing source has switched to a different type of fuel at some earlier date, any resulting emission reduction [either actual or allowable] shall not be used for emission offset credit). If the existing source commits to switch to a cleaner fuel at some future date, emission offset credit based on the allowable emissions for the fuels involved is not acceptable unless the permit is conditioned to require the use of a specified alternative control measure which would achieve the same degree of emission reduction should the source switch back to a dirtier fuel at some later date. The reviewing authority should ensure that adequate long-term supplies of the new fuel are available before granting emission offset credit for fuel switches.

3. *Operating hours and source shutdown.* A source may be credited with emission reductions achieved by shutting down an existing source or permanently curtailing production or operating hours below baseline levels (see initial discussion to this Section C) provided, that the work force to be affected has been notified of the proposed shutdown or curtailment. Emission offsets that involve reducing operating hours or production or source shutdowns must be legally enforceable, as in the case for all emission offset situations.[9]

4. *Credit for VOC substitution.* As set forth in the Agency's "Recommended Policy on Control of Volatile Organic Compounds" (42 FR 35314, July 8, 1977), EPA has found that almost all non-methane VOCs are photochemically reactive and that low reactivity VOCs eventually form as much ozone as the highly reactive VOCs. Therefore, no emission offset credit may be allowed for replacing one VOC compound with another of lesser reactivity, except for those compounds listed in Table 1 of the above policy statement.

5. *"Banking" of emission offset credit.* For new sources obtaining permits by applying offsets after January 16, 1979, the reviewing authority may allow offsets that exceed the requirements of reasonable progress toward attainment (Condition 3) to be "banked" (i.e., saved to provide offsets for a source seeking a permit in the future) for use under this Ruling. Likewise, the reviewing authority may allow the owner of an existing source that reduces its own emissions to bank any resulting reductions beyond those required by the SIP for use under this Ruling, even if none of the offsets are applied immediately to a new source permit. A reviewing authority may allow these banked offsets to be used under the preconstruction review program required by Part D, as long as these banked emissions are identified and accounted for in the SIP control strategy. A reviewing authority may not approve the construction of a source using banked offsets if the new source would interfere with the SIP control strategy or if such use would violate any other condition set forth for use of offsets. To preserve banked offsets, the reviewing authority should identify them in either a SIP revision or a permit, and establish rules as to how and when they may be used.

6. *Offset credit for meeting NSPS or NESHAPS.* Where a source is subject to an emission limitation established in a New Source Performance Standard (NSPS) or a National Emission Standard for Hazardous Air Pollutants (NESHAPS), (*i.e.*, requirements under sections 111 and 112, respectively, of the Act), and a different SIP limitation, the more stringent limitation shall be used as the baseline for determining credit for emission and air quality offsets. The difference in emissions between the SIP and the NSPS or NESHAPS, for such

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[9] Source shutdowns and curtailments in production or operating hours occurring prior to the date the new source application is filed generally may not be used for emission offset credit. However, where an applicant can establish that it shut down or curtailed production after August 7, 1977, or less than one year prior to the date of permit application, whichever is earlier, and the proposed new source is a replacement for the shutdown or curtailment, credit for such shutdown or curtailment may be applied to offset emissions from the new source.

source may not be used as offset credit. However, if a source were not subject to an NSPS or NESHAPS, for example if its construction had commenced prior to the proposal of an NSPS or NESHAPS for that source category, offset credit can be permitted for tightening the SIP to the NSPS or NESHAPS level for such source.

D. *Location of offsetting emissions.* In the case of emission offsets involving volatile organic compounds (VOC), the offsets may be obtained from sources located anywhere in the broad vicinity of the proposed new source. Generally, offsets will be acceptable if obtained from within the same AQCR as the new source or from other areas which may be contributing to the ozone problem at the proposed new source location. As with other pollutants, it is desirable to obtain offsets from sources located as close to the proposed new source site as possible. If the proposed offsets would be from sources located at greater distances from the new source, the reviewing authority should increase the ratio of the required offsets and require a showing that nearby offsets were investigated and reasonable alternatives were not available.[10]

Offsets for NO_x sources may also be obtained within the broad vicinity of the proposed new source. This is because areawide ozone and NO_x levels are generally not as dependent on specific VOC or NO_x source location as they are on overall area emissions. Since the air quality impact of SO_x, particulate and carbon monoxide sources is site dependent, simple areawide mass emission offsets are not appropriate. For these pollutants, the reviewing authority should consider atmospheric simulation modeling to ensure that the emission offsets provide a positive net air quality benefit. However, to avoid unnecessary consumption of limited, costly and time consuming modeling resources, in most cases it can be assumed that if the emission offsets are obtained from an existing source on the same premises or in the immediate vicinity of the new source, and the pollutants disperse from substantially the same effective stack height, the air quality test under Condition 4 of Section IV.A. of this appendix will be met. Thus, when stack emissions are offset against a ground level source at the same site, modeling would be required. The reviewing authority may perform this analysis or require the applicant to submit appropriate modeling results.

E. *Reasonable progress towards attainment.* As long as the emission offset is greater than one-for-one, and the other criteria set forth above are met, EPA does not intend to question a reviewing authority's judgment as to what constitutes reasonable progress towards attainment as required under Condition 3 in Section IV.A. of this appendix. This does not apply to "reasonable further progress" as required by Section 173.

F. *Source obligation.* At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of this Ruling shall apply to the source or modification as though construction had not yet commenced on the source or modification.

V. Administrative Procedures

The necessary emission offsets may be proposed either by the owner of the proposed source or by the local community or the State. The emission reduction committed to must be enforceable by authorized State and/or local agencies and under the Clean Air Act, and must be accomplished by the new source's start-up date. If emission reductions are to be obtained in a State that neighbors the State in which the new source is to be located, the emission reductions committed to must be enforceable by the neighboring State and/or local agencies and under the Clean Air Act. Where the new facility is a replacement for a facility that is being shut down in order to provide the necessary offsets, the reviewing authority may allow up to 180 days for shakedown of the new facility before the existing facility is required to cease operation.

A. *Source initiated emission offsets.* A source may propose emission offsets which involve:

(1) Reductions from sources controlled by the source owner (internal emission offsets); and/or (2) reductions from neighboring sources (external emission offsets). The source does not have to investigate all possible emission offsets. As long as the emission offsets obtained represent reasonable progress toward attainment, they will be acceptable. It is the reviewing authority's responsibility to assure that the emission offsets will be as effective as proposed by the source. An internal emission offset will be considered enforceable if it is made a SIP requirement by inclusion as a condition of the new source permit and the permit is forwarded to the appropriate EPA Regional Office.[11] An external emission offset will not

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[10] The discussion in this paragraph is a proposal, but represents EPA's interim policy until final rulemaking is completed.

[11] The emission offset will, therefore, be enforceable by EPA under section 113 as an

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be enforceable unless the affected source(s) providing the emission reductions is subject to a new SIP requirement to ensure that its emissions will be reduced by a specified amount in a specified time. Thus, if the source(s) providing the emission reductions does not obtain the necessary reduction, it will be in violation of a SIP requirement and subject to enforcement action by EPA, the State and/or private parties.

The form of the SIP revision may be a State or local regulation, operating permit condition, consent or enforcement order, or any other mechanism available to the State that is enforceable under the Clean Air Act. If a SIP revision is required, the public hearing on the revision may be substituted for the normal public comment procedure required for all major sources under 40 CFR 51.18. The formal publication of the SIP revision approval in the FEDERAL REGISTER need not appear before the source may proceed with construction. To minimize uncertainty that may be caused by these procedures, EPA will, if requested by the State, propose a SIP revision for public comment in the FEDERAL REGISTER concurrently with the State public hearing process. Of course, any major change in the final permit/SIP revision submitted by the State may require a reproposal by EPA.

B. *State or community initiated emission offsets.* A State or community which desires that a source locate in its area may commit to reducing emissions from existing sources (including mobile sources) to sufficiently outweigh the impact of the new source and thus open the way for the new source. As with source-initiated emission offsets, the commitment must be something more than one-for-one. This commitment must be submitted as a SIP revision by the State.

VI. POLICY WHERE ATTAINMENT DATES HAVE NOT PASSED

In some cases, the dates for attainment of primary standards specified in the SIP under section 110 have not yet passed due to a delay in the promulgation of a plan under this section of the Act. In addition the Act provides more flexibility with respect to the dates for attainment of secondary NAAQS than for primary standards. Rather than setting specific deadlines, section 110 requires secondary NAAQS to be achieved within a "reasonable time". Therefore, in some cases, the date for attainment of secondary standards specified in the SIP under section 110 may also not yet have passed. In such cases, a new source locating in an area designated in 40 CFR 81.300 *et seq.* as nonattainment (or, where Section III of this Ruling is applicable, a new source which would cause or contribute to an NAAQS violation) may be exempt from the Conditions of Section IV. A. so long as the new source meets the applicable SIP emissions limitations and will not interfere with the attainment date specified in the SIP under section 110 of the Act.

(Secs. 101(b)(1), 110, 160-169, 171-178, and 301(a), Clean Air Act, as amended (42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a)); sec. 129(a), Clean Air Act Amendments of 1977 (Pub. L. 95-95, 91 Stat. 685 (Aug., 7, 1977)))

[44 FR 3282, Jan. 16, 1979, as amended at 45 FR 31311, May 13, 1980; 45 FR 52741, Aug. 7, 1980; 45 FR 59879, Sept. 11, 1980; 46 FR 50771, Oct. 14, 1981; 47 FR 27561, June 25, 1982; 49 FR 43210, Oct. 26, 1984; 51 FR 40661, 40675, Nov. 7, 1986; 52 FR 24714, July 1, 1987; 52 FR 29386, Aug 7, 1987]

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applicable SIP requirement and will be enforceable by private parties under section 304 as an emission limitation.

APPENDIX T—[RESERVED]

APPENDIX U—CLEAN AIR ACT SECTION 174 GUIDELINES

GUIDANCE ON DESIGNATION OF LEAD PLANNING ORGANIZATIONS FOR NONATTAINMENT AREAS AND ON DETERMINATION OF INTERAGENCY RESPONSIBILITIES, DECEMBER 1977, ISSUED JOINTLY BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY AND THE U.S. DEPARTMENT OF TRANSPORTATION, WASHINGTON, D.C.

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General questions of any or the material covered by this guideline should be sent to the Office of Transportation and Land Use Policy (AW-445), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460, Attention: Ms. Martha Burke. Ms. Burke's telephone number is (202) 755-0570. Questions concerning specific state or local areas should be directed to the appropriate EPA regional office.

1. INTRODUCTION

1.1 Applicability.

These guidelines are applicable to all metropolitan area regions or portions of regions where the national ambient air quality standards for ozone or carbon monoxide will not be attained by July 1, 1979.

1.2 Purposes.

The purposes of these guidelines include:

1. To recommend procedures and criteria for determining a lead agency to be responsible for coordinating the preparation of the implementation plan revisions called for by the 1977 amendments to the Clean Air Act (Pub. L. 95-95) in metropolitan area regions where carbon monoxide or ozone standards will not be attained by July 1979.

2. To assist state and local governments in identifying the initial planning, implementation, and enforcement responsibilities for the plan revisions and in establishing a process for further definition of responsibilities as development of the revisions progresses.

3. To encourage further coordination and consolidation of federally sponsored planning programs. This includes the integration of the new transportation related air quality requirements under Pub. L. 95-95 into the transportation planning process required by federal transportation grant statutes.

1.3 Background.

On August 7, 1977, President Carter signed into law the first comprehensive amendments to the Clean Air Act since 1970. Among the more important changes in the Clean Air Act are provisions encouraging local governments and organizations of local elected officials to assume additional responsibilities in the development, implementation, and enforcement of plans to attain national ambient air quality standards. Such plans were first required under the 1970 amendments to the Clean Air Act. The 1977 amendments require plan revisions for areas where standards have not been attained.

The assumption of additional responsibilities by local governments and local officials is specifically encouraged in those areas where ozone and carbon monoxide standards will not be attained by July 1, 1979 (section 174(a)). The first identification of nonattainment areas for these and other pollutants under the requirements of the 1977 amendments must have been made by states by December 5, 1977. The Administrator of the Environmental Protection Agency (EPA) must publish a list of these areas, with any modifications he deems necessary, by February 3, 1978.

For areas where standards for ozone and carbon monoxide will not be attained by July 1, 1979, state and local elected officials must jointly determine by February 7, 1978, their respective responsibilities for the plan revisions necessary to attain standards by the new deadlines in the 1977 amendments. The plan elements for which responsibilities are to be jointly determined encompass control measures for all pollutants for which standards have not been attained, not just ozone and carbon monoxide.

The amendments require that, where possible, the implementation plan revisions be prepared by an organization of local elected officials designated by agreement of local governments. The amendments strongly encourage preparation by the organization now responsible for transportation planning under section 134 of Title 23, U.S.C., or for air quality maintenance planning (or for both). The designated organization and its responsibilities must be certified by the state (or states if an interstate area is involved). Where local governments have not reached agreement by February 7, 1978, the governor must, in consultation with the elected officials of local governments in the affected area, designate an organization of local elected officials or a state agency to prepare the plan revisions. The designation by the governor must be in accordance with the joint determination of responsibilites made by state and local elected officials.

The governor must, under regulations which the EPA will propose during December 1977, submit a notice to the EPA certifying the designated agency for each nonattainment area or identifying the organization that he or she has designated. The notice must include a brief summary of the process involved in selecting the designated agency. A more detailed documentation of the selection process shall be included as part of the plan revisions to be submitted to the EPA by January 1, 1979. Evidence of the involvement of state legislatures and local governments is required as part of the plan revision submittal (section 172(b)(9)).

Only organizations of local elected officials of general purpose governments certified by the governor will be eligible for the grants authorized under section 175 of the amendments. In each urban area which is wholly or partially classified as a nonattainment area, only one organization will be eligible to receive a grant. The organization receiving the grant may use the grant funds to support plan revision activities carried out by other governmental organizations, public interest groups, or private consultants.

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

DEC 1 1987

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Improving New Source Review (NSR) Implementation

FROM: J. Craig Potter
Assistant Administrator
for Air and Radiation (ANR-443)

TO: Regional Administrator
Regions I-X

On June 27, 1986, I established a special task force to address growing concerns about the consistency and certainty of permits issued under the Clean Air Act's prevention of significant deterioration and nonattainment area NSR programs. Based on the findings and recommendations of the task force, I am today establishing certain program initiatives designed to improve the timeliness, certainty, and effectiveness of these programs.

A great deal of effort will be required to overcome the problems which have developed, but it is my belief that these problems, with your full cooperation and assistance, can be resolved so that these essential air management programs can fulfill their intended roles. Therefore, I urge each of you to provide the maximum priority and resource commitments available to the task.

The outstanding concern we now face in these programs is inadequate implementation. The Office of Air and Radiation intends to apply its resource commitments so as to enhance its ability to provide technical support and guidance, training, workshops, auditing, and enforcement support to the Regions and delegated programs. The Regional Offices must make a corresponding resource commitment for these efforts to succeed. Accordingly, I am requesting that you initiate a self-evaluation of current NSR activities and, to the extent necessary, refocus Regional attention on these programs in an effort to improve and enhance NSR program implementation.

To ensure that we maintain the flexibility to make this effort a dynamic one, capable of sensing and adjusting to the needs of the program, I intend to establish an informal group of our colleagues to report to me on progress in implementing the initiatives discussed below. The mission of the group is to provide the feedback necessary to maximize the effectiveness of NSR implementation and to make NSR reflective of air program needs.

The following is a list of the specific program initiatives I am hereby instituting to bring about improvements in NSR implementation:

Tracking Permit Actions--Initially and until such time as permit quality can be assured, I am requiring that each Regional Office establish (if not already in place) a program to ensure a timely and comprehensive review of all State and local agency-issued major source permits and certain minor source permits. Implementation of the program will be made part of the Regional Office Management System and will require the "real time" exchange and review of information between the Regional Office and the State and local agencies when a key milestone is reached during the permitting process.

Effective communication between the permitting agency and the Regional Office is essential to improving program implementation. Therefore, the Regional Offices will need to ensure that State and local permitting agencies follow certain notification procedures such as:

- Notify the Regional Office and other affected parties (e.g., the Federal land manager if Class I areas are impacted), within a reasonable time, of the receipt of a new major source permit application. This can take the form of a complete copy of the application itself or a brief description of the proposed project. Notification can be made as each application is received or the information may be submitted to the Regional Office in a periodic report.

- Submit to the Regional Office a complete public notification package at the beginning of the public notice period. The package must contain the public notice language, the proposed permit, and a technical analysis demonstrating how the proposed project complies with the technical review requirements of the regulations [e.g., best available control technology (BACT) or lowest achievable emission rate (LAER), air quality impacts or offsets].

- Submit to the Regional Office a copy of the final preconstruction permit when issued, including a response to any appropriate comments submitted during the public comment period.

- Submit to the Regional Office a copy of the operating permit when issued.

Likewise, when informed of a permit action, the Regional Office is responsible for the timely review of the information, specifically:

- Screen incoming information on permit applications for potential issues or concerns and, if warranted, communicate them to the permitting agency.

- Perform a timely and comprehensive review of the public notice package and, if warranted, provide comment during the public comment period. To aid in this task, I have directed the Office of Air Quality

Planning and Standards (OAQPS) to start work on the development of a permit review checklist for use by the Regional Office during the public comment period. The checklist will also be useful to State and local agencies as a tool for self-audit and to understand what the Environmental Protection Agency (EPA) emphasizes when reviewing a proposed permit.

- Review any response to comments and the final permit to ensure that any outstanding concerns have been resolved satisfactorily.

- Review the permit to operate to ensure that it is consistent with the preconstruction permit.

- Take prompt and appropriate action to deter the issuance or use of permits which fail to meet minimal Federal requirements. I have directed OAQPS to work with the Office of General Counsel and the Office of Enforcement and Compliance Monitoring to develop guidance for the Regional Offices on the appropriate legal mechanisms and procedures for handling deficient permit actions.

- To the extent practicable, prior to permit issuance, review potential minor permit actions which exempt an otherwise major source or modification from a major review (e.g.,"synthetic" minor sources, major sources netting out of review, and 99.9 or 249.9 tons per year sources).

The most critical element of these initiatives is the Regional Office review of proposed permit actions during the public comment period. The FY 1985 national air audit showed widespread serious permit deficiencies, many of which could have been corrected without interfering with State and local agency processing if dealt with by EPA during the public comment period. By uniformly reviewing all major source permit actions during the comment period, EPA is able to address deficient reviews or permits before the final permit is issued. This not only promotes more consistency in the permitting process among the States, but also provides the highest degree of certainty to the applicant that the permit will not be challenged by EPA at a later date. Moreover, if the permit is not reviewed and commented on prior to issuance, the possibility of successfully challenging the action is greatly diminished, as is the opportunity to improve the enforceability of the permit.

<u>BACT Determinations</u>--Of all the NSR processes, BACT (and LAER) determinations are perhaps the most misunderstood and the least correctly applied. The BACT alternatives, if presented by the applicant at all, are often poorly documented or biased to achieve the decision the applicant desires.

To bring consistency to the BACT process, I have authorized OAQPS to proceed with developing specific guidance on the use of the "top-down" approach to BACT. The first step in this approach is to determine, for the emission source in question, the most stringent control available for a similar or identical source or source category. If it can be shown that this level of control is technically or economically infeasible for the source in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections. Thus, the "top-down" approach shifts the burden of proof to the applicant to justify why the proposed source is unable to apply the best technology available. It also differs from other processes in that it requires the applicant to analyze a control technology only if the applicant opposes that level of control; the other processes required a full analysis of all possible types and levels of control above the baseline case.

The "top-down" approach is essentially already required for municipal waste combustors pursuant to the June 22, 1987, Administrator's remand to Region IX of the H-Power BACT decision and the OAQPS June 26, 1987, "Operational Guidance on Control Technology for New and Modified Municipal Waste Combustors (MWC's)." It is also currently being successfully implemented by many permitting agencies and some of the Regional Offices for all sources. I have therefore determined that it should be adopted across the board.

In the interim, while OAQPS develops specific guidance on the "top-down" process, I am requesting the Regional Office to apply it to their BACT determinations and to strongly encourage State and local agencies to do likewise. Moreover, when a State agency proposes as BACT a level of control that appears to be inconsistent with the "top-down" concept, such as failure to adequately consider the more stringent control options, the Regional Office is to provide comment to that agency. A final BACT determination which still fails to reflect adequate consideration of the factors that would have been relevant using a "top-down" type of analysis shall be considered deficient by EPA.

Training—No formal training workshops specific to NSR have been held since 1980. Many State and local agencies, as well as the Regional Offices, have experienced a high rate of NSR personnel turnover since then. Many of the basic problems that are occurring in NSR implementation can be traced to the lack of comprehensive, continuing training for new Regional Office and State agency personnel.

To rectify this situation, in FY 1988, OAQPS will work on developing materials for a comprehensive training program in the form of Regional workshops to be conducted in FY 1989.

Commencing in FY 1989, biannual Headquarters-sponsored NSR workshops will be conducted at each Regional Office with State and local agencies attendance encouraged. Workshop topics will cover the NSR rules and policy, BACT and LAER determinations, effective permit writing, how to review a proposed permit and audit a permit file, and other program areas as needed. Appropriately trained Regional staff are to then hold these workshops at their respective State agencies. The NSR experts from Headquarters or NSR experts from other Regions will be available to assist.

In addition, Regional Offices should reserve the funds necessary to send at least one EPA staff representative to the NSR workshops (for EPA only) held semiannually at Denver, Colorado (February), and Southern Pines, North Carolina (July). Attendance at these workshops plays a vital role in keeping the Regions up to date on program implementation and new and emerging policy.

Policy and Guidance--Continuous litigation and regulatory changes have combined with the complexity of NSR rules to create a log jam of the policy and guidance needed to help interpret and effectively apply these rules. Therefore, I am directing that in FY 1989 OAQPS dedicate at least one staff person to ensuring a timely response to policy and guidance requests. In the interim, I intend to continue OAQPS's efforts to compile and organize NSR reference and guidance materials, such as the NSR electronic bulletin board.

I realize that the initiatives discussed above constitute only the first steps of a continuing process to address concerns and needs relating to NSR program implementation. In recognition of the possible need to maintain flexibility in managing and improving the NSR process I will, as indicated earlier, establish a group to monitor our progress under this new policy. The group will be comprised of representatives from EPA Headquarters and Regional Offices and we will consult with State and local agency officials as part of our effort to obtain timely feedback as we implement these initiatives.

Additional specific guidance on improvements in the program areas discussed above will be issued in the near future. In the meantime, each Regional Office is directed to work closely with its State and local agencies to ensure that all aspects of the NSR permit programs comply with all applicable State and Federal program requirements.

Your comments and suggestions are welcome. Please direct them to Gary McCutchen, Chief, New Source Review Section, MD-15, Research Triangle Park, North Carolina 27711 (FTS 629-5592).

cc: Air Division Directors, Regions I-X

United States Environmental Protection Agency

Office of Air Quality Planning and Standards Research Triangle Park NC 27711

EPA-450/4-87-007 May 1987

Air

EPA

Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

AUTHORITY: This rulemaking is promulgated under authority of sections 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act 42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a).

SOURCE: 36 FR 22398, Nov. 25, 1971, unless otherwise noted.

EDITORIAL NOTE: Nomenclature changes affecting Part 51 appear at 44 FR 8237, Feb. 8, 1979 and 51 FR 40661, Nov. 7, 1986.

Subparts A-C—[Reserved]

Subpart D—Maintenance of National Standards

SOURCE: 41 FR 18388, May 3, 1976, unless otherwise noted.

§ 51.40 Scope.

(a) *Applicability.* The requirements of this subpart apply to air quality maintenance areas (AQMAs) identified under § 51.110(i) and to any areas identified under § 51.110(l).

(b) *AQMA Analysis.* Under this subpart, procedures are given for the analysis of the air quality impact of specified pollutant emissions from existing sources and emissions associated with projected growth and development in areas identified under paragraphs (i) and (l) of § 51.110. This analysis is referred to in this subpart as an AQMA analysis.

(c) *AQMA Plan.* Under this subpart, the Administrator will require a revision to the State implementation plan for areas identified under § 51.110(i) or § 51.110(l) when necessary to prevent a national ambient air quality standard

Office of Air Quality Planning and Standards, (MD-15) Research Triangle Park, NC 27711.))

(E) All emission reductions claimed as offset credit shall be federally enforceable;

(F) Procedures relating to the permissible location of offsetting emissions shall be followed which are at least as stringent as those set out in 40 CFR Part 51 Appendix S section IV.D.

(G) Credit for an emissions reduction can be claimed to the extent that the reviewing authority has not relied on it in issuing any permit under regulations approved pursuant to 40 CFR Part 51 Subpart I or the State has not relied on it in demonstration attainment or reasonable further progress.

(4) Each plan may provide that the provisions of this paragraph do not apply to a source or modification that would be a major stationary source or major modification only if fugitive emission to the extent quantifiable are considered in calculating the potential to emit of the stationary source or modification and the source does not belong to any of the following categories:

(i) Coal cleaning plants (with thermal dryers);

(ii) Kraft pulp mills;

(iii) Portland cement plants;

(iv) Primary zinc smelters;

(v) Iron and steel mills;

(vi) Primary aluminum ore reduction plants;

(vii) Primary copper smelters;

(viii) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(ix) Hydrofluoric, sulfuric, or citric acid plants;

(x) Petroleum refineries;

(xi) Lime plants;

(xii) Phosphate rock processing plants;

(xiii) Coke oven batteries;

(xiv) Sulfur recovery plants;

(xv) Carbon black plants (furnace process);

(xvi) Primary lead smelters;

(xvii) Fuel conversion plants;

(xviii) Sintering plants;

(xix) Secondary metal production plants;

(xx) Chemical process plants;

(xxi) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(xxii) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(xxiii) Taconite ore processing plants;

(xxiv) Glass fiber processing plants;

(xxv) Charcoal production plants;

(xxvi) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

(xxvii) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

(5) Each plan shall include enforceable procedures to provide that:

(i) Approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provision of the plan and any other requirements under local, State or Federal law.

(ii) At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforcement limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of regulations approved pursuant to this section shall apply to the source or modification as though construction had not yet commenced on the source or modification;

(b)(1) Each plan shall include a preconstruction review permit program or its equivalent to satisfy the requirements of section 110(a)(2)(D)(i) of the Act for any new major stationary source or major modification as defined in paragraphs (a)(1) (iv) and (v) of this section. Such a program shall apply to any such source or modification that would locate in any area designated as attainment or unclassifiable for any national ambient air quality standard pursuant to section 107 of the Act, when it would cause or contribute to a violation of any national ambient air quality standard.

(2) A major source or major modification will be considered to cause or contribute to a violation of a national ambient air quality standard when such source or modification would, at a minimum, exceed the following significance levels at any locality that does not or would not meet the applicable national standard:

	Annual	Averaging time (hours)			
		24	8	3	1
Pollutant					
SO_2	1.0 μg/m³	5 μg/m³		25 μg/m³	
PM_{10}	1.0 μg/m³	5 μg/m³			
NO_2	1.0 μg/m³				
CO			0.5 mg/m³		2 mg/m³

(3) Such a program may include a provision which allows a proposed major source or major modification subject to paragraph (b) of this section to reduce the impact of its emissions upon air quality by obtaining sufficient emission reductions to, at a minimum, compensate for its adverse ambient impact where the major source or major modification would otherwise cause or contribute to a violation of any national ambient air quality standard. The plan shall require that, in the absence of such emission reductions, the State or local agency shall deny the proposed construction.

(4) The requirements of paragraph (b) of this section shall not apply to a major stationary source or major modification with respect to a particular pollutant if the owner or operator demonstrates that, as to that pollutant, the source or modification is located in an area designated as nonattainment pursuant to section 107 of the Act.

[51 FR 40669, Nov. 7, 1986, as amended at 52 FR 24713, July 1, 1987; 52 FR 29386, Aug 7, 1987]

§ 51.166 Prevention of significant deterioration of air quality.

(a)(1) *Plan requirements.* In accordance with the policy of section 101(b)(1) of the act and the purposes of section 160 of the Act, each applicable State Implementation plan shall contain emission limitations and such other measures as may be necessary to prevent significant deterioration of air quality.

(2) *Plan Revisions.* If a State Implementation Plan revision would result in increased air quality deterioration over any baseline concentration, the plan revision shall include a demonstration that it will not cause or contribute to a violation of the applicable increment(s). If a plan revision proposing less restrictive requirements was submitted after August 7, 1977 but on or before any applicable baseline date and was pending action by the Administrator on that date, no such demonstration is necessary with respect to the area for which a baseline date would be established before final action is taken on the plan revision. Instead, the assessment described in paragraph (a)(4) of this section, shall review the expected impact to the applicable increment(s).

(3) *Required plan revision.* If the State or the Administrator determines that a plan is substantially inadequate to prevent significant deterioration or that an applicable increment is being violated, the plan shall be revised to correct the inadequacy or the violation. The plan shall be revised within 60 days of such a finding by a State or within 60 days following notification by the Administrator, or by such later date as prescribed by the Administrator after consultation with the State.

(4) *Plan assessment.* The State shall review the adequacy of a plan on a periodic basis and within 60 days of such time as information becomes available that an applicable increment is being violated.

(5) *Public participation.* Any State action taken under this paragraph shall be subject to the opportunity for public hearing in accordance with procedures equivalent to those established in § 51.102.

(6) *Amendments.* (i) Any State required to revise its implementation plan by reason of an amendment to this section, including any amendment adopted simultaneously with this paragraph, shall adopt and submit such plan revision to the Administrator for approval within 9 months after the effective date of the new amendments.

(ii) Any revision to an implementation plan that would amend the provisions for the prevention of significant air quality deterioration in the plan shall specify when and as to what sources and modifications the revision is to take effect.

(iii) Any revision to an implementation plan that an amendment to this section required shall take effect no later than the date of its approval and may operate prospectively.

(b) *Definitions.* All state plans shall use the following definitions for the purposes of this section. Deviations from the following wording will be approved only if the state specifically demonstrates that the submitted definition is more stringent, or at least as stringent, in all respects as the corresponding definitions below:

(1)(i) "Major stationary source" means:

(*a*) Any of the following stationary sources of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any pollutant subject to regulation under the Act: Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants, and charcoal production plants;

(*b*) Notwithstanding the stationary source size specified in paragraph (b)(1)(i)(*a*) of this section, any stationary source which emits, or has the potential to emit, 250 tons per year or more of any air pollutant subject to regulation under the Act; or

(*c*) Any physical change that would occur at a stationary source not otherwise qualifying under paragraph (b)(1) of this section, as a major stationary source if the change would constitute a major stationary source by itself.

(ii) A major source that is major for volatile organic compounds shall be considered major for ozone.

(iii) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this section whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

(*a*) Coal cleaning plants (with thermal dryers);

(*b*) Kraft pulp mills;

(*c*) Portland cement plants;

(*d*) Primary zinc smelters;

(*e*) Iron and steel mills;

(*f*) Primary aluminum ore reduction plants;

(*g*) Primary copper smelters;

(*h*) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(*i*) Hydrofluoric, sulfuric, or nitric acid plants;

(*j*) Petroleum refineries;

(*k*) Lime plants;

(*l*) Phosphate rock processing plants;

(*m*) Coke oven batteries;

(*n*) Sulfur recovery plants;

(*o*) Carbon black plants (furnace process);

(*p*) Primary lead smelters;

(*q*) Fuel conversion plants;

(*r*) Sintering plants;

(*s*) Secondary metal production plants;

(*t*) Chemical process plants;

(*u*) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(*v*) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(*w*) Taconite ore processing plants;

(*x*) Glass fiber processing plants;

(*y*) Charcoal production plants;

(*z*) Fossil fuel-fired steam electric plants of more that 250 million British thermal units per hour heat input;

(*aa*) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

(2)(i) "Major modification" means any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.

(ii) Any net emissions increase that is significant for volatile organic compounds shall be considered significant for ozone.

(iii) A physical change or change in the method of operation shall not include:

(*a*) Routine maintenance, repair, and replacement;

(*b*) Use of an alternative fuel or raw material by reason of any order under section 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plan pursuant to the Federal Power Act;

(*c*) Use of an alternative fuel by reason of an order or rule under section 125 of the Act;

(*d*) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(*e*) Use of an alternative fuel or raw material by a stationary source which:

(*1*) The source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975 pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or § 51.166; or

(*2*) The source is approved to use under any permit issued under 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.166;

(*f*) An increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975, pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or § 51.166.

(*g*) Any change in ownership at a stationary source.

(3)(i) "Net emissions increase" means the amount by which the sum of the following exceeds zero:

(*a*) Any increase in actual emissions from a particular physical change or change in the method of operation at a stationary source; and

(*b*) Any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable.

(ii) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs within a reasonable period (to be specified by the state) before the date that the increase from the particular change occurs.

(iii) An increase or decrease in actual emissions is creditable only if the reviewing authority has not relied on it in issuing a permit for the source under regulations approved pursuant to this section, which permit is in effect when the increase in actual emissions from the particular change occurs.

(iv) An increase or decrease in actual emissions of sulfur dioxide or particulate matter which occurs before the applicable baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available.

(v) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

(vi) A decrease in actual emissions is creditable only to the extent that:

(*a*) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

(*b*) It is federally enforceable at and after the time that actual construction on the particular change begins; and

(*c*) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

(vii) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

(4) "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

(5) "Stationary source" means any building, structure, facility, or installation which emits or may emit any air pollutant subject to regulation under the Act.

(6) "Building, structure, facility, or installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same two-digit code) as described in the *Standard Industrial Classification Manual, 1972*, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively).

(7) "Emissions unit" means any part of a stationary source which emits or would have the potential to emit any pollutant subject to regulation under the Act.

(8) "Construction" means any physical change or change in the method of operation (including fabrication, erection, installation, demolition, or modification of an emissions unit) which would result in a change in actual emissions.

(9) "Commence" as applied to construction of a major stationary source or major modification means that the owner or operator has all necessary preconstruction approvals or permits and either has:

(i) Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

(ii) Entered into binding agreements or contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time.

(10) "Necessary preconstruction approvals or permits" means those permits or approvals required under federal air quality control laws and regulations and those air quality control laws and regulations which are part of the applicable State Implementation Plan.

(11) "Begin actual construction" means, in general, initiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipework, and construction of permanent storage structures. With respect to a change in method of operation this term refers to those on-site activities, other than preparatory activities, which mark the initiation of the change.

(12) "Best available control technology" means an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Act which would

be emitted from any proposed major stationary source or major modification which the reviewing authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combination techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61. If the reviewing authority determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.

(13)(i) "Baseline concentration" means that ambient concentration level which exists in the baseline area at the time of the applicable baseline date. A baseline concentration is determined for each pollutant for which a baseline date is established and shall include:

(*a*) The actual emissions representative of sources in existence on the applicable baseline date, except as provided in paragraph (b)(13)(ii) of this section;

(*b*) The allowable emissions of major stationary sources which commenced construction before January 6, 1975, but were not in operation by the applicable baseline date.

(ii) The following will not be included in the baseline concentration and will affect the applicable maximum allowable increase(s):

(*a*) Actual emission from any major stationary source on which construction commenced after January 6, 1975; and

(*b*) Actual emissions increases and decreases at any stationary source occurring after the baseline date.

(14)(i) "Baseline date" means the earliest date after August 7, 1977, that:

(*a*) A major stationary source or major modification subject to 40 CFR 52.21 submits a complete application under that section; or

(*b*) A major stationary source or major modificatioin subject to regulations approved pursuant to 40 CFR 51.166 submits a complete application under such regulations.

(ii) The baseline date is established for each pollutant for which increments or other equivalent measures have been established if:

(*a*) The area in which the proposed source or modification would construct is designated as attainment or unclassifiable under section 107(d)(i) (D) or (E) of the Act for the pollutant on the date of its complete application under 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.166; and

(*b*) In the case of a major stationary source, the pollutant would be emitted in significant amounts, or, in the case of a major modification, there would be a significant net emissions increase of the pollutant.

(15)(i) "Baseline area" means any intrastate area (and every part thereof) designated as attainment or unclassifiable under section 107(d)(1) (D) or (E) of the Act in which the major source or major modification establishing the baseline date would construct or would have an air quality impact equal to or greater than 1 $\mu g/m^3$ (annual average) of the pollutant for which the baseline date is established.

(ii) Area redesignations under section 107(d)(1) (D) or (E) of the Act cannot intersect or be smaller than the area of impact of any major stationary source or major modification which:

(*a*) Establishes a baseline date; or

(*b*) Is subject to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.166, and would be constructed in the same state as the state proposing the redesignation.

(16) "Allowable emissions" means the emissions rate of a stationary source calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable limits which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

(i) The applicable standards as set forth in 40 CFR Parts 60 and 61;

(ii) The applicable State Implementation Plan emissions limitation, including those with a future compliance date; or

(iii) The emissions rate specified as a federally enforceable permit condition.

(17) "Federally enforceable" means all limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable State Implementation Plan, and any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.18 or 51.166.

(18) "Secondary emissions" means emissions which occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. For the purposes of this section, secondary emissions must be specific, well defined, quantifiable, and impact the same general areas the stationary source modification which causes the secondary emissions. Secondary emissions include emissions from any offsite support facility which would not be constructed or increase its emissions except as a result of the construction or operation of the major stationary source or major modification. Secondary emissions do not include any emissions which come directly from a mobile source, such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel.

(19) "Innovative control technology" means any system of air pollution control that has not been adequately demonstrated in practice, but would have a substantial likelihood of achieving greater continuous emissions reduction than any control system in current practice or of achieving at least comparable reductions at lower cost in terms of energy, economics, or nonair quality environmental impacts.

(20) "Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

(21)(i) "Actual emissions" means the actual rate of emissions of a pollutant from an emissions unit, as determined in accordance with paragraphs (b)(21)(ii) through (iv) of this section.

(ii) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operation. The reviewing authority may allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

(iii) The reviewing authority may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(iv) For any emissions unit which has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

(22) "Complete" means, in reference to an application for a permit, that the application contains all the information necessary for processing the application. Designating an application complete for purposes of permit processing does not preclude the reviewing authority from requesting or accepting any additional information.

(23)(i) "Significant" means, in reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant and Emissions Rate

Carbon monoxide: 100 tons per year (tpy)
Nitrogen oxides: 40 tpy
Sulfur dioxide: 40 tpy
Particulate matter: 25 tpy of particulate matter emissions. 15 tpy of PM_{10} emissions.
Ozone: 40 tpy of volatile organic compounds
Lead: 0.6 tpy
Asbestos: 0.007 tpy
Beryllium: 0.0004 tpy
Mercury: 0.1 tpy
Vinyl chloride: 1 tpy
Fluorides: 3 tpy
Sulfuric acid mist: 7 tpy
Hydrogen sulfide (H_2S): 10 tpy
Total reduced sulfur (including H_2S): 10 tpy
Reduced sulfur compounds (including H_2S): 10 tpy

(ii) "Significant" means, in reference to a net emissions increase or the potential of a source to emit a pollutant subject to regulation under the Act that paragraph (b)(23)(i) of this section, does not list, any emissions rate.

(iii) Notwithstanding paragraph (b)(23)(i) of this section, "significant" means any emissions rate or any net emissions increase associated with a major stationary source or major modification, which would construct within 10 kilometers of a Class I area, and have an impact on such area equal to or greater than 1 $\mu g/m^3$ (24-hour average).

(24) "Federal Land Manager" means, with respect to any lands in the United States, the Secretary of the department with authority over such lands.

(25) "High terrain" means any area having an elevation 900 feet or more above the base of the stack of a source.

(26) "Low terrain" means any area other than high terrain.

(27) "Indian Reservation" means any federally recognized reservation established by Treaty, Agreement, Executive Order, or Act of Congress.

(28) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

(c) *Ambient air increments.* The plan shall contain emission limitations and such other measures as may be necessary to assure that in areas designated as Class I, II, or III, increases in pollutant concentration over the baseline concentration shall be limited to the following:

Pollutant	Maximum allowable increase (micrograms per cubic meter)
Class I	
Particulate matter:	
TSP, annual geometric mean	5
TSP, 24-hr maximum	10
Sulfur dioxide:	
Annual arithmetic mean	2
24-hr maximum	5
3-hr maximum	25
Class II	
Particulate matter:	
TSP, annual geometric mean	19
TSP, 24-hr maximum	37
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	512
Class III	
Particulate matter:	
TSP, annual geometric mean	37
TSP, 24-hr maximum	75
Sulfur dioxide:	
Annual arithmetic mean	40
24-hr maximum	182
3-hr maximum	700

For any period other than an annual period, the applicable maximum allowable increase may be exceeded during one such period per year at any one location.

(d) *Ambient air ceilings.* The plan shall provide that no concentration of a pollutant shall exceed:

(1) The concentration permitted under the national secondary ambient air quality standard, or

(2) The concentration permitted under the national primary ambient air quality standard, whichever concentration is lowest for the pollutant for a period of exposure.

(e) *Restrictions on area classifications.* The plan shall provide that—

(1) All of the following areas which were in existence on August 7, 1977, shall be Class I areas and may not be redesignated:

(i) International parks,

(ii) National wilderness areas which exceed 5,000 acres in size,

(iii) National memorial parks which exceed 5,000 acres in size, and

(iv) National parks which exceed 6,000 acres in size.

(2) Areas which were redesignated as Class I under regulations promulgated before August 7, 1977, shall remain Class I, but may be redesignated as provided in this section.

(3) Any other area, unless otherwise specified in the legislation creating such an area, is initially designated Class II, but may be redesignated as provided in this section.

(4) The following areas may be redesignated only as Class I or II:

(i) An area which as of August 7, 1977, exceeded 10,000 acres in size and was a national monument, a national primitive area, a national preserve, a national recreational area, a national wild and scenic river, a national wildlife refuge, a national lakeshore or seashore; and

(ii) A national park or national wilderness area established after August 7, 1977, which exceeds 10,000 acres in size.

(f) *Exclusions from increment consumption.* (1) The plan may provide that the following concentrations shall be excluded in determining compliance with a maximum allowable increase:

(i) Concentrations attributable to the increase in emissions from stationary sources which have converted from the use of petroleum products, natural gas, or both by reason of an order in effect under section 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) over the emissions from such sources before the effective date of such an order;

(ii) Concentrations attributable to the increase in emissions from sources which have converted from using natural gas by reason of natural gas curtailment plan in effect pursuant to the Federal Power Act over the emissions from such sources before the effective date of such plan;

(iii) Concentrations of particulate matter attributable to the increase in emissions from construction or other temporary emission-related activities of new or modified sources;

(iv) The increase in concentrations attributable to new sources outside the United States over the concentrations attributable to existing sources which are included in the baseline concentration; and

(v) Concentrations attributable to the temporary increase in emissions of sulfur dioxide or particulate matter from stationary sources which are affected by plan revisions approved by the Administrator as meeting the criteria specified in paragraph (f)(4) of this section.

(2) If the plan provides that the concentrations to which paragraph (f)(1) (i) or (ii) of this section, refers shall be excluded, it shall also provide that no exclusion of such concentrations shall apply more than five years after the effective date of the order to which paragraph (f)(1)(i) of this section, refers or the plan to which paragraph (f)(1)(ii) of this section, refers, whichever is applicable. If both such order and plan are applicable, no such exclusion shall apply more than five years after the later of such effective dates.

(3) No exclusion under paragraph (f) of this section shall occur later than 9 months after August 7, 1980, unless a State Implementation Plan revision meeting the requirements of 40 CFR 51.166 has been submitted to the Administrator.

(4) For purposes of excluding concentrations pursuant to paragraph (f)(1)(v) of this section, the Administrator may approve a plan revision that:

(i) Specifies the time over which the temporary emissions increase of sulfur dioxide or particulate matter would occur. Such time is not to exceed two years in duration unless a longer time is approved by the Administrator;

(ii) Specifies that the time period for excluding certain contributions in accordance with paragraph (f)(4)(i) of this section, is not renewable;

(iii) Allows no emissions increase from a stationary source which would:

(*a*) Impact a Class I area or an area where an applicable increment is known to be violated; or

(*b*) Cause or contribute to the violation of a national ambient air quality standard;

(iv) Requires limitations to be in effect the end of the time period specified in accordance with paragraph (f)(4)(i) of this section, which would ensure that the emissions levels from stationary sources affected by the plan revision would not exceed those levels occurring from such sources before the plan revision was approved.

(g) *Redesignation.* (1) The plan shall provide that all areas of the State (except as otherwise provided under paragraph (e) of this section) shall be designated either Class I, Class II, or Class III. Any designation other than Class II shall be subject to the redesignation procedures of this paragraph. Redesignation (except as otherwise precluded by paragraph (e) of this section) may be proposed by the respective States or Indian Governing Bodies, as provided below, subject to approval by the Administrator as a revision to the applicable State implementation plan.

(2) The plan may provide that the State may submit to the Administrator a proposal to redesignate areas of the State Class I or Class II: *Provided*, That:

(i) At least one public hearing has been held in accordance with procedures established in § 51.102.

(ii) Other States, Indian Governing Bodies, and Federal Land Managers whose lands may be affected by the proposed redesignation were notified at least 30 days prior to the public hearing;

(iii) A discussion of the reasons for the proposed redesignation, including a satisfactory description and analysis of the health, environmental, economic, social, and energy effects of the proposed redesignation, was prepared and made available for public inspection at least 30 days prior to the hearing and the notice announcing the hearing contained appropriate notification of the availability of such discussion;

(iv) Prior to the issuance of notice respecting the redesignation of an area that includes any Federal lands, the State has provided written notice to the appropriate Federal Land Manager and afforded adequate opportunity (not in excess of 60 days) to confer with the State respecting the redesignation and to submit written comments and recommendations. In redesignating any area with respect to which any Federal Land Manager had submitted written comments and recommendations, the State shall have published a list of any inconsistency between such redesignation and such comments and recommendations (together with the reasons for making such redesignation against the recommendation of the Federal Land Manager); and

(v) The State has proposed the redesignation after consultation with the elected leadership of local and other substate general purpose governments in the area covered by the proposed redesignation.

(3) The plan may provide that any area other than an area to which paragraph (e) of this section refers may be redesignated as Class III if—

(i) The redesignation would meet the requirements of provisions established in accordance with paragraph (g)(2) of this section;

(ii) The redesignation, except any established by an Indian Governing Body, has been specifically approved by the Governor of the State, after consultation with the appropriate committees of the legislature, if it is in session, or with the leadership of the legislature, if it is not in session (unless State law provides that such redesignation must be specifically approved by State legislation) and if general purpose units of local government representing a majority of the residents of the area to be redesignated enact legislation (including resolutions where appropriate) concurring in the redesignation;

(iii) The redesignation would not cause, or contribute to, a concentration of any air pollutant which would exceed any maximum allowable increase permitted under the classification of any other area or any national ambient air quality standard; and

(iv) Any permit application for any major stationary source or major modification subject to provisions established in accordance with paragraph (l) of this section which could receive a permit only if the area in question were redesignated as Class III, and any material submitted as part of that application, were available, insofar as was practicable, for public inspection prior to any public hearing on redesignation of any area as Class III.

(4) The plan shall provide that lands within the exterior boundaries of Indian Reservations may be redesignated only by the appropriate Indian Governing Body. The appropriate Indian Governing Body may submit to the Administrator a proposal to redesignate areas Class I, Class II, or Class III: *Provided*, That:

(i) The Indian Governing Body has followed procedures equivalent to those required of a State under paragraphs (g) (2), (3)(iii), and (3)(iv) of this section; and

(ii) Such redesignation is proposed after consultation with the State(s) in which the Indian Reservation is located and which border the Indian Reservation.

(5) The Administrator shall disapprove, within 90 days of submission, a proposed redesignation of any area only if he finds, after notice and opportunity for public hearing, that such redesignation does not meet the procedural requirements of this section or is inconsistent with paragraph (e) of this section. If any such disapproval occurs, the classification of the area shall be that which was in effect prior to the redesignation which was disapproved.

(6) If the Administrator disapproves any proposed area designation, the State or Indian Governing Body, as appropriate, may resubmit the proposal after correcting the deficiencies noted by the Administrator.

(h) *Stack heights*. The plan shall provide, as a minimum, that the degree of emission limitation required for control of any air pollutant under the plan shall not be affected in any manner by—

(1) So much of a stack height, not in existence before December 31, 1970, as exceeds good engineering practice, or

(2) Any other dispersion technique not implemented before then.

(i) *Review of major stationary sources and major modifications—source applicability and exemptions*.

(1) The plan shall provide that no major stationary source or major modification shall begin actual construction unless, as a minumum, requirements equivalent to those contained in paragraphs (j) through (r) of this section have been met.

(2) The plan shall provide that the requirements equivalent to those contained in paragraphs (j) through (r) of this section shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the Act that it would emit, except as this section would otherwise allow.

(3) The plan shall provide that requirements equivalent to those contained in paragraphs (j) through (r) of this section apply only to any major stationary source or major modification that would be constructed in an area which is designated as attainment or unclassifiable under section 107(a)(1) (D) or (E) of the Act; and

(4) The plan may provide that requirements equivalent to those contained in paragraphs (j) through (r) of this section do not apply to a particular major stationary source or major modification if:

(i) The major stationary source would be a nonprofit health or nonprofit educational institution or a major modification that would occur at such an institution; or

(ii) The source or modification would be a major stationary source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit of the stationary source or modification and such source does not belong to any following categories:

(*a*) Coal cleaning plants (with thermal dryers);

(*b*) Kraft pulp mills;

(*c*) Portland cement plants;

(*d*) Primary zinc smelters;

(*e*) Iron and steel mills;

(*f*) Primary aluminum ore reduction plants;

(*g*) Primary copper smelters;

(*h*) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(*i*) Hydrofluoric, sulfuric, or nitric acid plants;

(*j*) Petroleum refineries;

(*k*) Lime plants;

(*l*) Phosphate rock processing plants;

(*m*) Coke oven batteries;

(*n*) Sulfur recovery plants;

(*o*) Carbon black plants (furnace process);

(*p*) Primary lead smelters;

(*q*) Fuel conversion plants;

(*r*) Sintering plants;

(*s*) Secondary metal production plants;

(*t*) Chemical process plants;

(*u*) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(*v*) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(*w*) Taconite ore processing plants;

(*x*) Glass fiber processing plants;

(*y*) Charcoal production plants;

(*z*) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

(*aa*) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act; or

(iii) The source or modification is a portable stationary source which has previously received a permit under requirements equivalent to those contained in paragraphs (j) through (r) of this section, if:

(*a*) The source proposes to relocate and emissions of the source at the new location would be temporary; and

(*b*) The emissions from the source would not exceed its allowable emissions; and

(*c*) The emissions from the source would impact no Class I area and no area where an applicable increment is known to be violated; and

(*d*) Reasonable notice is given to the reviewing authority prior to the relocation identifying the proposed new location and the probable duration of operation at the new location. Such notice shall be given to the reviewing authority not less than 10 days in advance of the proposed relocation unless a different time duration is previously approved by the reviewing authority.

(5) The plan may provide that requirements equivalent to those contained in paragraphs (j) through (r) of this section do not apply to a major stationary source or major modification with respect to a particular pollutant if the owner or operator demonstrates that, as to that pollutant, the source or modification is located in an area designated as nonattainment under section 107 of the Act.

(6) The plan may provide that requirements equivalent to those contained in paragraphs (k), (m), and (o) of this section do not apply to a proposed major stationary source or major modification with respect to a particular pollutant, if the allowable emissions of that pollutant from a new source, or the net emissions increase of that pollutant from a modification, would be temporary and impact no Class I area and no area where an applicable increment is known to be violated.

(7) The plan may provide that requirements equivalent to those contained in paragraphs (k), (m), and (o) of this section as they relate to any maximum allowable increase for a Class II area do not apply to a modification of a major stationary source that was in existence on March 1, 1978, if the net increase in allowable emissions of each pollutant subject to regulation under the Act from the modification after the application of best available control technology would be less than 50 tons per year.

(8) The plan may provide that the reviewing authority may exempt a proposed major stationary source or major modification from the requirements of paragraph (m) of this section, with respect to monitoring for a particular pollutant, if:

(i) The emissions increase of the pollutant from a new stationary source or the net emissions increase of the pollutant from a modification would cause, in any area, air quality impacts less than the following amounts:

(*a*) Carbon monoxide—575 ug/m^3, 8-hour average;

(*b*) Nitrogen dioxide—14 ug/m^3, annual average;

(*c*) Particulate matter—10 $\mu g/m^3$ TSP, 24-hour average.—10 $\mu g/m^3$ PM_{10}, 24-hour average.

(*d*) Sulfur dioxide—13 ug/m^3, 24-hour average;

(*e*) Ozone; [1]

(*f*) Lead—0.1 $\mu g/m^3$, 3-month average.

(*g*) Mercury—0.25 ug/m^3, 24-hour average;

(*h*) Beryllium—0.001 $\mu g/m^3$, 24-hour average;

(*i*) Fluorides—0.25 ug/m^3, 24-hour average;

(*j*) Vinyl chloride—15 ug/m^3, 24-hour average;

(*k*) Total reduced sulfur—10 ug/m^3, 1-hour average;

(*l*) Hydrogen sulfide—0.2 $\mu g/m^3$, 1-hour average;

(*m*) Reduced sulfur compounds—10 ug/m^3, 1-hour average; or

(*ii*) The concentrations of the pollutant in the area that the source or modification would affect are less than the concentrations listed in (i)(8)(i) of this section; or

(*iii*) The pollutants is not listed in paragraph (i)(8)(i) of this section.

(9) If EPA approves a plan revision under 40 CFR 51.166 as in effect before August 7, 1980, any subsequent revision which meets the requirements of this section may contain transition provisions which parallel the transition provisions of 40 CFR 52.21(i)(9), (i)(10) and (m)(1)(v) as in effect on that date, which provisions relate to requirements for best available control technology and air quality analyses. Any such subsequent revision may not contain any transition provision which in the context of the revision would operate any less stringently than would its counterpart in 40 CFR 52.21.

(10) If EPA approves a plan revision under § 51.166 as in effect [before July 31, 1987], any subsequent revision which meets the requirements of this section may contain transition provisions which parallel the transition provisions of § 52.21 (i)(11), and (m)(1)(vii) and (viii) of this chapter as in effect on that date, these provisions being related to monitoring requirements for particulate matter. Any such subsequent revision may not contain any transition provision which in the context of the revision would operate any less stringently than would its counterpart in § 52.21 of this chapter.

(j) *Control technology review.* The plan shall provide that:

(1) A major stationary source or major modification shall meet each applicable emissions limitation under the State Implementation Plan and each applicable emission standards and standard of performance under 40 CFR Parts 60 and 61.

(2) A new major stationary source shall apply best available control technology for each pollutant subject to regulation under the Act that it would have the potential to emit in significant amounts.

(3) A major modification shall apply best available control technology for each pollutant subject to regulation under the Act for which it would be a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit.

(4) For phased construction projects, the determination of best available control technology shall be reviewed and modified as appropriate at the least reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source.

(k) *Source impact analysis.* The plan shall provide that the owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reduction (including secondary emissions) would not cause or contribute to air pollution in violation of:

(1) Any national ambient air quality standard in any air quality control region; or

[1] No *de minimis* air quality level is provided for ozone. However, any net increase of 100 tons per year or more of volatile organic compounds subject to PSD would be required to perform and ambient impact analysis, including the gathering of ambient air quality data.

(2) Any applicable maximum allowable increase over the baseline concentration in any area.

(l) *Air quality models.* The plan shall provide for procedures which specify that—

(1) All estimates of ambient concentrations required under this paragraph shall be based on the applicable air quality models, data bases, and other requirements specified in the "Guideline on Air Quality Models (Revised)" (1986) and Supplement A (1987) which are incorporated by reference. The guideline (EPA Publication No. 450/2-78-027R) and Supplement A (1987) are for sale from the U.S. Department of Commerce, National Technical Information Service, 5825 Port Royal Road, Springfield, Virginia 22161. They are also available for inspection at the Office of the Federal Register Information Center, Room 8301, 1100 L Street NW., Washington, DC 20408. These materials are incorporated as they exist on the date of approval and a notice of any change will be published in the FEDERAL REGISTER.

(2) Where an air quality impact model specified in the "Guideline on Air Quality Models (Revised)" (1986) and Supplement A (1987) are inappropriate, the model may be modified or another model substituted. Such a modification or substitution of a model may be made on a case-by-case basis or, where appropriate, on a generic basis for a specific state program. Written approval of the Administrator must be obtained for any modification or substitution. In addition, use of a modified or substituted model must be subject to notice and opportunity for public comment under procedures developed in accordance with paragraph (q) of this section.

(m) *Air quality analysis*—(1) *Preapplication analysis.* (i) The plan shall provide that any application for a permit under regulations approved pursuant to this section shall contain an analysis of ambient air quality in the area that the major stationary source or major modification would affect for each of the following pollutants:

(*a*) For the source, each pollutant that it would have the potential to emit in a significant amount;

(*b*) For the modification, each pollutant for which it would result in a significant net emissions increase.

(ii) The plan shall provide that, with respect to any such pollutant for which no National Ambient Air Quality Standard exists, the analysis shall contain such air quality monitoring data as the reviewing authority determines is necessary to assess ambient air quality for that pollutant in any area that the emissions of that pollutant would affect.

(iii) The plan shall provide that with respect to any such pollutant (other than nonmethane hydrocarbons) for which such a standard does exist, the analysis shall contain continuous air quality monitoring data gathered for purposes of determining whether emissions of that pollutant would cause or contribute to a violation of the standard or any maxiumum allowable increase.

(iv) The plan shall provide that, in general, the continuous air monitoring data that is required shall have been gathered over a period of one year and shall represent the year preceding receipt of the application, except that, if the reviewing authority determines that a complete and adequate analysis can be accomplished with monitoring data gathered over a period shorter than one year (but not to be less than four months), the data that is required shall have been gathered over at least that shorter period.

(v) The plan may provide that the owner or operator of a proposed major stationary source or major modification of volatile organic compounds who satisfies all conditions of 40 CFR Part 51 Appendix S, section IV may provide postapproval monitoring data for ozone in lieu of providing preconstruction data as required under paragraph (m)(1) of this section.

(2) *Post-construction monitoring.* The plan shall provide that the owner or operator of a major stationary source or major modification shall, after construction of the stationary source or modification, conduct such ambient monitoring as the reviewing authority determines is necessary to determine the effect emissions from the stationary source or modification

may have, or are having, on air quality in any area.

(3) *Operation of monitoring stations.* The plan shall provide that the owner or operator of a major stationary source or major modification shall meet the requirements of Appendix B to Part 58 of this chapter during the operation of monitoring stations for purposes of satisfying paragraph (m) of this section.

(n) *Source information.* (1) The plan shall provide that the owner or operator of a proposed source or modification shall submit all information necessary to perform any analysis or make any determination required under procedures established in accordance with this section.

(2) The plan may provide that such information shall include:

(i) A description of the nature, location, design capacity, and typical operating schedule of the source or modification, including specifications and drawings showing its design and plant layout;

(ii) A detailed schedule for construction of the source or modification;

(iii) A detailed description as to what system of continuous emission reduction is planned by the source or modification, emission estimates, and any other information as necessary to determine that best available control technology as applicable would be applied;

(3) The plan shall provide that upon request of the State, the owner or operator shall also provide information on:

(i) The air quality impact of the source or modification, including meteorological and topographical data necessary to estimate such impact; and

(ii) The air quality impacts and the nature and extent of any or all general commercial, residential, industrial, and other growth which has occurred since August 7, 1977, in the area the source or modification would affect.

(o) *Additional impact analyses.* The plan shall provide that—

(1) The owner or operator shall provide an analysis of the impairment to visibility, soils, and vegetation that would occur as a result of the source or modification and general commercial, residential, industrial, and other growth associated with the source or modification. The owner or operator need not provide an analysis of the impact on vegetation having no significant commercial or recreational value.

(2) The owner or operator shall provide an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the source or modification.

(p) *Sources impacting Federal Class I areas—additional requirements*—(1) *Notice to EPA.* The plan shall provide that the reviewing authority shall transmit to the Administrator a copy of each permit application relating to a major stationary source or major modification and provide notice to the Administrator of every action related to the consideration of such permit.

(2) *Federal Land Manager.* The Federal Land Manager and the Federal official charged with direct responsibility for management of Class I lands have an affirmative responsibility to protect the air quality related values (including visibility) of any such lands and to consider, in consultation with the Administrator, whether a proposed source or modification would have an adverse impact on such values.

(3) *Denial—impact on air quality related values.* The plan shall provide a mechanism whereby a Federal Land Manager of any such lands may present to the State, after the reviewing authority's preliminary determination required under procedures developed in accordance with paragraph (r) of this section, a demonstration that the emissions from the proposed source or modification would have an adverse impact on the air quality-related values (including visibility) of any Federal mandatory Class I lands, notwithstanding that the change in air quality resulting from emissions from such source or modification would not cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the State concurs with such demonstration, the reviewing authority shall not issue the permit.

(4) *Class I Variances.* The plan may provide that the owner or operator of a proposed source or modification may demonstrate to the Federal Land Manager that the emissions from such source would have no adverse impact on the air quality related values of such lands (including visibility), notwithstanding that the change in air quality resulting from emissions from such source or modification would cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the Federal Land Manager concurs with such demonstration and so certifies to the State, the reviewing authority may: *Provided,* That applicable requirements are otherwise met, issue the permit with such emission limitations as may be necessary to assure that emissions of sulfur dioxide and particulate matter would not exceed the following maximum allowable increases over baseline concentration for such pollutants:

	Maximum allowable increase (micrograms per cubic meter)
Particulate matter:	
TSP, annual geometric mean	19
TSP, 24-hr maximum	37
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr. maximum	91
3-hr. maximum	325

(5) *Sulfur dioxide variance by Governor with Federal Land Manager's concurrence.* The plan may provide that—

(i) The owner or operator of a proposed source or modification which cannot be approved under procedures developed pursuant to paragraph (q)(4) of this section may demonstrate to the Governor that the source or modification cannot be constructed by reason of any maximum allowable increase for sulfur dioxide for periods of twenty-four hours or less applicable to any Class I area and, in the case of Federal mandatory Class I areas, that a variance under this clause would not adversely affect the air quality related values of the area (including visibility);

(ii) The Governor, after consideration of the Federal Land Manager's recommendation (if any) and subject to his concurrence, may grant, after notice and an opportunity for a public hearing, a variance from such maximum allowable increase; and

(iii) If such variance is granted, the reviewing authority may issue a permit to such source or modification in accordance with provisions developed pursuant to paragraph (q)(7) of this section: *Provided,* That the applicable requirements of the plan are otherwise met.

(6) *Variance by the Governor with the President's concurrence.* The plan may provide that—

(i) The recommendations of the Governor and the Federal Land Manager shall be transferred to the President in any case where the Governor recommends a variance in which the Federal Land Manager does not concur;

(ii) The President may approve the Governor's recommendation if he finds that such variance is in the national interest; and

(iii) If such a variance is approved, the reviewing authority may issue a permit in accordance with provisions developed pursuant to the requirements of paragraph (q)(7) of this section: *Provided,* That the applicable requirements of the plan are otherwise met.

(7) *Emission limitations for Presidential or gubernatorial variance.* The plan shall provide that in the case of a permit issued under procedures developed pursuant to paragraph (q) (5) or (6) of this section, the source or modification shall comply with emission limitations as may be necessary to assure that emissions of sulfur dioxide from the source or modification would not (during any day on which the otherwise applicable maximum allowable increases are exceeded) cause or contribute to concentrations which would exceed the following maximum allowable increases over the baseline concentration and to assure that such emissions would not cause or contribute to concentrations which exceed the otherwise applicable maximum allowable increases for periods of exposure of 24 hours or less for more than 18 days, not necessarily consecutive, during any annual period:

MAXIMUM ALLOWABLE INCREASE

[Micrograms per cubic meter]

Period of exposure	Terrain areas	
	Low	High
24-hr maximum	36	62
3-hr maximum	130	221

(q) *Public participation.* The plan shall provide that—

(1) The reviewing authority shall notify all applicants within a specified time period as to the completeness of the application or any deficiency in the application or information submitted. In the event of such a deficiency, the date of receipt of the application shall be the date on which the reviewing authority received all required information.

(2) Within one year after receipt of a complete application, the reviewing authority shall:

(i) Make a preliminary determination whether construction should be approved, approved with conditions, or disapproved.

(ii) Make available in at least one location in each region in which the proposed source would be constructed a copy of all materials the applicant submitted, a copy of the preliminary determination, and a copy or summary of other materials, if any, considered in making the preliminary determination.

(iii) Notify the public, by advertisement in a newspaper of general circulation in each region in which the proposed source would be constructed, of the application, the preliminary determination, the degree of increment consumption that is expected from the source or modification, and of the opportunity for comment at a public hearing as well as written public comment.

(iv) Send a copy of the notice of public comment to the applicant, the Administrator and to officials and agencies having cognizance over the location where the proposed construction would occur as follows: any other State or local air pollution control agencies, the chief executives of the city and county where the source would be located; any comprehensive regional land use planning agency, and any State, Federal Land Manager, or Indian Governing body whose lands may be affected by emissions from the source or modification.

(v) Provide opportunity for a public hearing for interested persons to appear and submit written or oral comments on the air quality impact of the source, alternatives to it, the control technology required, and other appropriate considerations.

(vi) Consider all written comments submitted within a time specified in the notice of public comment and all comments received at any public hearing(s) in making a final decision on the approvability of the application. The reviewing authority shall make all comments available for public inspection in the same locations where the reviewing authority made available preconstruction information relating to the proposed source or modification.

(vii) Make a final determination whether construction should be approved, approved with conditions, or disapproved.

(viii) Notify the applicant in writing of the final determination and make such notification available for public inspection at the same location where the reviewing authority made available preconstruction information and public comments relating to the source.

(r) *Source obligation.* (1) The plan shall include enforceable procedures to provide that approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the plan and any other requirements under local, State or Federal law.

(2) The plan shall provide that at such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of paragraphs (j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification.

(s) *Innovative control technology.* (1) The plan may provide that an owner or operator of a proposed major stationary source or major modification may request the reviewing authority to approve a system of innovative control technology.

(2) The plan may provide that the reviewing authority may, with the consent of the governor(s) of other affected state(s), determine that the source or modification may employ a system of innovative control technology, if:

(i) The proposed control system would not cause or contribute to an unreasonable risk to public health, welfare, or safety in its operation or function;

(ii) The owner or operator agrees to achieve a level of continuous emissions reduction equivalent to that which would have been required under paragraph (j)(2) of this section, by a date specified by the reviewing authority. Such date shall not be later than 4 years from the time of startup or 7 years from permit issuance;

(iii) The source or modification would meet the requirements equivalent to those in paragraphs (j) and (k) of this section, based on the emissions rate that the stationary source employing the system of innovative control technology would be required to meet on the date specified by the reviewing authority;

(iv) The source or modification would not before the date specified by the reviewing authority:

(*a*) Cause or contribute to any violation of an applicable national ambient air quality standard; or

(*b*) Impact any Class I area; or

(*c*) Impact any area where an applicable increment is known to be violated;

(v) All other applicable requirements including those for public participation have been met.

(3) The plan shall provide that the reviewing authority shall withdraw any approval to employ a system of innovative control technology made under this section, if:

(i) The proposed system fails by the specified date to achieve the required continuous emissions reduction rate; or

(ii) The proposed system fails before the specified date so as to contribute to an unreasonable risk to public health, welfare, or safety; or

(iii) The reviewing authority decides at any time that the proposed system is unlikely to achieve the required level of control or to protect the public health, welfare, or safety.

(4) The plan may provide that if a source or modification fails to meet the required level of continuous emissions reduction within the specified time period, or if the approval is withdrawn in accordance with paragraph (s)(3) of this section, the reviewing authority may allow the source or modification up to an additional 3 years to meet the requirement for the application of best available control technology through use of a demonstrated system of control.

(Secs. 101(b)(1), 110, 160-169, 171-178, and 301(a), Clean Air Act, as amended (42 U.S.C. 7401(b)(1), 7410, 7470-7479, 7501-7508, and 7601(a)); sec. 129(a), Clean Air Act Amendments of 1977 (Pub. L. 95-95, 91 Stat. 685 (Aug. 7, 1977)))

[43 FR 26382, June 19, 1978; 43 FR 40010, Sept. 8, 1978, as amended at 44 FR 27569, May 10, 1979; 45 FR 52739, Aug. 7, 1980; 47 FR 27560, June 25, 1982; 49 FR 43209, Oct. 26, 1984; 51 FR 32178, Sept. 9, 1986. Redesignated and amended at 51 FR 40669, 40675, Nov. 7, 1986; 52 FR 24713, July 1, 1987; 52 FR 29386, Aug. 7, 1987; 53 FR 396, Jan. 6, 1988]

Subpart J—Ambient Air Quality Surveillance

AUTHORITY: Secs. 110, 301(a), 313, 319, Clean Air Act (42 U.S.C. 7410, 7601(a), 7613, 7619).

§ 51.190 Ambient air quality monitoring requirements.

The requirements for monitoring ambient air quality for purposes of the plan are located in Subpart C of Part 58 of this chapter.

[44 FR 27569, May 10, 1979]

Subpart K—Source Surveillance

SOURCE: 51 FR 40673, Nov. 7, 1986, unless otherwise noted.

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

NOV 24 1986

MEMORANDUM

SUBJECT: Need for A Short-term Best Available Control Technology (BACT) Analysis for the Proposed William A. Zimmer Power Plant

FROM: Gerald A. Emison, Director Original Signed By
Office of Air Quality Planning and Standards (MD-10)

TO: David Kee, Director
Air Management Division, Region V (5AR-26)

This is in response to your November 17, 1986, memorandum, in which you requested comment on Region V's belief that prevention of significant deterioration (PSD) permits must contain short-term emission limits to ensure protection of the applicable national ambient air quality standards (NAAQS) and PSD increments. I concur with your position and emphasize to you that this position reflects our current national policy. Consequently, I recommend that you continue to identify this apparent deficiency to the Ohio Environmental Protection Agency and seek correction of the draft permit for the William A. Zimmer Power Plant.

The PSD regulations clearly require that the application of BACT conform with any applicable standard of performance under 40 CFR Part 60 at a minimum. However, this should not be taken to supersede any additional limitations as needed to enable the source to demonstrate compliance with the NAAQS and PSD increments. In the case of sulfur dioxide (SO_2), source compliance with the 30-day rolling average emission limit under subpart Da does not adequately demonstrate compliance with the short-term NAAQS and PSD increments. Consequently, enforceable limits pertaining to the performance of the flue gas desulfurization system on a short-term basis must also be established. Note, however, that the short-term limits can result from either BACT analyses or the need to protect air quality. Therefore, the short-term limit could be more stringent than the BACT limit.

I recognize that the sulfur variability issue tends to complicate the setting of short-term SO_2 emission limits, but such limits must be defined nevertheless. Continuous emission monitoring data from comparable sources can be used in order to estimate worst-case short-term SO_2 emissions that could occur at the plant. The modeling techniques used to determine compliance with the short-term NAAQS and increments should employ the enforceable short-term SO_2 emission limits which the permitting agency establishes.

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450 4-80-031
November 1980

Air

Workbook for Estimating Visibility Impairment

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

JUL 5 1988

MEMORANDUM

Subject: Air Quality Analysis for Prevention of Significant Deterioration (PSD)

From: Gerald A. Emison, Director
Office of Air Quality Planning and Standards (MD-10)

To: Thomas J. Maslany, Director
Air Management Division (3AM00)

Your memorandum of May 9, 1988, pointed out that two different procedures are currently being used by the Regional Offices in certain PSD permit analyses. The inconsistency involves the question of how to interpret dispersion modeling results to determine whether a source will cause or contribute to a new or existing violation of a national ambient air quality standard (NAAQS) or PSD increment. This memorandum serves to resolve the inconsistency by reaffirming previous Office of Air Quality Planning and Standards guidance provided in a December 1980 policy memorandum (attached).

As you know, the regulations for PSD stipulate that approval to construct cannot be granted to a proposed new major source or major modification if it would cause or contribute to a NAAQS or increment violation. Historically, the Environmental Protection Agency's (EPA's) position has been that a PSD source will not be considered to cause or contribute to a predicted NAAQS or increment violation if the source's estimated air quality impact is insignificant (i.e., at or below defined de minimis levels). In recent years, two approaches have been used to determine if a source would "significantly" (40 CFR 51.165(b) defines significant) cause or contribute to a violation. The first is where a proposed source would automatically be considered to cause or contribute to any modeled violation that would occur within its impact area. In this approach, the source's impact is modeled and a closed circle is drawn around the source, with a radius equal to the farthest distance from the source at which a significant impact is projected. If, upon consideration of both proposed and existing emissions contributions, modeling predicts a violation of either a NAAQS or an increment anywhere within this impact area, the source (as proposed) would not be granted a permit. The permit would be denied, even if the source's impact was not significant at the predicted site of the violation during the violation period. You have indicated that this is the approach you currently use.

The second approach similarly projects air quality concentrations throughout the proposed source's impact area, but does not automatically assume that the proposed source would cause or contribute to a predicted NAAQS or increment violation. Instead, the analysis is carried one step further in the event that a modeled violation is predicted. The additional step determines whether the emissions from the proposed source will have a significant ambient impact at the point of the modeled NAAQS or increment violation when the violation is predicted to occur. If it can be demonstrated that the proposed source's impact is not "significant" in a spatial and temporal sense, then the source may receive a PSD permit. This approach is currently being used by Region V and several other Regional Offices, and is the approach that you recommend as the standard approach for completing the PSD air quality analysis.

In discussing this matter with members of my staff from the Source Receptor Analysis Branch (SRAB) and the Noncriteria Pollutant Programs Branch (NPPB), it appears that different guidance has been provided, resulting in the two separate approaches just summarized. We have examined the history and precedents which have been set concerning this issue. I also understand that this issue was discussed extensively at the May 17-20, 1988 Regional Office/ State Modelers Workshop, and that a consensus favored the approach being used by Region V and several other Regions. Based on this input, as well as your own recommendation, I believe the most appropriate course of action to follow is the second approach which considers the significant impact of the source in a way that is spatially and temporally consistent with the predicted violations.

By following the second approach, three possible outcomes could occur:

(a) First, dispersion modeling may show that no violation of a NAAQS or PSD increment will occur in the impact area of the proposed source. In this case, a permit may be issued and no further action is required.

(b) Second, a modeled violation of a NAAQS or PSD increment may be predicted within the impact area, but, upon further analysis, it is determined that the proposed source will not have a significant impact (i.e., will not be above de minimis levels) at the point and time of the modeled violation. When this occurs, the proposed source may be issued a permit (even when a new violation would result from its insignificant impact), but the State must also take the appropriate steps to substantiate the NAAQS or increment violation and begin to correct it through the State implementation plan (SIP). The EPA Regional Offices' role in this process should be to establish with the State agency a timetable for further analysis and/or corrective action leading to a SIP revision, where necessary. Additionally, the Regional Office should seriously consider a notice of SIP deficiency, especially if the State does not provide a schedule in a timely manner.

(c) Finally, the analysis may predict that a NAAQS or increment violation will occur in the impact area and that the proposed source will have a significant impact on the violation. Accordingly, the proposed source is considered to cause, or contribute to, the violation and cannot be issued a permit without further control or offsets. For a new or existing NAAQS violation, offsets sufficient to compensate for the source's significant impact must be obtained pursuant to an approved State offset program consistent with SIP requirements under 40 CFR 51.165(b). Where the source is contributing to an existing violation, the required offsets may not correct the violation. Such existing violations must be addressed in the same manner as described in (b) above. However, for any increment violation (new or existing) for which the proposed source has a significant impact, the permit should not be approved unless the increment violation is corrected prior to operation of the proposed source (see 43 FR p.26401, June 19, 1978; and 45 FR p.52678, August 7, 1980).

Your memorandum also states that other air quality analysis issues exist within the NSR program which need consistent national guidance. You recommend a more coordinated effort between SRAB and NPPB to review outstanding NSR issues. We agree; however, rather than establishing a formal work group as you propose, we are optimistic that the formal participation of representatives of the NSR program in the Modeling Clearinghouse will help resolve coordination problems. Earlier in the year, the Modeling Clearinghouse was officially expanded to include representation from the NPPB to coordinate PSD/NSR issues which have a modeling component.

I trust that this is responsive to the concerns which you have raised. By copy of this memorandum, we are also responding to a Region V request for clarification on the same issue (memorandum from Steve Rothblatt to Joe Tikvart/Ed Lillis, dated February 18, 1988).

Should you have any further questions concerning this response, please feel free to contact Gary McCutchen, Chief, New Source Review Section, at FTS 629-5592.

Attachment

cc: Air Division Directors, Regions I-X
Air Branch Chiefs, Regions I-X
D. Clay
J. Calcagni
J. Tikvart
E. Lillis
G. McCutchen
D. deRoeck

REFERENCES FOR SECTION 7.5

ENVIRONMENTAL PROTECTION AGENCY

[FRL-3085-8]

Emissions Trading Policy Statement; General Principles for Creation, Banking and Use of Emission Reduction Credits

AGENCY: Environmental Protection Agency.

ACTION: Final policy statement and accompanying technical issues document.

SUMMARY: This Policy Statement replaces the original bubble policy (44 FR 71779, December 11, 1979) and makes final revisions in an Interim Emissions Trading Policy which was published April 7, 1982 (47 FR 15076) and on which further comments were requested August 31, 1983 (48 FR 39580).

The policy describes emissions trading and sets out general principles EPA will use to evaluate emissions trades under the Clean Air Act and applicable federal regulations. Emissions trading includes bubbles, netting, and offsets, as well as banking (storage) of emission reduction credits (ERCs) for future use. These alternatives do not alter overall air quality requirements; they give states and industry more flexibility to meet those requirements. EPA endorses emissions trading and encourages its sound use by states and industry to help meet the goals of the Clean Air Act more quickly and inexpensively.

However, EPA also recognizes that without strict accounting practices and other safeguards, emissions trades may cause potential environmental harm. Accordingly, this policy provides more explicit guidance on baselines and related tests for environmental equivalence and environmental progress. It includes numerous tightenings and clarifications meant to assure the future environmental integrity of bubbles and other trading transactions.

Among other general steps, the policy states that the lower of actual or allowable emissions must usually be used as the baseline for emissions trades. Divergences from this baseline will be allowed only where the state or applicant shows that any potential increase in actual emissions will not jeopardize National Ambient Air Quality Standards (NAAQS), PSD increments or visibility protection.

General showings to this effect may be made only by establishing that allowable values were clearly incorporated in or assumed by an approved demonstration of attainment or maintenance. Specific showings to this effect may be made only in narrow circumstances described in the accompanying Technical Issues Document.

Other general matters addressed and significantly clarified by this policy include requirements for air quality modeling and approvable state generic bubble rules, additional enforcement safeguards, and additional safeguards related to bubbles involving pollutants listed, regulated or proposed to be regulated under Section 112 of the Act.

This policy also sets forth new, tighter requirements for bubbles in primary nonattainment areas which require but lack approved demonstrations that national ambient standards for healthy air will be attained. In addition to requiring lowest-of-actual-SIP allowable-or-RACT-allowable emissions baselines in these areas, use of past shutdowns, curtailments or other reductions which occurred before application for credit is essentially eliminated, and a further reduction of at least 20 percent beyond the baseline is required. Broadly speaking, sources may secure bubble credit in these areas only if claimed reductions meet these baseline and further reduction requirements; were reasonably, objectively elicited by the opportunity to trade; and are accompanied by state assurances that the trade is consistent with the state's efforts to attain the ambient air quality standard. EPA will approve bubbles which meet these requirements because they are consistent with the attainment needs of these areas and will yield a net air quality benefit. Such bubbles can produce economic savings and environmental improvement at the same time.

The policy announced today does not constitute final action of the Agency within the meaning of section 307(b) of the Clean Air Act, and therefore is not judicially reviewable. Rather, it establishes general guidance on approvable voluntary trades. EPA will implement this guidance in later rulemaking actions that will be judicially reviewable. Applicants for emissions trades remain free, following publication of today's notice, to advance the appropriateness of different trading requirements in the context of rulemaking actions on their individual trades.

EFFECTIVE DATE: This Policy Statement is effective December 4, 1986.

FOR FURTHER INFORMATION CONTACT: Inquiries regarding the general implementation of this policy may be directed to: Barry Gilbert, Office of Air Quality Planning and Standards (MD-15), Research Triangle Park, NC 27711, (919) 541-5516.

Inquiries regarding specific applications to use this policy may be directed to the appropriate EPA Regional Office (see Appendix A of the Technical Issues Document).

Inquiries regarding the development and basis of this policy may be directed to: Barry Elman, Regulatory Reform Staff (PM-223), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460, (202) 382-2727.

SUPPLEMENTARY INFORMATION: Under Executive Order 12291, EPA must judge whether this action is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. This action is not major because it establishes policies, as opposed to regulations, and can substantially reduce the costs of complying with the Clean Air Act.

This Policy Statement was submitted to the Office of Management and Budget for review. Any comments from OMB to EPA are available for public inspection in Docket G-81-2. Pursuant to U.S.C. 605(b), I hereby certify that this action will not have a significant economic impact on a substantial number of small entities. As a policy designed to allow firms flexibility to meet previously established regulatory requirements, it will impose no burdens on either small or large entities.

The contents of today's preamble are indicated in the following outline. The outline is followed by the preamble itself, and then by the Policy Statement and accompanying Technical Issues Document.

Table of Contents: Preamble

PREAMBLE—EMISSIONS TRADING POLICY STATEMENT

I. Introduction

Today's policy makes final the Agency's prior guidance on general principles for creating, storing (banking) and using emission reduction credits in trading actions under the Clean Air Act. This preamble responds to written comments EPA received on major issues raised by its proposed emissions trading policy statement (47 FR 15076, April 7, 1982) and subsequent request for further comment (48 FY 39580, August 31, 1983). It also explains the Agency's principal decisions on these issues.

Today's notice is the primary source of EPA guidance on existing-source bubbles, state generic bubble rules, and emission reduction banking. It replaces the original bubble policy (44 FR 71779, December 11, 1979) as well as the proposed emissions trading policy statement, which was effective April 7, 1982 as interim guidance. The notice addresses how emission reduction credits (ERCs)—the currency of trading—may be used for bubbles, as well as for netting or offsets. Netting and offsets are part of emissions trading, but are governed by EPA and state regulations for new source review.[1]

Nothing in today's notice alters EPA new source review requirements or exempts owners or operators of stationary sources from compliance with applicable preconstruction permit regulations in accord with 40 CFR 51.18, 51.24, 51.307, 52.21, 52.24, 52.27 and 52.28. Interested parties should, however, be aware that bubble trades are not subject to preconstruction review or regulations where these trades do not involve construction, reconstruction, or modification or a source within the meaning of those terms in the regulations listed above.

The policy announced today does not constitute final action of the Agency within the meaning of section 307(b) of the Clean Air Act, and therefore is not judicially reviewable. Rather, it establishes general guidance for reviewing and approving voluntarily submitted trades. EPA will implement this guidance in later rulemaking actions that will be judicially reviewable. Applicants for emissions trades remain free, following publication of today's notice, to advance the appropriateness of different trading requirements in the context of rulemaking actions on their individual trades.

Under today's notice, EPA continues to authorize use of bubbles, banks, and generic bubble rules in all areas of the country, and provides for the fair and prompt processing of bubble applications which have been pending before EPA under the 1982 policy. However, based on experience under the 1982 policy, and in order to ensure the environmental integrity of future emissions trades, today's notice significantly tightens requirements applicable to certain trading actions, particularly existing-source bubbles in primary nonattainment areas which require but lack demonstrations of attainment. It also clarifies approval criteria in ways which should make review and approval of environmentally-sound trades more rapid and predictable. Among other safeguards or safeguarding clarifications, it requires that:

• Bubbles may no longer result in any increase in applicable net baseline emissions in any area, whether attainment or nonattainment, except under stringent conditions which assure that ambient equivalence will nevertheless be achieved;[2]

• Baselines for sources participating in a bubble in any area must take into account all three factors relevant to total emissions (i.e., emission rate, capacity utilization, and hours of operation) in order to provide an accurate accounting of emissions before and after the trade;

[1] See, e.g., 40 CFR 51.18, 51.24, 51.307, 52.21, 52.24, 52.27 and 52.28.

On November 7, 1986, EPA restructured CFR Part 51 and renumbered many of that Part's sections (51 FR 40656). Because most readers will be more familiar with prior designations, today's notice contains citations based on the organization of Part 51 as it existed before this restructuring. Interested parties may use Appendix F of today's Technical Issues Document to convert today's Part 51 citations to the corresponding new ones.

[2] This change constitutes a significantly more stringent definition of what may be considered a bubble under the Emissions Trading Policy. Specific ambient tests which must be met to qualify for an exception from this restriction can be found in the Technical Issues Document, Section I.B.1.c Actions which may no longer be treated as bubbles under today's notice must be processed under general EPA criteria applicable to SIP revisions.

• Bubbles in primary nonattainment areas needing but lacking approved demonstrations of attainment must use the lowest-of-actual-SIP-allowable-or-RACT-allowable emissions baseline, as described below, for each source involved in the trade;

• Bubbles in primary nonattainment areas needing but lacking approved demonstrations must contribute to progress toward attainment by providing a 20% net reduction in emissions remaining after application of the baseline above to all sources involved in the trade or, if the bubble is being processed under a state generic rule, the greater of a 20% net reduction or the percent reduction which would be required from all controllable stationary sources in that area (e.g., taking into account expected mobile source reductions and disregarding area-source contributions) in order to achieve attainment;

• Bubbles in attainment areas and nonattainment areas with approved demonstrations must use the lower of actual or allowable values for each of the three baseline components, unless allowable values higher than corresponding actual values are clearly used or reflected in the demonstration or otherwise shown not to jeopardize ambient standards, PSD increments or visibility;

• In all areas, emission reductions must be made state-enforceable in order to qualify as ERCs and be deposited in an EPA-approvable bank;

• In all areas, bubbles must meet more stringent tests for ambient equivalence, including additional ambient significance levels, more protective air quality modeling requirements, and more conservative definitions of *de minimis* trades;

• In all areas, the total of any incidental emissions of hazardous or potentially hazardous air pollutants associated with a criteria pollutant in a bubble trade must remain equal or be decreased, whether such hazardous pollutants have been regulated, proposed for regulation, listed, or the subject of a notice-of-intent-to-list under Clean Air Act 112;

• States must provide assurances to EPA that bubbles submitted for EPA approval in primary nonattainment areas needing but lacking approved demonstrations are consistent with the state's SIP-planning and attainment objectives. For generic rules, the state must make certain assurances in conjunction with its submittal of the generic rule to EPA, and certain additional assurances with the state's proposed and final approval of each individual bubble under that rule;

• Bubbles in such primary nonattainment areas may not use credit from reductions made before application to bank or trade such credit;

• Where sources in such areas seek to bank credits in the future, "application to bank," for purposes of evaluating credits for use in bubbles, means the time of filing an application to make the proposed credits state-enforceable through or concurrent with use of a formal or informal banking mechanism;

• Bubbles must not impede compliance or enforcement (e.g., the policy states that compliance extensions may no longer be granted under generic rules in any nonattainment area, and that bubble applications do not *per se* suspend underlying SIP limits or defer source obligations to achieve those limits);

• Generic rules in all areas will be subject to increased EPA oversight, including EPA participation in the state's public notice and comment process prior to state approval of individual bubbles, subsequent reviews of individual generic approvals, and reviews of the general implementation of the rules themselves, in order to assure that approved rules are being properly implemented; and

• EPA or state notices of proposed and final bubble approvals, in all areas, must clearly indicate any changes in actual as well as allowable emissions at all sources involved in the bubble, so the ambient effects of these trades may be known.

These and other changes announced today will generally be applied to all SIP revision bubbles and state generic bubble rules that have not been approved by EPA as of this date.[3]

On June 25, 1984 the Supreme Court unanimously ruled that EPA may allow states to use a single, plantwide definition of "stationary source" for new source review (NSR) purposes in nonattainment areas as well as attainment areas, provided use of that definition would not interfere with attainment and maintenance of national ambient air quality standards (NAAQS).[4] Under the "plantwide" definition, increases and decreases occurring anywhere on plant property from emission units within the same two-digit SIC code are generally eligible for netting,[5] and may be used to balance each other without triggering preconstruction permit requirements for major new sources or modifications, so long as actual plantwide emissions would not significantly increase.

States and sources considering the use of netting should, however, be aware that applicable New Source Performance Standards (NSPS), preconstruction review requirements under 40 CFR 51.18 (a)–(h) and (1), NESHAPS, and SIP limits continue to apply to such modifications. EPA is currently developing guidance for states that wish to adopt a plant-wide definition of "source" for nonattainment areas into their new source review regulations.[6]

Pending or future litigation or rulemaking, particularly final resolution of the settlement agreement arising from the industry challenge to EPA's 1980 promulgation of revised NSR rules (*Chemical Manufacturers Association* v. *EPA*, No. 79–1112, D.C. Cir., February 1982), may alter aspects of this policy, especially regarding certain transactions under EPA new source review regulations. See 48 FR 28742 (August 25, 1983) (proposed revisions). However, unless and until EPA finally revises the relevant regulations, the current requirements remain in effect.

II. Major Issues

A. Baselines

The baseline for a given source is that level of emissions below which any additional reductions may be counted (credited) for use in trades. Questions relating to appropriate bubble baselines for particular emitting sources or types of sources in nonattainment areas generated the principal issues resolved by today's notice. EPA's resolutions strengthen SIP integrity and states' ability to make progress toward attainment by (a) identifying more

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[3] See, however, discussion of "pending bubbles" in Section I.G. of today's Policy Statement and Section I.A.1.b.(4) of today's Technical Issues Document.

[4] *Chevron U.S.A., Inc.* v. *Natural Resources Defense Council*, 104 S. Ct. 2778, 14 ELR 20507, overruling *Natural Resources Defense Council, Inc.* v. *Gorsuch*, 685 F.2d 718, 12 ELR 20942 (D.C. Cir. 1982).

[5] SIC Code means codes described in the Standard Industrial Classification Manual, 1972, amended 1977 (U.S. Government Printing Office, stock numbers 4101–0066 and 003–005–00176–0, respectively).

[6] Many states currently employ the so-called "dual definition" of "statutory source," under which both the plant and each emitting piece of equipment within it are "stationary sources." Under this definition, when any individual piece of equipment is large enough in terms of potential emissions to be defined as a "major stationary source," only increases and decreases in actual emissions from that individual unit are eligible to "net."

While the plantwide definition provides greater opportunity for netting in general, netting is also allowed under the dual definition. Indeed, where no individual piece of emitting equipment is a "major stationary source," the "dual definition" allows the same opportunity to "net" as the "plantwide" definition.

precisely the three factors which must be addressed in calculating baseline emissions; (b) reaffirming that for bubbles in nonattainment areas with demonstrations of attainment that have been approved and not subsequently found by EPA to be substantially inadequate to attain ambient standards, the baseline must be consistent with assumptions used to develop the area's demonstration or must otherwise be shown by appropriate ambient dispersion modeling to protect air quality standards; and (c) specifying a number of special "progress" requirements for bubbles in primary nonattainment areas needing but lacking approved demonstrations of attainment, including stringent new baseline requirements, a ban on the use of reductions produced before application to bank or trade, and a mandatory extra reduction of at least 20% beyond applicable baseline emissions. Together with tightened criteria for modeled demonstrations of ambient equivalence, a well as other new requirements for bubbles, banks, and generic rules, these resolutions will assure continued environmental progress through trades.

1. Determining Baselines—General Guidance

A source's baseline emissions are calculated by multiplying three factors: the source's *emission rate* (usually expressed as emissions per quantity of production or throughput); its *hours of operations* or hourly usage over some representative time period; and its *capacity utilization* (e.g., the units of production per hour of use).[7] All three factors must be addressed, since a source's emissions for a given period may vary widely despite a constant emission rate, depending, for example, on whether it is operated at low capacity for a small number of hours or utilized near full capacity for a large number of hours. The product of this baseline calculation is generally expressed in pounds of emissions per day or tons of emissions per year (TPY), or both.

Today's policy clarifies EPA's original intent regarding appropriate methods for determining these three baseline factors. In general, in nonattainment areas with approved demonstrations, a source's baseline emissions for bubble purposes must be calculated using the lower of it actual emission rate or allowable emission limit, plus the lower of its actual or allowable capacity utilization and hours of operation. That is, baseline emissions in these areas must generally be calculated using lower of actual or allowable values for all three baseline factors.[8]

Actual values for these factors are based on some representative historical time period (generally the average of the two years preceding the source's application to bank or trade).

However, where the state or applicant shows that the SIP, a source-specific preconstruction permit, or an equivalent document clearly assumes or specifies allowable values which are higher than corresponding actual values for one or more baseline factors, and that document post-dates the baseline inventory year for a SIP's attainment demonstration, these values may replace actual values for calculating the bubble baseline. Where only one value (typically the emission rate) is specified, the other two baseline factors must generally be based on actual levels.[9]

Such showings must be based on either data from the SIP or data used in SIP preparation.[10] Applicants may alternatively perform appropriate modeling to demonstrate that use of allowable values which are higher than actual values will not delay or jeopardize attainment and maintenance of ambient standards, protection of PSD increments, or visibility. Upon either type of showing, these allowable values may be used.[11]

This approach is required because control of existing sources through approved SIP measures is the Clean Act's principal mechanism for timely attainment, and because many approved demonstrations either do not contain stated assumptions regarding all three baseline factors, or were based on combinations of actual and allowable values for these factors. It recognizes that bubble baselines must accurately reflect the SIP assumptions for all three baseline factors in order to maintain SIP integrity.

Under this approach, determination of bubble baselines consistent with approved demonstrations is a sequential, tiered process. That process was implicit in both EPA's 1982 policy and its 1983 request for further comment, as well as actual practice in bubble actions under those notices. EPA is making it explicit in response to concerns that "paper trades" might undermine attainment demonstrations because approved SIPs do not always state all assumptions on which their demonstrations rely. By requiring that unstated or ambiguous values for all baseline factors *be resolved in favor of lower actual values*, today's notice provides additional assurance that bubbles in nonattainment areas with approved demonstrations will not threaten ambient standards, PSD increments, or visibility protection.

2. Comments on Baselines in Nonattainment Areas With Approved Demonstrations of Attainment

Comments on baselines in these areas indicated wide disagreement over where EPA require states to set this baseline level. The 1982 policy noted that "In nonattainment areas with approved demonstrations of attainment, the baseline must be consistent with assumptions used to develop the area's SIP." That policy generally required that where approved SIP demonstrations relied on *actual* emission levels at particular sources, those actual levels would have to be reflected in bubble baselines. Where SIP demonstrations were based on *allowable* emissions, the 1982 policy authorized baselines reflecting such allowable levels, despite the fact that some sources' actual emissions are currently or historically lower than their "allowables." [12]

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[7] For detailed discussion of baseline emissions and baseline factors, see Technical Issues Document, Appendix B.

[8] Netting and offset transactions are governed by EPA's regulations at 40 CFR 51.18, 51.24, 51.307, 52.21, 52.24, 52.27 and 52.28. Accordingly, this discussion of baseline applies only to bubbles.

[9] See Section I.A.1 and Appendix B of today's Technical Issues Document for further details on baseline calculation.

[10] This could include documentation such as the demonstration calculations themselves, accompanying materials, or affidavits from those who constructed the demonstration.

[11] Use of such higher allowable values which must be justified by modeling because they are not shown to be clearly reflected in or assumed by the demonstration or an equivalent document, would require such bubbles in nonattainment areas with approved demonstrations to be processed as SIP revisions, since Level III modeling would be required for their justification under today's modeling screen. In addition, the SIP's reasonable further progress (RFP) calculations would generally have to be revised.

The principal difference between use of such higher allowable values in these nonattainment areas and in attainment areas is that in attainment areas, ambient evaluations more limited than Level III modeling may justify use of such allowable values. However, for bubbles processed as case-by-case SIP revisions in attainment areas, the Region retains discretion to require additional technical support, where limited air quality dispersion modeling is proposed to justify use of such allowable baseline values. See Section I.A.1.a. of today's Technical Issues Document.

All bubbles in attainment areas relying on allowable values not used or reflected in an approved demonstration must be evaluated for ambient impact based on a comparison of before-trade actual emissions and post-trade allowable emissions (i.e., the "worst case"), in order to assure that any potential increase in actual emissions are identified and that their effects are consistent with applicable Clean Air Act requirements. See today Technical Issues Document, Section I.A.1.a.

[12] See n. 13 below.

The great majority of commenters supported this SIP foundation for trading baselines, noting that SIPs are the cornerstone of the Act's approach to air quality management. These commenters also asserted that regardless of sources' actual emissions, measuring reductions from allowable levels assumed in a valid SIP demonstration was entirely appropriate for use in trading, since the area would still attain ambient standards in a timely manner. See, e.g., 48 FR 39582 (August 31, 1983).

However, other commenters asserted this approach was either "too loose" or "too tight." The first group stated that credit should only be granted for reductions below current actual emissions, provided actual emissions met applicable SIP limits.[13] They advanced various reasons for this position, including assertions that reliance on past reductions, while consistent with approved plans for attainment, might not comport with "broader" clean air goals. Some felt that SIPs were insufficently precise to serve as a basis for trading.

A second group of comments went in the opposite direction, asserting that baselines should always be maximum allowable source emissions, regardless of assumptions used in SIP development. These commenters noted that emission *rates* (e.g., emissions per volume of throughput or unit of production) specified in SIP emission limits are generally the only enforceable limits applicable to existing sources. Since existing sources can legally emit up to annual levels equivalent to maximum output and round-the-clock operations so long as they meet these SIP emission-rate limitations, these commenters reasoned, companies should receive credit for agreeing to binding limits on output or hours of operations which forgo such production flexibility.

Today's notice responds in two principal ways to these concerns. First, it clarifies the components of baselines, how these are to be determined, and who bears the burden of demonstrating that a proposed baseline is consistent with a particular SIP. Several comments indicated that confusion related to the determination of baselines may have generated unnecessary concern over use of allowables baselines under approved SIPs. Second, it reiterates and further supports EPA's position that *where SIP demonstrations are approved as adequate*, the Clean Air Act simply requires trading to be consistent with assumptions used to develop the area's SIP.

3. EPA's Resolutions on Baselines in Nonattainment Areas With Approved Demonstrations of Attainment

Where a state has demonstrated it will attain an ambient standard, and EPA has approved the demonstration and not subsequently found it substantially inadequate to assure attainment, bubbles relying on baseline levels used or reflected in that demonstration amount to routine SIP revisions. The state then has discretion to maintain its demonstration through any alternative combination of emission reductions, so long as these are adequate for attainment and maintenance of the ambient standards. Since EPA cannot require states to do more than demonstrate timely attainment and maintain ambient standards, EPA will approve such trades as long as they are enforceable and do not undermine the demonstration. See, e.g., *Train* v. *NRDC*, 421 U.S. 60, 79–80 (1975); *Union Electric Co.* v. *EPA*, 427 U.S. 246 (1976). This means that credits must not be doubled-counted, that they must be calculated from a baseline consistent with the approved demonstration, and that tests of air quality equivalence to the original SIP emission limits must be met.

In short, under the Clean Air Act an approved attainment demonstration creates a legal and logical boundary. The state has met its statutory responsibility and can substitute reductions not relied on in the SIP for those assumed by the SIP, so long as air quality impacts are equivalent. This holds true for all types of emission reductions—whether derived from process changes, extra pollution control equipment, improved operating or maintenance procedures, or other actions—as long as the substitute reductions have not been relied on in the approved SIP.[14]

EPA accordingly reaffirms the general principle that states may grant sources credit for reductions below levels assumed by approved demonstrations. This generally means that where actual values for emission rate, capacity utilization and hours of operation form the basis for an approved demonstration, sources proposing a bubble must use the lower of actual or allowable values for those factors in calculating baseline emissions, and that where an approved demonstration was based on allowable values which are higher than corresponding actual values for any of these baseline factors, those allowable values may be used for such factors in calculating the baseline.

B. Baseline and Other Requirements for Bubbles in Primary Nonattainment Areas Which Require But Lack Approved Demonstrations of Attainment

EPA's 1982 policy proposed two baseline mechanisms for bubbles in primary nonattainment areas needing but lacking approved demonstrations of attainment. These areas needed additional emission reductions to attain national ambient health standards, but had not yet fully determined what amount of reductions would be necessary for attainment or which sources would be required to produce them. Nevertheless, that policy said, states could allow existing sources in these areas to trade on an interim basis, either (1) by using baselines reflecting Reasonably Available Control Technology (RACT) provisions which EPA had already approved, or (2) where EPA had not yet approved general state RACT provisions, by using "negotiated RACT" baselines agreed to between the source, the state and EPA.[15] Both the 1982 policy and subsequent notices advanced detailed programmatic and environmental rationales for this approach, including the fact that RACT was the Act's most stringent general requirement for existing sources in nonattainment areas; that appropriately determined RACT baselines were consistent with current attainment needs; and that trades using such baselines could produce faster interim progress by providing incentives for sources voluntarily to define RACT, disclose better emissions or ambient data, or take other steps to do more than the minimum required. See, e.g., 47 FR 15078, 15080–81; 48 FR 39582–83, 39585.

Many commenters on the 1982 policy approved this "negotiated RACT"

[13] The 1982 policy assumed, but did not specify, the components of "actual" emissions, such as capacity usage or number of hours of operation of a particular source. It also assumed, but did not expressly require, that actual emission levels must be reduced to compliance levels before further reductions were eligible for credit.

[14] It also holds true where the Agency may suspect, but has not formally indicated, that a previously approved SIP demonstration is no longer adequate to assure timely attainment. For reasons of policy continuity, regulatory predictability and fair notice, until EPA makes a formal finding of SIP inadequacy, the approved demonstration controls. See Clean Air Act section 110(a)(2)(H), 110(c)(1); 48 FR 39582 (August 31, 1983).

[15] The 1982 policy also authorized limited use of higher actual (rather than RACT-allowable) baselines in certain nonattainment "extension" areas which did not then have complete approved SIPs. See 47 FR 15077, 15080 (April 7, 1982). Expiration of the July 1982 statutory deadline for submitting such SIPs vitiated this third baseline option. See, e.g., 48 FR at 39580 and n.2, 39582 and n.7, 39584–85 (August 31, 1983).

approach, finding it innovative and acceptable. However, two groups of commenters again asserted that it was either "too restrictive" or "insufficiently constrained." The first group maintained that for reasons of administrative efficiency, bubbles should be based either on existing SIP reduction requirements or on actual emissions, without the need to negotiate new source-specific RACT baselines. Since trading sources in these areas would eventually be subject to RACT requirements in any case, they reasoned, no new interim baseline should be required. In partial support of this position some alluded to the one instance in which Congress has explicitly addressed such baseline issues—its 1977 declaration that in nonattainment areas without adequate demonstrations, existing SIP limits would for the next several years be the baseline for offset transactions, which were then the only types of emissions trades.[14]

The second group asserted that no bubbles should be allowed in such areas, since regulators could not know which reductions were surplus until demonstrations were completed and approved.

In August 1983, "in light of formal comments on the [1982] Policy, the *NRDC* v. *Gorsuch* decision [since reversed] . . . and the need to further articulate the Policy's approach in this area," EPA requested further comment on certain issues relating to credit from plant shutdowns or production curtailments for use in existing-source bubbles, particularly bubbles in primary nonattainment areas requiring but lacking demonstrations. 48 FR 39580. While most comments on the 1982 policy supported continued use of such credits without further restrictions, some commenters had special concerns about shutdowns in these areas. These commenters stated that shutdowns can hasten attainment, and suggested that granting credit for shutdowns that 'might have happened anyway' might not be consistent with the Act's requirement for attainment "as expeditiously as practicable."

In the August 1983 notice EPA addressed these concerns in detail, noting that:

> . . . Unlike surplus reductions from additional pollution control or less-polluting process changes, shutdowns produce a total reduction of emissions, 100% of which might benefit air quality if credit were not allowed. Granting full or partial credit for their use in existing-source bubbles might reduce that benefit . . . at least where the source would have shut down anyway. This reasoning [reflecting a desire to avoid granting credit for reductions that may not be "surplus" because they would have occurred in any event] underlies some commenters' suggestions that credit be allowed only if credit were a sole or principal reason for the shutdown . . .
>
> Unfortunately the issue is not this simple. So long as it has not been double-counted and a proper RACT baseline is applied, the shutdown does contribute to air quality progress, since much less than 100% credit will be granted. Moreover, the opportunity for credit may improve air quality by encouraging early shutdown of high-polluting facilities that might otherwise be kept running, either because replacement is too expensive or to preserve credit for further plant expansion.
>
> In addition, these commenters' suggestion of a test based on subjective motive appears administratively unworkable. EPA and states would find it exceedingly difficult to evaluate or rebut source evidence that a shutdown was motivated by credit and that the shutdown facility would otherwise have operated [, e.g.,] for twenty or forty years. Thus this approach would likely result in either *de facto* approval of all such credits (undermining the reason for the test), or a burden of proof so stringent that none would be approved (penalizing sources whose shutdowns were elicited by trading). More straightforward approaches might either ban shutdown bubbles until a demonstration of attainment, or acknowledge their uncertain nature by applying a margin of safety—e.g., a requirement that such bubbles produce substantial air quality improvement—sufficient to compensate for any uncertainties and protect the integrity of current or future SIPs. 48 FR at 39583–84 (footnotes omitted.)

EPA then suggested seven specific alternatives to the 1982 policy for bubbles in these areas, including: a prohibition on bubble credit from shutdowns; a requirement of substantial air quality benefit from bubbles proposing to use shutdown credit; or a requirement of substantial air quality benefit from all bubbles, with no special restrictions on shutdown credit. In partial support of this last proposed alternative, EPA indicated the administrative benefits of avoiding special definition or treatment of "shutdowns" and "curtailments," and stated that:

> . . . Requiring substantial progress from each bubble . . . could accelerate momentum toward attainment, directly improve air quality through each trade, and provide an objective margin of safety against uncertainties associated with some individual shutdowns, while leaving to the state the task of final SIP development. It would also maintain the incentive within the [1982] Policy for industry to shut down high-polluting, economically-marginal sources . . . . The more each existing-source bubble contributes directly to accelerated air quality progress, the stronger the justification for use of surplus reductions for such bubbles in the absence of a demonstration. Moreover, requiring all bubbles to produce a substantial air quality improvement, beyond RACT baselines and RACT equivalence, could provide a margin of safety sufficient to make special treatment of shutdowns unnecessary . . . 48 FR at 39585–86 (footnotes omitted).

Thus, while the issue explicitly raised by the August 1983 notice was use of bubble credit from shutdowns in primary nonattainment areas which lack approved demonstrations, the underlying issue was use of *any* type of bubble credit in these areas. Since emission reductions have the same effect on air quality whether produced by less-polluting process changes, more efficient operation of installed control equipment, additional pollution controls, or shutdowns or production curtailments, the fundamental question was whether *all* such reductions or nor of them should be prohibited or subject to special requirements when used for bubbles in these areas. That question reflected a further choice. Should EPA defer bubbles in these areas until a compete demonstration was finally approved? Or should EPA authorize continued use of bubbles, in order to secure interim emission reductions?

Comments responding to the August 1983 notice were essentially the same as earlier ones. A large majority of industries and state pollution control agencies commenting at that time supported continued opportunity for bubbles (including those using credit from shutdowns) in nonattainment areas with or without approved demonstrations. Virtually all industries and states commenting with respect to areas that *have* approved demonstrations supported continued use of the 1982 policy, without change.[17] Of 13 state agencies commenting with respect to areas that *do not have* approved demonstrations, ten urged that shutdown credits be retained for these

[14] See, e.g., Clean Air Act Amendments of 1977, section 129, codified at 42 U.S.C. 7502 note; 3 *Legislative History of the Clean Air Act Amendments of 1977*, pp. 337, 713; 44 FR 2174–75 (January 16, 1979). This Congressional mandate was largely superseded by eventual state adoption of supervening SIP limits. Under current EPA regulations such SIP allowable emission rates may ordinarily be used to compute the baseline for offsets only where an approved SIP demonstration used inventoried allowable emissions in its demonstration of reasonable further progress. See Clean Air Act 173(1)(A), 42 U.S.C. 7503(1)(A).

[17] E.g., Allegheny County (PA) Health Department, Bureau of Air Pollution Control; Air Pollution Control District of Jefferson County (Louisville), KY Cl. Dayton (OH) Regional Air Pollution Control Agency. See also, e.g., comments of Chevron USA.

areas as well.[18] However, many comments also supported or acknowledged the appropriateness of a requirement for a net air quality benefit—in the range of 20% extra reductions in emissions remaining beyond a baseline reflecting RACT emission limits—from each bubble, so long as that requirement was objective and easily administered.[19] To the extent they addressed this issue, these comments generally opposed efforts to test bubbles by examining the subjective motives underlying reductions.[20] Two state of local agencies asked that bubbles be prohibited in these areas until complete demonstrations were approved by EPA.

Several commenting environmental groups asserted that EPA should not permit any bubbles in nonattainment areas lacking adequate demonstrations. One argued that EPA cannot determine that emission reductions are "surplus," and therefore creditable, in these areas because to do so would violate the statutory requirement to attain standards "as expeditiously as practicable." Moreover, this group claimed, using RACT as a baseline would not solve this problem because RACT limits are minimum measures, not a substitute for a SIP providing timely attainment. This group also asserted that crediting shutdowns would conflict with states' duty to meet air quality standards "as expeditiously as practicable" because, by "resurrecting" emissions that have already ceased, it would accomplish less emission reduction than is practicable within a given period of time. Another group asserted that allowing shutdown credits in these areas would strain efforts to progress toward attainment. One environmental group went a step further and urged that opportunity for bubbles be restricted solely to attainment areas which have already met national air quality standards.[21]

At the same time, comments filed on Federal Register proposals to approve individual bubbles as SIP revisions under the 1982 policy[22] raised related issues. Several of these proposed bubbles were also located in primary nonattainment areas which required but lacked approved demonstrations. The issue raised related to bubbles of two types: (1) Those which relied on reductions from shutdowns that occurred long before any application to bank or trade; and (2) those which relied on extra reductions produced by routine installation of required control equipment, long before application to bank or trade. Both types of bubbles raised the larger question of whether SIP integrity and environmental progress might better be assured in primary nonattainment areas which require but lack approved demonstrations of attainment by allowing no bubble credit, or allowing bubble credit only for reductions beyond actual emission levels already achieved *as of the time sources applied to bank or trade.*

The final policy strikes what EPA believes to be a reasonable, environmentally-sound balance between all these views, and establishes numerous tightening clarifications and new requirements to implement that balance. These changes and the rationales supporting them are set forth below.

1. EPA's Resolutions Regarding Baseline and Other Requirements

In primary nonattainment areas which require but do not, at the time of a bubble application, have EPA-approved demonstrations that ambient health standards will be attained, bubbles will generally be approved if they do not rely on reductions which occurred before application for credit; if they meet other criteria for baselines, ambient equivalence, and consistency with future planning efforts; and if they produce at least a 20% net reduction in emissions remaining after appropriate baselines have been applied. These objective tests both respond to previous comments on certain individual bubble applications, and go substantially beyond alternatives discussed in EPA's August 1983 notice. At the same time they assure greater predictability and ambient progress, without imposing s[...] heavy a burden on voluntary bubble transactions that the environmental benefits of such trades are forgone. T[...] reflect the general principle that beca[...] such properly-structured bubbles provide continuing incentives for sources to deliberately overshoot regulatory marks (rather than plan merely to meet them), bubble trades i[...] these areas can produce interim progress beyond current SIP requirements, and should be approve[...]

a. *Specific "Progress" Requirement[...]* Applications for existing-source bubb[...] in primary nonattainment areas whic[...] require but lack approved demonstrations of attainment will be deemed to produce a net air quality benefit and will be processed for approval if they:

(i) Use "lowest-of-actual-SIP-allowable-or-RACT-allowable" emissions baselines. Such baselines must be calculated using

• Either the actual emission rate, th[...] SIP or other federally enforceable emission limit, or a RACT emission limit, whichever is lowest, for each source involved in the trade. This baseline factor shall be determined as the time of the source's application to bank or trade, whichever is earlier.

• The lower of actual or allowable capacity utilization and hours of operation for each source involved in the trade. These baseline factors shall generally be based on the two years o[...] operation preceding the application to bank or trade, unless another two yea[...] period is shown to be more representative of normal source operations;

(ii) Meet the general *ambient equivalence* tests outlined in today's policy (see Section I.B.1.b of the Technical Issues Document) using the baselines described above and, for the post-bubble case, emission levels that reflect overall *emissions* equivalence; and

(iii) Produce a substantial net reduction in actual emissions—i.e., a reduction of at least 20% in the emissions remaining after application [...] the stringent new baselines described above. (A reduction of greater than 20[...] may be required for bubbles approved under generic rules in some of these nonattainment areas. See discussion in Section III.A.1.(d) of this Preamble, below.)

With respect to sources which seek [...] bank emission reductions after publication of today's notice, "application to bank," for purpose of evaluating credit for use in bubbles, means the time of filing of an

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[18] E.g., Memphis Health Department; Colorado Dept. of Health, Air Pollution Control Division. Cf. comments of Illinois EPA.

Many industrial commenters also asserted the importance of continuing to allow shutdown credits in these nonattainment areas. See, e.g., Chevron USA; Champlin Petroleum.

[19] E.g., Bay Area (CA) Air Quality Management District. See also Southern California Gas Co.

[20] E.g., Massachusetts Department of Environmental Quality Engineering; South Coast (CA) Air Quality Management District.

[21] In oral or written submissions to the Administrator made in early 1986 while final decisions on today's policy were still pending, representatives of seven states and the State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officers (STAPPA/ALAPCO) similarly urged that bubbles no longer be authorized in primary nonattainment areas until a complete attainment demonstration was submitted or approved. This position was generally echoed by a coalition of environmental groups. Since this position and related underlying issues had been raised and articulated at length by earlier comments, it is addressed as part of the Agency's final response below.

[22] Cf., e.g., Union Carbide Corp. (Texas City), 47 FR 21533 (May 19, 1982); B.F. Goodrich (Avon Lake), 49 FR 4798 (February 8, 1984).

application to make such reductions state-enforceable through or concurrent with use of a formal or informal banking mechanism. However, in order to avoid needless disruption and inequitable retroactivity, this definition does not apply to reductions which sources have previously applied to bank. See Section I.A.1.b.(1) of the Technical Issues Document.

b. *Additional "Progress" Requirement: State Assurances.* In concluding that properly-structured bubbles as defined above can produce valuable interim progress in primary nonattainment areas which require but lack approved demonstrations, EPA also considered whether other showings might be necessary to assure that individual bubbles do produce such progress. The Agency has concluded that few such showings, whether bubble-related or otherwise, are practicable or workable. It did, however, conclude that certain representations meant to assure each bubble's consistency with SIP planning goals, by requiring states to take a meaningful look at such consistency in each bubble approval, would help assure that progress is achieved.

Under circumstances detailed in the final Policy and Technical Issues Document, today's notice therefore requires the appropriate state authority to provide the following written assurances to accompany each bubble which is approved (either directly by EPA as a case-by-case SIP revision, or by states under an EPA-approved generic rule) in these areas:

1. The resulting emission limits are consistent with EPA requirements for ambient air quality progress, as specified in today's notice.
2. The bubble emission limits will be included in any new SIP and associated control strategy demonstration.
3. The bubble will not constrain the state or local agency's ability to obtain any traditional emission reductions needed to expeditiously attain and maintain ambient air quality standards.
4. The state or local agency is making reasonable efforts to develop a complete approval SIP and intends to adhere to the schedule for such development (including dates for completion of emissions inventory and subsequent increments of progress) stated in the letter accompanying the bubble approval or in previous such letters.
5. The baseline used to calculate the bubble emission limits is consistent with the baseline requirements in the Emissions Trading Policy Statement and Technical Issues Document.

Such assurances need not be verified by, e.g., detailed quantifications, comparison with year-by-year progress projections, or showings that all reductions needed for area-wide progress or attainment have been identified and targeted for regulation. They are, however, expected to be based upon meaningful review by the state and to be consistent with the documentation supporting the bubble. EPA will not second-guess such state representations, provided they are a substantial test applied by the state to each bubble and the state has explained how the proposed bubble is consistent with the area's projected attainment strategy. Nor will EPA examine, or expect states to examine in making such representations, any specific source's subjective motivation in making claimed reductions. The combined effect of these requirements will be (a) to deny bubble credit for reductions which occurred before application for credit, in recognition of the fact that reductions produced before any application to bank or trade are unlikely to have been elicited in any way whatsoever by the opportunity to trade; (b) to help assure that only actual reductions in current emissions are relied upon to satisfy pending control requirements in these areas; (c) to more systematically encourage efforts by sources to produce and permanently maintain these additional reductions, by granting them predictable bubble credit where specified baseline and other tests have been applied; and (d) to assure that these bubbles will not interfere with these areas' attainment efforts. Any other approach would enmesh EPA and state agencies in lengthy, resource-intensive, and uncertain efforts to determine subjective company motives for making particular claimed reductions—efforts which appear unlikely to provide greater environmental protection than the criteria articulated here. Cf. e.g., 48 FR at 39584 and n. 15, 39585–86.

2. Basic Rationale

EPA believes that Congress would clearly have intended the Agency to approve bubbles that, despite the lack of a complete attainment demonstration for the affected areas, nevertheless produce progress toward attainment in those areas. Section 172(b) of the Clean Air Act does require states to formulate complete control strategies to attain the standards in these areas as expeditiously as practicable and, in the case of primary standards, by certain fixed dates. It also requires these areas to demonstrate reasonable further progress toward attainment in the interim. However, SIPs and attainment demonstrations are composed of dozens, if not hundreds, of regulations and commitments adopted at the state or local level, following proceedings that often are time-consuming and overlapping in sequence. If EPA were to wait until every such provision were adopted and submitted by the state before acting on any of them, substantial environmental benefits that would otherwise accrue from having each available requirement promptly incorporated in a binding manner into the SIP and made federally enforceable would be forgone. Such an "all or nothing" approach would produce less expeditious progress toward attainment than a combination of (a) EPA approvals of state provisions submitted sequentially and (b) appropriate use of sanctions authorized by the statute to effect the adoption and submittal of remaining necessary provisions. Given the strong emphases in the statute as enacted, it is doubtful that Congress would have intended the former, less progressive approach.[23]

For these reasons, EPA has decided to approve in these areas bubbles which individually produce progress, both beyond preexisting plan requirements and in the air itself, and which do not interfere with these areas' efforts to construct complete strategies that provide for attainment as expeditiously as practicable.

Today's notice accordingly disallows use in bubbles of reductions made prior to any application to bank or trade, but allows appropriate use of reductions made after such application. Where a source voluntarily proposes to make creditable reductions as part of and following a banking or trading application, the stringent lowest-of-actual-SIP-allowable-or-RACT-allowable baselines must be applied if a bubble is involved, and that bubble must meet appropriate ambient tests, using emission levels that produce overall equivalence to the emissions baseline. The "net 20%" discount in remaining emissions then applies to all sources in the bubble, and provides an additional safety margin to assure ambient progress from bubbles in these areas.[24] Finally, the state assurances

[23] See, e.g., *Chevron USA* v. *NRDC*, supra n. 4

[24] This "net 20%" requirement is also supported by evidence indicating that for most extension area SIPs addressing ozone pollution—the most widespread remaining nonattainment health problem—a net 85% reduction (81% RACT + 20% of remaining VOC emissions) appears sufficient to produce ambient attainment, if those areas could secure such reductions from all controllable stationary sources of VOC emissions which remain after implementation of stringent controls already in place. See, e.g., "On Attainment Status of 33 Areas Under Different Degrees of Stationary Source Con-

will indicate whether approval of the bubble is likely to remove rather than enhance any important opportunities to construct complete attainment strategies.

EPA believes that bubbles meeting the special progress requirements described above will produce both progress beyond preexisting plan requirements and progress in the air. First, with respect to *preexisting plan requirements*, each bubble would achieve a net tightening of at least 20 percent. Trades that result in a permanent 20 percent reduction beyond actual emission levels (which are *already* below what the plan allows), would produce even greater progress beyond preexisting requirements. Moreover, state assurances that must accompany each bubble will help ensure that approval does not represent a step backward in the process of developing a plan providing for timely attainment.

Each such bubble would also produce net progress in the *air*, since each increment of required control forgone as a result of the trade would be more than compensated by a greater reduction which was not required, and which may reasonably be presumed to have been elicited by the trading opportunity. Neither EPA nor anyone else can prove that all reductions which occur after filing of an application for credit were elicited in whole or in part by the trading opportunity. Decisions in the real world, whether corporate or otherwise, always arise from multiple motives which are not easily disentangled, any strand of which may have "tipped" the balance toward or precipitated a particular action. However, the Agency has concluded that this presumption is reasonable. First, it is plausible that such reductions were elicited at least in part by that opportunity, especially where, as here, sources must affirmatively decide to surrender something of value and constrain purely private decisionmaking (e.g., enforceably commit to change production processes) in order to create a cognizable reduction. Second, this presumption is the sole practical alternative to the administratively difficult and uncertain approach of attempting to determine the intent and motives of source owners making these reductions.

EPA has also concluded that bubbles meeting these new requirements will not interfere with the statutory mandate that states attain standards as expeditiously as practicable. Each such bubble would produce progress in the air that, for the reasons just described, would likely not have been achieved absent the trading opportunity.[25]

3. *Additional Considerations Regarding the Benefits of Bubbles*

Individual bubbles *approved* under today's special progress requirements for primary nonattainment areas which lack demonstrations will produce progress in the SIP and in the air. Moreover, the mere *existence* of the opportunity to trade has independent progressive effects.

As some commenters suggested, lack of such demonstrations usually results from one of two general causes: Either the state does not know where or how to obtain sufficient further emission reductions, or it has identified sources of such reductions but is unable to implement new regulatory requirements because of their cost. Moreover, regulated firms may often be reluctant to disclose information that may be used to require further retrofits against them. Even where such information is obtained, it may not be sufficiently precise to allow EPA and the state to resolve remaining ambient problems. While a vigorous regulatory response remains critical in these areas, that response is likely to be hampered by the very information barriers that discouraged a demonstration of attainment in the first place. See, e.g., 48 FR 39582 (August 31, 1983).

Bubbles can help break such deadlocks over the feasibility of obtaining further reductions, by providing an incentive for plant managers to find economical ways to go beyond current regulatory requirements. The opportunity to trade may also encourage sources to come forward in order to establish the quantifiable and enforceable emission limits on which credit must be based.

Bubbles may achieve substantial reductions even without special "progress" requirements, since sources not otherwise subject to or not yet meeting RACT requirements with future effective dates in such nonattainment areas must first reduce emissions to RACT-allowable levels before they can begin to accrue credit.[26] Where modeled showings of ambient equivalence are required, bubbles may also help identify and correct remaining nonattainment problems. In addition, bubbles may help produce (a) faster compliance with RACT limits already defined in partially-approved SIPs, (b) faster RACT definitions for sources not subject to currently approved portions of SIPs, (c) incentives for plant managers to disclose uncontrolled or uninventoried sources, and (d) incentives for such managers to control emissions earlier than required. Perhaps most important, because of their potential to elicit better information on sources, emissions, control performance and ambient effects, bubbles may enhance states' ability to secure future reductions, if and when such reductions are required. For example, EPA experience has documented cases in which bubble or similar trading applications have improved federal and state air quality management capabilities by improving data on emissions, ambient impacts, and unregulated or uninventoried sources.[27]

Control" (Feb. 1984)); Letter, Richard A. Liroff, The Conservation Foundation, to Hon. Lee M. Thomas, March 12, 1986 ("The trial calculation... indicates the staff's attentiveness to the limited control possibilities available, and appears to support their *conclusion about the contribution RACT plus 20 percent can make to attainment.*").

[25] The Agency has determined that these conclusions also apply where the post-application reduction on which the applicant relies for credit happens to be a shutdown or production curtailment. Because multiple motives similarly affect, and can determinatively "tip," decisions to close a facility or restrict its productive capacity, shutdowns that occur after the source owner applies for credit, no less than other types of post-application reductions, may be presumed reasonably elicited by the opportunity to trade. This is particularly true because the source operator, whatever its antecedent motives, must make a deliberate decision to forgo an item of substantial value—either by surrendering its operating permit or by accepting binding production limits—in order to create credit. Since it would be administratively difficult, if not impossible, to prove or disprove that opportunity to trade was the driving force or a *subjective motive behind the shutdown*, such a presumption is amply justified.

[26] See, e.g., 47 FR 15077, 15080; 46 FR 39580 and n. 2, 39582 and n. 7.

RACT levels are generally at least 80% or more below uncontrolled emission levels, depending on the pollutant. Where pre-trade actual emissions are higher than RACT baseline levels this requirement directly accelerates air quality progress, since no credit can be secured for the difference.

[27] Trade applications submitted over the last several years have, among other things, helped establish and verify emissions factors for nontraditional sources, as well as provide detailed emissions profiles of such sources (see, e.g., application of Shenango Iron and Steel Co., approved 46 FR 62854 (December 29, 1981)); have provided current emissions data not otherwise available to EPA through the Agency's National Emissions Data System (50 FR 25093, June 17, 1985); and have disclosed the existence of sources (or in at least one case an entire plant) that had been wholly missed in development of the state's emissions inventory. Other applications have identified and reduced previously unsuspected threats to PSD increments; helped correct substantial discrepancies between inventoried and actual emissions, or between SIP emission limits and attainment demonstrations; and helped improve enforcement procedures in certain state programs. In addition to such case-specific examples, opportunity to trade appears to reduce traditional reasons for sources to underestimate their emissions, resulting in better inventory and planning data. For example, Massachusetts requires firms to provide data on their two years of highest emissions since the design year of the SIP, in order to establish a daily emissions cap under the state's VOC bubble rule. This requirement has produced baseline data for previously unquantified emission years for some sources.

Through all these mechanisms, bubbles can achieve substantial emission reductions and air quality planning benefits, even without special "progress" requirements.

Nowithstanding these independent progressive effects, EPA believes that it may approve bubbles in these nonattainment areas only if they meet the specific progress requirements described above and do not interfere with the affected areas' efforts to develop and implement complete attainment strategies. Such bubbles can help adjust existing inadequate regulations on a source-specific basis, help make progress toward a full approved demonstration, and help improve air quality, without "freezing" inadequate SIP requirements that are currently in place.

Accordingly, EPA has decided to approve "progress" bubbles which are consistent with the attainment needs of these areas, which produce a net air quality benefit, and which may therefore secure faster interim progress toward attainment and more rapid development of complete attainment plans.

III. Additional Policy Changes and Clarifications

Today's notice makes numerous additional changes in response to comments on and following the 1982 policy. The most important of these changes or clarifications are discussed below.

A. *Generic Bubble Rules*

Today's notice recognizes the special position of EPA-approved state generic bubble rules. Such rules may provide clearer approval criteria and may result in more rapid bubble approvals with reduced expenditure of EPA and state resources, by eliminating the need for case-by-case Federal rulemaking on each bubble as an individual SIP revision.

Today's policy affirms that states may continue to use generic rules to approve bubbles within the scope of such rules in all areas of the country, including primary nonattainment areas needing but lacking approved demonstrations of attainment. It also establishes specific procedures to ensure opportunity for public comment on individual generic actions and for regular EPA oversight of state administration of all such rules. Finally, it spells out additional "progress" requirements that new generic rules must satisfy to be approvable for primary nonattainment areas needing but lacking demonstrations of attainment.

State generic bubble rules approved by EPA as SIP revisions have independent force of law and further Congress' intent that "the prevention and control of air pollution at its source [remains] the primary responsibility of States and local governments." Clean Air Act, § 101(a)(3). EPA has approved or proposed to approve 10 such rules for 9 different states, and at least 12 others are being developed. Few approved rules currently apply to primary nonattainment areas which require but lack approved demonstrations. However, today's notice requires that all generic rules meet certain additional procedural requirements in order to assure effective EPA oversight of their administration and to identify any deficiencies in individual approvals or state implementation procedures before substantial numbers of state-approved bubbles may be put at risk. To the extent these requirements require modification of existing generic rules, they may apply to rules affecting any area, not just primary nonattainment areas which need but lack demonstrations.

Today's policy is meant to assure these rules' smooth continued operation, both now and through any future transition periods, without undermining the considerable investment states have already made in generic approaches. At the same time, the policy is designed to assure that actions under generic rules will meet the policy's substantive and procedural objectives.

Basically, *bubbles approved by states under existing EPA-approved generic rules before the effective date of this policy* will not be affected or revisited due to today's changes. Because EPA-approved generic rules possess independent validity and may only be changed upon completion of specific procedures for altering such SIP provisions (see, e.g., Clean Air Act sections 110(a)(2)(H), 110(i)), states may also *continue to approve bubbles in accord with such rules*, unless and until those rules are finally changed in response to an EPA notice requesting and establishing a specific timetable for their modification. However, in order to provide maximum assurance of SIP integrity and minimize any need for future SIP corrections, EPA expects states to assure so far as feasible that generic bubbles they approve are consistent with applicable terms of today's policy as well as their generic rules. *New or pending generic rules* must all meet the terms of today's notice.

All existing generic rules which require modification to conform to this policy must, as requested by EPA, be promptly revised. EPA will review such rules to determine their consistency with today's requirements, and will publish Federal Register notices identifying generic rules requiring modification. These notices will identify specific deficiencies and means for correcting them, and set forth a schedule for both submittal and EPA review of revised rules. Where states fail to resolve identified deficiencies in such rules within the prescribed period, EPA may either rescind its previous approval of the rule, or issue a notice of SIP deficiency under section 110(a)(2)(H) of the Act.

1. Substantive "Progress" Requirements

Generic bubble rules applicable to *primary nonattainment areas which need but lack approved demonstrations* must provide that all generic bubbles in these areas:

(a) Use lowest-of-actual-SIP-allowable-or-RACT-allowable emissions baselines, as described above, for all sources involved in the trade;

(b) Grant credit only for those reductions occurring after an application to bank or trade credit (whichever is earlier) has been made;

(c) Incorporate replicable procedures which assure that all trades preapproved by EPA as meeting the rule will also satisfy applicable ambient equivalence tests (see Technical Issues Document, Section II.B.2.); and

(d) Produce an overall emission reduction at least equal to a net 20% reduction in emissions remaining after application of the above baselines, or at least equal (in percentage terms) to the overall emission reduction (in percentage terms) needed to attain in the area (i.e., at least equal to the source-by-source emission reductions that would be required for a full demonstration of attainment, taking into account "uncontrollable" stationary (e.g., area) sources and expected emission reductions from mobile sources), whichever is larger.[28] This last

[28] For example, assume air quality analysis indicates the area must decrease its base-year emissions by 46% to attain the relevant NAAQS. Further assume:

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(a) For the base year:	
Uncontrollable stationary source emissions (e.g., residential combustion sources)	2,500
Controllable stationary source emissions	3,500
Mobile source emissions	4,000
Total	10,000
Target emissions for attainment 10,000 × (1.0 − 0.46)	5,400
(b) For the projected attainment year (before additional controls):	
Uncontrollable stationary source emissions (2,500 × 1.1)	2,750
Controllable stationary source emissions (3,500 × 1.2)	4,200
Mobile source emissions	2,500
Total	9,450

determination must be submitted with the rule, and must use the same type and quality of analysis required for an EPA-approvable SIP. In no event may the overall emission reduction required of generic bubbles in such areas be less than 20% of the emissions remaining after application of the baselines specified above; and

(e) provide assurances, in conjunction with the state's submittal of the generic rule to EPA, that the state (i) is making reasonable efforts to develop a complete approvable SIP that will achieve the percent emission reduction from controllable sources described in the previous paragraph and (ii) intends to adhere to the schedule for development of such a SIP (including dates for completion of emissions inventory and subsequent increments of progress), as stated in the letter accompanying the submittal or in previous letters. EPA believes that the numerical determination and progress requirement discussed in the previous paragraph is the functional equivalent of the additional assurances described earlier in this notice (see Section II.B.1.b above) for bubbles needing case-by-case EPA approval, since bubbles meeting this requirement will produce attainment-level reductions. For that reason, EPA does not believe that it must require the state to make those additional assurances when it submits the generic rule. However, to assure that generic approvals continue to complement and do not interfere with attainment planning, EPA will require the state to include all of those assurances in or with its notices of proposed and final approval of each bubble issued under the rule in such a nonattainment area.

Generic rules meeting these requirements will assure that each state-approved bubble produces reductions at least equal to those which would be required under an approved demonstration of attainment. Their availability can also encourage states and sources to take significant further steps towards such demonstrations. Since reductions sufficient for timely attainment are all EPA can require for approval of State Implementation Plans under section 110 and Part D of the Clean Air Act, *Train* v. *NRDC*, *supra*, further Agency scrutiny of individual bubble reductions is not required.

2. Procedural Requirements

Today's notice includes tightened requirements designed to assure, with minimal burdens on states, that EPA's responsibility to monitor the implementation of all generic rules incorporated in SIPs (see section 110(a)(2)(A)(H)) is more efficiently and effectively carried out. EPA will fulfill this responsibility by (a) examining and commenting on, together with any other public commenter under applicable state law, the information provided for individual trades subject to proposed action under generic rules, (b) conducting reviews of individual trades approved under such rules; and (c) periodically auditing implementation of the rule itself as part of its National Air Audit System investigations of state air pollution control programs, including indepth file audits of actions under such generic rules. These activities will cover state actions of disapproval as well as approval, and will examine whether rules are being interpreted or applied within the scope of their approval by EPA.

To be considered valid by EPA, a trade approved under a generic rule must (1) be one of a class of trades authorized by the rule, (2) be approved by the state after the rule has been approved by EPA, and (3) meet all the provisions of the EPA-approved rule. State approvals which do not meet these requirements are not considered part of the SIP and do not replace prior valid SIP limits, which remain enforceable and may make such trades the subjec: remedial action after due notice by EF to the state and source.

In addition to requiring that generic rules or other state provisions assure meaningful notice *to EPA* by the first day of the public comment period on *proposed* generic actions, and immediately upon *final* generic action. today's policy also requires that state generic rules or other state provisions provide *the general public* adequate notice and opportunity to comment, including opportunity for judicial revie sufficient to make comment effective. Existing state generic rules, statutes or regulations will generally satisfy this requirement. However, some jurisdictions, for example, deny judici review to commenters who do not possess a direct financial stake in individual permits. Such jurisdictions will have to modify their generic rule, other provisions, to meet this requirement.

B. Bubbles Involving Hazardous or Toxic Air Pollutants

EPA reaffirms and extends its 1982 determination that bubbles in any are must not increase emissions of hazardous or toxic air pollutants. Bubbles cannot be used to meet or av National Emission Standards for Hazardous Air Pollutants (NESHAPs) *that have been finally promulgated* under Section 112 of the Act. Where NESHAPs *have been proposed but no promulgated* for emitting sources whic are the subject of a bubble application the proposed NESHAP will generally serve as the baseline for determining creditable bubble reductions, and the trade must produce reductions at leas as great as those which the proposed NESHAP would produce, if promulgated. Moreover, no source emitting a pollutant subject to such a proposed NESHAP may exceed emissions allowed under the proposec NESHAP as a result of the trade. Whe a bubble involves a pollutant which is *listed* under Section 112, but no NESHAP has yet been proposed for th relevant source category, or a pollutar for which EPA has issued a Notice-of-Intent-to-List, there must be no net increase in actual emissions of the noticed or listed pollutant.[29] In genera

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Therefore the reductions needed from controllable stationary sources are 9,450−5,500=3,950 tons/yr.

And the percent emission reduction required from controllable stationary sources to attain is

$$\frac{(3950)}{(4200)} \times 100 = 94\%$$

Thus the net overall reduction required from each generic bubble would be 94% (i.e., the reductions produced by applicable baselines (e.g., application of a RACT emission rate) plus whatever percent reduction in emissions remaining after this RACT limit is sufficient to yield the 94% total).

States that wish to avoid case-be-case SIP revisions for sources for which RACT has not yet been defined in an approved SIP provison may incorporate "presumptive RACT" values (e.g., 80% reduction for VOC) in their generic rules. Sources would than have the option of accepting these RACT values for generic bubble purposes, or negotiating different RACT values through the case-by-case SIP revison process. However, where a source involved in a trade is one for which EPA has issued a CTG, but the state has not yet adopted the CTG-specified emission rate as RACT and no RACT has yet been specified by the state for that source, the presumptive or negotiated RACT values for the trade must be at least as restrictive as the CTG-specified emission rate for that source.

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[29] In some limited circumstances additional pollutants may be treated as listed pollutants. Se Technical Issues Document, Section I.B.1.d.

all bubbles involving emissions of pollutants described above must use lower-of-actual-or-NESHAPs-allowable emissions baselines, and must take place within a single plant or contiguous plants.[30]

Commenters who addressed this issue divided into two general groups. One group asserted that hazardous/toxic restrictions should extend beyond pollutants currently regulated, proposed to be regulated, or listed under Section 112. These comments generally maintained that restrictions should also apply to all pollutants the Agency is "actively considering" for listing. A second group asserted that neither volatile organic compound (VOC) nor particulate emissions should be traded unless there is clear evidence that specific substances present in such VOC or particulate emissions are "relatively innocuous."

EPA has determined that for reasons of policy and administrative practicality these suggestions, while laudable in intent, should not be adopted. Bubbles are alternative means of compliance which should generally be treated no differently than other compliance strategies, provided basic SIP requirments of consistency with ambient needs, PSD increments, and interim progress are met. EPA's statutory authority to further restrict trades on the basis of hazardous substances which may be present in a particular criteria pollutant stream (e.g., VOCs) and which may be subject to a listing, notice-of-intent-to-list or proposed NESHAP, but are not as yet regulated under § 112, is limited. Generalized attempts to exercise such authority based on the presence of substances on which the Agency has taken no formal action whatever would be still more tenuous. Moreover, the inherent ambiguity of such terms as "actively considering" or "relatively innocuous" militates against such tests. States remain free to adopt further restrictions consistent with local laws and needs. However, with respect to national requirements EPA has concluded that clear decision points based on actions pursuant to the deliberative process and record evidence underlying section 112 determinations are to be preferred.

Interested parties should be aware, however, that under today's policy the Administrator reserves discretion to consider on a case-by-case basis whether bubble proposals involve pollutants which, while not regulated, listed or otherwise noticed under section 112, are regulated as toxic under other federal health-based statutes, and to require further analysis before approving such proposals.

One commenter expressed concern over the 1982 policy's use of the term "reasonably close" to indicate the distance which may be covered by bubbles involving pollutants listed or proposed to be regulated under section 112. EPA agrees this term is ambiguous, and with the exception of bubbles which affirmatively decrease such pollutants below the lower-of-actual-or-NESHAPs-allowable baseline, has substituted the more protective and certain requirement that such trades occur within a single plant or contiguous plants. In order to assure that such trades do not produce adverse health or environmental effects, today's notice also requires that they rely only on reductions below current actual or section 112 allowable emissions as of the trading application, whichever is lower, in pollutant streams containing a substance which has been noticed, listed, or proposed to be regulated under section 112.

Several of these provisions—notably the proposed NESHAPs baseline and source-specific proposed-NESHAPs emissions cap, the inclusion of pollutants subject to Notices-of-Intent-to-List, and the general limitation to contiguous plants and lower-of-actuals-or-§ 112-allowables baselines—represent substantial tightenings over the 1982 policy.

C. Banking Emission Reduction Credits (ERCs)

EPA-approvable emission reduction banks may allow sources to store ERCs for their own future use or use by others. Today's notice reiterates that states are by no means required to adopt banking procedures, but notes that banks may help states and communities realize important planning and environmental benefits.[31] Banks may encourage firms to create inexpensive extra reductions at earlier, optimal times (e.g., when replacing outworn control equipment or deciding how to meet new requirements) and disclose such information to state agencies. They may help create a central pool of identifiable, readily-available reductions which can ease plant modernizations or expansions, new source siting, or existing-source compliance. Properly-structured banks may reduce incentives for sources to delay, conceal or hoard actual or potential reductions until an immediate use arises. Banks may also provide other, interim environmental benefits, since banked ERCs remain out of the air (although they must be treated for SIP planning purposes as "in the air") until used. In addition, banks can help state agencies manage their permit workload more efficiently, because portions of new source or existing-source compliance transactions may be pre-permitted or reviewed in advance. Banks may also help states systematically assure that all unused surplus reductions are treated as "in the air" for SIP planning purposes, avoiding potential inconsistencies which might cause those reductions to be lost.

Comments indicated some confusion over whether, in addition to meeting other ERC requirements, reductions must be made federally enforceable to be formally credited for banking. The answer is no. However, in order to qualify as emission reduction credits and be deposited in EPA-approvable banks, emission reductions must be made enforceable by the state. Reductions must be made enforceable by the state by their time of deposit in order, e.g., to better ensure the integrity of the state's air quality planning process by preventing sources from banking reductions of emissions which their permits do not preclude them from continuing to emit. This requirement will also prevent undue reliance by parties or potential parties on emission reductions which have not actually occurred.[32] However, because these

[30] The one exception involves bubbles in which surplus reductions in the emissions of pollutants subject to regulation, proposed regulation, listing, or Notice-of-Intent-to-List as hazardous emissions compensate for increases in non-hazardous emissions. (E.g., where a source decreases benzene emissions below the baseline specified above, in exchange for corresponding increases elsewhere in a non-hazardous VOC.) As long as such a trade would not result in an increase in either actual or allowable emissions of a pollutant subject to the special restrictions discussed above at any source, it would not differ in nature of requirements from a trade involving only non-hazardous emissions.

[31] See e.g., 47 FR 15083–84 (April 7, 1982).

[32] In primary nonattainment areas which need but lack approved demonstrations, emission reductions made prior to application to bank or trade (whichever is earlier) will not be credited for use in bubbles (see Section I.A.1.a.(1) of today's Technical Issues Document). Following publication of today's notice, the "date of application to bank" will be the date the source submits an application to the state to make a reduction state-enforceable through or concurrent with use of a formal bank or informal banking mechanism (see section I.A.1.b.(1) of today's Technical Issues Document).

In other areas, although emission reductions cannot qualify as ERCs or be deposited in EPA-approvable banks until they are made enforceable by the state, emission reductions banked through other formal or informal banking mechanisms which do not make reductions state-enforceable by the time of deposit will still be eligible for use in future trades, so long as those reductions are made federally enforceable at time of use and all applicable requirements of the regulatory program under which they will be used are met.

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actions merely create extra reductions in actual or allowable emissions which cannot by themselves produce any adverse effects on air quality, they need not be made *federally* enforceable until used.[33] Where states wish to make banked emission reductions *federally* enforceable at the time they are banked, several mechanisms may be available for doing so without case-by-case SIP revisions. States with EPA-approved PSD, NSR, visibility and preconstruction review programs can issue permits to credit reductions from emission units currently subject to these preconstruction permits.[34] States with EPA-approved generic rules may also be able to use those rules' procedures to make reductions at existing sources federally enforceable. Since only reductions in applicable emission limits are involved at the banking stage, modeling should not be required. Moreover, these reductions should automatically meet the requirement that changes in emission limits under generic rules not jeopardize ambient standards or PSD increments.

Since some trades have special requirements, banks do not guarantee the validity of particular banked ERCs for all potential uses or for all time. For example, because only actual reductions occurring at the same major stationary source are eligible for netting, banked reductions created at other stationary sources cannot be used for netting transactions. However, banked credits resulting from reductions at other stationary sources may be used as offsets or in bubbles, so long as this notice's other requirements for appropriate use of credits are observed and applicable offset requirements are satisfied.

Because of differing regulatory requirements, the amount of credit actually derived from particular emission reductions may also differ from one regulatory program to another. For example, in primary nonattainment areas needing but lacking approved demonstrations, the amount of credit available from a given reduction for bubble purposes may be less than that available from the same reduction for netting or offset purposes, since special progress requirements apply to bubbles in these areas.

Because the *use* of credits will change (rather than merely reduce) emission levels if approved, such proposals should be carefully evaluated to assure they meet all of today's criteria for appropriate use. For similar reasons proposals to *use* banked credits will usually require additional approval procedures (e.g., additional modeling for certain TSP or SO_2 trades), whether such proposals are evaluated as case-by-case SIP revisions, under EPA-approved generic rules, or under EPA-approved new source review programs.

One commenter asked how banked ERCs would be treated if a nonattainment area is being redesignated to attainment. Redesignation will have no effect on the banked ERCs, so long as state planning considered those ERCs to be *in the air* (i.e., in the inventory) at the site of their creation. Because local recessions or shifts in industrial patterns can temporarily affect air quality without regard to the adequacy of state emission-control efforts, EPA guidance requires that redesignation not be based solely on monitored air quality. In addition to considering factors such as the state of the particular economy and its effect on emissions, EPA may consider the number, type, and state inventory treatment of banked credits. Such procedures will help assure that reliably banked reductions are not reduced or otherwise adversely affected by shifts in an area's designated attainment status.

Some commenters asserted it is overly cautious to require that *all* banked emissions be considered as "in the air." One commenter asked that state planning be required to include as "in the air" only a *portion* of banked emissions analogous to a "reserve requirement." This comment drew parallels with financial banking to assume that, given withdrawals and deposits, a certain "float" quantity of ERCs would always remain in the bank and out of the air. EPA recognizes that reductions placed in banks may tend to keep the air cleaner through a relatively constant level of deposits. However, EPA cannot allow states to consider less than their full amount of banked deposits as "in the air." To do so could jeopardize air quality planning and attainment.[35]

D. OBERS Projections and Double-Counting

In its August 1983 notice EPA asked for further comment on whether some SIPs' translation of general economic growth projections provided by OBERS (Department of Commerce) directly into projected emissions growth, left "no straightforward way to disaggregate the projections into shutdowns and new plant openings." Whether such SIP demonstrations were fully or only partly approved, the notice continued, such use of OBERS might make it impossible to distinguish which shutdowns were already relied on in the demonstration. Therefore, it might be "difficult or impossible for states whose SIPs rest on OBERS projections to grant credit from shutdowns for use in existing source bubble trades, consistent with the Clean Air Act." 48 FR 39581.

Most industry and several state commenters asserted that where OBERS data were used to project needed SIP reductions, use of shutdown credits in bubbles was not a problem, since OBERS figures substantially overestimate the total amount of emission reduction needed to attain. For example, one industry commenter noted that "emissions growth will not be directly proportional to economic growth because of the installation of new environmentally efficient technologies. Therefore, SIPs which used "OBERS" projections already have

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Since states may have to revise their regulations or permit procedures in order to implement this new state-enforceability requirement, full implementation will not be expected until one year after publication of today's notice. However, all credits not made enforceable when banked during this interim period, together with all credits deposited prior to today's notice, should be made state-enforceable within eighteen months from the date of this policy.

[33] Cf. 47 FR 15078, 15081 at col. 2.

[34] Some jurisdictions may also use general state preconstruction review programs that have received EPA approval to credit reductions at existing sources if such reductions are covered under the program, since requirements under these programs are federally enforceable.

[35] In order not to defeat banking's purpose of encouraging the earliest possible disclosure and production of potential extra emission reductions, use of banked credits for bubble purposes *in primary nonattainment areas which lack approved demonstrations* will continue to be allowed, provided these credits meet all baseline and other applicable requirements of today's notice for these areas. This generally includes the lowest-of-actual-SIP-allowable-or-RACT-allowable emissions baseline, applied as of the date of written application to the state to bank such reductions through a formal bank or informal banking mechanism for use in future trades. It also includes that 20% net reduction requirement and state assurances specified above, at the time such credits are approved for use in bubbles. Banked credits resulting from *plant shutdown or production curtailments* may be used for bubbles in these areas on the same terms as use of other banked credits, provided their use is subject to stringent qualitative review to assure legal, technical and programmatic consistency with SIP planning goals (e.g., avoidance of "shifting demand"). See today's Policy at n. 24 and Section I.A.1.c(3) of the Technical Issues Document. (Banked credits resulting from certain shutdowns or production curtailments may, however, be subject to special restrictions for offset purposes. See today's Technical Issues Document at n. 14).

The special restrictions discussed above do not apply under today's notice to use of banked credit *for bubble purposes in other areas.*

an inherent growth potential built into them, and allowing ERCs for shutdowns in these areas will not jeopardize a state's ability to demonstrate attainment." A local agency agreed that "demonstrations . . . based on such emission projections would over-estimate attainment because some growth will occur from [wholly] new sources, new sources replacing existing sources, or modified existing sources, [all of] which would be subject to . . . New Source Review rules, rather than the less stringent [SIP] requirements assumed in the emission projections."

Several state commenters also stressed that while use of OBERS projections is not widespread, the underlying question is whether the area's SIP process incorporates conditions sufficient to prevent double-counting of shutdown credits. One local agency recommended that shutdown credits be prohibited where the source involved is within an industrial category projected to go through an economic downturn, asserting that in such cases the SIP implicitly relies on the expected shutdowns. An environmental group went a step further, and urged that all shutdown credits for bubbles in areas using OBERS projections be completely prohibited.

EPA has concluded that the requirements of the 1982 policy are sufficient to prevent double-counting of shutdown credits, and should be retained without further special restrictions. First, use of OBERS or any other projection is relevant only where an area has an approved attainment demonstration. Today's notice generally disallows bubble credit for pre-application reductions (including reductions from shutdowns or curtailments) in primary nonattainment areas which require but lack such demonstrations. Thus today's notice largely moots any issue of double-counting for past shutdowns, in the areas for which this issue has been raised with the greatest concern. Second, use of OBERS projections in areas with approved demonstrations does not appear nearly so common as was assumed in EPA's 1983 request for further comment. Even where such projections were used in approved demonstrations, they generally overestimate the amount of emissions forecast to exist in the year of projected attainment. They therefore tend to assume substantially less overall reductions from source turnover than will actually occur.[36]

Finally, even if such projections did not overestimate emissions, under today's notice the state must show that use in bubbles of any reductions created by shutdowns is consistent with its attainment demonstration and that those reductions were not already assumed in its SIP. For example, the state must show that it did not implicitly or explicitly rely on a "turnover rate" from the difference in emissions between existing sources and better-controlled new sources for part of the reductions required in its SIP from that industrial category. Alternatively, it must show that if a "turnover rate" was assumed, the shutdown credits used in an individual trade result from reductions in excess of that turnover rate. Where a state regulated the sources in a standard industrial classification (SIC) without explicitly relying on turnovers, then bubble credit for a shutdown within that SCI category would not in general be double-counted.[37]

These requirements should fully protect states and sources against adverse environmental or SIP effects.

E. Improved Modeling and de Minimis Requirements

Bubble applicants must show that their proposed trades are at least equivalent in ambient effect to the SIP (or other) emission limits the bubble would replace. For some criteria pollutants (e.g., VOC or NO_x) this test may generally be met by showing equal reductions in emissions.[38] For other pollutants (e.g., SO_2, TSP or CO) it was traditionally met, prior to the 1982 policy, through ambient dispersion modeling.

The 1982 policy made available several alternatives to the use of full-scale dispersion modeling where such modeling was not needed to protect air quality. These alternatives could, in appropriate, carefully-limited circumstances, be used to demonstrate ambient equivalence for bubbles involving particulate matter or other pollutants whose ambient effects were not linearly related to emissions. They included *de minimis* levels and the use of other screening criteria to identify circumstances in which full-scale modeling was unnecessary, either for bubbles processed as SIP revisions or those approved under generic rules.

Today's notice both tightens some of these screening criteria and expands the circumstances in which such criteria can be used.

Today's notice also specifies certain conditions and types of case-by-case SIP-revision bubbles for which EPA Regional Offices may require additional technical support, beyond basic modeling requirements, deemed necessary to protect NAAQS, PSD increments or visibility where allowable values used to calculate baseline emissions are not clearly used or reflected in an approved demonstration, or may not reasonably be assumed consistent with the need to protect PSD increments or visibility. See Technical Issues Document, Section I.A.1.a.

1. De Minimis Levels

Under the 1982 policy, trades in which net baseline emissions did not increase and in which the sum of emission increases, looking only at the increasing sources, totaled less than 100 tons per year (TPY) after applicable control requirements, could be exempted from SIP revisions under an approved generic rule. The rationale for this approach was that EPA regulations implementing the Clean Air Act already allow some examptions from NSR requirements for new sources which are not defined as "major"—i.e., which do not have potential emissions greater than 100 TPY. See e.g., CAA section 302(j) and 40 CFR 52.21(b)(1) and 51.18(j)(1)(v). Thus trades which merely shift lesser amounts of emissions, and which are

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[36] This is so because OBERS-based SIP projections assume that units of production (and hence emissions) in particular SIC Codes will keep pace with projected trends in earnings and/or employment in those SIC codes, without regard to changing distributions between new and existing sources. See, e.g., *1980 OBERS: BEA Regional Projections, Volume 1: Methodology, Concepts and State Data*, p. (xi), U.S. Department of Commerce (July 1981).

[37] Such credits must of course meet all other requirements of today's notice, including application of appropriate baselines and other criteria defining surplus reductions, before they may be used in a bubble trade.

States which expressly relied on OBERS projections may also show that no double-counting occurred by demonstrating that they did not implicitly rely on any turnover credits. This showing should not be difficult to make because OBERS assume that emissions will evenly increase at each plant and production line, proportionate to growth in earnings and employment potential for that SIC code. Cf. n. 36 above. This assumption neither anticipates nor relies on the fact that any shutdown will occur.

The one exception to these general principles could occur where a SIP relied on OBERS projections for an SIC category predicted to undergo a *quantified* future economic downturn, without taking explicit affirmative steps to preclude reliance on that downturn. In these circumstances the state would either have to show that a proposed shutdown credit from a source within that SIC category was not double-counted (e.g., by showing that more shutdown reductions than projected for the SIC category had already occurred), or deny credit.

[38] Interested parties should, however, be aware that ambient equivalence considerations which apply to SO_2, TSP and CO, as described below, also apply to NO_x trades involving visibility impacts from elevated plumes. See Section I.B.1.b. of today Technical Issues document.

accompanied by compensating decreases, should not be subject to more stringent requirements. As the 1982 notice put it, "Such trades will have at most a *de minimis* impact on local air quality because only minor quantities of emissions are involved . . . the Federal resources required to evaluate these trades could best be used to evaluate actions that have a potential impact on air quality." 47 FR at 15085.[39]

One commenter asserted that this 100 TPY limitation was unnecessary, since the trades to which it applied were already required to produce no net increase in emissions. However, four state and environmental commenters urged that *de minimis* levels for such trades be the same as those triggering federally-mandated review of emissions increases in PSD areas. These comments primarily noted that EPA had already defined more relevant "cutoff" levels in its regulations for PSD, for NSR preconstruction permits in nonattainment areas, and in visibility permit regulations, and that emission shifts of 100 TPY from one source to another might still be too large to go unexamined for certain types of emissions and situations.

In order to ensure prosecution of ambient air quality, today's notice adopts more protective *de minimis* levels—derived from those for PSD; NSR permits in nonattainment areas; and the visibility permit regulations—of 100 TPY for CO, 40 TPY for SO_2, 25 TPY for particulate matter, and 0.6 TPY for lead. Because of this action, state ambient evaluation of *de minimis* trades will no longer be required for generic bubble rules to be approvable by EPA.[40] Trades involving sources of substantial size may still be implemented as *de minimis* under today's provisions, as long as the quality of ERCs traded by these sources is below the levels specified above.

2. Modeling Requirements[41]

Numerous comments were received on the 1982 policy's three-level approach to demonstrating ambient equivalence. The vast majority sought added clarification, stating, for example, that the 1982 policy did "not adequately delineate the level of modeling necessary in each instance." Today's notice tightens and clarifies the conditions under which ambient equivalence may be demonstrated with less than full-scale modeling.

a. Level I Criteria. Under the 1982 document no modeling was generally required of SO_2, TSP, or similar trades where applicable net baseline emissions did not increase, sources were located in the same immediate vicinity (generally within 250 meters of each other), and the taller stack was the one which increased its emissions. These conditions were believed sufficient to assure that local ambient concentrations of the relevant criteria pollutants would not increase as a result of the trade.

EPA has added two criteria to those specified in 1982, in order to provide additional assurance that trades approved under Level I will have no adverse ambient effect. First, there must be no complex (e.g., mountainous) terrain within 50 kilometers of the trading sources or within the trade's area of significant impact, whichever is less. (For simplified methods of determining "area of significant impact," see today's Technical Issues Document, Appendix E). Second, stacks with increasing baseline emissions must be sufficiently tall to avoid downwash.

Some industry commenters objected to the 250-meter limitation, advocating use of either trade ratios for sources beyond that distance, or an 800-meter limit extrapolated from unrelated EPA regulations.[42] EPA has retained the 250-meter limit as substantially more consistent with the modeling screen's original intent of simplifying modeling requirements for trades which could not jeopardize ambient equivalence.[43]

b. Level II Criteria. Trades of SO_2, TSP, CO, Pb and NO_x (for visibility purposes) may also be approved through limited Level II modeling of the ambient effects *solely of sources involved in the trade*, where applicable net baseline emissions do not increase and designated ambient significance levels are not exceeded.

Today's notice confirms, clarifies, and in certain cases extends various 1983 improvements made to increase certainty and better assure that such Level II trades result in ambient equivalence. In particular, "significant ambient impact" may no longer be measured solely by changes at the "receptor of maximum predicted impact" before and after the trade. Instead such changes must be measured at every affected receptor for every averaging period relevant to the particular pollutant, throughout the year. Under this approach no Level II trades will be approved without further scrutiny, involving full or limited Level III modeling, if they result in a significant net ambient effect at any modeling point for any such averaging period during a modeled year.

Today's notice also specifies Level II significance levels for all averaging periods consistent with all current national ambient air quality standards, not just the 24-hour averaging periods for SO_2 and PM or the 8-hour averaging period for CO.[44] Refined models such as MPTER and ISC must generally be used to measure changes resulting from the trade at each receptor, using the most recent full year of meteorological data.[45]

These modeling requirements assure that bubbles which pass applicable Level II tests and meet all other requirements of today's policy will result in air quality equal to or better

[39] The 1982 document did, however, note that such "[generic] trades are still subject to ambient tests [at the *state* level, and] . . . should accordingly be evaluated by the state under the modeling screen . . . or an equivalent approach." 47 FR 15085 at n.7.

[40] This should not be construed to imply that *new* sources and modifications need not meet all applicable requirements, including those specified under 40 CFR 51.18 or parallel EPA-approved state rules.

[41] The following discussion summarizes both interim improvements made in the 1982 modeling screen (see Technical Issues Document, Appendix C) and EPA's responses to major comments on modeling issues.

[42] See e.g., 47 FR 5864, 5866 (February 8, 1982).

[43] Trade ratios may already be used under general provisions inviting states to design other equivalent approaches which adequately address ambient concerns. See, e.g., 47 FR at 15077 and n.2, 15078. However, to be approved by EPA each ratio would generally have to be defined through area-wide advance modeling of all sources, as well as those likely to trade.

Several comments also objected to the requirement that Level I trades not increase emissions from the source with the lower effective plume height. These comments noted that under various conditions similar stacks could so vary in effective plume height that neither would consistently be "higher" or "lower." One also suggested this limitation might encourage use of tall stacks to cure local exceedances.

Today's notice retains this Level I requirement unchanged. That two sources may be virtually indistinguishable in effective stack height should not delay approval of Level I trades, since the limitation's purpose—preventing potentially significant increases in ground-level ambient concentrations due to shifts of emissions from "higher" to "lower" stacks—will still be satisfied. Moreover, since such trades cannot increase net baseline emissions, this limitation merely ensures they will not create *new* ambient violations. Because other EPA regulations address the use of excessively tall stacks to cure *existing* ambient violations, no further restriction in this Level I requirement appears required.

[44] For further discussion of these significance levels and the increased assurance of environmental equivalence they provide in conjunction with today's more sophisticated Level II modeling approach, see Fleckenstein, "Modeling Criteria: The Key to Major Reforms for Emissions Trades," APCA Paper 84-68.2 (San Francisco, California, June 28, 1984).

[45] Under some limited conditions, conservative screening models may be substituted for these refined models, and in these cases a full year of meteorological data may not be necessary. See Technical Issues Document, Section I.B.1.b.(3).

than that produced by pre-trade emission limits, and may be approved. Because refined models have now been approved by EPA and their parameters may be specified with greater certainty and confidence, these requirements also provide a firmer basis for approving state generic rules incorporating Level II.[46]

c. *Level III Criteria.* Trades which are not *de minimis* and do not satisfy Level I or Level II above must generally be evaluated by full-scale ambient dispersion modeling. Two air pollution control agencies recommended fixed trading ratios in lieu of such modeling, asserting this would reduce cost and uncertainty while continuing to meet the goals of the Clean Air Act. EPA recognizes the legitimacy of these concerns but has concluded that trades which do not satisfy Level I or II raise the kinds of air quality issues which appropriately require full-scale modeling, unless such trading ratios have been justified by similar area-wide modeling conducted in advance of the trade.

Today's notice does, however, modify Level III to provide states and sources more flexibility in this regard. Where a trade meets all other criteria of Level II, but Level II modeling has shown significant potential increases at particular receptors, modeling analyses under Level III may under appropriate circumstances be limited to a receptor area smaller than the trade's entire area of impact, so long as it includes emissions from all sources which contribute to ambient concentrations in that limited geographic area. Because of the unique nature of each situation, the appropriate limited geographic area must be determined in accord with EPA guidelines on modeling and case-by-case evaluation. This "limited Level III" approach may conserve significant resources, while allowing states and sources to focus on specific geographic areas of concern.[47]

F. Enforcement Issues

Several commenters noted that while sources should, as provided in the 1982 policy, be allowed to use bubbles to come into compliance, bubble applications might also be used to delay compliance or enforcement without compensating environmental benefits. Some of these commenters alluded to language in the 1982 notice which, while not authorizing or intended to authorize such results, could have been interpreted to allow them. Such unacceptable delay might, for example, arise where a source facing an imminent compliance deadline suddenly advances a bubble application and asserts that more time is needed to develop and evaluate that application before compliance with original SIP limits should be required.

Both bubbles and generic rules can be important means of allowing environmentally-sound compliance. Generic rules may be more expeditious than case-by-case SIP revision bubbles. They may also preserve the very opportunity to bubble when the time needed to process a case-by-case SIP revision might extend beyond the source's original SIP compliance date. At the same time, bubble applications should not become a shield against enforcement actions for sources which have failed to take necessary steps to meet required control obligations on time. Bubbles are simply alternative means of complying at less cost. They should be treated neither more nor less stringently than other, more traditional methods of compliance. Bubbles offer innovative ways to meet emission reduction obligations. They should not become devices to avoid such obligations.

Today's notice substantially clarifies and tightens the 1982 policy to better implement these principles. Among other steps, compliance extensions will no longer be granted under generic rules in any nonattainment area, and may be granted generically in attainment areas only where EPA has approved the time-extension portion of the rule as consistent with relevant Clean Air Act requirements, including expeditious attainment and maintenance of ambient standards. Cf. 47 FR at 15078 col. 2. This will generally mean that requests for time extensions as part of bubble applications must be separately reviewed as individual SIP revisions, subject to criteria EPA normally applies to such requests.

Today's notice also re-emphasizes that as a matter of law and sound policy, sources seeking bubbles remain subject to enforcement of existing (pre-trade) SIP limits until the bubble is finally approved. Sources which possess approved bubbles with future effective dates remain subject to similar enforcement of pre-trade limits until either those limits or the new ones are met, and may wish to take steps identified in the notice, including accelerated compliance with bubble limits, to minimize that possibility. See Technical Issues Document, section I.B.2.a.

Under today's notice, EPA will not specifically select such sources for enforcement action. Nor will EPA withhold or defer enforcement simply because a source is seeking alternative emission limits through a bubble. In exercising its inherent enforcement discretion, EPA will apply the same considerations to noncompliant sources which seek to comply through bubbles, as to those which do not.[48]

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[46] Interested parties should, however, be aware that because of replicability concerns related to application of any approach requiring use of case-specific ambient dispersion modeling, such Level II generic rules may be more difficult to draft and implement than rules incorporating only *de minimis* and Level I approaches for SO_2, TSP, CO or Pb. During and after issuance of the 1982 interim policy EPA staff drafted and informally circulated, at the request of state and local air agency directors, model generic rules which provided more detail to help interested states acceptably address these concerns. The Agency plans to update and recirculate those model rules as quickly as possible after publication of today's notice. EPA encourages parties wishing to develop generic rules to use these new models and work closely with relevant Regional staff, so that potential problems may be promptly identified and resolved.

[47] Today's notice also requires bubble trades in certain primary nonattainment areas needing but lacking approved demonstrations to produce a "net air quality benefit," which shall consist at minimum of a 20% reduction in emissions remaining after application of the lower-of-actual-SIP-allowable-or-RACT-allowable emissions baselines to all sources involved in the bubble. See, e.g., Section II. B above. This requirement does not entail any modeling different than or in addition to the modeling approaches discussed above. It is merely intended to ensure that where appropriate levels of modeling indicate that prescribed baseline values are not sufficient to produce ambient equivalence, additional reductions which assure such equivalence, prior to the 20% net discount in baseline emissions, will be required.

[48] States and sources should, however, be aware that under current EPA guidance, such discretion is most likely to be exercised where a SIP-revision bubble has been formally proposed for approval at the state level and EPA staff have concluded that it appears approvable under current EPA policy. In these circumstances initiation of action to enforce pre-trade limits that would soon be replaced by a valid bubble reconfiguration would likely consume limited EPA enforcement resources to little environmental end.

EMISSIONS TRADING POLICY STATEMENT

I. Introduction: Basic Elements of Emissions Trading

This statement details EPA policy on emissions trading. It sets out conditions EPA considers necessary for emissions trades to satisfy the Clean Air Act. It also clarifies and otherwise makes final the Interim Policy proposed on April 7, 1982 (47 FR 15076). It is accompanied by a Technical Issues Document which elaborates and provides greater detail on principles set forth below. Finally, it addresses new issues, and incorporates certain additional safeguards as a result of past trading experience, to better assure the environmental integrity of future trades.

A. What is Emissions Trading?

Emissions trading consists of bubbles, netting, emission offsets, and emission reduction banking. These steps involve creation of surplus emission reductions at certain stacks, vents or similar sources of emissions and use of these emission reductions to meet or redefine pollution control requirements applicable to other emission sources. Such emissions trades can provide more flexibility to meet environmental requirements, and may therefore be used to reduce control costs and encourage faster compliance. Moreover, by developing "generic" trading rules (see Section III below) states[1] may be able to expedite bubble approvals by eliminating the need for case-by-case SIP revisions[2] and by providing more predictable approval criteria.

B. The Bubble

EPA's bubble lets *existing* plants (or groups of plants) increase emissions at one or more emission sources in exchange for compensating extra decreases in emissions at other emission sources. Approved bubbles give plant managers the ability to implement less costly ways of meeting air quality requirements. To be approvable, each bubble must produce results which are equivalent to or better than the baseline emission levels in terms of ambient impact and enforceability. Thus, bubbles should jeopardize neither ambient standards nor applicable PSD increments and visibility requirements. Under EPA's bubble, emission reductions from existing sources can not be used to meet technology-based requirements applicable to new or modified stationary sources.

This Policy Statement replaces EPA's original bubble policy (December 11, 1979; 44 FR 71779) and Interim Emissions Trading Policy (47 FR 15076). It tightens general bubble principles as well as requirements for bubbles in primary nonattainment areas which require but lack demonstrations of attainment, and requires bubbles in these areas to produce progress towards attainment, beyond equivalence to stringent emission limits. By specifying EPA's requirements for bubbles in all areas, this Policy Statement should make the development, review and approval of environmentally-sound bubbles more rapid and predictable.

C. Netting

Netting may exempt "modifications" of existing major sources from certain preconstruction permit requirements under New Source Review (NSR), so long as there is no net emissions increase within the major source or any such increase falls below significance levels.[3] By "netting out," the modification is not considered "major" and is therefore not subject to associated preconstruction permit requirements for major modifications under 40 CFR 51.18, 51.24, 52.21, 52.24, 52.27, or 52.28. The modification must nevertheless meet applicable new source performance standards (NSPS), national emissions standards for hazardous air pollutants (NESHAPs), preconstruction applicability review requirements under 40 CFR 51.18(a)-(h) and (l), and SIP requirements.

Netting's scope is determined by the definition of "source" for review of major modifications. In general, PSD areas use a single, plantwide definition, allowing actual emission reductions anywhere in a contiguous plant to compensate for potential emission increases at individual emitting units within the plant. Nonattainment areas can choose either this single, plantwide definition or a dual definition, so long as the definition selected does not interfere with attainment and maintenance of NAAQS and is consistent with progress towards attainment. Under the plantwide definition, significant net actual increases at the plant as a whole will trigger new source review. Under the dual definition, significant increases at either the plant as a whole or individual emitting units will trigger new source review.

In addition to these federal definitions for major new sources and modifications, state preconstruction permits for major or minor new sources and modifications may be required under 40 CFR 51.18(a), and some states preclude netting.

D. Emission Offsets

In *nonattainment* areas, major new stationary sources and major modifications are subject to a preconstruction permit requirement that they secure sufficient surplus emission reductions to more than "offset" their emissions. This requirement is designed to allow industrial growth in nonattainment areas without interfering with attainment and maintenance of ambient air quality standards. It is currently implemented through SIP regulations adopted by states to meet the requirements of 40 CFR 51.18(j).

In *attainment* areas, some new sources and modifications might not otherwise be able to be constructed because their emissions would result in

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[1] "States" includes any entity properly delegated authority to administer relevant parts of a State Implementation Plan (SIP) under the Clean Air Act.

[2] "Case-by-case SIP revision" means case-by-case approval by EPA as a SIP revision. This is the traditional mechanism by which bubbles and other SIP changes have been approved by EPA.

[3] See, e.g., 40 CFR 51.18(j)(1)(x), 51.24(b)(23), 52.21(b)(23). See also today's Technical Issues Document, n. 47 and accompanying text.

On November 7, 1986, EPA restructured CFR Part 51 and renumbered many of that Part's sections (51 FR 40656). Because most readers will be more familiar with prior designations, today's notice contains citations based on the organization of Part 51 as it existed before this restructuring. Interested parties may use Appendix F of today's Technical Issues Document to convert today's Part 51 citations to the corresponding new ones.

an exceedance of the applicable PSD increment or ambient air quality standard, would significantly contribute to a violation of an ambient air quality standard in a designated primary nonattainment area, or would significantly contribute to visibility impairment in a Federal Class I area. These sources may use emissions offsets to allow desired growth while protecting that increment, standard, or visibility.

E. Emission Reduction Banking

Firms may store qualified emission reduction credits (ERCs) in EPA-approvable banks for later use in bubble, offset or netting transactions. Depending on the bank's rules, banked ERCs may also be sold or transferred to other firms which seek to meet certain regulatory requirements by use of emissions trades.

EPA's revised Offset Ruling (40 CFR Part 51, Appendix S) allows states to establish banking rules as part of their SIPs. This Policy Statement and accompanying Technical Issues Document detail the necessary components of a complete state banking rule approvable under the Clean Air Act. While many areas also allow banking of emission reductions for various purposes through various formal or informal banking mechanisms, banks which do not meet today's criteria (e.g., by not making banked emission reductions enforceable by the state by the time the reductions are actually banked, or by not assuring that deposits are taken explicitly into account for SIP planning purposes) cannot qualify emission reductions as ERCs, and may offer substantially less protection in the event of future SIP corrections or changes in ambient attainment status.

F. Generic Trading Rules

Generic rules adopted as part of the SIP can authorize states to approve certain types of individual transactions without the need for case-by-case SIP revisions or associated federal review prior to approval. The first state generic bubble rule was approved by EPA April 6, 1981 (46 FR 20551). For the current scope of permissible rules, see Section III below.

G. Effect of This Policy Statement

Emissions trading is largely voluntary: no source is required to trade, and no state is required by EPA to approve a particular trade or to adopt a generic rule. Trading merely offers states and stationary sources alternative ways to meet regulatory requirements. For example, states are free to adopt generic rules or continue to implement trades as individual SIP revisions. They may adopt rules which incorporate all or any combination of the above trading approaches.[4]

This Policy Statement is accompanied by a Technical Issues Document for use by states and industry in further understanding emissions trading. The Document offers elaboration and important detail on requirements and available options under the Clean Air Act.

This notice reflects the current Clean Air Act and existing EPA regulations. A policy statement cannot legally alter such requirements. However, this notice establishes EPA policy in areas not governed by applicable regulations and sets out general principles which may help states and industry apply those regulations in individual cases. Federal or state rulemaking in response to, e.g., future litigation or changes in ambient standards, attainment status, or SIP validity, may affect states or firms that plan to engage or have engaged in emissions trading activities.

Nothing in today's notice alters EPA new source review requirements or exempts owners or operators of stationary sources from compliance with applicable preconstruction permit regulations in accord with 40 CFR 51.18, 51.24, 51.307, 52.21, 52.24, 52.27, and 52.28. Interested parties should, however, be aware that bubble trades are not subject to preconstruction review or regulations where these trades do not involve construction, reconstruction, or modification of a source.

EPA intends to apply changes made by today's policy prospectively (e.g., not to actions which have already been approved as case-by-case SIP revisions or under generic rules). If, however, ambient violations are discovered in an area where EPA has approved a trade, or if other violations of Clean Air Act requirements are discovered in that area, sources involved in the trade should be aware that they are potentially subject to requirements for additional emission reductions, just as are all other sources in the area.

This policy requires that substantial additional reductions (at least 20%) in emissions remaining beyond applicable baselines be produced by future bubbles in primary nonattainment areas which require but lack approved demonstrations of attainment. However, applications for bubbles in such areas which are still pending at EPA without formal action under the 1982 policy, or which were previously submitted to EPA Regions under the 1982 policy but not accepted for evaluation, will be reexamined and processed for approval if they meet the requirements of the 1982 policy and contribute to progress towards attainment. "Progress towards attainment" means some extra reduction beyond equivalence to a lowest-of-actual-SIP-allowable-or-RACT-allowable emissions baseline, with this baseline applied as of the time applicants originally sought credit. Pending bubbles in attainment areas and nonattainment areas with approved demonstrations of attainment will be processed for approval if they meet the requirements of the 1982 policy and show that ambient standards, PSD increments and visibility will not be jeopardized.

For further discussion on pending bubbles see Section I.A.1.b.(4) of the Technical Issues Document.[5]

II. Requirements for Creating, Using, or Banking Emission Reduction Credits[6]

A. Creating Emission Reduction Credits

Emission reduction credits (ERC's) are the common currency of all trading activity. ERCs may be created by reductions from either stationary, area, or mobile sources. To assure that emissions trades do not contravene relevant requirements of the Clean Air Act, only reductions which are *surplus, enforceable, permanent*, and *quantifiable* can qualify as ERCs and be banked or used in an emissions trade.

[4] Some requirements underlying emissions trading are not voluntary. For example, construction of a major new source or major modification in a nonattainment area requires sufficient existing-source reductions to constitute "reasonable progress toward attainment" despite the new emissions (40 CFR 51.18(j); Part 51, Appendix S). However, where the area has an established "growth margin" of extra reductions in a SIP which is currently approved by EPA, the state may provide the offsets from that growth margin rather than require them from the source, so long as it reduces the margin accordingly. See Clean Air Act section 173(1)(A) and (B).

[5] EPA encourages states or sources which submitted bubbles that were returned without evaluation by EPA to resubmit them under these criteria, provided they can document (a) formal timely submittal of an application to EPA in accord with normal EPA procedures and (b) that the application was returned without evaluation, rather than rejected for failure to meet the terms of the 1982 policy. Bubble applications which were accepted for evaluation but rejected for failure to meet the 1982 policy will be treated as new applications under today's notice.

[6] Because this Policy Statement and accompanying Technical Issues Document reflect general Clean Air Act principles, states, individual sources, or commenters on specific rulemaking actions are free to show that a general principle does not apply to particular circumstances or could be satisfied using approaches other than those described. States, sources and commenters have this option under current law, and nothing in this Policy Statement or the Technical Issues Document restricts their opportunity to make such showings.

1. *Surplus.* At minimum, only emission reductions not required by current regulations in the SIP, not already relied on for SIP planning purposes, and not used by the source to meet any other regulatory requirement, can be considered surplus. To determine the quantity of emission reductions that are surplus, the state must first establish an appropriate emissions baseline from which surplus reductions can be calculated. Baseline emissions for any source are the product of three factors—emission rate, capacity utilization, and hours of operation.[7]

In attainment areas, the lower of actual or allowable values must generally be used for each of these baseline factors. However, allowable values for one or more of these factors, when higher than actual values, may be used in calculating the baseline emissions, provided those values are shown to be used or reflected in an approved demonstration.[8] The burden of meeting this test by written evidence rests with the state or applicant which seeks to use an allowable value.

When allowable values for one or more baseline factors are not used or reflected in an approved demonstration, such values may still be used in calculating baseline emissions. However, in such cases applicants must perform appropriate modeling to demonstrate that allowable values which are higher than actual values will not delay or jeopardize attainment and maintenance of ambient standards.[9]

In attainment areas where the PSD baseline has been triggered, credit may be granted consistent with the PSD baseline concentration as specified in 40 CFR 51.24(b)(13) and 52.21(b)(13). This will generally require use of actual values for each of the baseline factors. *However,* states may use allowable values if they show through appropriate modeling [10] that attainment and maintenance of neither the ambient standards nor applicable PSD increments will be jeopardized, and quantify the amount of increment consumed.

In nonattainment areas with approved demonstrations of attainment, the baseline must be consistent with assumptions used to develop the area's demonstration. This generally means that actual values must be used for each baseline factor where actual values were used for such demonstrations, and that higher allowable values for these factors may be used where allowable values were used for such demonstrations.[11] The burden of showing that an allowable value was used or reflected in the approved demonstration rests with the state or applicant which seeks to use an allowable value. In the absence of written evidence to that effect, full Level III modeling would be required to make use of an allowable value in baseline calculations.[12]

In primary nonattainment areas which need but lack approved demonstrations of attainment, states must show that bubbles meet special "progress" requirements designed to produce a net air quality benefit. This must be demonstrated by (1) using the lowest-of-actual-SIP-allowable-or-RACT-allowable emissions baseline for each source involved in the trade; [13] (2) meeting the ambient equivalence tests outlined in sections II.B.2 of this Policy and I.B.1.b. of the Technical Issues Document; and then (3) producing a substantial net reduction in actual emissions (i.e., a reduction of at least 20% in the emissions remaining after application of the baseline specified above). The state must also provide assurances that the bubble is consistent with ambient progress and future air quality planning goals.[14]

2. *Enforceable.* To assure that Clean Air Act requirements are met, each transaction which revises any emission limit upward must be approved by the state and be federally enforceable. Means of making emission limits federally enforceable include SIP revisions (see section IV below), EPA-approved generic bubble rules (see Section III below), and new source preconstruction permits issued by states under EPA-approved SIP regulations pursuant to provisions of 40 CFR 51.18, 51.24, or 51.307, as well as construction permits issued by EPA or delegated states under 52.21.[15] Bubbles should be incorporated in an enforceable compliance instrument which requires recordkeeping based on the averaging period over which the bubble is operating, so it may easily be determined over any single averaging period that bubble limits are being met.

3. *Permanent.* Only permanent reductions in emissions can qualify for credit. Permanence may generally be assured by requiring federally enforceable changes in source permits or applicable state regulations to reflect a reduced level of allowable emissions.

4. *Quantifiable.* Emission reductions must be quantifiable both in terms of *estimating* the amount of the reduction and *characterizing* that reduction for future use. Quantification may be based on emission factors, stack tests, monitored values, operating rates and averaging times, process or production inputs, modeling, or other reasonable measurement practices. The same method of calculating emissions should generally be used to quantify emission levels both before and after the reduction.

B. Using Emission Reduction Credits

ERCs may be used by sources in bubble, offset or netting transactions. The general principles below will assure

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[7] For further discussion of these factors as they relate to baseline calculations, see Appendix B of the Technical Issues Document.

[8] This statement does not apply to netting, where "contemporaneous" actual emissions are always the baseline. See, e.g., 40 CFR 51.24(b)(3).

Bubbles in areas with demonstrations based only on qualitative judgments (e.g., the "example region" approach or no technical support) ordinarily may not rely, without appropriate modeling, on allowable values in calculating baseline emissions. However, bubbles in areas with demonstrations based on rollback or dispersion modeling may use allowable values that are reflected in the demonstration. In certain circumstances an allowable baseline value specified in a preconstruction permit may be deemed equivalent to one used or reflected in an approved demonstration. See Technical Issues Document, n. 7.

For further definition of "actual" and "allowable" see today's Technical Issues Document, Section I.A.1.a. and Appendix B.

[9] This demonstration would require a Level II modeling analysis, in accord with the modeling screen discussed below, using actual emissions for the pre-bubble case, unless, *for bubbles processed as case-by-case SIP revisions,* the Region *determines that additional technical support is needed to protect applicable standards or increments. For discussion of Level II modeling, see* Technical Issues Document, section I.B.1.b.(3). For *further discussion of additional technical support* which Regions may require in these circumstances, *see Technical Issues Document,* Section I.A.1.a. For a discussion of parallel modeling requirements for use of such higher allowable values in attainment areas under *generic rules,* see Technical Issues Document, n.31.

[10] See n.9 above.

[11] For netting, "contemporaneous" actual emissions are always the baseline. See, e.g., 40 CFR 51.18(j)(1)(vi).

[12] For further discussion of Level III modeling, see Technical Issues Document, section I.B.1.b(4).

[13] For purposes of today's notice, the "lowest-of-actual-SIP-allowable-or-RACT-allowable" emissions baseline means the product of (1) the lowest of the actual emission rate, the SIP or other federally enforceable emission limit, or a RACT emission limit, and (2) the lower of actual or allowable capacity utilization and hours of operation. For further discussion of this baseline, see Appendix B of today's Technical Issues Document.

[14] The specific assurances may be found in the Technical Issues Document at I.A.1.b.(3). EPA will not second-guess such state assurances, provided they are: (1) A substantial test applied by the state to each bubble, and (2) the state has explained how the proposed bubble is consistent with the area's projected attainment strategy. This authority has not been delegated with EPA. See Clean Air Act section 301(a)(1), 42 U.S.C. 7601(a)(1).

[15] EPA is also considering generic steps which would make state operating permits federally enforceable. Prior to use, *banked* credits need not be made federally enforceable. See Section II.C. below.

that all uses of ERCs are consistent with ambient attainment and maintenance considerations under the Clean Air Act. They are further articulated in the accompanying Technical Issues Document.

1. *Emissions trades must involve the same criteria pollutant.* An emission reduction may only be traded against an increase in the same criteria pollutant. For example, only reductions of SO_2 can be substituted for increases of SO_2.

2. *All uses of ERCs must satisfy applicable ambient tests.* The Clean Air Act requires that all areas throughout the country attain and maintain national ambient air quality standards and meet applicable ambient requirements relating to PSD increments and Class I protection, including visibility. The ambient effect of a trade depends on the dispersion characteristics of the pollutant involved. With the exception of visibility for NO_x, dispersion considerations will generally not affect trades involving VOC or NO_x, whose impacts occur across broad geographic areas. For these pollutants "pound for pound" trades may be treated as equal in ambient effect where all sources involved in the trade are located in the same control strategy demonstration area, or where the state otherwise shows such sources to be sufficiently close that a "pound for pound" trade can be justified. However, dispersion characteristics are important for bubble and offset trades of SO_2, particulates, CO, or lead, whose ambient impact may vary with where the emission increases and decreases occur. To assure ambient equivalence, such trades of these pollutants must satisfy ambient tests under the modeling screen discussed in the Technical Issues Document or under a similar, equally effective approach.[16]

[16] For similar reasons, bubbles of these pollutants must involve sources which are in the same or adjacent control strategy demonstration areas within the same general air basin.

See section II.A.1. above and Technical Issues Document, Section I.A.1.a regarding additional technical support required for certain trades in attainment areas.

While bubbles in primary nonattainment areas which need but lack approved demonstrations of attainment must produce a net air quality benefit, this does not entail additional ambient tests. Such bubbles must first meet the general tests under the modeling screen showing ambient equivalence for bubbles, prior to producing the required additional reductions. They must then produce additional reductions of at least 20% beyond the applicable baseline emissions used to demonstrate ambient equivalence. Since these additional reductions will necessarily reduce ambient concentrations below equivalence at some receptors, while continuing to meet the tests for ambient equivalence at all others, a net air quality benefit should occur and no additional ambient showings, beyond those generally required for all bubbles, are required.

3. *Bubbles must not increase hazardous pollutants.* Bubbles may not be used to meet applicable requirements of National Emissions Standards for Hazardous Air Pollutants (NESHAPs) promulgated under section 112 of the Clean Air Act, to increase emissions at any source beyond the levels applicable NESHAPs prescribe, or to create any net increase in baseline emissions of a pollutant regulated under section 112. The applicable baseline for regulated sources is the lower of actual or NESHAPs-allowable emissions of the hazardous pollutant.

Where a NESHAP has been *proposed* but not yet promulgated for a source category which emits a pollutant listed under section 112, the proposal will serve as an interim guideline for evaluating the effects of any proposed emissions trade involving a source that would be subject to the proposed standard. In general, such trades will be approvable with respect to the emissions component of the trade subject to the proposal, so long as they result in emission limits at each source emitting the relevant pollutant which are equivalent to or lower than those the proposed NESHAP would have required if already promulgated.[17]

Where a pollutant has been *listed* under section 112 or where EPA has published a Notice-of-Intent-to-List but no regulations for the source category involved in the trade have yet been proposed or promulgated, the trade will generally be acceptable with respect to the emissions component of the trade subject to notice or listing, if there is no net increase in actual emissions of that pollutant as a result of the trade.[18]

Any trade involving sources or source categories subject to the preceding subparagraphs must take place within a single plant or contiguous plants, and must credit only reductions below current actual or NESHAPs—allowable emissions, whichever is lower. But cf. generally n. 6 above and today's Technical Issues Document, section I.B.1.d.

Trades which do not meet the special restrictions discussed in this section may also be approved where surplus reductions in the pollutants addressed above compensate for increases in non-hazardous emissions of the same criteria pollutant (e.g., benzene, a hazardous VOC, is reduced to create credits for a increase in non-hazardous VOC emissions.) As long as such a trade would not result in an increase in either actual or allowable emissions of a pollutant subject to the preceding paragraphs at any source, it would not differ in nature or requirements from a trade involving only nonhazardous VOC emissions.

[17] The allowable emission rate for a source subject to a proposed NESHAP is the limit stipulated in the proposal.

[18] Where EPA has issued a "Notice-of-Intent-Not-to-Regulate" one or more source categories for a listed pollutant, emissions of that pollutant from the unregulated source category will nevertheless be treated the same as emissions of any other listed pollutant. Under limited circumstances, similar treatment will be given to pollutants for which a "Notice-of-Intent-Not-to-List" has been published. See the Technical Issues Document, section I.B.1.d.

4. *ERCs from existing sources cannot be used to meet technology-based requirements applicable to new sources.* Under Clean Air Act section 111 and EPA implementing regulations, new affected facilities must satisfy technology-based New Source Performance Standards (NSPS), regardless of the attainment status of the area in which they are located. Under sections 165 and 173 and EPA implementing regulations, new or modified major stationary sources must also satisfy technology-based control obligations associated with pre-construction permits. These requirements prohibit use of credits from existing sources to meet or avoid applicable NSPS, and bar use of such credits to meet applicable new source review requirements for best available control technology (BACT) in PSD areas or lowest achievable emission rate control technology (LAER) in nonattainment areas.[19]

5. *States may approve bubbles in primary nonattainment areas which require but lack approved demonstrations of attainment,* provided such trades meet requirements designed to produce a net air quality benefit and the state provides certain assurances. See section II.A.1. above and the Technical Issues Document, section I.A.1.b. Bubbles which meet these objective requirements will be processed for approval by EPA.

6. *Sources need not be subject to binding compliance schedules based on current SIP requirements* before they can apply for a bubble which would supersede those requirements. Sources that are *already* subject to binding compliance schedules should be aware, however, that such schedules remain fully enforceable until a bubble affecting the schedule has been approved by EPA or under a state generic rule and the

[19] But cf. sections I.C. and I.D. above.

Today's notice does not address whether or under what circumstances facilities subject to NSPS, BACT or LAER may surpass applicable permit limits reflecting such requirements in order to create credits for existing-source trades.

schedule has been modified accordingly. Sources subject to compliance schedules in administrative orders or judicial decrees must obtain prior approval from EPA or the relevant court, as appropriate, to be relieved from the schedule contained in the order or decree. Sources that are subject to SIP requirements remain responsible for meeting those requirements unless and until a bubble has become effective under Federal law. See section II.B.12 below.

7. States may extend certain compliance schedules. States may no longer grant compliance extensions under new or revised generic rules in *nonattainment areas*, whether or not such areas have demonstrations.[20] However, states may continue to grant compliance date extensions under generic rules in *attainment areas*, provided EPA has approved the extension provisions of the generic rule as being adequate to comply with the Clean Air Act, including requirements for attainment and maintenance of ambient air quality standards.

States that wish to give sources in nonattainment areas, and sources in attainment areas for which there is no applicable generic SIP provision, more time to implement bubbles by granting compliance extensions, must receive EPA approval of the extensions through case-by-case SIP revisions. Requests for such compliance date extensions, whether in attainment or nonattainment areas, may be submitted to EPA together with bubbles, as part of a single SIP revision package. EPA will separately evaluate the time extension portion of these SIP revision packages in accord with the Agency's normal criteria for review of time extensions, including consistency with the Act's requirements for expeditiousness, reasonable further progress, and attainment and maintenance. Sources should be aware that disapproval of such time extension requests may result in disapproval of the entire package (i.e., both post-trade limits and the time extension) or only part of it, depending on whether the state views these components of the proposed SIP revision as separable.

8. States may approve bubbles involving open dust sources of particulate emissions, based on modeling demonstrations. Open dust trades may be approved through individual SIP revisions based on acceptable modeling and/or monitoring demonstrations, provided sources agree to post-approval monitoring to determine if predicted air quality results have been realized and make an enforceable commitment to achieve necessary additional reductions if predicted results do not materialize.

9. Trade involving lead. Unlike other criteria pollutants, EPA does not designate nonattainment areas for lead. However, the Regional Administrator will review lead trades, as all other trades, to assure that they do not interfere with attainment and maintenance of NAAQS.

10. Trades involving ERCs from mobile source measures. ERCs from mobile source measures may be used to meet SIP requirements applicable to existing stationary sources, so long as such reductions are surplus, permanent, quantifiable, and enforceable. Reductions from certain types of mobile-source measures (e.g., mechanical conversion of existing vehicle fleets to cleaner fuels such as methanol) may satisfy these criteria more readily than those from other transport-related measures. However, due to possible difficulties in determining whether specific mobile-source reductions fully meet these criteria, all such trades must be implemented as case-by-case SIP revisions.

11. Interstate trades. Trades involving sources located in neighboring states may be approved, provided they meet all other requirements of today's notice. However, in order to avoid complex SIP accounting issues, where state trading requirements differ EPA will require that such trades meet the substantive requirements of the more stringent state. In general, EPA will deem ERCs created in one state to contribute to progress in the state where used to the extent of that use, provided that applicable ambient tests (section II.B.2 above) are met. Interstate trades must be implemented through case-by-case SIP revisions.

12. Bubbles must not impede enforcement. In general, bubbles are a form of SIP revision which should be treated neither more nor less stringently than other SIP revisions. Bubbles should not become a shield against enforcement actions for sources which have failed to take necessary steps to meet required control obligations on time.

Sources seeking trades should note that they remain subject to enforcement of existing (pre-trade) SIP limits until the bubble is approved. EPA will use the same principles and procedures for deciding whether to initiate enforcement actions in these circumstances as the Agency applies to any other source which is subject to a proposed or final SIP revision.

Under established EPA policy, regulated sources must be subject to an applicable, enforceable emission limit at all times. Accordingly, sources which have approved bubbles with emission limits effective at a future date, and which are not in compliance with their pre-trade limits prior to that effective date, may be subject to enforcement action, which could include penalties based on a failure to meet the pre-trade limits. Sources in these situations may wish to minimize the chance that capital expenditures may be required to meet pre-trade limits, either by (a) agreeing to post-trade compliance dates which are substantially similar to their pre-trade compliance dates, or (b) accelerating their compliance with post-trade limits.

In accord with the general principle that bubbles should be treated neither more nor less stringently than other SIP actions, implementation of this Policy Statement will be neutral with respect to EPA enforcement of pre-trade emission limits. This means that EPA will not specifically select for enforcement action noncompliant sources seeking to use a bubble either to come into compliance or to restructure traditional compliance. However, it also means that EPA will not withhold or defer enforcement simply because a source is seeking alternative emission limits through a bubble. In exercising its enforcement discretion, EPA will apply the same considerations to noncompliant sources which seek to comply through bubbles as to those which do not.

C. Banking Emission Reduction Credits

Only emission reductions that are surplus, permanent, quantifiable, and enforceable can qualify as ERCs and be deposited in EPA-approvable banks.[21] Such banks offer sources legal recognition that qualifying reductions meet these ERC requirements. However,

[20] Existing generic rules applicable to these areas must be revised to comport with this principle where they contain such generic extension provisions. EPA will publish Federal Register notices identifying any generic rules which require formal modification. Failure to resolve deficiencies identified in such a notice within the prescribed time period may result in EPA rescinding approval of the existing generic rule or issuing a notice of SIP deficiency. EPA expects states to ensure in the interim, so far as feasible, that compliance date extensions under existing generic rules are not granted to sources located in nonattainment areas. See section III below and section II.E.4. of the Technical Issues Document.

[21] Under today's notice emission reductions must be made enforceable *by the state* in order to qualify as ERCs and be deposited in EPA-approvable banks. However, because mere deposit of a reduction cannot result in emissions increases elsewhere, banked reductions need not be made federally enforceable until used.

the fact that an ERC has been banked does not relieve it from the need to meet all criteria of the specific regulatory program under which it is to be used.[32] Because some trades have special limitations (e.g., only reductions occurring at the same major stationary source can be used for netting), banks do not guarantee the validity or specific amount of particular banked ERCs for all potential uses or for all time. To provide maximun protection for the environment and sources and to avoid potential legal problems, state banking rules may specify the types of sources eligible to bank ERCs and any additional conditions placed on certifying, holding or using banked ERCs.

State banking rules may establish ownership rights. However, any such rights must be consistent with Clean Air Act requirements, including the requirement that SIPs provide for expenditious attainment and maintenance of ambient air quality standards and protect PSD increments and visibility. To be approvable by EPA, such banking rules must also treat banked reductions as current actual emissions "in the air" at the source of their creation, in order to protect the integrity of future air quality planning. Failure to track the ambient effects of such banked reductions (e.g. by not including them in a new or updated inventory used for SIP planning purposes, or by relying on those reductions to secure attainment redesignations) would ordinarily preclude their use as ERCs, due to double-counting. Nevertheless, states have considerable latitude in meeting these requirements, and may guarantee banked ERCs against full or partial reduction in quantity, so long as that guarantee does not undermine attainment redesignations or interfere with progress and attainment should ambient standards change or additional emission reductions be required. The Technical Issues Document, section I.C.9, outlines ways such guarantees may be made effective consistent with these requirements.

In many states, banking could be an extension of ongoing preconstruction permit activities. The state or its designee could accept and evaluate requests to certify an ERC, maintain a publicly-available ERC registry or similar instrument describing the quantity and types of banked credits, and track transfers and withdrawals of ERCs.

Because banked reductions do not increase emissions at any source, they need not be made federally enforceable until used. For administrative or other reasons states may, however, choose to make them federally enforceable upon deposit. How the state makes a reduction federally enforceable for banking will depend on the type of source at which the reduction occurs. In some states, reductions associated with other modifications at a source can be included in federally-enforceable preconstruction permits issued under rules approved pursuant to 40 CFR 51.18, 51.24 or 51.307. States with EPA-approved generic rules can use their rules' procedures to make reductions occurring at existing sources federally enforceable. See Section III below. Since these transactions involve only reductions, air quality modeling is generally not required to assure that new emission limits do not interfere with attainment and maintenance of ambient standards, protection of applicable PSD increments, or impairment of visibility in mandatory federal class I areas. Such reductions will automatically meet the generic rule's test of whether a particular limit is within EPA's preapproved array of acceptable emission limits.[33]

States without EPA-approved generic rules can adopt rules limited to banking transactions, or can use the standard SIP revision process to make reductions federally enforceable at existing sources. General state preconstruction permit or review programs that have received EPA approval may also be used for this purpose, since permits issued through such programs are federally enforceable. See 40 CFR 51.18; 51.24; 51.307.[34]

III. State Generic Trading Rules

Use of emission reduction credits under state regulations approved by EPA as generic for identified classes trades will not require individual SIP revisions for those trades. The Technical Issues Document explains acceptable generic procedures which states may adopt to reduce the need for individual SIP revisions.

Emissions trades can be approved without case-by-case SIP revisions if evaluated by the state under EPA-approved procedures which assure that no trade which meets their terms will interfere with timely attainment and maintenance of ambient standards, protection of applicable PSD increments, or visibility provisions. State generic rules are approvable only if their procedures are sufficiently replicable in operation to meet this test. By approving the generic rule, EPA approves in advance an array of SIP-compatible emission limits, and no further case-by-case Federal review or approval is required for individual trades which meet the terms of the rule.

In order to ensure that generic rules are properly implemented, EPA intends to (a) examine and comment on, together with any other public commenter, the information which must be provided for individual trades proposed by states under a generic r (b) conduct reviews of individual bubbles approved under a generic rule, and (c) periodically audit the general implementation of generic rules, as part of its National Air Audit System reviews of state air programs.[35]

Any trade under a generic rule will involve emission increases at some sources and extra emission decreases at others. For trades to be approvable under a generic rule, the sum of these increases and decreases (beyond

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[32] States may, however, expand opportunities for use of banked credits beyond those of current SIP programs (e.g., extend the "contemporaneous" period for netting), by submitting revised regulations addressing the banking and use of such credits, for approval as SIP revisions.

[33] Modeling will be necessary when a banked ERC is later evaluated for use in a trade, to the extent modeling is generally required for that particular type of emissions trade.

[34] In *primary nonattainment areas which need but lack approved demonstrations*, use for bubble purposes of banked credits produced by shutdowns or curtailments will continue to be allowed on the same terms as use of other banked credits, provided their use is subject to stringent qualitative review to assure technical, legal and programmatic consistency with SIP planning goals (e.g., avoidance of doublecounting or "shifting demand"). However sources which seek to use banked credits from shutdowns or curtailments for bubble purposes after publication of today's notice must show that a written application was submitted to make the shutdown/curtailment state-enforceable through or concurrent with use of a formal bank or informal banking mechanism, prior to the time the shutdown/curtailment occurred. For sources which banked or sought to bank credits from shutdowns or curtailments in these nonattainment areas prior to publication of today's notice, written evidence must be provided showing either that an application to deposit the credits in a formal bank was submitted to the state prior to the time the shutdown/curtailment occurred, or that the state acknowledged, before or at the time the shutdown/curtailment occurred, both the existence of that shutdown/curtailment, and the source's intent to use the resulting credits in a future trade. For additional detail on banking and use of credits resulting from shutdowns or curtailments in these or other areas, see Technical Issues Document, Sections I.A.1.a.(3) and I.C.

[35] See, e.g., National Air Audit System Guidelines for FY 1984, Office of Air Quality Planning and Standards, EPA-450/2-83-007 (November 1983). State-approved generic trades that do not meet the terms of the relevant generic rule do not alter underlying SIP requirements, which remain fully enforceable. Generic rules found to be generally deficient in substance or implementation could ultimately result in notices of SIP deficiency or in rulemaking to rescind EPA's approval of the rule. For more detail on EPA oversight of generic rules see Technical Issues Document, Section II.E.

applicable net baseline emissions) must be zero or less. Subject to this requirement, states may adopt generic rules which exempt from individual SIP revisions: (1) *De minimis* trades where total increases in emissions from all increasing sources (which must be balanced by equal or greater emissions decreases from other sources) are less than 25 tons per year (TPY) of particulates, 40 TPY of SO_2, 100 TPY of CO, or 0.6 TPY of lead, after applicable control requirements; (2) large classes of trades involving VOC or NO_x emissions;[26] (3) trades between certain types of SO_2 sources, between certain types of CO sources, between certain types of stationary lead sources, or between certain types of particulate sources, for which it can reasonably be assumed that "pound for pound" trades will produce ambient effects equivalent to those which approved air quality models would predict; and (4) other SO_2, CO, Pb or particulate trades which do not increase baseline emissions and for which carefully defined modeling predicts no significant increase in ambient concentrations.

States and sources should, however, be aware that because of replicability problems inherent in modeling, generic rules which rely on preapproved procedures for modeled demonstrations of ambient equivalence may be difficult to draft or implement, and many trades may not be approvable under such rules. For these reasons generic rules covering only the first three classes of trades above will often prove easiest to secure. EPA encourages states to work closely with EPA Regional Offices to formulate and adopt approvable rules or develop alternative approaches that equally assure attainment and maintenance of ambient standards and protection of PSD increments and visibility. See Section II of the Technical Issues Document, which details criteria under which such generic rules may be approved.

To the extent general state procedures for rulemaking or permit changes do not assure reasonable public notice of proposed and final limits or effective opportunity for comment on proposed trades, states must incorporate such provisions in their generic rules.

In primary nonattainment areas which need but lack approved demonstrations, new generic rules must require, and existing generic rules must, as requested by EPA, be revised to require bubbles to use lowest-of-actual-SIP-allowable-or-RACT-allowable emissions baselines, and produce a net air quality benefit (as described below). New or revised generic rules in these nonattainment areas must be accompanied by certain assurances of consistency with air quality planning goals as well as a commitment to make certain additional assurances when the state approves individual bubbles under the rule. Bubbles approved under existing generic bubble rules before the effective date of this policy will not be affected by these requirements. Because EPA-approved state regulations have independent legal force, future bubbles submitted under existing generic rules may also be approved by states in accord with those rules, until such rules are modified to meet the criteria below.[27]

Existing generic rules in these areas must be modified to assure that bubbles produce an overall emission reduction at least equal (in percentage terms) to the overall emission reduction from controllable sources (in percentage terms) needed to attain in the area. Criteria for modifying generic rules are set forth in Section II.D. of the Technical Issues Document, including a requirement for a reduction equal to the greater of either the percentage reduction required for attainment, or a 20% reduction in emissions remaining after application of appropriate baselines. New and pending applications for generic bubble rules which meet these criteria will be processed for approval.

EPA will publish **Federal Register** notices identifying any generic rules applicable to these areas which require formal modification in order to meet the progress requirements above or other requirements of EPA's current Emissions Trading Policy. These notices will identify specific deficiences and means for correcting them, and will specify a schedule for submittal and review or modified rules. Failure to resolve deficiencies identified in these notices within the prescribed time period may result in EPA rescinding its previous approval or issuing a notice of SIP deficiency.[28]

IV. Bubbles Which Require Case-by-Case SIP Revisions

States and sources must use the case-by-case SIP revision process to implement bubbles which are not covered by a generic rule. Because the case-by-case SIP revision process can take account of many more individual variations, numerous trades which could not be accomplished through generic rules or similar means may still be approvable as case-by-case SIP revisions.

EPA will take action on generic rules and individual trades submitted as SIP revisions as quickly as circumstances permit after a state has adopted a SIP revision and submitted the action to EPA. EPA encourages "parallel processing" of such SIP revisions, with EPA and the state conducting concurrent review so that both agencies can propose and take final action at roughly the same time. EPA will also publish noncontroversial SIP revisions as immediate final actions, converting them to proposals only if requests to submit adverse comments are received within 30 days (see 46 FR 44477, September 4, 1981). In all bubble actions EPA will clearly identify (or require states to identify, as appropriate) both pre- and post-trade actual and allowable emissions for each source involved in the trade, so that the ambient effects of each bubble may be known.

V. Conclusion

This Policy Statement sets out basic principles for approving individual trades and generic trading rules. It tightens many requirements in order to better ensure SIP integrity and environmental progress, while offering ample opportunities for use of approvable, environmentally-sound trades. EPA encourages states and sources to use these principles as a framework and refer to the accompanying Technical Issues Document for further discussion and examples. EPA also encourages states to develop other approaches which satisfy these principles while meeting their specific needs.

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[26] Where visibility impairment due to elevated NO_x emissions is a concern, generic trades involving NO_x must ordinarily be subject to ambient requirements similar to those applicable to generic trades involving TSP, SO_2, CO or Pb.

[27] In the interim, EPA expects states to ensure, as far as feasible, that future bubbles approved under existing generic rules are consistent with this policy as well as the terms of their EPA-approved rules. States should be aware that without this or similar precautions, continued approval of bubbles under existing generic rules containing identified deficiencies may create or accentuate plan deficiencies that may have to be corrected at a later date or compensated for by other means. See section II.E.4. of the Technical Issues Document.

[28] Such notices may also be issued for existing generic rules in attainment areas and nonattainment areas with approved demonstrations, if these generic rules are found to require procedural revision in order to make them consistent with the current Emissions Trading Policy. See Technical Issues Document, section II.E.4.

EPA recognizes the additional timing burden which may be imposed on bubble applicants in areas where new generic rules cannot be or have not been developed to meet the specific air quality benefit requirements described above, and will attempt, so far as feasible, to ameliorate that burden in implementing this policy. See, e.g., n.6 and section II-B-12, above and related Preamble discussion, at n.48 and accompanying text.

As a policy statement, this notice does not establish conclusively how EPA will resolve issues in individual cases. EPA will accept public comment on specific SIP changes submitted under it, and will review individually each generic rule and those emissions trades submitted as SIP revisions to determine their acceptability under the Clean Air Act. Interested parties will have full opportunity to scrutinize application of these principles in specific cases, and to seek subsequent judicial review of such cases after EPA has taken final action on particular trades or generic rules.

Dated: November 18, 1986.

Lee M. Thomas,

Administrator.

Emissions, Trading: Technical Issues Document

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EMISSIONS TRADING: TECHNICAL ISSUES DOCUMENT

This Document offers more detail on technical issues for firms and pollution control agencies seeking to implement individual emissions trades or generic trading rules that meet the principles in EPA's final Emissions Trading Policy Statement. It describes both the legal requirements for emissions trades under the Clean Air Act, and a range of legal options which states [1] and sources may consider. States and firms may pursue other approaches consistent with those discussed here.

Section I of this Document explains general principles governing all emissions trading. Section II explains principles governing state generic rules. Section III discusses special considerations for emissions trades which must be implemented as case-b case SIP revisions.

Because these sections reflect gen Clean Air Act principles, states, individual sources or public commenters remain free to show that a general principle does not apply to particular circumstances or can be satisfied using another approach. States, sources and commenters have this option under current law, and nothing in the Policy Statement or this Document restricts their opportunity to make such showings.

Nothing in today's notice alters EPA new source review requirements or exempts owners or operators of stationary sources from compliance with applicable preconstruction permit regulations in accordance with 40 CFR 51.18, 51.24, 51.307, 52.21, 52.24, 52.27, and 52.28. Interested parties should, however, be aware that bubble trades are not subject to preconstruction review or regulations where these trades do not involve construction, reconstruction or modification of a source within the meaning of those terms in the regulations listed above.

[1] "States" includes any entity properly delegated authority to administer relevant parts of a State Implementation Plan (SIP) under the Clean Air A

I. Elements Of Emissions Trading

The basic elements of any emissions trade are the *creation* of an emission reduction credit (ERC), its *use* in a trade and its possible *storage* in a bank prior to use.

A. Creating Emission Reduction Credits

States may grant credit only for those emission reductions that are surplus, enforceable, permanent, and quantifiable. Otherwise use of ERCs might degrade air quality, threaten the viability of the area's SIP, and make more stringent control requirements necessary.

1. All Reductions Must Be Surplus

At minimum, only emission reductions not required by current regulations in the SIP, not already relied on for SIP planning purposes, and not used by the source to meet any other regulatory requirement can be considered surplus and substituted for required reductions as part of an emissions trade.

The first step in qualifying a reduction as "surplus" is to establish a level of baseline emissions. This baseline represents the level of required emissions beyond which reductions must occur for a source to be eligible for credit. Three baseline factors—emission rate, capacity utilization, and hours of operation—must be used to compute and compare pre-trade and post-trade emission levels.[2]

The baseline for each source must be established both on an annual basis and for all other averaging periods consistent with the relevant NAAQS and PSD increments. This approach is necessary to protect the ambient standards and PSD increments on a short term as well as an annual basis. The baseline will generally be determined by the attainment status of the area,[3] by the way the state developed its SIP, and by whether the area is subject to PSD requirements.

a. Use of Actual or Allowable Emissions as the Baseline: Attainment Areas and Nonattainment Areas With Approved Demonstrations of Attainment (including rural ozone nonattainment areas). In attainment areas, baseline emissions must generally be calculated using the lower of actual or allowable values[4] for all three baseline factors. However, allowable values corresponding to one or more of these factors, when higher than corresponding actual values, may be used in calculating baseline emissions, provided those values are shown to be used or reflected in an approved demonstration.[5] The burden of meeting this test rests with the state or applicant. Where the State or applicant cannot show by written evidence[6] that the demonstration assumed an allowable value for a given baseline factor, appropriate modeling would be required in order to use an allowable value for that factor in calculating baseline emissions for the source.[7] This will require a Level II modeling analysis as specified in the modeling screen described below, using actual emissions for the pre-trade case, unless the appropriate EPA Regional Office ("the Region") determines that additional technical support is necessary to protect the NAAQS, PSD increments or visibility. Additional technical support may be necessary because crediting the difference between actual and allowable values for even one of these factors may produce a post-trade increase in actual emissions sufficient to jeopardize applicable standards, increments or visibility.

Additional technical support is not necessarily limited to determining the impact of the increases from the trade. The Region may require such additional technical support, up to and including full Level III modeling, as is necessary to assure that applicable NAAQS, PSD increments and visibility requirements will be protected. It may require the determination of background concentrations to which the impacts of possible emissions increases that would otherwise fall below Level II significance values must be added. Background concentrations should be determined in a manner consistent with EPA's *Guidelines on Air Quality Models*.

In attainment areas where the PSD baseline has been triggered, the trading baseline for a source must generally be computed using actual values for all three baseline factors (i.e., only reductions below a source's actual emissions can be considered surplus). Because 40 CFR 51.24 and 52.21 specify that increses in actual emissions occurring after the PSD baseline date consume PSD increment, any trades based on allowable emissions which would potentially increase actual emissions must perform at least a Level II modeling analysis using actual emissions for the pre-trade case, and provide additional technical support if deemed necessary by the Region, to demonstrate that they protect the relevant increment ceiling, NAAQS, and visibility.

In nonattainment areas with approved demonstrations, baseline emissions for a source may be calculated using either allowable values or actual values for the three baseline factors, depending on the assumptions used in developing the area's demonstration.[8]

Some states relied on allowable values for certain sources in developing their SO_2 and TSP attainment plans. In these nonattainment areas, sources may use allowable values in calculating baseline emissions, to the extent the state used or assumed those allowable values as the basis for its demonstration. The burden of showing that an allowable value was used or reflected in an approved demonstration rests with the state or applicant which seeks to use an allowable value.[9]

Other nonattainment areas either used inventories based on actual emissions, or relied on measured (and therefore "actual") ambient air quality values, as the primary basis for determining SIP emission limits needed

[2] For further discussion of these factors as they relate to the calculation of baseline emissions, see Appendix B.

[3] Unclassified areas are treated as attainment areas for permitting and emissions trading purposes.

Unlike other criteria pollutants, EPA does not designate nonattainment areas for lead. However, the Regional Administrator will review lead trades, as all other trades, to assure that they do not interfere with attainment and maintenance of the NAAQS.

[4] For the definition of "actual" and "allowable" values, and further discussion on calculation of baseline emissions, see Appendix B.

[5] This statement does not apply to netting, where "contemporaneous" actual emissions are always the baseline. See, e.g., 40 CFR 51.24(b)(3).

Bubbles in areas with demonstrations based solely on qualitative judgements (e.g., the "example region" approach or no technical support) ordinarily may not rely, without appropriate modeling, on allowable values in calculating baseline emissions. However, bubbles in areas with demonstrations based on rollbacks or dispersion modeling may use allowable values that are reflected in the demonstration.

[6] For example, the demonstration calculations themselves, accompanying materials, or affidavits from those who constructed the demonstration.

[7] In certain circumstances an allowable baseline value specified in a preconstruction permit will be deemed equivalent to one used or reflected in an approved demonstration. For example, a source in an *attainment* area where a PSD baseline has been triggered may use allowable values consistent with its preconstruction permit if that source's emissions are not reflected in the PSD ambient baseline concentration. (However, if modeling using allowable emissions predicts a PSD increment violation, than additional analyses must be done to assure that the PSD increment is protected.) A source in a *nonattainment* area may use allowable values consistent with its preconstruction permit to calculate its baseline, provided that permit post-dates the nonattainment designation, SIP call, design year, or basline inventory year, whichever is applicable.

[8] This statement does not apply to netting, where "contemporaneous" actual emissions are always the baseline. See, e.g., 40 CFR 51.18(j)(1)(vi). See also Appendix B for detailed discussion of "actual" and "allowable" emissions.

[9] See n. 6 and 7 above.

to demonstrate attainment. In some areas, SIP demonstrations were based merely on qualitative judgments (e.g., "example region" approaches). Baseline emissions for sources in all these other areas must generally be calculated using the lower of actual or allowable values for each baseline factor. However, states may approve, on a case-by-case basis, use of allowable values in calculating baseline emissions, where they explicitly demonstrate that such use comports with reasonable further progress and will neither create a new ambient violation nor delay the planned removal of an existing violation. Such demonstrations require full Level III modeling and must be submitted to EPA as case-by-case SIP revisions.

EPA deems designated *Rural Ozone Nonattainment Areas* to possess acceptable demonstrations of attainment provided they have an approved new source review rule and require RACT controls for all major VOC sources for which EPA has issued Control Technique Guidance (CTG) documents. (See, e.g., 43 FR 21673 (May 19, 1978)). Because these areas' nonattainment is generally caused by emissions from sources in a nearby urban area, control of emissions from that area is expected to bring the rural area into attainment. Put differently, EPA does not require rural areas to cure problems due to transport from pollution-generating areas which rural areas cannot control. However, EPA believes that further clarifications are required for bubbles in these areas.

Sources involved in such bubbles must use RACT emission limits in calculating baseline emissions, if subject to Group I or II CTGs under the EPA approved SIP for these areas. Sources subject to other SIP emission limits must use those limits in calculating baseline emissions. Other baseline factors must also be consistent with the applicable SIP requirements, and will generally be actual historical values. Where a source is not regulated by the EPA-approved SIP its baseline will be actual emissions in the year EPA approved the Part D plan for the affected rural area. In those approvals, EPA presumed that controls for sources in the upwind urban areas, as well as RACT on GTC sources in the rural area, would bring about attainment in the rural area, and that non-CTG sources in the area, unless regulated by the SIP, could continue to emit at actual, non-RACT levels without interfering with attainment in those areas. See also 43 FR 21673 (May 19, 1978).

b. Special Progress Requirements for Bubbles In Primary Nonattainment Areas Which Need But Lack Approved Demonstrations of Attainment. EPA will approve bubbles which are consistent with the attainment needs of these areas, which produce a net air quality benefit, and which therefore secure interim progress towards attainment.[10]

(1) *Objective Tests For All Applications.* Bubble applications in primary nonattainment areas which require but lack approved demonstrations of attainment will be deemed to produce a net air quality benefit and will be processed for approval if they:

(a) Use lowest-of-actual-SIP-allowable or RACT-allowable emissions baselines. Such baselines are calculated using either:

(i) The actual emission rate, the SIP or other federally enforceable emission limit; or the applicable RACT emission limit,[11] whichever is lower, to compute the baseline for each source involved in the trade. This baseline factor shall be determined as of the date of the source's application to bank or trade, whichever is earlier.

(ii) The lower of actual or allowable capacity utilization and hours of operation to compute the baseline for each source involved in the trade. Actual values shall generally be based on the two years of operation preceding the application to bank or trade, unless another two year period is shown to be more representative of actual operations. Sources which shut down prior to the application to bank or trade have zero emissions, and therefore no credit is available.

For sources which banked or sought to bank credit in these nonattainment areas prior to publication of today's notice, the "date of application to bank" is the date of written application to the states to bank credit through a formal bank or informal banking mechanism for use in future trades. For sources which seek to bank credit in these areas following publication of today's notice, the date of application to bank will be the date of written application to the state to *make a reduction state-enforceable* through or concurrent with use of a formal bank or informal banking mechanism.

(b) Using baseline emissions defined above, meet applicable *de minimis*, Level I, Level II or Level III modeling tests for ambient equivalence, as appropriate.

(c) Produce a substantial net reduc[tion] in actual emissions (i.e., a reduction of at least 20% in the emissions remaining after application of the baselines specified above).

(d) Are accompanied by the assurances of consistency with ambient progress and air quality planning goals specified in section I.A.1.b.(3) below.

(2) *Where These Special Progress Requirements Will Apply.* The following primary nonattainment areas need but lack approved demonstrations, and bubbles within them are therefore subject to the special progress requirements in section I.A.1.b.(1) above:

(a) Areas that are designated primary non-attainment areas under section 107 for the pollutant involved in the trade and which failed to submit a 1979 Part D attainment demonstration or which submitted one that has not yet received full EPA approval. This includes primary total suspended particulate (TSP) nonattainment areas which submitted a SIP that did not include an actual demonstration of attainment but still received EPA approval (i.e., a "RACT plus studies" SIP).

(b) Extension nonattainment areas which failed to submit a 1982 SIP demonstration, or which submitted one that has not yet received EPA approval. Also included are those ozone nonattainment areas that are unable to demonstrate attainment by 1987, unless a demonstration of attainment for the area is subsequently approved by EPA.

(c) Areas that have received either: (1) A section 110(a)(2)(H) notice of deficiency based on failure to attain or maintain the National Ambient Air Quality Standards (NAAQS), in the form of a SIP call or a new section 107 or 171(2) nonattainment designation; or (2) a notice of failure to implement an approved SIP.

(d) Areas which received notice from EPA that they have failed to meet conditions in their EPA-approved SIPs, including commitments to adopt particular regulations by specified dates. The one exception would occur where the only portion of the SIP (including the attainment demonstration) lacking full approval is the inspection/maintenance provision for mobile sources. In these circumstances, stationary-source bubbles will be treated as if the area had a fully approved SIP.

(e) Any area that does not have an EPA-approved or EPA-promulgated pl[an] for lead.

[10] While not all of today's new requirements for bubbles in these areas are strictly "baseline" matters, all basic requirements for these bubbles are set out here for simplicity. New requirements also apply to generic bubble rules in these areas. See Section II.D below.

[11] Where an emission limit for a source involved in the trade has not previously been approved by EPA as RACT, a baseline reflecting a negotiated RACT emission rate must be agreed upon by the source, state and EPA for the source in question.

(3) *State Assurances.* EPA will not approve a bubble in primary nonattainment areas needing but lacking approved demonstrations unless the state provides assurances that the proposed trade will be consistent with its efforts to attain the ambient standard. The state must make the following representations to the EPA Regional Office in or with the letter formally submitting the bubble as a revision to the SIP:

(a) The resulting emission limits are consistent with EPA requirements for ambient air quality progress, as specified in Section I.A.1.b.(1) above.

(b) The bubble emission limits will be included in any new SIP and associated control strategy demonstration.

(c) The bubble will not constrain the state or local agency's ability to obtain any additional emission reductions needed to expeditiously attain and maintain ambient air quality standards.

(d) The state or local agency is making reasonable efforts to develop a complete approvable SIP and intends to adhere to the schedule for such development (including dates for completion of emissions inventory and subsequent increments of progress) stated in or with the letter formally submitting the bubble or previous such letters.

(e) The baseline used to calculate the bubble emission limits is consistent with the baseline requirements in section I.A.1.b.(1) above.

These state assurances must be made in writing by the appropriate state or local authority (e.g., State Air Director, Air Pollution Control Board, or Legislative Committee). EPA will not second-guess such state representations, provided: (1) They are a substantial test applied by the state to each bubble, and (2) the state has explained how the proposed bubble is consistent with the area's projected attainment strategy. Nor will EPA examine, or expect states to examine in making such representations, any specific source's subjective motivation in making claimed reductions.

(4) *Treatment of Pending Bubble Applications.* "Pending bubbles" means those which are currently pending at EPA Regions or Headquarters, as well as any bubble applications which were formally submitted to EPA Regions under the 1982 policy but returned without action because final bubble criteria had not yet been issued. In primary nonattainment areas needing but lacking demonstrations, these bubbles should contribute to progress towards attainment. "Progress towards attainment" means some extra reduction beyond equivalence, with the lowest-of-actual-SIP-allowable-or-RACT-allowable emissions baseline applied as of the time applicants originally sought credit. In other areas these bubbles must show that applicable standards, increments, and visibility requirements will not be jeopardized. Pending bubbles which meet these tests and all other applicable requirements of the 1982 policy will be processed for approval.

Pending bubbles may undergo limited modification by the states or sources which submitted them in order to meet the new requirements outlined above (e.g., it may be necessary to recalculate the applicable baseline emissions of certain bubbles in nonattainment areas needing but lacking demonstrations and to reconfigure those bubbles in response to the reduced credit which may be allowed under the new more stringent requirements). However, pending bubbles which prior to final EPA approval are changed to the extent that they no longer reasonably resemble the original proposal qualifying for pending bubble status (e.g., those which are substantially expanded in scope or changed to involve primarily different sources of emission reduction credit), will be considered new bubbles subject to all of the requirements of today's notice.

Bubble applications which were submitted to EPA Regions by states, but which were withdrawn (or rejected) as inadequate under the 1982 policy, are not "pending." These bubbles, if reformulated and resubmitted, must meet all requirements of today's notice applicable to new bubble applications.

(c) *No Double-Counting of Reductions.* At minimum, to be considered surplus an emission reduction cannot already have been claimed as part of a demonstration or updated emission inventory by any state air quality plan or have been used by the source to meet any other regulatory requirement. Double-counting of reductions—granting credit for the same emission reduction, e.g., once to the state as part of its nonattainment SIP demonstration or PSD baseline, and a second time to a source for use in an emissions trade, must be addressed in the following situations.

(1) *Crediting Pre-Existing Emission Reductions.* In *nonattainment areas* credit generally cannot be granted for emission reductions made before monitoring data is or was collected for use in current SIP planning. Because monitored ambient levels *already* reflect these emission decreases, such decreases may have been assumed in calculating the further reductions needed to attain ambient standards. States must clearly show that the existence of these reductions has been accounted for in their calculations in order to gain credit for these reductions.

States should also clearly identify the inventory baseline date before which reductions will not qualify for credit. The earliest acceptable baseline date would normally be the year of the most recent emissions inventory used in planning Part D SIP revisions under the Clean Air Act Amendments of 1977.[12] Where emissions inventories or other data are updated for tracking RFP and correction of Part D SIPs, the new inventories must treat banked emissions reductions as current actual emissions "in the air" at the source where created, so that corrected SIPs do not inadvertently rely on these prior reductions and cause them to be lost for use. If inventories do not treat these banked emissions as "in the air," or if they are otherwise relied upon for SIP planning purposes, such reductions can no longer be credited for trading.[13]

In primary nonattainment areas which need but lack approved demonstrations of attainment, emission reductions achieved prior to application to bank or trade (whichever is earlier) will not be credited for use in bubbles. See section I.A.1.b.(1) above. Regardless of whether they meet other baseline tests, such reductions were not reasonably elicited by the opportunity to trade in a practical, objective sense determined by timing, and cannot be used to meet existing-source SIP requirements absent a demonstration.[14]

In attainment areas, reductions at *major stationary sources* which commenced construction after January 1, 1975 may be able to qualify for credit whether such reductions occurred before or after the PSD baseline triggering date. See 40 CFR 51.24(b)(13)(ii) (45 FR 52719-20; August 7, 1980). Other emission reductions (e.g., at minor sources) cannot qualify for credit where the PSD baseline date *is or has been triggered* and such reductions occurred prior to the trigger date, unless these reductions are not assumed in the PSD baselines. Since banked emission

[12] For baselines and base year dates in rural ozone nonattainment areas, see section I.A.1.a. above.

[13] In order to help avoid such results, states may wish to make sources responsible to report banked emission reductions when responding to the states' inventory reporting requirements.

[14] In all nonattainment areas, emission reductions achieved by shutting down or permanently curtailing an existing source prior to application for a new source permit cannot generally be used as offsets. See 40 CFR 51.18(j)(3)(ii)(c). EPA proposed on August 25, 1983 to remove this restriction. See 48 FR 38742, 38753. However, it remains in effect unless and until EPA takes final action on that proposal.

reduction credits must be considered to be "in the air" for all planning purposes, if the baseline date is triggered before banked credits are actually used, such banked credits will be considered as part of the baseline and will not consume increment when used in an emissions trade.

In attainment areas where the PSD baseline has not been triggered as of the date EPA or the permitting authority takes relevant final action on the trading transaction, reductions below current SIP or permit limits generally may be used without special restrictions in bubble or banking transactions, provided they are otherwise creditable and there is assurance that NAAQS will not be violated due to any potential increase in actual emissions.[15]

(2) *Crediting Reductions From Shutdowns.* Shutdowns are generally treated for purposes of emissions trading like any other type of emissions reduction.[16] For example, the same limitations on pre-existing reductions (section I.A.1.c.(1), above) apply to shutdowns where they apply to any other type of emissions reduction. However, under current federal New Source Review requirements for major sources, shutdowns that occur prior to application for a new source permit can be used as offsets only for equipment replacing on-site productive capacity which was shut down.[17]

Shutdowns are of general concern with respect to double-counting where a state may have relied directly or indirectly on shutdowns in a SIP demonstration of attainment. (Where a primary nonattainment area needs but lacks an approved demonstration of attainment, the progress requirements of subsection I.A.1.b. above apply to bubbles involving shutdowns as well as to bubbles involving other types of emission reductions. These requirements generally bar use of reductions from shutdowns which occurred before application to bank or trade.)

In general, a state may credit reductions from shutdowns if the SIP has not already assumed credit for these reductions in its attainment strategy. So long as reductions from shutdowns have not already been counted in developing an area's attainment strategy, they are a potential source of surplus reductions.

Some SIPs assumed a set quantity of reductions from the overall difference in emissions due to new plant openings and existing plant shutdowns. These SIPs incorporated into their attainment strategy a net "turnover" reduction in emissions because new sources are generally cleaner than those that shut down. Double-counting would occur if a specific source received credit for reductions from such a shutdown, since that reduction was already assumed in the SIP's demonstration of attainment.

These states have at least two options for granting sources credit for shutdowns without this kind of double-counting. First, they may reexamine any "turnover" reductions relied on in their SIP and decide not to take credit for these reductions. This approach would require EPA approval of a revised demonstration of attainment or a SIP revision showing consistency with the existing demonstration. Such an action can be processed by EPA concurrently with a bubble or generic rule. Alternatively, these states may allow credit only after the total quantity of shutdown reductions relied on in the SIP has occurred.

In all cases where net turnover reductions have been quantified and relied on as part of attainment demonstrations, states which seek to grant shutdown credit for use in trading must be prepared to show clearly and unequivocally on the basis of SIP documents or tracking that the credit has not been double-counted or otherwise relied on for SIP planning purposes.

(3) *Use of Banked Credits From Shutdowns or Other Actions for Bubble Purposes.*[18] In primary nonattainment areas which need but lack approved demonstrations, ERCs intended for bubble purposes may generally be banked and used with the same lowest-of-actual-SIP-allowable-or-RACT-allowable baseline used for other bubble transactions.[19] This baseline should be applied as of the time banked credit is or was initially sought, with the 20% reduction applied to both sources in the trade if these credits are later used for bubbles. The lowest-of-actual-SIP-allowable-or-RACT-allowable baseline plus the 20% discount will also apply to the source using that credit in a bubble, as of the time of such subsequent bubble application.

Banked credits produced by *shutdowns and curtailments* may be used for bubbles in these areas on same terms as use of other banked credits, provided their use is subject to stringent qualitative review to assure technical, legal, and programmatic consistency with SIP planning goals (e.g., avoidance of double-counting and "shifting demand"). This review will not examine any source's motivation in shutting down a facility or curtailing production. However, the source must show that a written application was submitted to make the shutdown/curtailment state-enforceable through or concurrent with use of a formal bank or informal banking mechanism, prior to the time the shutdown/curtailment occurred. Submittal of such an application to make proposed reduction from a shutdown or curtailment state-enforceable will constitute the relevant definition of "application to bank" for timing purposes related to the evaluation of bubble credits in these nonattainment areas (see section I.A.1.b(1) above).[20] The shutdown/curtailment must be made *federally* enforcement when it is used in a bubble.

Use for bubble purposes of *nonbanked* credits resulting from current shutdowns or curtailments will be allowed in these areas if the lowest-of-actual-SIP-allowable-or-RACT-allowable baseline plus the 20% additional reduction are applied to determine the amount of credit.

No special baseline or additional reduction requirements will apply to these credits in other areas.

d. Multiple Use of ERCs. Once surplus reductions are credited, states must prohibit their multiple use. The same pound of reduction must not be simultaneously banked by two different entities or used to satisfy two different regulatory requirements at the same time. To prevent these results, states must adopt an ERC registry or equivalent means of accounting for the creation, banking, transfer, or use of ERCs. See Section I.C.6 below. States must also ensure that past reductions used in bubble, netting or offset transactions are not later credited in newly-established banks.

[15] However, reductions at sources other than major stationary sources on which construction commenced before January 1, 1975 may not be used to balance increases at such pre-1975 major sources.

[16] For use of banked shutdown credits for bubbles in primary nonattainment areas needing but lacking approved demonstrations, see section I.A.1.c(3) below.

[17] See n. 14 above.

[18] ERCs used for *netting* and *offset* purposes (including those derived from banks) must comply with relevant NSR and PSD requirements.

[19] For further discussion related to the use of banked credits in these nonattainment areas, see section I.C.8 below.

[20] For sources which banked or sought to bank credits from shutdowns or curtailments in these nonattainment areas *prior to publication of today's notice*, written evidence must be provided showing either that an application to deposit the credits in a formal bank was submitted to the state prior to the time the shutdown/curtailment occurred, or that the state acknowledged, before or at the time the shutdown/curtailment occurred, both the existence of that shutdown/curtailment, and the source's intent to use the resulting credits in a future trade.

e. Reductions from Uninventoried Sources. Sources not included in an area's SIP emission inventory may apply for emission reduction credit. Such applications may enhance state air quality planning capabilities. Where such sources are already subject to SIP emission limits, those emission limits must be used as the basis for determining emission reduction credit, unless a more stringent baseline would normally be required (see sections I.A.1.a. and I.A.1.b. above).[21]

In *attainment areas* states may grant bubble credit to sources regardless of whether they have been included in an inventory, based on use of actual values for each of the three baseline factors, so long as those sources are not subject to lower allowable values for those factors. Allowable values, when higher than actual values, may alternatively be used in calculating the baseline, provided sources show that any resulting potential increase in actual emissions does not jeopardize applicable ambient standards, PSD increments, or visibility. (See 40 CFR 51.24 and 52.21 for specific requirements concerning PSD increments and visibility.)

In *nonattainment areas with approved demonstrations of attainment,* whether sources not on the inventory can create bubble credit will turn on how the approved demonstration of attainment was designed. Some states first monitored ambient values to determine required reductions for the SIP; then required a proportionate reduction in emissions from certain general source categories (i.e., a "rollback") in order to attain. States may grant credit for reductions from uninventoried sources in these areas in at least two ways.

(1) They could require the average of percentage reductions imposed on all inventoried sources, and grant credit only for reductions in excess of that amount. In this case, baseline emissions should be based on the percentage reduction in actual emissions for the year in which the baseline data for the rollback was gathered. Where such sources are already subject to lower SIP emisssion limits, those limits must be used to determine credit.

(2) They could require the source to use a RACT emission rate and the lower of actual or allowable capacity utilization and hours of operation to calculate the baseline, and grant credit only for reductions below that baseline. This RACT baseline would have to result in a reduction at least as great as the percentage reduction assumed in the rollback. As discussed above, where sources are already subject to lower SIP emission limits, those limits must be used as the basis for determining credit.

Other areas developed SIP demonstrations based on dispersion models rather than area-wide proportionate reductions. To the extent these SIPs demonstrated ambient attainment through reductions required from specific inventoried sources, incorporated emissions from uninventoried sources in the background or area source totals, and projected attainment by modeling the effects of those reductions, reductions from sources not on the inventory can be credited using the lower of actual or allowable values for each of the baseline factors.

In *primary nonattainment areas, which need but lack an approved demonstration of attainment,* the progress requirements of Section I.A.1.b. above apply to bubbles which seek to use credit from uninventoried sources. These include a lowest-of-actual-SIP-allowable-or-RACT-allowable emissions baseline. Where a RACT emission limit has not already been adopted for an uninventoried source, such a limit must be agreed upon between the source, the state and EPA before the baseline can be determined.

States which grant credit from uninventoried sources not subject to permits, offset requirements, or enforceable production constraints should address the possibility that reductions from one such source may be followed by equal or greater increases from similar nearby sources due to shifting demand. These states must clearly demonstrate that ERCs from the uninventoried source are surplus and permanent. Interested parties should be aware that some uninventoried sources may not readily meet these tests. For example, reductions resulting from shutdown of a dry cleaner will generally not be creditable, unless the state subjects such sources to offset requirements or other measures addressing this problem. However, reductions due to improved control at such a dry cleaner would generally be creditable, since shifting demand is not implicated.

Baselines for Open Dust Trades. Fugitive dust regulations generally consist of generic work practices and operating procedures. The specifics of a fugitive dust program are generally contained in an operating permit or fugitive dust program. It is generally not possible to identify the appropriate emissions baseline from a general state open dust regulation. Therefore, for any open dust trade a negotiated RACT baseline must generally be agreed upon between the source, state and USEPA for the open dust source in question.

2. Alternative Emission Limits Must Be Enforceable

Each bubble, netting, offset or banking transaction must be approved by the state and must be federally enforceable at the time an ERC is used. Reviewing authorities may be able to use existing procedures (including preconstruction permits issued by states pursuant to 40 CFR 51.18, 51.24, 51.307 or 52.21) or EPA-approved generic rules to make reductions federally enforceable. The former possibility exists because permits issued under a federally-approved new source review program are federally enforceable. However, many preconstruction permit programs have been federally approved strictly for sources subject to NSR, and therefore may not be capable of use for transactions that do not trigger NSR requirements, or that involve sources not already subject to preconstruction permits.

With respect to the latter possibility, any enforceable compliance instrument imposing emission limits within the scope of an EPA-approved generic rule is deemed federally enforceable as part of the SIP.

Emission limits established by a trade must be incorporated in a compliance instrument which is legally binding and practicably enforceable by EPA.

Trades involving individual SIP revisions automatically satisfy this requirement. For trades under generic rules a compliance instrument could take the form of an agreement between the source and state, a preconstruction permit (if one is applicable), a consent decree, a state operating permit, or any other compliance instrument judicially enforceable by the state. To assure state enforceability, the generic rule should state that sources subject to these instruments are required to meet the emission limits contained therein. Such instruments would then automatically become federally enforceable via an EPA-approved generic rule, provided they are issued as, or part of, the compliance instrument specifically required by the generic rule.

Compliance instruments must ensure that enforcement personnel do not have

[21] Where a given source was not subject to mandatory RACT regulation due to the fact that it was not included in the inventory (e.g., where no RACT regulation for a source category was adopted because the state, unaware of the source, issued a declaration that no source existed in that source category, or where an uninventoried, non-CTG source of greater than 100 TPY emissions is located in an ozone extension area), a baseline reflecting a negotiated RACT emission rate must be agreed upon between the source, the state and EPA for the uninventoried source in question.

to test simultaneously every emission source involved in a trade. This generally requires source-specific emission limits. However, states may use pre-specified combinations of source-specific emission limits which are enforceable. States may also use an overall limit that applies to a group of emission sources which can be evaluated simultaneously, where there is a reliable and enforceable method of determining compliance (e.g., through production records, input factors, or other indirect means, or through use of a continuous emissions monitor.) See, e.g., 45 FR 80824, December 8, 1980.

The compliance instrument should also specify applicable restrictions on hours of operation, production rates or input rates; enforceable test methods for determining compliance; and necessary recordkeeping or reporting requirements. To be enforceable, these limits must state the minimum time period over which they will be averaged (e.g., lbs/hour, lbs/MBtu averaged over 24 hours, production rate/day).[22] Unless such enforceable restrictions are or have been placed on capacity utilization and hours of operation, or on overall emissions, maximum values for capacity utilization and hours of operation must generally be used in calculating post-trade emission limits and in ambient modeling of the post-trade case.

3. All Reductions Must Be Permanent

All emission increases in a trade must be compensated by emission reductions that are permanent (i.e., assured for the life of the corresponding increase, whether unlimited or limited in duration).[23] This requirement may generally be met by enforceable permit limitations confirming the amount and duration of the decrease. If reductions with a limited life are used, the life of the trade must be limited accordingly, so that the trade will automatically terminate with expiration of those reductions. The date of termination may be specified in the notice of approval. Alternatively, source(s) may agree to provide formal written notification to EPA and the state before such reductions may be discontinued and the trade terminated.

Permanence may present special but resolvable "shifting demand" problems for reductions from small sources not subject to permits, offset requirements, or enforceable production constraints. States which grant credit from these source categories must address the possibility that reductions from one source may result in equal or greater increases from similar nearby sources.[24]

In order to use, in a bubble trade, emission reduction credits derived from reductions in operations beyond those consistent with the baseline (e.g., a reduction from 3 to 2 workshifts), a source must have its preconstruction permit or other federally enforceable compliance instrument altered to reflect the curtailment in production records reflecting such curtailment (see section I.A.2 above).[25] Future increases in production beyond the permit amount may trigger new source review or require approval of a new emissions trading application which includes compensating emission reductions. As with other types of noncompliance, any source which exceeds permitted production limits would be subject to potential noncompliance penalties.

4. All Reductions Must be Quantifiable

Before an emission reduction can be credited it must be quantified. This generally means the state must establish a reliable basis for calculating the amount and rate of the reduction and describing its characteristics.

a. Calculating the Reduction. To quantify the amount of emission reductions eligible as ERCs, emissions must be calculated both before and after the reduction (i.e., assuming the post-reduction limits). Although many different methods of calculation are available (e.g., emission factors, stack tests, monitored values, production or process inputs), the same method and averaging time should generally be used to quantify emissions both before and after the reduction.[26]

b. Describing the Reduction. If an ERC will be used at the time of creation, only characteristics necessary to evaluate that proposed use need be described. Where the ERC will be banked and its eventual use is not yet known, a more detailed description should be provided in order to facilitate its later evaluation for a particular use.

B. Using Emission Reduction Credits

This section explains the substantive and procedural principles applicable to use of ERCs, primarily for existing-source bubbles. Many of these principles also apply to use of ERCs in netting or offset transactions. However, those transactions are governed by EPA's New Source Review regulations (40 CFR Parts 51 and 52) or state rules reflecting them.

1. Substantive Principles for Using ERCs

a. Emissions Trades Must Involve the Same Pollutant. The Clean Air Act requires states to develop separate plans to attain and maintain the national ambient air quality standard for each criteria pollutant. Thus, all individual bubble, netting or offset transactions must involve the same pollutant. Only reductions of particulates can substitute for increases of particulates, reductions of SO_2 for increases in SO_2, etc.

b. All Uses of ERCs Must Satisfy Ambient Tests. Because the Clean Air Act requires that all areas throughout the country attain and maintain ambient standards, protect applicable PSD increments, and protect visibility in mandatory Federal Class I (PSD) areas, bubbles must generally be equivalent in ambient effects to the baseline emission levels which they replace.[27] In *nonattainment areas*, use of ERCs cannot create a new violation of an ambient standard or delay the planned removal of an existing violation. In *attainment* areas, use of ERCs cannot violate an increment or ambient standard. Use of ERCs in either type or area cannot adversely affect visibility in any mandatory Federal Class I area.

The ambient effect of a trade generally depends on the dispersion characteristics of the pollutant involved.

VOC or NO_x Trades. Trades involving VOC or NO_x need consider only emissions. Since the ambient impact of these pollutants is areawide rather than localized, one pound of increased emissions will be balanced in ambient

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[22] Many state permits or permit procedures may need revisions to assure that they provide adequate compliance information. However, such revisions need only occur on a case-by-case basis as individual trades are approved.

[23] Permits or other compliance instruments for limited-duration trades must clearly state such limits.

[24] States can address such potentially "shifting demand" among such sources as dry cleaners, paint shops and gas stations by, for example (1) prohibiting creation of ERCs due to shutdown or curtailment of such small sources; (2) limiting ERCs from small sources to categories determined not to be subject to shifting demand; or (3) requiring offsets for increases in emissions from such small sources. Cf. section I.A.1.a. above.

[25] Under EPA's NSR regulations, prior curtailments are subject to the same restrictions for offset purposes as prior shutdowns. See n. 14 above.

[26] In general, states may not approve VOC trades in ozone nonattainment areas where such trades would incorporate averaging times longer than one day. However, where VOC sources show that daily VOC emissions cannot be determined or application of RACT is not technically or economically feasible on a daily basis, longer averaging times may be permitted. See Appendix D.

[27] In primary nonattainment areas needing but lacking an approved demonstration of attainment, bubbles must achieve a net air quality benefit. See Section I.A.1.b. above.

effect by one pound of decreased emissions within the same broad geographic area, and the precise location of those increases and decreases ordinarily does not matter. For VOC and NO_x such "pound-for-pound" trades may therefore be treated as equal in ambient effect where all sources involved in the trade are located in the same control strategy demonstration area or the state otherwise shows such source to be sufficiently close that a "pound-for-pound" trade can be justified.[28]

Particulate Matter, SO_2, CO or Lead Trades. Ambient considerations are critical for trades involving emissions of sulfur dioxide, particulates, carbon monoxide, or lead, whose air quality impacts may vary with where the emission increases and decreases occur. For example, one hundred pounds of ERCs for such a pollutant created at one source may balance the ambient impact of a 100-pound increase at a source nearby, but may only balance the effect of an 80-pound increase at a source further away. In addition to distance between sources, plume parameters, pollutant characteristics, meteorology, and topography will also affect the ambient impact of such trades.[29]

This Document authorizes the use of four alternative methods of determining ambient equivalence, with the degree of required modeling linked to the likely ambient impact of the proposed trade. The following sections describe use of these alternatives to evaluate for approval many bubble or offset trades without full scale ambient dispersion modeling.[30] Use of these alternatives under generic rules is discussed in section II below.

(1) *De Minimis.* In general no modeling is needed to determine the ambient equivalence of trades in which applicable net baseline emissions do not increase [31] and in which the sum of the emissions increases, looking only at the increasing sources, totals less than 25 tons per year (TPY) for particulate matter, 40 TPY for sulfur dioxide, 100 TPY for carbon monoxide, 40 TPY for NO_x (where visibility impacts are of concern), or 0.6 TPY for lead, after applicable control requirements. Such trades will have at most a *de minimis* impacts on local air quality because no net increase in emissions will be produced and the amount of emissions being shifted is less than designated significance levels in associated EPA regulations (see, e.g., 40 CFR 51.18(j)(1)(x) and 51.24(b)(23)(i)).[32]

(2) *Level I.* In general no modeling to determine ambient equivalence is needed if:

(a) The trade does not result in an increase in applicable net baseline emissions;[33]

(b) The relevant sources are located in the same immediate vicinity (within 250 meters of each other);

(c) No increase in baseline emissions occurs at the source with the lower effective plume height as determined under EPA's *Guidelines on Air Quality Modeling;*

(d) No complex terrain [34] is within the area of significant impact of the trade [35] or 50 kilometers, whichever is less;[36]

(e) Stacks with increasing baseline emissions are sufficiently tall to avoid possible downwash situations, as determined by the formula described at 50 FR 27892 (July 8, 1985) (to be codified at 40 CFR Part 51); and

(f) The trade does not involve open dust sources.

For such Level I trades it can reasonably be assumed that "pound-for-pound" trades will produce ambient effects equivalent to those which EPA-approved air quality models would predict. Therefore modeling to determine ambient equivalence is not required.

Trades between fugitive process sources and stack sources (i.e., process-for-process or process-for-stack) can acceptably be evaluated and approved under Level I as long as the maximum distance between any emitting sources in the trade is less than 250 meters and all other Level I criteria are met.

(3) *Level II.* Bubble trades which are neither *de minimis* nor Level I may nevertheless be evaluated for approval based on modeling to determine ambient equivalence limited solely to the impacts of the specific emission sources involved in the trade, if there is no increase in applicable net baseline emissions,[37] if the potential change in emissions before and after the trade will not cause a significant increase in pollutant concentrations at any receptor for any averaging time specified in an applicable ambient air quality

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[28] The discussion in this paragraph does not apply to NO_x trades involving visibility impacts of elevated plumes.

[29] The ambient equivalence considerations elaborated in this and following paragraphs also apply to NO_x trades involving visibility impacts of elevated plumes. See n. 28 above.

[30] Modeling is generally not required for new source netting, whose purpose is to avoid expending resources where adverse emission or ambient impacts from changes at a source are extremely unlikely. See, e.g., 45 FR 52677–78 (August 7, 1980).

[31] Interested parties should, however, be aware that in some circumstances modeling may be required to justify using certain emissions baselines, prior to the trade. Where a bubble in a *nonattainment* area seeks to employ allowable values greater than corresponding actual values in the calculation of baseline emissions, and where such allowable values are not shown to be used or reflected in an approved demonstration, a full Level III modeling analysis will be required. Where a bubble in an *attainment* area seeks to employ allowable values greater than corresponding actual values in the calculation of baseline emissions, and where such allowable values are not shown to be used or reflected in an approved demonstration, a Level II modeling analysis (see below) using actual emissions for the pre-bubble case will be required unless, for bubbles processed as case-by-case-SIP revisions, the Region determines that additional technical support is necessary to protect applicable standards or increments. Where allowable values are used to calculate baseline emissions for such a case-by-case-SIP revision bubble in an attainment area where the PSD baseline has been triggered, the Region will require the technical support necessary to protect PSD increments.

Where allowable values higher than actual values are not shown to be used or reflected in an approved demonstration, states that wish to authorize their use in attainment areas *under generic bubble rules* must either state, or develop replicable procedures addressing, background values and how they will be evaluated in conjunction with the actual changes in ambient concentration predicted by the Level II analysis. These steps must be sufficient to protect standards and increments and must be approved by EPA as part of a generic rule.

For further discussion regarding calculation of baseline emissions and related modeling requirements, see Section I.A.1. above and Appendix B below.

[32] This paragraph should not be construed to imply that *new* sources and modifications need not meet all applicable requirements, including those specified under 40 CFR 51.18 or parallel EPA-approved state rules.

[33] See n. 31 above.

[34] Complex terrain is broadly defined by EPA as terrain greater in height than the physical stack height of a source. For bubble purposes, this definition is applicable only to sources with increasing baseline emissions.

[35] For guidance on determining "area of significant impact," see Appendix E below. The graph in Appendix E, or EPA-approved alternative approaches, may be incorporated in generic rules to make this aspect of Level I analysis replicable and operational. See Section II below.

[36] Generally, trades involving complex terrain as defined above may not be exempt from modeling under a Level I analysis. However, EPA will consider on a case-by-case basis additional criteria for determining whether a particular trade involving complex terrain, but otherwise meeting the requirements specified above, does not present a problem of potential plume impaction and may be approved under a Level I analysis. These additional criteria would include such factors as source height and emission rates, distance between stacks and elevated features, rate of topographical rise, and other considerations which may be appropriate for the particular geographic area. States are encouraged to work with EPA to determine where and how such additional criteria can be developed and applied to individual trades.

[37] See n. 31 above.

standard;[38] and if such an analysis does not predict any increase in ambient concentrations in a mandatory Federal Class I area.[39] The change in concentration from the before-trade case to the after-trade case must in general be modeled using refined models such as MPTER and ISC for each appropriate averaging time for the relevant national ambient air quality standards for each receptor, using the most recent full year of meteorological data.[40]

(4) *Level III.* Full dispersion modeling considering all sources affecting the trade's area of impact is required to determine ambient equivalence if applicable net baseline emissions will increase as a result of the trade,[41] or if the trade cannot meet criteria for approval under *de minimis*, Level I or Level II.

However, a geographically limited Level III analysis may be used in some cases where a Level II analysis predicts one or more exceedances of the Level II significance values. While this analysis will be limited in terms of geographic scope, it must otherwise meet the modeling requirements for a full Level III analysis, including consideration of all sources affecting the limited geographical area. In many situations this approach may permit the receptor area to be smaller than the trade's entire area of impact. Because of the unique nature of each situation, the appropriate limited geographic area must be determined in accord with EPA guidelines on modeling, and through case-by-case evaluation.

Bubble trades are approvable under either type of Level III analysis if they do not cause a new violation of NAAQS or PSD increments, significantly contribute to or delay the planned removal of an existing violation, or adversely affect visibility in mandatory Federal Class I areas.[42]

This three-tiered modeling approach is both reasonable and conservative. It will assure that the ambient impact of trades is at least equivalent in effect to original SIP emission limits, while conserving government resources and shortening approval times for many individual trades.

c. Bubbles Should Not Increase Applicable Net Baseline Emissions. Ordinarily, bubbles may not result in an increase in applicable net baseline emissions. Such a bubble would require a case-by-case SIP revision, and may only be approved based upon a combined Level III and Level II modeling analysis (i.e., an analysis sufficient to show that all applicable requirements of a full Level III analysis (as described above) are met, and that the bubble would not result in any exceedance of significance values specified for a Level II analysis at any receptor for any averaging time specified in an applicable ambient air quality standard.[43]

Where such a bubble is proposed in a *nonattainment area*, the state must demonstrate that the trade is consistent with the progress demonstration under an approved demonstration of attainment, revise its EPA-approved progress demonstration as part of the proposed SIP revision, or otherwise show (e.g., by modeling and any necessary compensating emission reductions) that the proposed trade comports with the EPA-approved emissions and ambient progress demonstration.

d. Bubbles Should Not Increase Emissions of Hazardous or Toxic Air Pollutants. Under the Clean Air Act all sources must meet applicable section 112 (NESHAPs) requirements for control of hazardous air pollutants. Sources may neither use a bubble to meet these requirements, nor increase emissions beyond the levels they prescribe. Where a source wishes to generate or use emission reduction credit for a criteria pollutant, and where a NESHAPs pollutant is part of the criteria pollutant stream, the emissions baseline for emissions of the hazardous pollutant from that source would be the lower-of-actual-or-NESHAPs-allowable emissions of that pollutant, applied as of the time of application for credit. Where EPA has *proposed* to regulate a source category for emissions of a pollutant under section 112, but has not yet promulgated a NESHAP for that source category, the proposal will serve as the interim guideline for evaluating the potential effects of any proposed emissions trade involving sources to which the proposed standard would apply. The emissions baseline for such a pollutant emitted by a source subject to the proposed NESHAP would be lower-of-actual-or-proposed-NESHAPs-allowable emissions for that pollutant.

In general, such trading proposals will be approved so long as they (1) result in emission limits for *each source* emitting the relevant pollutant which are equivalent to or less than those that the approved NESHAP requires or the proposed NESHAP would require if promulgated, (2) rely only on reductions below actual or allowable levels (whichever is less) of that pollutant, and (3) take place within a single plant or contiguous plants.

Where a pollutant has been *listed* under section 112 or EPA has published a Notice-of-Intent-to-List, but no NESHAP has been promulgated or proposed for a source which emits that

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[38] In determining "significant" impact for Level II *bubble* trades, states may use the following significance values to identify trades whose potential ambient impact need not be further evaluated before approval:

10 $\mu g/m^3$ for any 24-hour period for particulate matter;

5 $\mu g/m^3$ for any annual period for particulate matter;

13 $\mu g/m^3$ for any 24-hour period for SO_2;

48 $\mu g/m^3$ for any 3-hour period for SO_2;

3 $\mu g/m^3$ for an annual period for SO_2;

575 $\mu g/m^3$ for any 8-hour period for CO;

2300 $\mu g/m^3$ for any 1-hour period for CO;

0.1 $\mu g/m^3$ for any 3-month period for Pb.

See 45 FR 52708 (August 7, 1980). For *offset* transactions, any required modeling must follow procedures consistent with EPA's new Source Review regulations in 40 CFR 51.18 or Part 51, Appendix S, or parallel EPA-approved state regulations. "Significant" impact under 40 CFR Part 51, Appendix S is defined as 1 $\mu g/m^3$ annual average for particulates, SO_2 or NO_2; 5 $\mu g/m^3$ 24-hour average for particulates and SO_2; 25 $\mu g/m^3$ 3-hour average for SO_2; and 0.5 mg/m^3 8-hour average and 2 mg/m^3 one-hour average for CO.

[39] However, a bubble ordinarily may not be approved under Level II where other evidence related to background—i.e., formally validated ambient air quality monitoring data or previously established background values—clearly indicates that the bubble would create a new violation of an ambient standard or PSD increment, or would delay the planned removal of an existing violation.

[40] Other techniques may be approved where sources show they equally well protect NAAQS, applicable PSD increments, and visibility. For example, in limited circumstances conservative screening models may be acceptable in lieu of MPTER and ISC. In such cases, use of a full year of meteorological data may not be necessary. Such screening models may be acceptable where: (a) The screening model shows that all the emissions from the stack(s) with increasing emissions would not produce exceedances of the Level II significance values described in n. 38 above, *or* (b) the stack parameters at the stack(s) with increasing emissions do not change *and* the screening model shows that the increase in emissions at the increasing stack(s) would not produce exceedances of these significance values.

[41] See discussion in I.B.1.c. below.

[42] Where a Level III modeling analysis submitted to support a voluntary trading application indicates an exceedance of an ambient requirement, EPA will review such applications on a common-sense case-by-case basis, seeking to encourage disclosure of such exceedances and avoid undue delay of decisions on the trade, while adequately ensuring protection of public health, the integrity of the SIP process (including the state's prerogatives in determining how to remedy nonattainment), and the prompt and effective remedy of any condition of nonattainment. In its review, the Agency will take into account such factors as the degree of exceedance, the contribution of the trading sources and the trade itself to the exceedance, and the degree to which such sources would be part of any solution remedying the exceedance.

[43] Where a proposed bubble increasing net baseline emissions cannot meet this test of ambient equivalence, it may not be approved as a bubble under the Emissions Trading Policy. However, sources may still submit such revised limits for approval under the general requirements applicable to SIP revisions.

pollutant, states may generally allow trades consisting of equivalent increases and decreases of actual emissions of that pollutant within a single plant or contiguous plants. Once the relevant NESHAP is promulgated, every source, regardless of any previously approved trade involving emissions of that pollutant, must meet the requirements of that promulgation.

Where EPA has decided that one or more source categories which emit a listed pollutant do not require regulation solely because of limited national exposure, emissions of that pollutant will continue to be treated the same as emissions of any other pollutant listed under section 112.

Where EPA has issued a formal Notice-of-Intent-Not-to-List a pollutant under section 112, that pollutant will ordinarily be treated as non-hazardous. *However*, where the decision not to list or not to regulate was based on limited national exposure, but the individual risk was sufficiently high that EPA committed in the announcement of its decision to support (through some formal mechanism such as a Memorandum of Understanding (MOU)) state-level efforts to develop regulations, the pollutant will be treated as listed for trading purposes in order to assure that such state efforts are not compromised. The model for the intended scope of this classification is EPA's acrylonitrile decision. (50 FR 24319; June 10, 1985).

If a substance is neither listed nor regulated as hazardous under section 112, nor meets any of the other conditions specified above, but has been formally listed or regulated as toxic under any comparable health-based federal statute, the Administrator may consider this fact in evaluating trades which may increase emissions of that substance. This authority has not been delegated within EPA by the Administrator. See Clean Air Act section 301(a)(1), 42 U.S.C. 7601(a)(1).[44]

Exception. Trades which involve the pollutants addressed in this section but do not meet the special restrictions discussed above, may also be approved where surplus reductions in those pollutants compensate for increases in non-hazardous emissions of the same criteria pollutant. For example, a source emitting benzene may trade with a source emitting a non-hazardous VOC without meeting these special restrictions, if the benzene emissions are reduced as a result of the trade (i.e., "traded down"). As long as such a trade would not result in an increase in either actual or allowable emissions of a pollutant subject to the preceding paragraphs at any source, it would not differ in nature or requirements from a trade involving only non-hazardous VOC emissions.

e. Existing-Source Credits Cannot Be Used to Meet Applicable Technology-Based Requirements for New Sources. Under Clean Air Act section 111 and EPA implementing regulations, new affected facilities must satisfy technology-based New Source Performance Standards (NSPS), regardless of the attainment status of the area in which they are located. Under sections 165 and 173 and EPA implementing regulations, new or modified major sources must also satisfy technology-based control requirements associated with preconstruction permits. These requirements prohibit use of credits from existing sources to meet or avoid applicable NSPS, and bar use of such credits to meet applicable new source review requirements for best available control technology (BACT) in PSD areas, or lowest achievable emission rate control technology (LAER) in nonattainment areas.[45]

However, modifications of existing major sources in PSD and nonattainment areas with an EPA-approved "plantwide" definition of source can use "contemporaneous" reductions in actual emissions from within the same source to "net out of" New Source Review.[46] Under such "netting," sourcewide increases in potential emissions that do not exceed designated levels of significance (see 40 CFR 51.18(j)(1)(x), 51.24(b)(23), and 52.21(b)(23)) will not be considered "major modifications" of the source under 40 CFR 51.18, 51.24, 51.22, 51.307, 52.28, or 52.27. Thus, while these source changes must still meet applicable NSPS, NESHAPs, preconstruction applicability review requirements under 40 CFR 51.18 (a)–(h) and (l), and SIP requirements, they are not subject to new source review requirements for major modification because they are not considered "major."[47]

f. Trades Involving Open Dust Emissions. Trades involving open dust sources of particulate emissions may be approved through case-by-case SIP revisions based on modeled demonstrations of ambient equivalence. Sources proposing such trades must commit, as part of the trade's approval, to (i) undertake a post-approval monitoring program to evaluate the impact of their control efforts, and (ii) make further enforceable reductions if post-trade monitoring indicates initial open dust controls do not produce the predicted air quality results.

g. Interstate Trades. EPA will approve trades which involve sources located in neighboring states where such trades meet the criteria below and all other approval criteria applicable under today's notice. Where state trading requirements differ, EPA will require that trades with increasing and decreasing sources in different states meet the substantive requirements of the more stringent state. In general, in order to avoid complex accounting problems, EPA will deem ERCs created in another state to contribute to progress in the state where used, to the extent of that use. Such trades must be accomplished through case-by-case SIP revisions.

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[44] Trades involving emission streams partially or wholly composed of any pollutants subject to special considerations under this section must meet two separate and distinct tests to be approved. First, such trades must be approvable under the criteria and principles which apply to all trades, as discussed throughout this policy (i.e., such trades must meet baseline and other requirements for the relevant criteria pollutant). Second, such trades must be approvable with respect to the hazardous pollutant fraction of the criteria pollutant emission stream. This means that there must be no net increase in emissions of the pollutants addressed in this section, as a result of such trades. Where a NESHAP has been promulgated or proposed, the baseline for determining whether such an increase has occurred is the lower-of-actual-or-NESHAPs-allowable emissions for the hazardous component of the trade, for the source which emits that component. The promulgated or proposed NESHAP limit not only is used to define the allowable emissions for that source, but serves as an absolute ceiling on the source as well. Where a NESHAP has not yet been promulgated or proposed, the baseline for determining whether such an increase has occurred is generally actual *emissions for* the hazardous pollutant component of the trade. But cf. today's Policy Statement at n. 6.

[45] Today's notice does not address whether or under what circumstances facilities subject to NSPS, BACT or LAER may surpass applicable permit limits reflecting such requirements in order to create credits for existing-source trades.

[46] "Contemporaneous" means a reasonable period for accumulating increases and decreases in emissions, as specified by the state. See 40 CFR 51.18(j)(1)(vi) and 51.24(b)(3)(b) (ii).

[47] Netting also applies under the narrower "dual definition" of "source" in certain circumstances. For example, firms may use reductions within the plant to compensate for increases at several emitting units which, while not individually significant, might otherwise add up to a significant increase plantwide.

Under current EPA regulations, if a nonattainment area is subject to a moratorium on new preconstruction permits for major sources or modifications and the area does not have an approved *New Source Review* program, then the area automatically uses a plantwide definition. See 40 CFR 52.24.

EPA's general expansion of opportunities for states to use the plantwide source definition for certain nonattainment areas (49 FR 50766, October 14, 1984) was affirmed by the U.S. Supreme Court on June 25, 1984: *Chevron U.S.A., Inc. v. Natural Resources Defense Council*, 104 S. Ct. 2778, 14 ELR 20507, *overruling Natural Resources Defense Council, Inc. v. Gorsuch*, 685 F.2d 718, 12 ELR 20942 (D.C. Cir. 1982).

h. Trades Near PSD Class I Areas. EPA or a state operating under a generic rule must notify the Federal Land Manager if an emissions trade will take place within 100 kilometers of a PSD Class I area. Notification must occur early enough in the review process to allow at least 30 days for the submittal of comments before the trade will be approved by the reviewing authority.

Where a bubble within 50 kilometers of a PSD Class I area is submitted to EPA as a case-by-case SIP revision, the Region may call for additional technical support, beyond the applicable requirements of the modeling screen described in section I.B.1.b. above, if deemed necessary to protect air quality in the Class I area.

i. Effect on Trades of Subsequently-Discovered Clean Air Act Problems: Revisitation Considerations. If ambient violations are discovered in an area where EPA has approved a trade, or if other violations of Clean Air Act requirements are discovered in that area, sources in the trade should be aware that they are potentially subject to requirements for additional emission reductions, just as are all other sources in the area.[48]

2. Procedural Steps for Using ERCs

Bubble trades may be implemented through individual SIP revisions or state generic rules. This section describes principles applicable to either procedure. General principles for generic rules are addressed in Section II below. Special considerations for trades which require individual SIP revisions are addressed in Section III.

a. Effect of Existing Compliance Schedules. EPA's 1979 bubble policy required that sources be subject to binding compliance schedules based on original SIP emission limits before being eligible to apply for bubbles. Because of the time required to process bubble applications as case-by-case SIP revisions, this requirement tended either (a) to discourage sources faced with tight milestones for the installation of conventional control equipment from pursuing bubble applications, where they had agreed in good faith to SIP compliance schedules before discovering bubble opportunities, or (b) to discourage sources from agreeing to any compliance schedule until they had fully examined bubble opportunities.

Today's policy allows an application to be filed though the applicant is not subject to compliance schedules based on original SIP emission limits, so long as that applicant agrees to emission limits established as part of a complete bubble application. Sources which are already subject to binding compliance schedules should, however, be aware that submittal or proposed approval of a bubble application does not suspend their obligation to comply with such schedules. Such schedules and existing SIP requirements remain applicable and enforceable until the bubble is finally approved and the schedule has been modified accordingly.

Sources seeking trades should note that they remain subject to enforcement of existing (pre-trade) SIP limits until the bubble is approved. EPA will use the same principles and procedures for deciding whether to initiate enforcements actions in these circumstances as the Agency applies to any other source which is subject to a proposed SIP revision.

Under established EPA policy, regulated sources must be subject to an applicable enforceable emission limit at all times. Accordingly, sources which have approved bubbles with emission limits effective at future data and which are not in compliance with their pre-trade limits, may be subject to enforcement action, which could include penalties based on a failure to meet the pre-trade limits. Sources in such situations may wish to minimize the chance that capital expenditures wil. required to meet pre-trade limits, either by (a) agreeing to post-trade compliance dates which are substantially similar to their pretrade compliance dates, or (b) accelerating their compliance with post-trade limits.

In accord with the general principle that bubbles should be treated neither more nor less stringently than other SIP actions, implementation of today's policy will be neutral with respect to EPA enforcement of pre-trade emission limits. This means that EPA will not specifically target for enforcement action non-compliant sources seeking to use a bubble either to come into compliance or to restructure traditional compliance. However, it also means that EPA will not withhold or defer enforcement simply because a source is seeking alternative emission limits through a bubble. In exercising its enforcement discretion, EPA will apply the same considerations to noncompliant sources which seek to comply through bubbles as to those which do not.[49]

b. Extensions of Compliance Deadlines. States may modify or exten compliance schedules or deadlines fc individual sources on a case-by-case basis in conjunction with bubble approvals. Such modifications or extensions must be consistent with the requirements of 40 CFR 51.15. Compliance schedules for sources in *nonattainment* areas cannot be extended beyond the statutory date for attainment, and applicable compliance milestones must be specified and met for each year of the revised or extended compliance schedule. Because an extension will usually require a revision of the state's progress demonstration, such approvals must ordinarily be submitted as SIP revisions.

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[48] While sources involved in a trade, like all other sources, may be subject to requirements for additional emission reductions, neither previous trades approved by EPA or by states under EPA-approved generic rules, nor emission reduction credits used as part of a bubble, offset or netting action, should be terminated.

Such termination could occur, for example, where two sources in a given source category were subject to pre-bubble mass emission limits of 100 TPY each and post-bubble limits of 50 TPY and 150 TPY respectively. Assume the state imposes a new category-wide regulation which would normally limit those sources to 40 TPY each. In this case, the first source should be required to meet the new 40 TPY limit (i.e., it should be required to produce additional reductions of 10 TPY), while the second source should be subject to a new limit of 90 TPY (i.e., a level reflecting the continued existence of the 50 TPY emission reduction credit). Termination of the emission reduction credit would occur either by requiring the first source to produce additional emission reductions of 60 TPY (i.e., more than its current level of emissions), or the second source to meet the 40 TPY limit. Either of these results would undermine the purpose of today's notice by eliminating the predictability required for generation or use of ERC's. They could also penalize trading sources for taking environmentally beneficial measures sooner than required, since it would often be more difficult to achieve the new reductions than had earlier voluntary steps not been taken.

For these reasons, EPA urges states not to take such credit-terminating actions unless there is no other practical way to satisfy the requirements of the Clean Air Act.

Today's procedures for deposit and use of banked credits already address additional state emission reduction needs in the context of banking (see section I.C.9. below). States should, however, account for all previous trades and previously granted emission reduction credits in estimating emission reductions resulting from new control strategies, in order to avoid problems due to double-counting.

[49] Parties contemplating bubbles involving the trade of emission reduction credits from one firm to another should be aware that when the credits being provided by the first firm are the result of emission limits with a future compliance date, the obligation to meet pre-trade limits remains with the second firm (which may face enforcement action, including cash penalties, for failure to comply with those pre-trade limits) until the time specified for the first firm to achieve the reductions necessary for compliance under the bubble. The first firm's failure to achieve required bubble reductions on schedule may thereafter result in enforcement action (including cash penalties) against that firm. *However,* this paragraph should be read in conjunction with the general principle articulated above that EPA implementation of today's policy will be neutral with respect to enforcement of pretrade limits.

In *nonattainment areas*, states which wish to give sources more time to implement bubbles by granting compliance extensions must receive EPA approval of the extension through case-by-case SIP revisions. EPA will evaluate the time extension portions of these SIP revision packages in accordance with the Agency's normal procedures for review of time extensions, including consistency with the Act's requirements of expeditiousness, reasonable further progress, and attainment and maintenance of ambient air quality standards. Sources should be aware that disapproval of the time extension portion may result in disapproval of the entire package (i.e., both post-trade limits and the time extension) or only part of it, depending on whether the state views these components of the proposed SIP revision as seperable.

In *attainment areas*, states may continue to grant compliance extensions without case-by-case SIP revisions, as part of bubble approvals under a generic rule. Such generic compliance date extensions may be granted in these areas only if EPA has approved the extension provision of the generic rule as adequate to comply with the Clean Air Act, including requirements for attainment and maintenance of ambient air quality standards.

c. Pending Enforcement Actions: A bubble cannot be approved for an individual emission source which is presently the subject of a federal enforcement action or outstanding enforcement order unless EPA (and where necessary the appropriate court) approves the proposal and any compliance schedule it may contain. "Federal enforcement action or outstanding order" includes notices of violation, civil actions filed under Clean Air Act section 113(b), criminal actions filed under section 113(c), notices imposing noncompliance penalties issued under section 120, administrative orders issued under section 113(a), or citizen suits filed under section 304 in which EPA has intervened if the source is subject to an administrative or judicial order.

This requirement need not preclude bubble approvals under generic rules, provided the rule specifies an appropriate mechanism for securing and recording EPA or court approval.[60] Sources should, however, be aware that such approvals cannot be finally effective until approved by the appropriate agency or court, and that they remain subject to original emission limits until such approval.

C. Banking Emission Reduction Credits

Emission reductions that are surplus, permanent, quantifiable and enforceable can qualify as emission reduction credits (ERCs) and be deposited in EPA-approvable banks. States may establish such banks by adopting appropriate rules to govern whether and how sources may own and hold surplus emission reduction credits for future use in bubble, offset or netting transactions.[61] Such banking rules may encourage sources to take measures to reduce emissions in advance of specific need for ERCs, resulting in lower transaction costs for those seeking offsets, bubbles, or partners for these transactions. States should, however, be aware that because an area's air quality situation or the status of its SIP may change in the future, failure to account for banked credits in emission inventories used for planning purposes may result in loss of those ERCs not treated as "in the air" (e.g., not included in any future SIP inventory or accounted for in any redesignation of the area to attainment), due to double-counting. Banking rules may protect such reductions in whole or in part as long as such protection is consistent with the Act's mandate to attain and maintain ambient standards while protecting PSD increments and visibility.

EPA-approvable banks can accept and evaluate requests to certify an ERC; serve as a clearinghouse for credits on deposit, and account for transfers and withdrawals of ERCs.[62] Banks can also: Register ERCs to ensure they are considered as current actual emissions in future planning (thus providing the greatest technical measure of protection to those ERCs); notify prospective purchasers of the existence of ERCs; and account for transfers and withdrawals. These roles will generally be performed by the state as part of its normal permitting activities. Use of banked credits must meet all the criteria of the particular SIP regulatory program under which they are to be used.[63]

The following sections address both minimum requirements for state banking rules which are approvable by EPA, and issues states should consider. States may adopt other approaches which produce equivalent results.

1. Banking Rules Must Designate an Administering Agency

Banking rules must identify the entity responsible for specific functions. While the state will ordinarily be responsible for verifying and processing ERC requests, all or part of this responsibility may be delegated to other organizations. Such organization(s) must possess the resources and legal authority to implement delegated activities.

2. Only ERCs May Be Banked

Banked emission reduction credits must be surplus, permanent, quantifiable, and enforceable by the state by the time they are banked.[64] However, if a source commits to produce a specific reduction at a specific time in the future, a state may allow a conditional deposit to be made. Procedures for such conditional deposits must ensure that they do not

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[60] See section II.B.3 below.

[61] States may incorporate EPA-approvable banking rules in the SIP by submitting them for approval as SIP revisions.

Emission reductions banked through a formal or informal banking mechanism prior to a state's adoption of EPA-approvable banking rules may qualify for deposit in the EPA-approvable bank so long as (1) the source shows that its reductions are surplus, permanent, quantifiable and enforceable, and (2) the state shows that these reductions have not already been assumed or otherwise double-counted in the SIP.

[62] States and sources should be aware that because of differing regulatory requirements, the amount of credit actually derived from particular emission reductions may differ from one regulatory program to another. For example, in primary nonattainment areas needing but lacking approved demonstrations, the amount of credit from a given reduction which is available for bubble purposes may be less than that available from the same reduction for offset or netting purposes, since special progress requirements apply to bubbles in these areas.

[63] States may, however, expand opportunities for use of banked credits beyond those of current SIP programs (e.g., extend the "contemporaneous" period for netting), by submitting revised regulations addressing the banking and use of such credits, for approval as SIP revisions.

[64] In primary nonattainment areas which need but lack approved demonstrations, emission reductions made prior to application to bank or trade (whichever is earlier) will not be credited for use in bubbles (see section I.A.1.c.(1) above). Following publication of today's notice, the "date of application to bank" will be the date the source submits an application to the state to make a reduction state-enforceable through or concurrent with use of a formal bank or informal banking mechanism (see section I.A.1.b.(1) above).

In other areas, although emission reductions cannot qualify as ERCs or be deposited in EPA-approvable banks until they are made enforceable by the state, emission reductions banked through other formal or informal banking mechanisms will still be eligible for use in future trades, so long as those reductions are made federally enforceable at their time of use and all applicable requirements of the regulatory program under which they will be used are met. Some states may have to revise their regulations or permit procedures in order to implement this new definition, and implementation will not be expected until one year after publication of today's notice. However, all credits not made enforceable when banked during this interim period should ultimately be made enforceable within eighteen months from today's notice. Emission reductions currently deposited in banks should also be made enforceable by the state within eighteen months from the date of this policy.

compromise the state's ability to secure through further regulation any future reductions which may be needed.[55] In all cases the reduction must be made federally enforceable by the time the emissions trade which relies upon it is finally approved.

3. *Possible Limitations on Use of ERCs for New Source Permitting*

Use of banked ERCs for new source permitting must be consistent with applicable regulations approved by EPA under 40 CFR Parts 51 and 52. For example, under 40 CFR 51.18(j)(3)(ii)(c) shutdowns that occur prior to applications for a new source permit may ordinarily be used only as offsets for replacement facilities, and then only if the permit application was filed within one year after the shutdown occurred or if the reduction occurred after August 7, 1977.[56]

4. *Sources Should Apply to Bank Surplus Reductions As Soon As They Decide To Make Them*

For administrative simplicity and accurate quantification, sources should apply to bank reductions as soon as possible after they decide to make them. The administering agency should formally note the source's intent to make a surplus reduction, as expressed in the application. The state must then verify whether and to what extent the reduction actually occurred, and must make the reduction enforceable by the time it is accepted for deposit.

5. Procedures for Banking Surplus Emission Reductions Should Be Defined

To speed approval of trades and provide greater certainty for potential ERC creators and users, state banking rules should clearly specify which proposed emission reductions can qualify to be credited and banked, the information required of sources to substantiate their claim for credit, and any required application forms. At minimum, such rules must require firms to maintain records (e.g., production records and records of previous emission tests) adequate to determine the pre- and post-reduction actual and allowable values for emission rate, capacity utilization, and hours of operation for the source generating the ERC.

6. Banking Rules May Establish Ownership Rights

To prevent two entities from claiming or attempting to use the same ERCs at the same time, state banking rules may specify who can own ERCs. For example, while the source creating the ERC will generally be its owner, the state could, as part of its rule, reserve ownership of certain classes of ERCs to itself or local governments. States considering the latter course should carefully weigh whether such reservations are likely to increase or diminish future reductions and air quality management capabilities.

7. Banking Rules Must Establish an ERC Registry or Its Equivalent

An ERC registry or equivalent instrument allows states to track ownership, use, and transfer of all banked ERCs. Banking rules may provide that no transfer of title to a banked ERC will take effect until the transaction is reflected in the registry. This tracking system can minimize potential disputes and provide a central list of certified ERCs which may be available to potential purchasers. It can also provide useful information for quickly evaluating any proposed use of a banked ERC.

Information which may help evaluate future proposed uses of a banked ERC should be recorded at the time of its creation and entered as part of its banking record. This information should include the location of the source creating the ERCs; whether the reduction is due to a shutdown or curtailment; the date the reduction occurred or will occur (to allow future determination of the timing of the reduction with respect to the application for credit or its contemporaneity for use in netting or, if a shutdown, as an offset); the source's stack parameters; the temperature and velocity of its plume; particle size; the existence of any hazardous pollutants; daily and seasonal emission rates; and other data which might reasonably be deemed necessary under the requirements described in sections I.A. and I.B. above to evaluate future use.

To perform these tracking and clearinghouse functions the ERC registry must be accessible to the public. Subject to confidentiality considerations, states should make copies of the ERC registry available at convenient locations and times, and may want to publish or otherwise issue a periodic summary of banked ERCs.

8. Possible Adjustments to ERCs Based on Enforcement Considerations

Banking rules should state what, if any, changes may occur to ERCs after they have been banked. Once an ERC has been used by another source to meet a permit or other regulatory requirement, any violation of the conditions under which that ERC was created should result in enforcement against the source producing that ERC and not the source using it. If a state attempted to enforce against the source using purchased ERCs, a complex set of third-party lawsuits would likely ensue.[57]

9. Possible Adjustments to ERCs Based on Ambient Attainment Considerations

To assure the validity of its demonstration(s) of progress or attainment, a state with a banking rule must assume that all banked emissions will ultimately be used. In evaluating their ability to attain national standards, such states must add to their emissions inventory or measured ambient values all unused banked reductions at the site at which they were created. This is especially important for areas requesting reclassification from nonattainment to attainment. Failure to account for banked reductions as "in the air" for SIP planning purposes would ordinarily eliminate their use as ERCs following a new SIP design or inventory year, due to double-counting.

Additional emission reductions may be required from sources because of their area's failure to attain ambient standards, because of an increment violation, because of existing visibility impairment, or because new RACT requirements are being imposed under a SIP schedule. The existence of banked ERCs must not interfere with states' ability to obtain these additional reductions, and a state's rules on treatment of banked ERCs must provide it the necessary flexibility to meet future requirements. However, state banking rules may address, within this criterion, how banked ERCs will be treated if

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[55] States have several available options to provide such assurance. They may, for example, bar conditional deposits from source categories which are subject to pending regulation. Alternatively, they may allow unrestricted conditional deposits but write future regulations in terms of RACT-equivalent reductions (e.g., an 80% reduction in current actual emissions) rather than in terms of specific control strategies or emission levels. The latter approach can avoid possible claims by some sources that no further control is required, while strengthening the state's ability to encourage further voluntary reductions as well as mandate needed ones. See section I.C.8.b below. States may adopt whichever alternative satisfies these concerns in their particular situation.

[56] See n. 14 above.

[57] Moreover, conflicting private-party attempts to assess ultimate responsibility for required reductions could make the purchased ERCs unenforceable and result in restoration of the creating source's original (higher) emission limits, due to claims that surplus reductions were produced in reliance on government rules implying their reasonable merchantibility and use. For these reasons emission limits altered as a result of the creation and use of ERCs must remain final and enforceable against the creator of those ERCs, so fa as EPA is concerned.

additional reductions are required to attain and maintain NAAQS, protect PSD increments, or improve visibility. Available options include:

a. ERCs Generated Prior to the Design or Baseline Year Could be Eliminated. The use of ERCs generated prior to the design or baseline year is unlikely to be consistent with the state's demonstration, unless the state included such ERCs as "in the air" for planning purposes at that time.

b. ERCs Could be Guaranteed Against Adjustment. The state would determine the necessary quantity of reductions from individual sources and source categories and require these reductions from actively emitting sources. Banked credits previously created by sources would be fully preserved. Emitting sources could then satisfy new requirements for reductions either by reducing emissions directly or by using or purchasing equivalent ERCs.

In implementing this option, it would be particularly important for states to adjust downward the estimated total reductions due to these new regulatory requirements, in order to reflect reductions previously achieved as a result of banking actions. Alternatively, states could phrase new control requirements in terms of equivalent reduction results (e.g., "RACT-equivalent" reductions in nonattainment areas) as well as specified control techniques or emission levels. Under this approach necessary additional control requirements would be expressly stated in terms of additional reduction responsibilities, to be met without regard to prior trades.[58]

c. Use or Deposit of ERCs Could be Temporarily Suspended. States may suspend either ERC use or future ERC deposits until the state has committed in its SIP to secure reductions sufficient to reestablish progress or cure an increment violation. Use of either type of moratorium would be consistent with air quality objectives while allowing sources to retain and eventually use their entire quantity of banked ERCs. However, these options may be undesirable because of uncertainty regarding the moratorium's start, duration, or potential interference with user planning. This may be especially true where a moratorium on use (rather than deposit) is imposed after ERCs have been banked.

d. Across-the-Board Discounting. Under this option, the state could discount all ERCs in the bank by the same factor. For example, if a 10% additional reduction is required from a particular category of sources for the SIP's new demonstration, the state would discount all currently banked ERCs from those types of sources by 10%. Although the quantity of ERCs held by a firm will be reduced, the overall supply of ERCs will decrease, while demand will increase. Indeed, other sources may seek to purchase banked ERCs from creating sources, in order to meet the 10% reductions required of them. Thus, the price per unit of remaining ERCs is likely in many cases to increase.

This option is relatively straightforward for VOC or NO_x. For SO_2 or particulate matter more detailed, source-specific modeling would generally be required to allocate the discount necessary to demonstrate attainment.

States may adopt any of these methods of accommodating possible additional reductions. They may also adopt any equivalent method which achieves the same objectives.[59]

II. Trades Covered by State Generic Rules

This section explains how states may develop EPA-approvable generic rules under which classes of emissions trades may be exempt from the general requirement for subsequent EPA approval as case-by-case SIP revisions.

A. General Principles for Evaluating Generic Rules

A generic rule is approvable if it assures that emissions trades otherwise requiring case-by-case SIP revisions under sections 110(i) and 110(a)(3) of the Clean Air Act will be evaluated under state procedures that are sufficiently replicable in operation to guarantee that emission limits produced under the rule will not interfere with timely ambient attainment and maintenance or jeopardize PSD increments or visibility. Replicability generally means a high likelihood that two decision-makers applying the rule to a given trade would reach the same conclusion. For one example of a generic rule incorporating a very simple formula that meets tests of replicability, see 46 FR 20551 (April 8, 1981). In relation to generic bubble rules, this means that specific modeling procedures or surrogates are prescribed and that states have appropriately defined their choice of models, model inputs, and modeling techniques in applying these procedures to specific trades. Thus these trades should not create new ambient violations of standards or increments, delay the planned removal of existing violations, or degrade visibility in Class I areas. By approving such generic rules, EPA approves in advance an array of acceptable SIP emission limits, and no further SIP revision is required for trades which meet the terms of the state's approved rule.

EPA will comment on trades proposed under generic rules, conduct reviews of trades approved under those rules, and audit the implementation of these rules as part of its routine audits of other state air programs. See Section E below.

B. Scope of Generic Rules

States may use a range of mechanisms to exempt bubble trades from individual SIP revisions. While several general mechanisms are explained below, states may submit other generic rules that satisfy these basic principles. See section II.D below for specific requirements for generic rules in primary nonattainment areas which need but lack approved demonstrations.

1. VOC or NO_x Trades

VOC or NO_x trades approved by states under a generic rule that assures no net increase in applicable baseline emissions may occur without case-by-case SIP revisions.

The ambient impacts of VOC and NO_x emissions are areawide rather than source-specific. All such emissions within a broad area are considered comparable, regardless of plume height, topography or related factors. Thus, the ambient impact of trades involving emissions of VOC or NO_x from different sources within such an area will by definition be equivalent to that of the sum of applicable baseline emission limits for the sources involved in the trade.

For VOC and NO_x such pound-for-pound trades may therefore be treated under generic rules as equal in ambient effect where all sources involved in the

[58] See footnote 55 above.

[59] The preceding discussion generally assumes the bank is located in an attainment area or nonattainment area with an approved demonstration. In primary nonattainment areas which need but lack approved demonstrations, use for bubble purposes of banked shutdown or other credits which meet relevant requirements of today's notice will similarly be allowed. See section I.A.1.c.(3) above. Bubbles in these areas will already be subject to special progress requirements. However, in order to accommodate possible additional reduction requirements in other areas in a manner consistent with banks, states may voluntarily adopt such an approach for bubbles prior to the issuance by EPA of any formal notice of SIP deficiency mandating such requirements. States may also choose (as some have already done) to specify greater than 1:1 trading ratios for bubbles, offsets or netting. While this approach would not adjust the total amount of credit available in a bank, it can substantially enhance SIP planning efforts and provide a net air quality benefit by reducing the amount of emissions that can ultimately be returned from the bank to the air.

trade are located in the same control strategy demonstration area, or where replicable procedures have been approved by EPA as part of the generic rule for determining when sources outside the demonstration area are sufficiently close that a pound-for-pound trade can be justified.[60]

In general, generic VOC trading rules must require that surface coating emissions be calculated on a solids-applied basis. The rule should also specify the maximum time period over which emissions may be averaged in an acceptable compliance demonstration. For VOC that averaging time should not exceed 24 hours unless the rule contains language approved by EPA that expressly allows a longer averaging period. See Appendix D below.

2. Particulate, SO_2, CO or Pb Trades

Classes of particulate, SO_2, CO and lead (Pb) trades may also be exempt from SIP revisions if they are approved under a state generic rule which assures that valid ERC uses cannot reasonably interfere with attainment and maintenance of air quality standards or jeopardize PSD increments or visibility.[61]

De Minimis Trades. Trades of particulates, SO_2, CO or lead (Pb) in which applicable net baseline emissions[62] do not increase and in which the sum of the emission increases, looking only at the increasing sources totals less than 25 tons per year (TPY) for particulates, 40 TPY for sulfur dioxide, 100 TPY for carbon monoxide, or 0.6 TPY for lead (Pb), after applicable control requirements, may proceed without modeling and case-by-case SIP revisions.[63] Such trades will have at most a *de minimis* impact on local air quality because they will produce no net increase in emissions and the amount of emissions being shifted is not significant in ambient effect under associated EPA regulations. See 45 FR 52745 (August 7, 1980).[64]

Level I Trades. The ambient impact of particulate, SO_2, CO or Pb emissions depends on site-specific factors such as topography and plume height which are ordinarily evaluated by ambient dispersion modeling. However, if applicable baseline emissions do not increase, sources are located in the same immediate vicinity, and all other Level I requirements discussed in section I.B.1.b.(2) above are met, it can reasonably be assumed that "pound-for-pound" trades will produce ambient effects equivalent to those which currently approved air quality models would predict. As a result, trades meeting the criteria in section I.B.1.b.(2) above may be treated in the same manner as generic VOC and NO_x trades, and exempted from modeling and case-by-case SIP revisions.

EPA will normally approve generic rules that define "same immediate vicinity" as up to 250 meters between individual emission sources involved in a trade.

Level II Trades. Other particulate, SO_2, CO and Pb trades may also be exempted from case-by-case SIP revisions if they meet the Level II criteria in section I.B.1.b.(3) above and can routinely be modeled in a prescribed manner. The state's generic trading rule must specify the particular refined model that will be employed in a given situation, or criteria for selecting models in specified circumstances. To limit variability in modeling results the rule must also require at least a full year of meteorological data, identify the sites for that data, and specify procedures for selecting input data (e.g., wind speed, stability class, source emission rate) which are sufficiently defined to satisfy replicability concerns.[65] In some limited circumstances, a sufficiently conservative screening model could be specified as part of the generic rule. See section I.B.1.b(3) above.

Level III Trades. Because of the wide variability in data input and use inherent in full-scale dispersion modeling, Level III trades must be processed as individual SIP revisions. But cf. sections II.B.4 and III below.

3. Limits on Trades Exempt From SIP Revisions Under Generic Rules

Because some trades cannot readily be addressed in a replicable manner, the following may *not* in general be exempted under generic rules from the requirement for case-by-case SIP revisions:

a. Particulate, SO_2, CO or Pb trades requiring full-scale dispersion modeling under Level III (see section I.B.1.b.(4) above);

b. Particulate, SO_2, CO or Pb trades where complex terrain[66] is within the area of the source's significant impact or 50 km., whichever is less, unless the trade does not result in a modification of effective stack heights and the trade otherwise qualifies as *de minimis* or Level I. The area of significant impact can be determined as noted in footnote 27 above and in Appendix E;[67]

c. Open dust trades; and

d. Level II trades involving process fugitive particulate, SO_2, CO or Pb emissions not discharged through stacks.[68]

In addition to the above, in order to protect the integrity of various SIP processes, the following types of trades may not, in general, be exempted under generic rules from the requirement for case-by-case SIP revisions: (1) Trades involving ERCs from mobile source measures, (2) trades involving emission sources which are the subject of an enforcement action manifested by issuance of a notice of violation, an administrative order or section 120 action, or the filing of a judicial complaint, unless the rule specifies an

[60] The discussion in this paragraph does not apply to certain NO_x trades involving visibility impaction due to elevated plumes.

[61] The ambient equivalence considerations elaborated in this and following paragraphs also apply to NO_x trades involving visibility impaction due to elevated plumes. See n. 60 above.

Unlike other critical pollutants, EPA does not designate nonattainment areas for lead. However, states must review lead trades, as all other trades, to assure that they do not interfere with attainment and maintenance of the NAAQS.

Generic state approvals of trades involving pollutants addressed in this subsection must be limited to sources which are located in the same or adjacent control strategy demonstration areas and the same general air basin.

[62] See n. 31 above.

[63] The *de minimis* level is 40 TPY for NO_x trades where visibility impaction due to elevated plumes is a consideration.

[64] This paragraph should not be construed to imply that *new* sources and modifications need not meet all applicable requirements, including those specified under 40 CFR 51.18 or parallel EPA-approved state rules.

[65] Because today's notice confirms the authority of states to use such EPA-approved refined models as MPTER, CRSTER or ISC to conduct the "daily, temporal, spatial analysis" of post-trade ambient impacts required under Level II, approval of generic rules incorporating Level II approaches should be less uncertain and burdensome than under the previous 1982 approach. See, e.g., Appendix C below.

[66] Complex terrain is broadly defined by EPA as terrain greater in height than the physical stack height of a source. For bubble purposes, this definition is applicable only to sources with an increase over baseline emissions.

[67] Generally, aside from the exception stated above, trades involving complex terrain as defined above may not be processed under generic rules. However, states may wish to develop and submit for EPA approval additional area-specific criteria for determining when trades involving complex terrain do not present problems of potential plume impaction, and therefore may be approved under generic rules as *de minimis*, Level I or Level II trades using a flat terrain model. These additional criteria would include such factors as source height and emission rate, distance between stack and elevated features, rate of topographical rise, and other considerations which may be appropriate for a particular geographic area. States are encouraged to work with EPA to determine whether, where and how much additional criteria can be developed and applied within their state. Unless EPA has formally approved such additional criteria for a given geographic area as part of a generic rule, states must apply the general restrictions stated above when processing trades in that area under the rule.

[68] See Appendix C.

appropriate mechanism for notifying EPA of the source's bubble application prior to formal state proposal and for securing and recording written EPA concurrence that the bubble meets all pertinent requirements of the generic rule, (3) interstate trades, (4) VOC trades with averaging times longer than 24 hours, unless a state generic rule expressly providing for longer averaging times has been approved by EPA, (5) trades involving work practice and equipment standards, unless a state generic rule containing a provision expressly providing for state evaluation of such trades in a replicable manner has been approved by EPA, and (6) trades involving negotiated RACT baselines. *However*, a state generic trading rule could specify "presumptive RACT" limits which acceptably define generic trading baselines where RACT has not otherwise been defined in the SIP. While RACT baselines different from this presumptive limit could still be used for specific trades, they would need to be approved as case-by-case SIP revisions. Where there is no RACT in the SIP, but EPA has issued a CTG for sources of the type involved in the trade, the CTG should be used as the presumptive RACT-component of the generic trading baseline.

To the extent necessary, EPA will issue notices requiring that existing generic rules be revised to reflect these restrictions. See section II.E.4. below.

4. Other Generic Mechanisms for Exempting Particulate, SO_2, CO or Pb Trades From Case-by-Case SIP Revisions

EPA will approve other generic techniques which are demonstrated to equally protect ambient standards, PSD increments, Class I areas, and visibility. For example, a state could approve a modeled formula for two or more specific emission sources which would satisfy ambient concerns while allowing firms to define specific permit limits at each covered emission source. Like other generic provisions, such a formula would have to be approved as part of the SIP. EPA encourages states to work with EPA Regional Offices where they seek to develop other generic mechanisms which meet the tests of replicability and ambient equivalence described above.

C. Enforcing Emission Limits Under Generic Rules

Alternative emission limits approved under generic rules are considered by EPA to be federally enforceable so long as the generic rule specifies the compliance instrument (permit limits, etc.) under which the conditions of the trade will be implemented and all substantive and procedural requirements of the approved rule are met. Generic rules must specify that such alternative limits become applicable requirements of the SIP under § 110 for purposes of sections 113, 120, and 304 of the Clean Air Act and are enforceable in the same manner as other SIP requirements. To assure that EPA and citizens know what emission limits apply, generic rules must also specify that, and in what manner, EPA will be informed of emission limits applicable before and after the trade. (For additional issues related to enforceability, see section I.A.2 above. For requirements related to opportunity for public comment, see section II.F. below).

D. Generic Bubble Rules in Primary Nonattainment Areas Which Lack Approved Demonstrations of Attainment

Generic rules will continue to operate in primary nonattainment areas which require but lack approved demonstrations of attainment, under the following conditions:

1. Bubbles approved under existing generic bubble rules prior to the effective date of today's policy will not be affected by today's requirements.

2. Bubbles submitted to states under existing generic rules may continue to be approved by states in accord with those rules, until such rules are finally changed, pursuant to specific formal EPA request, to meet the criteria listed below. Such rules must, however, as requested by EPA, be modified to meet the criteria below.[69]

3. Applications for new generic bubble rules applicable to these areas, and applications for generic rules now pending before EPA, will be approved provided they meet the criteria below and all other applicable requirements of today's policy.

Criteria for Approvable Generic Bubble Rules. New and revised generic bubble rules applicable to primary nonattainment areas which require but lack approved demonstrations of attainment must, for bubbles in those areas:

a. Use lowest-of-actual-SIP-allowable-or-RACT-allowable emissions baselines for all sources involved in the trade;[70]

b. Using baseline emissions defined above, meet applicable *de minimis* Level I or Level II modeling tests for ambient equivalence, as appropriate;

c. Produce an overall emission reduction from each bubble equal (in percentage terms) to the larger of a 20% reduction in emissions remaining after applicable baselines, or to the overall emission reduction from controllable stationary sources (in percentage terms) needed to attain in the area (i.e., at least equal to the source-by-source emission reductions that would be required for a full demonstration of attainment, taking into account "uncontrollable" area or other stationary sources and expected emission reductions from mobil sources).[71] This determination must be

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[69] In the interim, EPA expects states to ensure, so far as feasible, that bubbles approved under existing generic rules are consistent with this policy as well as with the terms of their EPA-approved rules. States should be aware that without this or similar precautions, continued approval of bubbles under existing generic rules containing identified deficiencies may create or accentuate plan deficiencies which may have to be corrected at a later date or compensated for by other means. See section E.4. below.

[70] For detailed discussion of these baselines, see section I.A.1.b. above and Appendix B.

[71] For example, assume air quality analysis indicates the area must decrease its base-year emissions by 45% to attain the relevant NAAQS. Further assume

	TPY
(a) For the base year:	
Uncontrollable stationary source emissions (e.g., residential combustion sources)	2,500
Controllable stationary source emissions	3,500
Mobile source emissions	4,000
Total	10,000
Target emissions for attainment 10,000×(1.0–0.45)	5,500
(b) For the projected attainment year (before additional controls):	
Uncontrollable stationary source emissions (2,500×1.1)	2,750
Controllable stationary source emissions (3,500×1.2)	4,200
Mobile source emissions	2,500
Total	9,450

Therefore the reductions needed from controllable stationary sources are 9,450–5,500=3,950 TPY

And the percent emission reduction required from controllable stationary sources to attain is

$$\frac{(3950)}{(4200)} \times 100 = 94\%$$

Thus the net overall reduction required from each generic bubble would be 94% (i.e., the reductions produced by applicable baselines (e.g., application of a RACT emission rate) plus whatever percent reduction in emissions remaining after this RACT limit is sufficient to yield the 94% total).

States that wish to avoid SIP revisions for sources for which RACT has not yet been defined in an approved SIP provision may incorporate "presumptive RACT" limits (e.g., 80% reduction for VOC) in their generic rules. Sources would then have the option of accepting these RACT limits for generic bubble purposes, or negotiating different RACT limits through the SIP revisions process. However, where a source involved in a trade is one for which EPA has issued a CTG, but the state has not yet adopted the CTG-specified limit as RACT and no RACT has yet been specified by the state for that source, the presumptive or negotiated RACT limit for the trade must be at least as protective as the CTG for that source.

submitted with the rule, and must use the same type and quality of analysis as that required for an EPA-approvable SIP; and

d. Provide assurances, in conjunction with the State's submittal of the generic rule to EPA, that the state (i) is making reasonable efforts to develop a complete approvable SIP that will achieve the percent emission reduction from controllable sources described in the previous paragraph and (ii) intends to adhere to the schedule for development of such a SIP (including dates for completion of emissions inventory and subsequent increments of progress), as stated in the letter accompanying the submittal or in previous letters. In addition, to ensure that generic approvals continue to complement and do not interfere with attainment planning, EPA will require the state to include the specific assurances listed at section I.A.1.b.(3) above in or with its notices of proposed and final approval of each bubble issued under the generic rule in such a nonattainment area.[72]

E. EPA Oversight of Generic Rules

In order to ensure proper implementation of EPA-approved generic trading rules, EPA intends to (a) examine and comment on, together with any other public commenter, the information provided for individual trades proposed under a generic rule, (b) conduct reviews of individual trades approved under such a rule, and (c) periodically audit the implementation of the generic rule itself.

1. EPA Comment on Trades Proposed Under Generic Rules

When processing emissions trades under generic rules, states are required to provide EPA and the public with adequate notice and opportunity to comment. See sections II.F. and II.G. below. EPA will use state procedures for notice and comment to oversee the implementation of generic rules without delaying state processing of trading applications.

The information which a state must provide to EPA by the first day of the comment period (see section II.G. below) is generally sufficient for EPA to determine that a trading application is being processed properly. Where this information is not sufficient, EPA may request the application itself, and the state must provide it promptly.

Where EPA elects to provide any comments on the proposed approval, it will do so in writing, by the close of the comment period specified in the state's notice. EPA may also testify at any public hearing held pursuant to the approval of a trading application under a generic rule. Trading applicants and state officials are strongly advised to address EPA's comments, and where necessary to incorporate an appropriate response to those comments in the final approval document.[73]

2. Reviews of Individual Bubbles Approved Under Generic Rules

Reviews of individual generic bubble approvals, apart from the regularly scheduled reviews associated with activities under EPA's National Air Audit System (see section II.E.3. below), may be conducted at any time by EPA in order to promptly address identified or suspected problems and to avoid patterns of improper approval or other adverse effects which might accumulate before the next biannual audit is conducted.

3. EPA Audits of the General Implementation of Generic Rules

Under the National Air Audit System, EPA conducts a program audit of each state agency responsible for implementing the SIP and delegated federal programs.[74] These audits are currently carried out on a biannual basis. As part of the National Air Audit System, EPA will conduct an in-depth file audit of a representative sample of generic trading approvals issued by the relevant state.

4. Deficient Generic Trades

As discussed above, generic rules can expedite the approval process for certain classes of emissions trades, because they allow such trades to be approved by states without undergoing a subsequent federal rulemaking process. However, to be considered valid by EPA, a trade approved under generic rule must:

(1) Be one of a class of trades w[illegible] within the scope of the generic rule;

(2) Be approved *after* the generic ru[illegible] has been approved by EPA, and

(3) Meet all the provisions of the generic rule as approved by EPA.

If a state-approved emissions trade does not meet all these requirements it cannot be considered part of the SIP a[illegible] by definition cannot replace prior valid emission limits in the SIP. See 46 FR 20554–55 (April 6, 1981). Should EPA determine, as a result of its oversight activities, that a state-approved trade [illegible] inconsistent with the above requirements, it will notify the state a[illegible] source in writing and specify any necessary remedial measures. In such circumstances, EPA may take appropriate remedial action to assure attainment and maintenance, including direct enforcement of the original SIP limits.[75]

5. Deficient Generic Rules

Existing generic rules approved under previous EPA policy and guidance may require revision in order to make them consistent with today's final policy. In addition, a generic rule approved by EPA under the final policy may subsequently be found to be defici[illegible] some respect. Because EPA-approv[illegible] generic rules have independent forc[illegible] law, they can only be amended upon completion of a formal SIP revision process.

In order to ensure that generic rules are consistent with the Agency's curre[illegible] Emissions Trading Policy, EPA will publish notices in the Federal Register which identify any generic rules requiring formal modification.[76] These notices will identify specific deficienci[illegible] and means for correcting them, and wi[illegible] set forth a schedule for submission and review of revised rules. These notices will alert affected states to the danger that continued processing of trades

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[72] These four requirements must be included as a contingent provision in all future generic rules, with the contingency triggered to apply to bubbles in primary nonattainment areas which become subject to a SIP call questioning their approved demonstration, after the generic rule was approved.

[73] Lack of EPA comment during the comment period will not bar future appropriate EPA enforcement or rulemaking actions if the bubble is found to be inconsistent with the generic rule.

[74] See, e.g., National Air Audit Guidelines for FY 84, Office of Air Quality Planning and Standards, EPA-450/2-83-007 (November 1983).

[75] In some cases EPA may have approved state SIP provisions which meet the functional criteria f[illegible] generic rules, without indicating whether or not those provisions were approved for generic operation. Today's notice does not address the effect of generic validity of such provisions.

[76] EPA's publication of such notices will not trigger special progress requirements for case-by-case SIP revision bubbles in areas other than primary nonattainment areas which require but la[illegible] demonstration. Primary nonattainment areas whic[illegible] require but lack demonstrations should already be subject to special progress requirements of case-b[illegible] case SIP revision bubbles.

under these rules may create or accentuate plan deficiencies which may have to be corrected at a later date or compensated by other means. Where states fail to remedy deficiencies identified in the notice within the prescribed period. EPA may either rescind its previous approval of the rule. or issue a notice of SIP deficiency under section 110(a)(2)(H) of the Act.

F. Public Comment

For emissions trades processed under generic rules, existing state statutes or regulations will generally provide for adequate public notice and opportunity to comment, including opportunity for judicial review sufficient to make comment effective. Under such statutes or regulations, after the state has reviewed a bubble application submitted pursuant to an approved generic rule, a newspaper or similar notice is typically published providing a comment period (usually thirty (30) days) on the proposed decision to approve or disapprove the application. This notice generally informs the public that the proposed approval document (license, order, permit, consent agreement, etc.), the application itself (with the exception of any portion entitled to confidentiality under state or federal law[77], and the technical analysis performed by the state in making its proposed determination, are available for review at specified times and locations. The notice also offers the opportunity for a public hearing.

Under today's policy, the state must also notify the relevant Federal Land Manager if an emissions trade will take place within 100 kilometers of a PSD Class I area. Notification must occur early enough in the review process to allow at least 30 days for the submittal of comments before the trade will be approved by the state.

Where adequate procedures for public notice and comment are not already provided in existing state statutes or regulations, such procedures must be provided as part of an EPA-approved generic rules. In all proposed and final generic bubble actions, states must clearly and publicly identify both the pre- and post-trade actual and allowable emissions of each source involved in the trade, so that the ambient effects of each bubble may be known.

To ensure adequate public awareness consistent with § 304 of the Clean Air Act, state generic rules or other existing state laws or regulations must also make publicly available any changes to emission limits which result from trades approved under a generic rule.

G. EPA Notification

In addition to the above requirements for public notice and comment, the generic rule or other state provisions must require that states, by the first day of the public comment period, provide the appropriate EPA Regional Office (see addresses in Appendix A) with a copy of the public notice, the proposed approval document, and the technical analyses performed in evaluating the trading application, together with any summary of those analyses which is available for public review.

State provisions must also require that immediately upon issuance of a final generic trading approval, the state will forward two copies of that document to the relevant EPA Regional Office, and will also submit to EPA any additional documentation which is included in comments or the post-comment record and supports that final state approval.

Any notices issued by EPA to correct notice and comment procedures which do not meet these requirements under current or future generic rules will not trigger special progress requirements or otherwise affect the operation of those rules. Because of the importance of adequate public and EPA notice, affected states should, however, correct deficient notice procedures to the extent practicable, in the interim period before formal rule revisions are submitted and approved.

H. Rulemaking on Generic Rules

EPA will process acceptable generic trading rules for approval as revisions to SIPs as expeditiously as possible. In the interim, states are encouraged to use parallel-processing SIP revision procedures (see 46 FR 44477; Sept. 4, 1981) wherever practical. Trades may not be generically approved by a state until EPA has published a notice of final approval of the generic trading rule in the Federal Register.

III. Trades Not Covered by State Generic Rules

In the absence of a generic rule, states and sources must use case-by-case SIP revisions to effect bubble or external offset trades. Individual trades may also fall outside the scope of an approved generic rule and still be implemented as case-by-case SIP revisions. The principles described in the Policy Statement and this Document will be used to evaluate these emission trades.

Because of the ability of the case-by-case SIP revision process to take account of greater individual variations, many trades which could not be accomplished under a generic rule may nevertheless be approved as case-by-case SIP revisions. Through this SIP revision process, states and sources may also demonstrate that a general principle discussed in Section I above does not apply to their particular circumstances, or that such a principle may be satisfied in other ways.

EPA will make reasonable efforts to take prompt action on SIP trading proposals after a state has ruled on an individual application and submitted it to the Agency. EPA encourages "parallel processing" of such proposals, with EPA and state officials conducting concurrent review so that both agencies can give public notice of proposed action at roughly the same time. EPA can then take final action after the state completes its proceedings, provided the state does not substantially alter the proposal after public notice. EPA will also publish noncontroversial SIP revisions as direct final actions, converting them to proposals only if requests to submit adverse comments are received within 30 days (see generally 46 FR 44477, September 4, 1981). In all bubble actions EPA will clearly identify (or require states to identify, as appropriate) both pre- and post-trade actual and allowable emissions for each source involved in the trade, so that the ambient effects of each bubble may be known.

Appendix A—Regional EPA Emissions Trading Coordinators

Region I. David Conroy (APS-2310), State Air Programs Branch, U.S. Environmental Protection Agency, Region I, John F. Kennedy Federal Building, Boston, Massachusetts 02203, (617) 565-3252; FTS 835-3252

Region II: Betty Martinovich, Air Branch, U.S. Environmental Protection Agency, Region II, 26 Federal Plaza, New York, New York 10007, (212) 264-2517; FTS 264-2517

Region III: Cynthia Stahl, Air Programs Branch, U.S. Environmental Protection Agency, Region III, 841 Chestnut Building, Philadelphia, Pennsylvania 19101, (215) 597-9337; FTS 597-9337

Region IV: Melvin Russell, Air Programs Branch, U.S. Environmental Protection Agency, Region IV, 345 Courtland Street, N.E., Atlanta, Georgia 30308, (404) 257-2864; FTS 257-2864

Region V: Joe Paisie, Air Compliance Branch, U.S. Environmental Protection Agency, Region V, 230 South Dearborn Street, Chicago, Illinois 60604, (312) 886-5777; FTS 886-5777

Region VI: Bill Riddle, Air Program Branch, U.S. Environmental Protections Agency, Region VI, First

[77] The specific pollutants emitted by the source, the amount of those pollutants, and their ambient air impact may not be deemed confidential.

International Building, 1201 Elm Street, Dallas, Texas 75270, (214) 767-9870; FTS 729-9870

Region VII: Charles Whitmore, Air Support Branch, U.S. Environmental Protection Agency, Region VII, 324 East 11th Street, Kansas City, Missouri 64106, (913) 236-2896; FTS 757-2896

Region VIII: Dale Wells, Air Programs Branch, U.S. Environmental Protection Agency, Region VIII, 1860 Lincoln Street, Denver, Colorado 80296, (303) 293-1773; FTS 564-1773

Region IX: Nancy Harney, Air Management Division, U.S. Environmental Protection Agency, Region IX, 215 Fremont Street, San Francisco, California 94105, (415) 974-7658; FTS 454-7658

Region X: David Bray, Air Programs Branch, U.S. Environmental Protection Agency, Region X, 1200 6th Avenue, Seattle, Washington 98101, (206) 442-4253; FTS 399-4253

Appendix B—Definitions of "Actual," "Allowable" and "Baseline" Emissions for Purposes of Emissions Trading

As used in this document with respect to bubbles, a source's "actual" emissions equal its average historical emissions, in tons per year, for the two-year period preceding the source's application to bank or trade emission reduction credit. Another time period may be deemed more representative of typical operations, but the applicant or state must show that actual emissions of such other period are consistent with air quality planning for the area. The definition of "actual emissions" for new source review purposes is somewhat different.[1] See 45 FR 52745 (August 7, 1980); 40 CFR 51.18(j)(1)(xii), 51.24(b)(21), 52.21(b)(21) and 52.24(f)(13).

A sources's "allowable" emissions in tons per year are calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable operating restrictions) and the most stringent of: (a) A standard applicable under 40 CFR Parts 60 or 61; (b) any applicable SIP emissions limitation, including those with a future compliance date; or (c) an emissions rate set in a federally enforceable permit condition. See 40 CFR 51.18 (j)(1)(xi), 51.24(b)(16), 51.21(b)(16) and 52.24(f)(11). The same definition of "allowable emissions" appears at each of these citations. See also 45 FR 52745 (August 7, 1980).

For bubbles, a source's "baseline" emissions are equal to the product of its (1) *emission rate* ("ER"), specified in terms of mass emission per unit of production or throughput (e.g., pounds SO_2 per million BTU or pounds of VOC per weight of solids applied); (2) *average hourly capacity utilization* ("CU") (e.g., millions of BTU per hour or weight of solids applied per hour); and (3) *number of hours of operation* ("H") during the relevant time period. I.e., baseline emissions = ER x CU x H. Net baseline emissions for a bubble are the sum of the baseline emissions of all sources involved in the trade.

In attainment areas and nonattainment areas with approved demonstrations of attainment, a source's baseline emissions for bubble purposes must generally be determined using the lower of "actual" or "allowable" values for each of the three baseline factors. Actual values for these factors are determined based on the source's average historical values for the factors for the two-year period preceding the source's application to bank or trade emission reduction credits. As discussed above, another time period may be deemed more representative of typical operations, but the emissions for that other period must be shown to be consistent with air quality planning for the area. A source's allowable values for the three baseline factors are determined based on its lowest federally enforceable limit for those factors (i.e., the lowest limit specified in an applicable SIP, PSD or other NSR permit issued under an EPA-approved program, compliance order, or consent decree), including those with a future compliance date.

The actual values for any of the three baseline factors, when higher than corresponding allowable values, may not be used by a source in calculating baseline emissions (i.e., reductions down to compliance levels cannot qualify for emission reduction credit). The allowable values for one or more of these factors, when higher than the corresponding actual values, may be used in calculating bubble baseline emissions for a source only in the following circumstances:

- Where, in a nonattainment or attainment area with an approved demonstration, the applicant shows that the demonstration assumes allowable value(s) for the factor(s) in question. Such a showing must be based on written evidence.
- Where, in an attainment area, the approved demonstration does not assume allowable value(s) for the baseline factor(s) in question, but the applicant performs satisfactory ambient tests to show that the use of such allowable value(s) will not jeopardize attainment and maintenance of NAA[illegible] PSD increments or visibility. For particulate matter or SO_2, this wi[illegible] require at least a Level II modelin[illegible] analysis using actual emissions for th[illegible] pre-trade case.[2] Where such an ana[illegible] is submitted to justify allowable val[illegible] for a case-by-case SIP revision bubb[illegible] the Region may require a[illegible]itional technical support [illegible] deem[illegible] necessar[illegible] to protect applicable standards or increments. See Section I.B.1.b above.
- Where, in a non-attainment area with an approved demonstration of attainment, the demonstration does n[illegible] assume allowable value(s) for the baseline factor(s) in question, but the applicant demonstrates through a Lev[illegible] III modeling analysis that the use of such allowable value(s) will not jeopardize attainment and maintenanc[illegible] of NAAQS or PSD increments.
- Where, in an attainment area or a nonattainment area with an approved demonstration, a source has a new source preconstruction permit issued after the PSD baseline date or the base year of the attainment demonstration. [illegible] such cases, the applicant may use the value(s) of ER, CU and H upon which the new source permit was approved.

While the Emissions Trading Policy does permit sources to use allowable values for ER, CU and H in determinin[illegible] baseline emissions for bubbles und[illegible] certain carefully prescribed conditi[illegible] the approach taken recognizes that SIP demonstrations are frequently based o[illegible] a "hybrid" of allowable and actual values, and that bubble baselines in these areas must accurately reflect SIP assumptions for all three baseline factors, or be justified by appropriate modeling, to maintain SIP integrity.

In nonattainment areas needing but lacking approved demonstrations of attainment, sources involved in a bubbl[illegible] must use "lowest-of-actual-SIP-allowable-or-RACT-allowable" emissions baselines. The ER factor for such baselines is based on the actual emission rate, the SIP or other federally enforceable emission limit, or a RACT emission limit, whichever is lower, as of the time of the source's applicable to bank or trade, whichever is earlier. The CU and H factors for such baselines are based on the lower of actual or

[1] For instance, the calculation of actual emissions for netting purposes is as of the date of the event that brings about the reduction.

[2] Where the PSD baseline has been triggered, and such emissions data is available, the pre-bubble situation for sources which were in existence or commenced construction prior to the PSD baseline date should be modeled using emissions consistent with the PSD baseline concentration as defined in 40 CFR 51.24(b)(13) and 52.21(b)(13). However, emissions and associated parameters may be based on more recent values where past emissions data cannot readily be obtained. For related princip[illegible] see section I.A.1.c.(1) above.

allowable values for these factors. Actual values for CU and H must be determined using the source's average historical values for the two year period preceding the source's application to bank or trade, unless another two year period is shown to be more representative of typical operations.

For sources which banked or sought to bank credit in these nonattainment areas prior to publication of today's notice, the "date of application to bank" is the date of written application to the state to bank credit through a formal bank or informal banking mechanism for use in future trades. For sources which seek to bank credit in these areas following publication of today's notice, the date of application to bank will be the date of written application to the state to *make a reduction state-enforceable* through or concurrent with use of a formal bank or informal banking mechanism.

Appendix C—Approvable Modeling Approaches

U.S. Environmental Protection Agency

Office of Air, Noise, and Radiation

February 17, 1983.

Memorandum

Subject: Emissions Trading Policy—Technical Clarifications

From: Sheldon Meyers, Director, Office of Air Quality Planning and Standards (ANR-443)

To: Director, Air and Waste Management Division, Regions II–IV, VI–VIII, X; Director, Air Management Division, Regions I, V, IX

The proposed emission trading policy was published on April 7, 1982, in the Federal Register. During the initial implementation of the proposal, numerous emissions trading issues have arisen including several relating to the technical requirements of dispersion modeling and control strategy evaluations. To address these modeling issues, a special workshop was held to solicit recomendations from Regional meteorologists/modelers as well as the various Headquarters technical staff. The Standing Committee on Emissions Trading has also considered these issues and the recommendations of the workshop group.

This memo is intended to outline the results of these meetings and to provide interim guidance. It is effective immediately and will be incorporated into the final Agency policy when promulgated. The following revisions or clarifications on modeling for TSP, CO, and SO_2, are intended to supplement the criteria included in the April 7, 1982, emissions trading policy statement.

Level I Analysis

• To ensure air quality equivalence under Level I analysis (modeling is not required), trades cannot be approved where complex terrain (terrain greater than any stack with increasing emissions) is within the area of significant impact of the source or 50 kilometers, whichever is less.

• Stacks with increasing emissions must be at least good engineering practice (GEP) to prevent downwash.

• Fugitive process and stack sources can be traded under Level I (i.e., process for process, process for stack, and stack for stack) as long as the maximum distance between any emitting points is less than 250 meters. (This is true for trades under generic rules as well as for trades implemented by SIP revisions. The effective stack height requirement in the April policy remains.)

• Since trades involving open dust sources are very difficult to address in a replicable manner, they cannot currently be approved under generic Level I bubble regulations. (Reiteration of April 7, 1982 proposed policy.)

Level II Modeling Analysis

• In order to satisfy the basic requirement of the emissions trading policy that trades "must demonstrate ambient equivalence," the maximum change in air quality impact (delta) must be determined when performing a Level II anaylsis. Experience has shown that this requirement is not necessarily met where the April 7 policy says to analyze only the "impact at the receptor of maximum predicted impact after the trade." Therefore, to assure that no degradation of air quality greater than the significance levels would occur at any site, the method of finding the maximum deltas must be determined on both a spatially and temporally consistent basis. This means that you look at each receptor point and determine the change in concentration from the before trade case to the after trade case sequentially for each time period within a full year of meteorological data (time period means the appropriate ambient standard averaging time; e.g., 3-hour, 24-hour, etc.). This appears the most reasonable method of determining ambient equivalence at this time.

Other techniques may be approved where they can be demonstrated to be equally protective of the standards and PSD increments. Also, a Level III analysis may be used to supplement those cases where Level II analysis shows a few receptors registering deltas greater than the significance values. This limited Level III anaysis would involve only the geographical area containing the high deltas and would include all contributing sources to that area.

• Use of refined models (e.g., MPTER, ISC) with at least one year of meteorological data is acceptable for a Level II analysis.

• To ensure replicability, only trades involving process fugitive emission sources vented through stacks can be approved in generic Level II rules unless the State rule specifically identifies actual facilities between which process fugitive trades would be permitted. In such cases, the State rule must specify the emission points and all associated and pertinent parameters needed to ensure replicability of modeling results.

• Since trades involving open dust sources are very difficult to address in a replicable manner, they cannot currently be approved under generic Level II bubble regulations. (Reiteration of April 7, 1982 proposed policy.)

• Trades involving complex terrain cannot be approved under Level II generic rules; however, approval of such trades through individual SIP reviews are possible under Level II. EPA's experience in processing bubbles for such sources has shown that they are exceedingly difficult to address in a replicable manner. They require a considerable number of judgments and negotiations among Agency personnel concerning the models, data bases, and proper source characterization.

• All national ambient air quality standards (NAAQS) averaging periods, not just the 24-hour, must be considered when performing the air quality equivalence analysis. This is necessary to assure trades approved under Level II will not have any adverse health and welfare impacts. Therefore, all Level II analyses must test the delta for each receptor site against the following significance levels: TSP—10 $\mu g/m^3$ (24-hour), 5 $\mu g/m^3$ (annual); SO_2—13 $\mu g/m^3$ (24-hour), 48 $\mu g/m^3$ (3-hour), 3 $\mu g/m^3$ (annual); CO—575 $\mu g/m^3$ (8-hour) 2300 $\mu g/m^3$ (1-hour).

Implementation of Changes

Implementation of these changes by the Regional Offices in their negotiations with States and individual sources should begin immediately. If there are any on-going bubble activities where the Regions or States and sources have reached firm agreements which do not comport with these changes, please alert Tom Helms (FTS 629-5526) of my staff. Consideration will be given to situations where the source or State has already invested significant resources in a good-faith analysis based on prior methods of demonstrating ambient equivalence. If you have specific questions regarding implementation of these policy changes, please call Tom Helms.

cc: Chief, Air Branch, Regions I–X, Meteorologist, Regions I–X, Mike Levin, Joe Tikvart, Darryl Tyler

Appendix D—Approvable Averaging Times for VOC Trades

U.S. Environmental Protection Agency

Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina 27711

January 20, 1984.

Memorandum

Subject: Averaging Times for Compliance With VOC Emission Limits—SIP Revision Policy

From: John R. O'Connor, Acting Director, Office of Air Quality Planning and Standards (MD–10)

To: Director, Air and Waste Management Division, Regions II–IV, VI–VIII, X, Director, Air Management Division, Regions I, V, IX

The purpose of this memorandum is to clarify the Agency's policy regarding emission time averaging for existing sources of volatile organic compounds (VOC's). Numerous State implementation Plan (SIP) revisions, both broad regulations and source-specific changes, have been submitted which provide for compliance determinations by "time averaging" emissions of VOC for periods exceeding 24 hours. These requests and the following policy on this subject were discussed extensively at a recent meeting attended by those Regional Offices which have the most pending actions (Regions I, III, IV, V); the Office of Air Quality Planning and Standards; and the Office of General Counsel. This policy represents the consensus of the meeting attendees.

The objective of EPA's national VOC emissions control program is the timely attainment and maintenance of the national ambient air quality standard (NAAQS) for ozone. SIP revisions and other regulatory actions relating to VOC control must maintain the integrity of this basic objective. There should be assurances that VOC emission control is reasonably consistent with protecting this short-term ozone standard. Further, since SIP's and associated VOC control programs comtemplate the actual application of reasonably available control technology (RACT), regulatory actions that incorporate longer term averages to circumvent the installation of overall RACT level controls cannot be allowed.

Current Agency guidance specifies the use of a daily weighted average for VOC regulations as the preferred alternative where continuous compliance is not feasible. An example might be where a facility operates in a batch manner with multiple lines and various products. Reference is made to the December 8, 1980, Federal Register (copy attached) where can coating operators are allowed to "bubble" several production lines and average emissions over a 24-hour time period.

The preferred daily weighted average alternative may not be feasible in all cases. Where the source operations are such that daily VOC emissions cannot be determined or where the application of RACT for each emission point (line, machine, etc.) is not economically or technically feasible on a daily basis, longer averaging times can be permitted under certain conditions. In determining feasibility, consideration might be given, for example, to the extent to which modifications can be made to testing, inventory, or recordkeeping practices in order to quantify daily emissions. Also, variability or lack of predictability in a source's daily operation might be considered as well as availability of control technology or the physical impediment or restriction to control equipment installation. In order to allow longer than daily averaging in SIP regulations, the following conditions or principles must be honored:

1. Real reductions in actual emissions must be achieved, consistent with the RACT control levels specified in SIP's or the control technique guidelines (CTG's). These limits are typically expressed in terms of VOC per unit of production (a qualitative term such as lbs VOC/gal coating). Where it is not feasible to specify emission limits in such terms, emission limits per unit of time can be approved provided that:

a. The emission limits reflect typical (rather than potential or allowable) production rate and operating hours. These emission limits must truly reflect emissions reductions consistent with RACT and are not simply an artificial constraint on potential emissions. This must be supported in the SIP revision by historical production and operation data.

b. Nonproduction or equipment downtime credits are not allowed in the emission limit calculation unless a Federally enforceable document specifically restricts operation during these times. Such credit must be based on real, historical emissions.

2. Averaging periods must be as short as practicable and in no case longer than 30 days.

3. A demonstration must be made that the use of long-term averaging (greater than 24-hour averaging) will not jeopardize either ambient standards attainment or the reasonable further progress (RFP) plan for the area. This must be accomplished by showing that the maximum *daily* increase in emissions associated with long-term averaging is consistent with the approved ozone SIP for the area.

4. Sources in areas lacking approved SIP's, or in areas with approved SIP's but showing measured violations, cannot be considered for longer term averages until the SIP has been revised demonstrating ambient standards attainment and maintenance of RFP (reflecting the maximum daily emission from the source with long-term averaging).

Meaningful short-term (i.e., daily) emission caps are desirable especially for sources subject to large fluctuations in emissions. The use of a daily cap (equal to or less than current average emissions on a daily basis) that limits short-term emissions to RACT equivalent levels would meet the above objective of ensuring VOC control that is consistent with attaining the NAAQS for ozone.

States have the primary responsibility to show adherence to the above principles and, to do so, must include the following information (in detail) in all SIP revision requests that seek VOC averaging times greater than 24 hours:

1. The VOC limits specified in an enforceable form with appropriate compliance dates.

2. A description of the affected processes and associated historical production and operating rates.

3. A description of the control techniques to be applied to the affected processes such as low solvent and waterborne coating technology and/or add-on controls.

4. The nature of the emission control program whether a bubble, a regulation change, a compliance schedule, or some other form of alternative control program.

5. The method of recordkeeping and reporting to be employed to demonstrate compliance with the new emission limit requirement and to support the showing that the emission limit is consistent with RFP and the demonstration of attainment.

Each EPA Regional Office shall hav

the primary responsibility for determining the approvability of application requests. However, in order to assure Regional consistency, coordination with the Office of Air Quality Planning and Standards staff is encouraged during the initial development of any single "time average" SIP revision or regulation. Also, all SIP revisions involving long-term averaging must be proposed in the **Federal Register** with an explanation of how the principles listed above have been satisfied.

Should there be any questions on this policy, please call Tom Helms (FTS 629-5526) or Brock Nicholson (FTS 629-5516).

Attachment

cc:

Barbara Bankoff
Ron Campbell
Jack Farmer
Mike Levin
Ed Reich
B.J. Steigerwald
Darryl Tyler
Peter Wyckoff
Chief, Air Branch, Regions I–X
Regional Administrator, Regions I–X

Appendix E—Radii of Significant Impact for Approving "Complex Terrain" PM, SO_2 and CO Trades Under Level I Modeling Approaches

Appendix E indicates on its vertical axis the post-trade emission rate for the stack with increasing emissions (E), and on its horizontal axis the radius of significant impact (R) within which level I trades may be approved despite the presence of complex terrain outside that radius.

The curves in Appendix E have been generated using a normally conservative screening model, VALLEY, to estimate R for each E, using the 24-hour and 3-hour air quality impact significance level for SO_2 and the 24-hour significance level for particulate matter (PM) which have been established for level II modeling. It was assumed that the short-term standards would be controlling.

The F-stability class was assumed, and wind speed was presumed to be one meter per second for estimating the radius of significant impact for the three-hour period, and 2.5 meters per second for the 24-hour cases. In developing the three-hour curve, it was assumed that F-stability and a wind speed of one meter per second would persist for as much as fourteen consecutive hours. In developing the 24-hour curves, it was assumed that F-stability with a wind speed of 2.5 meters per second would occur for six hours of any 24-hour period.[1]

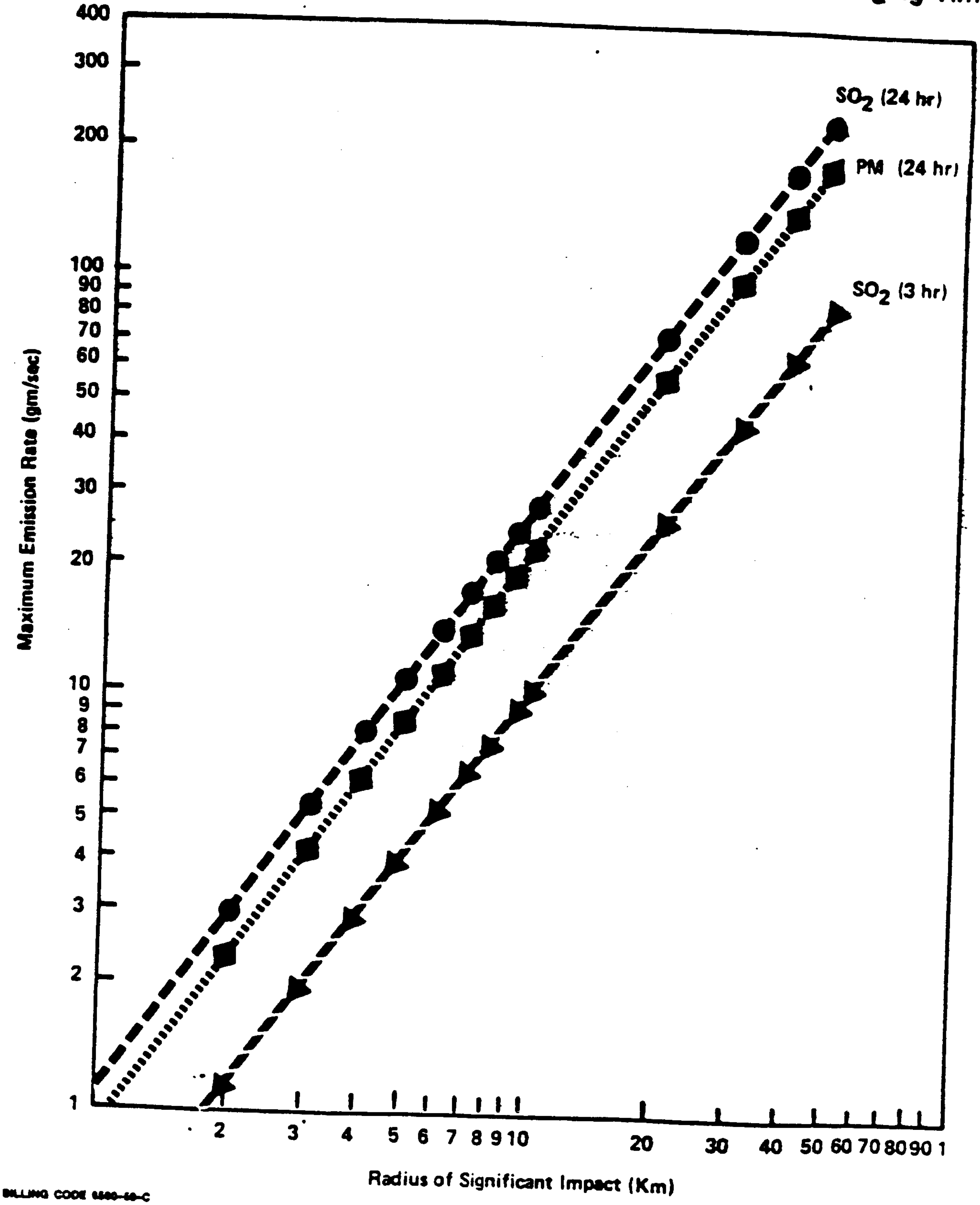
This Appendix provides different estimates for SO_2 and PM because the significance levels for these pollutants are different. For CO, the R value for E value may be determined by multiplying the E for SO_2 by twenty (20). This is a conservative approach towards determining radii of significant impact for CO. Where the effective height of the stack with increasing emissions is not changed (e.g., where the only change is in the sulfur content of fuel burned), the change in the hourly emission rate (E) may be used in lieu of E."

BILLING CODE 6560-50-M

[1] The curves in Appendix E were derived using the assumptions described above so that they could be used to determine radii of significant impact for sources in any part of the country. However, it is possible that for some areas, local meteorological conditions will be such that alternative, less conservative meteorological assumptions can be employed in determining these radii. Where states can show that the use of such alternative assumptions is appropriate for a given area, they develop alternative curves or formulas for determining radii of significant impact and submit them for review and approval by EPA, either in conjunction with an individual bubble submittal or as part of a generic rule. States are advised to work closely with the appropriate Regional Office in any effort to develop such alternative approaches.

FIGURE I:

Radii of Significant Impact for PM & SO_2 for Different Averaging Times



BILLING CODE 6560-50-C

Appendix F—CFR Part 51 Conversion Table

On November 7, 1986 (51 FR 40656) EPA restructured CFR Part 51 and renumbered many of that part's sections. Because most readers will be more familiar with prior designations, today's notice contains citations based on Part 51 as it existed before this restructuring. A detailed finding list of the old versus new citations can be found in Table 2 of the Preamble of the November 7 notice. Today's readers may also use the following table to convert today's Part 51 citations to the corresponding new ones.

CFR Part 51 Conversion Table

Old 40 CFR 51 Citation	*New 40 CFR 51 Citation*
51.18	Subpart I
51.18(j)	51.165(a)
51.18(j)(1)(vi)	51.165(a)(1)(vi)
51.18(j)(1)(x)	51.165(a)(1)(x)
51.18(j)(1)(xi)	51.165(a)(1)(xi)
51.18(j)(1)(xii)	51.165(a)(1)(xii)
51.18(j)(3)(ii)(c)	51.165(a)(3)(ii)(C)
51.18(k)	51.165(b)
51.22	51.281
51.24	51.166
51.24(b)(3)(b)(ii)	51.166(b)(3)(b)(ii)
51.24(b)(13)	51.166(b)(13)
51.24(b)(13)(ii)	51.166(b)(13)(ii)
51.24(b)(16)	51.166(b)(16)
51.24(b)(21)	51.166(b)(21)
51.24(b)(23)	51.166(b)(23)

[FR Doc. 86-27092 Filed 12-3-86; 8:45 am]

BILLING CODE [illegible]

REFERENCES FOR SECTION 8.2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SEP 2 3 1987

MEMORANDUM

SUBJECT: Review of State Implementation Plans and Revisions for Enforceability and Legal Sufficiency

FROM: J. Craig Potter
Assistant Administrator for Air and Radiation

Thomas L. Adams Jr.
Assistant Administrator for Enforcement and Compliance Monitoring

Francis S. Blake
General Counsel
Office of General Counsel

TO: Addressees

One critical function that your offices perform is to assure that regulations developed for stationary sources by the States under the Clean Air Act are enforceable and legally sufficient. Our regulations require that the state implementation plans ("SIPs") must "be adopted as rules and regulations enforceable (emphasis added) by the State agency" (40 C.F.R. §51.281 (1987)). We are concerned that review of SIPs for enforceability has not been receiving adequate attention. The Agency sometimes experiences difficulties in its efforts to enforce the current rules because they are not sufficiently clear. The Regional Offices are at the forefront of the federal SIP approval process. The purpose of this memorandum is to remind you of the importance of doing the review necessary to assure that all SIP plans and revisions are enforceable and in conformance with the Act. Please do not forward for approval SIPs which fail to satisfy the enforceability criteria in this memorandum.

Background

Recent information indicates that the attention being paid to SIP approvals is declining, particularly for enforceability. The Office of General Counsel reviews regulations as to their adequacy under applicable law and Agency policy, but not for enforceability. This void is not being filled by other offices. Often, the problems with enforcing the regulations are not immediately obvious and only become known where a case or issue focuses on the particular regulation. At the October 1986

Annapolis meeting of Air Program Directors and Regional Counsel Air Branch Chiefs, a number of problems in recent enforcement cases due to difficulty in interpreting and enforcing regulations were discussed. With the recent werk being done to address the nonattainment problem, it is even more critical that regulations be clear and enforceable.

It is appropriate that the Regional air compliance staff and the Regional Counsel's Office have primary responsibility for this enforceability review because they have the most direct experience in compliance and rule interpretation. They also have resources allocated through their workload models specifically for SIP review.

Timing of Review

The Regions should try to review developing State SIP provisions prior to final approval by the State, when the provisions are at their most malleable stage. In line with this, each Region should provide its States with a copy of the implementing guidance associated with this memorandum and a briefing which outlines the enforceability requirements for new SIP submittals. If we provide the States with more explicit guidance and make earlier contacts to resolve problems, we can avoid instances where EPA is pressured to settle for a flawed regulation only because it is better than its predecessor.

Enforceability Criteria

Your review should ensure that the rules in question are clearly worded and explicit in their applicability to the regulated sources. Vague, poorly defined rules must become a thing of the past. SIP regulations that deviate from this policy are to be disapproved pursuant to Section 110(a) of the Clean Air Act, with appropriate references in the C.F.R. Specifically, we are concerned that the following issues be directly addressed. The rule should be clear as to who must comply and by what date. The effect, if any, of changed conditions (e.g., redesignation to attainment) should be set forth. The period over which compliance is determined and the relevant test method to be used should be explicitly noted. Provisions which exempt facilities under certain sizes or emission levels must identify explicitly how such size or level is determined. Also, provisions which allow for "alternate equivalent techniques" or "bubbles" or any other sort of variation of the normal mode of compliance must be completely and explicitly defined and must make clear whether or not EPA case-by-case approval is required to make such a method of compliance federally effective.

Conclusion

SIP revisions should be written clearly, with explicit language to implement their intent. The plain language of all rules, as well as the related Federal Register notices, should be complete, clear and consistent with the intended purpose of the rules. Specific review for enforceability will be a further step in improving the overall SIP process and structure.

We have attached detailed guidance to assist you in implementing this memorandum.

Attachment

Addressees:

Regional Administrators
Regions I-X

Regional Counsels
Regions I-X

Air Management Division Directors
Regions I, III and IX

Air and Waste Management Division Director
Region II

Air, Pesticides, and Toxics Management Division Directors
Regions IV and VI

Air and Radiation Division Director
Region V

Air and Toxics Division Directors
Regions VII, VIII and X

cc: Deputy Regional Administrators
Regions I-X

Regional Counsel
Air Contacts
Regions I-X

Air Compliance Branch Chiefs
Regions II, III, IV, V, VI, IX

Air Program Branch Chiefs
Regions I-X

Darryl Tyler, Director
Control Programs Development Division

Gerald Emison, Director
Office of Air Quality Planning and Standards

cc: John S. Seitz, Director
Stationary Source Compliance Division
Office of Air Quality Planning and Standards

Alan W. Eckert
Associate General Counsel
Air Division

Michael S. Alushin
Associate Enforcement Counsel
Air Enforcement Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SEP 23 1987

MEMORANDUM

SUBJECT: Review of State Implementation Plans and Revisions for Enforceability and Legal Sufficiency

FROM: Michael S. Alushin M. S. Alushin
Associate Enforcement Counsel
for Air Enforcement

Alan W. Eckert Alan W. Eckert
Associate General Counsel
Air and Radiation Division

John S. Seitz, Director John S. Seitz
Stationary Source Compliance Division
Office of Air Quality Planning and Standards

TO: Addressees

This is to provide implementing guidance on the memorandum issued by J. Craig Potter, Thomas Adams and Francis Blake on this date relating to review of SIP plans and revisions for enforceability and legal sufficiency. We urge you to provide copies of these memoranda to your State Agency Directors.

Applicability

This guidance applies to all SIP proposals which have not completed the state or local agency legal and procedural requirements for SIPs. For proposals that have not yet been submitted to the Regional office for action, the state and local agencies have forty-five (45) days from the date of this guidance to submit such proposals for review in order for the proposal to be considered under previous procedures. SIP packages currently in Headquarters will undergo the usual review but will be returned to the Regions if they contain deficiencies which raise significant questions as to whether the regulation would be enforceable.

Enforceability Criteria

The notion of enforceability encompasses several concepts. At the most basic level, a regulation must be within the statutory authority of the promulgating agency. For example, some states have statutory restrictions or prohibitions on the promulgation of regulations more restrictive than the federal counterpart.

Although we should generally defer to a State's interpretation of the scope of its authority, when there is real doubt we should, at a minimum, consult the responsible State Attorney to be certain the issue has been considered and resolved. When appropriate, an opinion letter should be obtained from the State Attorney General.

Please ensure that the following additional issues are directly addressed.

- Applicability

It should be clear as to whom the regulation applies. The SIP should include a description of the types of affected facilities. The rule should also state in which areas the rule applies (entire state, specific counties, nonattainment, etc.) and advise the reader that State administrative changes require a formal SIP revision. Also, some regulations might require a certain percentage reduction from sources. The regulation should be clear as to how the baseline from which such a reduction is to be accomplished is set. In some cases it may be necessary for enforcement purposes and independent of Clean Air Act requirements for the SIP to include an inventory of allowable and actual emissions from sources in the affected categories in order to set the above baseline.

- Time

The regulation should specify the required date of compliance. Is it upon promulgation, or approval by EPA, or a future date certain? Future effective dates beyond the approved or proposed attainment date should not be allowed unless the related emissions reductions are not needed for attainment. Also, the regulation should specify the important dates required of any compliance schedule which is required to be submitted by the source to the state.

- Effect of Changed Conditions

If changed circumstances effect an emission limit or other requirement the effect of changed conditions should be clearly specified. However, you should not approve state regulations which tie the applicability of VOC control requirements to the nonattainment status of the area <u>and</u> allow for automatic nullification of the regulations if the area is redesignated to an attainment status. Such regulations should continue to apply if an area is redesignated from nonattainment to attainment status unless a new maintenance demonstration supporting a change in the rule's applicability is submitted and approved by EPA.

° Standard of Conduct

The regulation must be sufficiently specific so that a source is fairly on notice as to the standard it must meet. For example, "alternative equivalent technique" provisions should not be approved without clarification concerning the time period over which equivalency is measured as well as whether the equivalency applies on a per source or per line basis or is facility wide.

° Incorporation by Reference

Some federal regulations are inappropriate for adoption by reference. For example, a state intending to enforce PSD regulations adopted by reference must adopt 40 C.F.R. §52.21, not 40 C.F.R. §51.166, as only the former is written in a form imposing obligations on permit applicants. Even then, changes may have to be made to take into account the difference between the State's situation and EPA's.

° Transfer Efficiency

Some states have attempted to provide particular VOC sources with relaxations of compliance limits in return for improvements in the efficiency with which the sources use the pollutant producing material. Any rules allowing transfer efficiency to be used in determining compliance must be explicit as to when and under what circumstances a source may use improved transfer efficiency as a substitute for meeting the SIP limit. Such provisions must state whether EPA approval is required on a case-by-case basis. Also, such provisions may not simply reference the NSPS auto coating tables for the transfer efficiency. The improvement should be demonstrated through testing and an appropriate test method should be set forth. Implied improvements noted by the NSPS auto coating TE table are not to be accepted at face value.

° Compliance Periods

SIP rules should describe explicitly the compliance time frame associated with each emission limit (e.g. instantaneous, stack test, 3 hour average or daily). The Regions should not assume that a lack of specificity implies instantaneous compliance. The time frame or method employed must be sufficient to protect the standard involved.

° Equivalency Provisions and Discretionary Emission Limits

Certain provisions allow sources to comply via "bubbles" or "alternate equivalent techniques" or through mechanisms "as approved by the Director." These provisions must make it clear as to whether EPA approval of state granted alternative compliance techniques is required on a case-by-case basis in order for the changed mode of compliance to replace the existing federally enforceable requirement. If EPA case-by-case approval will not be required, then specific, objective and replicable criteria must be set forth for determining whether the new arrangement is truly equivalent in terms of emission rates and ambient impact. Such procedures must be consistent with the control levels specified in the overall SIP control strategy and must meet other EPA policy requirements, including the "Emissions Trading Policy", 51 Fed. Reg. 43814 (1986), in relevant instances.

° Recordkeeping

The SIP must state explicitly those records which sources are required to keep to assess compliance for the time frame specified in the rule. Records must be commensurate with regulatory requirements, and must be available for examination on request. The SIP must give reporting schedules and reporting formats. For example, these rules must require daily records if the SIP requires daily compliance. Additionally, the recordkeeping must be required such that failure to do so would be a separate violation in itself.

° Test Methods

Each compliance provision must list how compliance is to be determined and the appropriate test method to be used. The allowable averaging times should be explicit. Both the test method and averaging times employed must be sufficient to protect the ambient standard involved.

° Exemptions

If sources under a certain size are exempted from control requirements, the regulation must identify how the size of a particular source is to be determined.

° Malfunction and Variance Provisions

Any malfunction or variance exemptions must be clear in their substantive application and in how they are triggered. The rule must specify what exceedances may be excused, how the standard is to be applied, and who makes the determination.

Conclusion

We appreciate your attention to this matter and hope that the specific review for enforceability will be a further step in improving the overall SIP process and structure. To assist you, we have attached an enforceability checklist. This checklist should be included as part of your technical support packages in all future SIP packages.

Please contact the appropriate staff attorney in the Office of General Counsel or the Office of Enforcement and Compliance Monitoring should you have any questions concerning issues of enforceability in particular instances. Please contact Tom Helms, OAQPS, FTS-629-5526, for other questions concerning implementation of this guidance.

Attachment

Addressees:

Regional Administrators
Regions I-X

Regional Counsels
Regions I-X

Air Management Division Directors
Regions I, III and IX

Air and Waste Management Division Director
Region II

Air, Pesticides, and Toxics Management Division Directors
Regions IV and VI

Air and Radiation Division Director
Region V

Air and Toxics Division Directors
Regions VII, VIII and X

cc: Deputy Regional Administrators
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Regional Counsel
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Regions I-X

Air Compliance Branch Chiefs
Regions II, III, IV, V, VI, IX

Air Program Branch Chiefs
Regions I-X

Darryl Tyler, Director
Control Programs Development Division

Gerald Emison, Director
Office of Air Quality Planning
and Standards

Attachment

SIP APPOVABILITY CHECKLIST- ENFORCEABILITY

SIP Package No. ______________ Date Rec. ________ Date Due ___________

STATE: ______________________________

Subject Matter: ____

____
(Specific Provision and Description)

Enforceability Analysis	State Submittal (list responses)	EPA Requirement	Approvability (Approvable or Not
1. Applicability			
a. What sources are being regulated?		Clarity	
b. What are criteria for exemption?		Clarity	
c. Is calculation procedure for exemption clearly specified?		Example calculation or clear explanation of how to determine exemption (line by line, etc.)	
d. Is emission inventory listed in the background document of the attainment demonstration?		Inventory including allowable and actual emissions in source category should be included, for enforcement purposes and independent of any Clean Air Act requirements, in the attainment demonstration if such data is necessary for determining baselines in regulations.	

Enforceability Analysis	State Submittal	EPA Requirement	Approvability (Approvable or
e. Is the averaging time(s) used in the rule different from that of the ambient standard?		The averaging time in the rule must be consistent with protecting the ambient standard in question. Normally, it should be equal to or shorter than the time associated with the standard. Longer term averaging is available only in limited instances provided that the ambient standard is not compromised.	
f. What are the units of compliance (lbs VOC per gallon of solids applied less water, grains per standard cubic foot?)		Clearly stated in the rule	
g. Is bubbling or averaging of any type allowed? If yes, state criteria. Could a U.S. EPA inspector independently determine if the criteria were met? Does EPA have to approve each case?		Explicit description of how averaging, bubbling, or equivalency is to be determined. VOC equivalency must be on a "solids applied" basis. Any method must be independently reproducible. Provision must be explicit as to whether EPA case-by-case approval required. If provision intended to be "generic" then EPA bubble policy must be met.	

orceability Analysis	State Submittal	EPA Requirement	Approvability (Ap... vable or No
h. If there is a redesignation, will this change the emission limitations? If yes, which ones and how?		Regulation may not automatically allow for self nullification upon redesignation of area to attainment. New maintenance demonstration required in order to drop regulation.	
2. Compliance Dates			
a. What is compliance date?		Must not be later than approved or about to be approved date of attainment unless emission reductions not necessary for attainment. In some cases, it will be necessary for the regulation to specify dates in compliance schedules that are required to be submitted by source to state.	
b. What is the attainment date?			
3. Specificity of Conduct			
a. What test method is required?		Test method must be explicitly stated.	
b. What is the averaging time in compliance test method?		Averaging time and application of limit must be explicit.	
c. Is a compliance calculation or evaluation required? (i.e., daily weighted average for VOC).			
d. If yes to "c," list the formula, period of complia...		Formula must be explicit	

Enforceability Analysis	State Submittal	EPA Requirement	Approvability (Approvable or Not)
4. Incorporation by Reference			
a. What is state authority for rulemaking?			
b. Are methods/rules incorporated by reference in the right manner.			
5. Recordkeeping			
a. What records are required to determine compliance?		Clarity	
b. In what form or units (lbs/gal, gr/dscf, etc.) must the records be kept? On what time basis (instantaneously, hourly, daily)?		Records to be kept must be consistent with units of compliance in the performance requirements, including the applicable time period.	
c. Does the rule affirmatively require the records be kept?		There must be a clear separately enforceable provision that requires records to be kept.	

Enforceability Analysis	State Submittal	EPA Requirement	Approvability (Approvable or Not)
6. Exemptions			
a. List any exemptions allowed. b. Is the criteria for application clear?		Must be clearly defined and distinguishable from what constitutes a violation.	
7. Malfunction Provisions		Rule must specify what exceedances may be excused, how the standard is to be applied, and who makes the determination.	

REFERENCES FOR SECTION 8.3

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

JUN 21 1982

OFFICE OF
AIR, NOISE AND RADIATION

MEMORANDUM

SUBJECT: Definition of "Continuous Compliance" and Enforcement of O&M Violations

FROM: Kathleen M. Bennett
Assistant Administrator for Air, Noise and Radiation

TO: Directors, Air and Waste Management Divisions
Regions I-IV, VI-VIII and X

Directors, Air Management Divisions
Regions V and IX

The purpose of this memo is to provide you with some general programmatic guidance as to the meaning of the term "continuous compliance" and the role of operation and maintenance (O&M) requirements in assuring that continuous compliance is maintained. Of course, source specific guidance on O&M measures which can assure continuous compliance is an essential part of this program and this memorandum is not intended to substitute for such guidance. As you know, DSSE has undertaken a number of initiatives related to the continuous compliance effort and we hope to discuss the progress of those efforts with you at the upcoming workshop at Southern Pines. DSSE will be forwarding to you an updated summary of these activities prior to the workshop. However, given the continuing attention being given to "continuous compliance," I think it would be helpful to have a common understanding of what that concept entails.

In the strict legal sense, sources are required to meet, without interruption, all applicable emission limitations and other control requirements, unless such limitations specifically provide otherwise. However, of primary concern to the Agency are those violations that could have been prevented, through the installation of proper control equipment and the operation and maintenance of that equipment in accordance with proper procedures. We believe the concept of continuous compliance is essentially the avoidance of preventable excess emissions over time as a result of the proper design, operation and maintenance of an air pollution source. This includes avoidance of preventable instances of excess emissions, minimization of

11+12

emissions during such instances, and the expeditious termination of any instances which do occur.

In determining the appropriate enforcement response to a violation, one factor the Regions should consider is whether the source had in place an active program designed to maintain continuous compliance. Such a program would normally involve one or more of the following elements: continuous or periodic self-monitoring of emissions; monitoring of operating parameters such as scrubber pressure drop, incinerator combustion temperature or flow rates; maintenance of a spare parts inventory; maintenance of spare control device modules; and procedures designed to correct the types of violations that are most likely to occur. Evaluating a violator's O&M program is a necessary step in determining the type and degree of relief that an enforcement action could be expected to achieve.

Documentation of avoidable departures from proper procedures as just discussed may be used not only as supporting evidence in cases involving emission limit violations, but as primary evidence in cases involving violations of O&M requirements specified in permits and regulations. As the Agency continues to place more emphasis on O&M requirements in the context of national standards, and to encourage States to develop O&M requirements, the enforcement program must be adapted to address violations of these requirements. A violation of specified O&M requirements, even in the absence of documented emission limit violations, can be an appropriate trigger for EPA enforcement response.

In conclusion, evaluation of a source's continuing compliance program would be useful both in determining the appropriate Agency response to an emission limit violation, and in assessing the source's compliance with specified O&M requirements.

If my staff can be of assistance in evaluating specific cases, please feel free to call John Rasnic at 382-2826.

PN 113-83-02-15-017

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

FEB 15 1983

OFFICE OF
AIR, NOISE AND RADIATION

MEMORANDUM

SUBJECT: Policy on Excess Emissions During Startup, Shutdown, Maintenance, and Malfunctions

FROM: Kathleen M. Bennett, Assistant Administrator for Air, Noise and Radiation

TO: Regional Administrators, Regions I-X

I have been asked to clarify my memorandum of September 28, 1982, concerning policy on excess emissions during startup and shutdown.

Specifically, I stated that "startup and shutdown of process equipment are part of the normal operation of a source and should be accounted for in the design and implementation of the operating procedure for the process and control equipment. Accordingly, it is reasonable to expect that careful planning will eliminate violations of emission limitations during such periods." I further stated that "[i]f excess emissions occur during routine startup and shutdown of such equipment, they will be considered as having resulted from a malfunction only if the source can demonstrate that such emissions were actually caused by a sudden and unforeseeable breakdown in the equipment."

A question has been posed as to whether there can be situations in which it is unreasonable to expect that careful planning can eliminate violations of emission limitations during startup and shutdown. I believe that there can be such situations. One such situation, which was already mentioned in the policy, is a malfunction occurring during these periods. A malfunction during startup or shutdown is to be handled as any other malfunction in accordance with the policy as presently written.

Another situation is one in which careful and prudent planning and design will not totally eliminate infrequent short periods of excesses during startup and shutdown. An example of this situation would be a source that starts up or shuts down once or twice a year and during that period there are a few hours when the temperature of the effluent gas is too low to prevent harmful formation of chemicals which would cause severe damage to control equipment if the effluent were allowed to pass through the control equipment.

Therefore, during this latter situation, if effluent gases are bypassed which cause an emission limitation to be exceeded, this excess need not be treated as a violation if the source can show that the excesses could not have been prevented through careful and prudent planning and design and that bypassing was unavoidable to prevent loss of life, personal injury, or severe property damage.

I have clarified the policy concerning this issue. A copy is attached.

Attachment

Attachment

POLICY ON EXCESS EMISSIONS DURING STARTUP, SHUTDOWN, MAINTENANCE, AND MALFUNCTIONS

Introduction

Several of the existing State implementation plans (SIPs) provide for an automatic emission limitation exemption during periods of excess emission due to startup, shutdown, maintenance, or malfunction.* Generally, EPA agrees that the imposition of a penalty for sudden and unavoidable malfunctions caused by circumstances entirely beyond the control of the owner and/or operator is not appropriate. However, any activity which can be foreseen and avoided, or planned is not within the definition of a sudden and unavoidable breakdown. Since the SIPs must provide for attainment and maintenance of the national ambient air quality standards, SIP provisions on malfunctions must be narrowly drawn. SIPs may, of course, omit any provisions on malfunctions. [For more specific guidance on malfunction provisions for RACT SIPs, see the April 1978 workshop manual for preparing nonattainment plans].

I. EXCESS EMISSION FROM MALFUNCTIONS

A. AUTOMATIC EXEMPTION APPROACH

If a SIP contains a malfunction provision, it cannot be the type that provides for automatic exemption where a malfunction is alleged by a source. Automatic exemptions might aggravate air quality so as not to provide for attainment of the ambient air quality standards. Additional grounds for disapproving a SIP that includes the automatic exemption approach are discussed in more detail at 42 FR 58171 (November 8, 1977) and 42 FR 21372 (April 27, 1977). As a result, EPA cannot approve any SIP revisions that provides automatic exemptions for malfunctions.

* The term "excess emission" means an air emission rate which exceeds any applicable emission limitation, and "malfunction" means a sudden and unavoidable breakdown of process or control equipment.

B. ENFORCEMENT DISCRETION APPROACH--SIP EMISSION LIMITATION ADEQUATE TO ATTAIN AMBIENT STANDARDS

EPA can approve SIP revisions which incorporate the "enforcement discretion approach". Such an approach can require the source to demonstrate to the appropriate State agency that the excess emissions, though constituting a violation, were due to an unavoidable malfunction. Any malfunction provision must provide for the commencement of a proceeding to notify the source of its violation and to determine whether enforcement action should be undertaken for any period of excess emissions. In determining whether an enforcement action is appropriate, satisfaction of the following criteria should be considered.

1. To the maximum extent practicable the air pollution control equipment, process equipment, or processes were maintained and operated in a manner consistent with good practice for minimizing emissions;

2. Repairs were made in an expeditious fashion when the operator knew or should have known that applicable emission limitations were being exceeded. Off-shift labor and overtime must have been utilized, to the extent practicable, to ensure that such repairs were made as expeditiously as practicable;

3. The amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions;

4. All possible steps were taken to minimize the impact of the excess emissions on ambient air quality; and

5. The excess emissions are not part of a recurring pattern indicative of inadequate design, operation, or maintenance.

II. EXCESS EMISSIONS DURING STARTUP, SHUTDOWN, AND MAINTENANCE

Any activity or event which can be foreseen and avoided, or planned, falls outside of the definition of sudden and unavoidable breakdown of equipment. For example, a sudden breakdown which could have been avoided by better operation and maintenance practice is not a malfunction. In such cases, the control agency must enforce for violations of the emission limitation. Other such common events are startup and shutdown of equipment, and scheduled maintenance.

Startup and shutdown of process equipment are part of the normal operation of a source and should be accounted for in the planning, design and implementation of operating procedures for the process and control equipment. Accordingly, it is reasonable to expect that careful and prudent planning and design will eliminate violations of emission limitations during such periods. However, for a few sources there may exist infrequent short periods of excess emissions during startup and shutdown which cannot be avoided. Excess emissions during these infrequent short periods need not be treated as violations providing that the source adequately shows that the excess could not have been prevented through careful planning and design and that bypassing of control equipment was unavoidable to prevent loss of life, personal injury, or severe property damage.

If excess emissions occur during routine startup and shutdown due to a malfunction, then those instances will be treated as other malfunctions which are subject to the malfunction provisions of this policy. (Reference Part I above).

Similarly, scheduled maintenance is a predictable event which can be scheduled at the discretion of the operator, and which can, therefore, be made to coincide with maintenance on production equipment, or other source shutdowns. Consequently, excess emissions during periods of scheduled maintenance should be treated as a violation unless a source can demonstrate that such emissions could have been avoided through better scheduling for maintenance or through better operation and maintenance practices.

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

SEP 28 1982

OFFICE OF
AIR, NOISE AND RADIATION

MEMORANDUM

SUBJECT: Policy on Excess Emissions During Startup, Shutdown, Maintenance, and Malfunctions

FROM: Kathleen M. Bennett Kathleen M. Bennett
Assistant Administrator for Air, Noise and Radiation

TO: Regional Administrators, Regions I-X

This memorandum is in response to a request for a clarification of EPA's policy relating to excess emissions during startup, shutdown, maintenance, and malfunctions.

Excess emission provisions for startup, shutdown, maintenance, and malfunctions were often included as part of the original SIPs approved in 1971 and 1972. Because the Agency was inundated with proposed SIPs and had limited experience in processing them, not enough attention was given to the adequacy, enforceability, and consistency of these provisions. Consequently, many SIPs were approved with broad and loosely-defined provisions to control excess emissions.

In 1978, EPA adopted an excess emissions policy after many, less effective attempts to rectify problems that existed with these provisions. This policy disallowed automatic exemptions by defining all periods of excess emissions as violations of the applicable standard. States can, of course, consider any demonstration by the source that the excess emissions were due to an unavoidable occurrence in determining whether any enforcement action is required.

The rationale for establishing these emissions as violations, as opposed to granting automatic exemptions, is that SIPs are ambient-based standards and any emissions above the allowable may cause or contribute to violations of the national ambient air quality standards. Without clear definition and limitations, these automatic exemption provisions could effectively shield excess emissions arising from poor operation and maintenance or design, thus precluding attainment. Additionally, by establishing an enforcement discretion approach and by requiring the source to demonstrate the existence of an unavoidable malfunction on the source, good maintenance procedures are indirectly encouraged.

Attached is a document stating EPA's present policy on excess emissions. This document basically reiterates the earlier policy, with some refinement of the policy regarding excess emissions during periods of scheduled maintenance.

A question has also been raised as to what extent operating permits can be used to address excess emissions in cases where the SIP is silent on this issue or where the SIP is deficient. Where the SIP is silent on excess emissions, the operating permit may contain excess emission provisions which should be consistent with the attached policy. Where the SIP is deficient, the SIP should be made to conform to the present policy. Approval of the operating permit as part of the SIP would accomplish that result.

If you have any questions concerning this policy, please contact Ed Reich at (382-2807).

Attachment

Attachment

POLICY ON EXCESS EMISSIONS DURING START-UP, SHUTDOWN, MAINTENANCE, AND MALFUNCTIONS.

Several of the existing State implementation plans (SIPs) provide for an automatic emission limitation exemption during periods of excess emission due to start-up, shutdown, maintenance, or malfunction.* Generally, EPA agrees that the imposition of a penalty for sudden and unavoidable malfunctions caused by circumstances entirely beyond the control of the owner and/or operator is not appropriate. However, any activity which can be foreseen and avoided, or planned is not within the definition of a sudden and unavoidable breakdown. Since the SIPs must provide for attainment and maintenance of the national ambient air quality standards, SIP provisions on malfunctions must be narrowly drawn. SIPs may, of course, omit any provision on malfunctions. [For more specific guidance on malfunction provisions for RACT SIPs, see the April 1978 workshop manual for preparing nonattainment plans.]

I. AUTOMATIC EXEMPTION APPROACH

If a SIP contains a malfunction provision, it cannot be the type that provides for automatic exemption where a malfunction is alleged by a source. Automatic exemptions might aggravate air quality so as not to provide for attainment of the ambient air quality standards. Additional grounds for disapproving a SIP that includes the automatic exemption approach are discussed in more detail at 42 FR 58171 (November 8, 1977) and 42 FR 21372 (April 27, 1977). As a result, EPA cannot approve any SIP revision that provides automatic exemptions for malfunctions.

II. ENFORCEMENT DISCRETION APPROACH--SIP EMISSION LIMITATION ADEQUATE TO ATTAIN AMBIENT STANDARDS

EPA can approve SIP revisions which incorporate the "enforcement discretion approach". Such an approach can require the source to demonstrate to the appropriate State agency that the excess emissions, though constituting a violation, were due to an unavoidable malfunction. Any malfunction provision must provide for the commencement of a proceeding to notify the source of its violation and to determine whether enforcement action should be undertaken for any period of excess emissions. In determining whether an enforcement action is appropriate, satisfaction of the following criteria should be considered:

* The term "excess emission" means an air emission rate which exceeds any applicable emission limitation, and "malfunction" means a sudden and unavoidable breakdown of process or control equipment.

1. To the maximum extent practicable the air pollution control equipment, process equipment, or processes were maintained and operated in a manner consistent with good practice for minimizing emissions;

2. Repairs were made in an expeditious fashion when the operator knew or should have known that applicable emission limitations were being exceeded. Off-shift labor and overtime must have been utilized, to the extent practicable, to ensure that such repairs were made as expeditiously as practicable;

3. The amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions;

4. All possible steps were taken to minimize the impact of the excess emissions on ambient air quality; and

5. The excess emissions are not part of a recurring pattern indicative of inadequate design, operation, or maintenance.

III. EXCESS EMISSIONS DURING START-UP, SHUTDOWN, AND MAINTENANCE

Any activity or event which can be foreseen and avoided, or planned, falls outside of the definition of sudden and unavoidable breakdown of equipment. For example, a sudden breakdown which could have been avoided by better operation and maintenance practices is not a malfunction. In such cases, the control agency must enforce for violations of the emission limitation. Other such common events are start-up and shutdown of equipment, and scheduled maintenance.

Start-up and shutdown of process equipment are part of the normal operation of a source and should be accounted for in the design and implementation of the operating procedure for the process and control equipment. Accordingly, it is reasonable to expect that careful planning will eliminate violations of emission limitations during such periods.

If excess emissions occur during routine start-up and shutdown of such equipment, they will be considered as having resulted from a malfunction only if the source can demonstrate that such emissions were actually caused by a sudden and unforeseeable breakdown in the equipment.

Similarly, scheduled maintenance is a predictable event which can be scheduled at the discretion of the operator, and which can therefore be made to coincide with maintenance on production equipment, or other source shutdowns. Consequently, excess emissions during periods of scheduled maintenance should be treated as a violation unless a source can demonstrate that such emissions could not have been avoided through better scheduling for maintenance or through better operation and maintenance practices.

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

March 6, 1979

SUBJECT: Energy Emergency Task Force; Implementation of Section 110(f) of the Clean Air Act —ACTION MEMORANDUM

FROM: Assistant Administrator for Enforcement Marvin Dx

Assistant Administrator for Air, Noise and Radiation (see signature below)

TO: The Administrator

Summarized below is background information and proposed regional guidance on responding to an energy emergency under Section 110(f). We are also initiating development of an emergency plan and implementation guidance (as appropriate) to minimize adverse environmental effects which could result from a gasoline shortage. We will forward the gasoline emergency plan to you in the future.

I. DOE/EPA Working Relations

The Department of Energy (DOE) has established an Energy Emergency Center to coordinate the federal government's response to crisis situations resulting from energy emergencies. Although the center was initiated under the impetus of the UMW strike, it would be the coordinating agent in any energy emergency. EPA has also established an ad hoc Energy Emergency Task Force to coordinate EPA's response to a crisis. EPA's Offices of Enforcement, Air, Noise and Radiation, General Counsel, and Federal Activities are represented on the task force. EPA's contact with DOE's Energy Emergency Center is Mrs. Yvonne Allen, Director of the Center (202-252-5155). DOE's contact with EPA's Energy Emergency Task Force is Ms. Martha Prothro (alternate: Mr. Weldon Blake) of the Division of Stationary Source Enforcement (DSSE - FTS 755-2523).

Ms. Allen has advised that coal supply information (quantity, quality, and number of days of fuel supply) wi be available from DOE: (1) weekly for utilities on a State-wide basis (approximately 10-day-old data); (2) daily for specific utilities that DOE has determined to have a critically short coal supply; and (3) weekly for industrial coa burners on a State-wide basis. In addition, DOE can advise EPA of State actions to conserve and minimize consumption c the fuel in short supply and federal actions to provide for interconnections to assure that electrical power will be transferred to areas most in need. Although this information is specific for coal, this guidance is to be used in any energy emergency. Coal availability information would be useful for sources presently burning oil or gas but whic have coal burning capability in the event of a shortage of oil or gas.

DOE has established a formal day-to-day contact in Jac Watson's office during energy emergencies in order to expedite the flow of information between EPA, DOE, and the White House. DOE and EPA have also agreed to maintain dai contact during such emergencies.

II. Petitions for Energy Emergency Declarations under Section 110(f) of the Clean Air Act

Section 110(f) provides that emergency SIP suspensions may be granted in accordance with the following:

(1) The owner or operator of fuel burning stationary source applies to the state for relief.

(2) The Governor gives notice and opportunity for public hearing on the proposed petition.

(3) The Governor finds that:

(a) an emergency exists in the vicinity of the s involving high levels of unemployment or loss of necessary energy supplies for residential dwellings; and

(b) such unemployment or loss can be totally or partially alleviated by an emergency suspension of State Implementation Plan requiremen applicable to that source.

(4) The Governor petitions the President to declare that a national or regional energy emergency exists of such severity that:

    (a) a temporary suspension of any part of the applicable implementation plan may be necessary; and

    (b) other means of responding to the energy emergency may be inadequate.

(5) The President determines that a national or regional energy emergency exists. (This authority may not be redelegated.)

(6) The Governor may issue an emergency suspension to the source which may take effect immediately. Not more than one such suspension may be issued to a source based on the same set of circumstances or on the basis of the same emergency. Suspensions are limited in duration by any time limit the President places on his determination, and in any case may not exceed four months.

(7) EPA Administrator may review the Governor's suspension and disapprove it if he determines that it does not satisfy the criteria set forth in (3) above. If the EPA Administrator issues a disapproval order, he will specify therein the date on which the Governor's suspension shall no longer be effective.

(8) This procedure does not apply to a plan revision promulgated by the Administrator pursuant to Section 110(c) (such as for sulfur oxides in Ohio). The President, however, may grant up to a four month suspension of a State Implementation Plan promulgated by the Administrator if he makes the findings in (3) and (4) above.

Whenever a Governor petitions the President for a declaration of an energy emergency under Section 110(f), we suggest that EPA make the following recommendations:

A. Conservation measures:

It is essential that emphasis be placed on the need for energy conservation through means other than turning off pollution controls, which could involve violations of health-protective regulations. DOE has determined that there is no federal authority to mandate conservation measures and only a few States have such authority. Since Section 110(f) includes a provision for consideration of the adequacy of "other means" of responding to the emergency (item #4(b) above), EPA should recommend to the President that his declaration of an energy emergency for purposes of Section 110(f) be conditioned on (1) the Governor's requiring that sources covered by suspensions demonstrate they have implemented or will implement all possible conservation measures, and (2) where the Governor can mandate conservation measures, that he do so in addition to granting relief under Section 110(f). If he cannot mandate conservation measures he would be required to ask for voluntary conservation measures in the areas affected. If conservation measures would be adequate by themselves, no declaration involving 110(f) would be appropriate.

B. Specific reference to Section 303 emergency powers:

EPA should recommend that the President specifically mention the continued responsibility of the EPA to take action under Section 303 of the Clean Air Act where air pollution may result in an imminent and substantial endangerment to human health. Although Section 303 would not be suspended in any event, a specific reference will help to ensure that States and sources are on notice of EPA's intention to monitor the potentially severe health impacts of any increases in emissions resulting from SIP suspension.

C. Reference to possible case by case disapproval by EPA:

This is necessary to impress upon States the need to make case by case findings as required by Section 110(f). If this is not done at the State level, EPA should disapprove wherever it determines that the Governor could not have made the necessary findings for the source. (For example, suspensions of compliance schedules would generally be inappropriate since they would be unlikely to alleviate any unemployment or residential energy loss.)

D. <u>Limitations on time and area covered by emergency declaration:</u>

EPA should recommend that emergency declarations be as precise as possible, especially as to the area affected, to allow both an adequate response to true emergencies and an adequate opportunity to reevaluate the situation as events develop.

III. <u>EPA Response to SIP Suspensions Issued by Governors under Section 110(f) of the Clean Air Act</u>

A. <u>Public hearings:</u>

We strongly urge that, whenever possible, the Regional Office actively participate in any public hearing held under 110(f). EPA's participation will be useful for two reasons. First, it will help to ensure that the public health impacts of alternative mitigative measures will be considered in the decision making process. Second, it will give us the opportunity to establish on the record early in the process that blanket SIP suspensions throughout a State may not be acceptable and that the findings required by Section 110(f)(2)(A) and (B) of the Act must be made for each source to be covered by the suspension. Therefore, Regional Offices should testify generally that EPA recognize and will cooperate in attempting to ease the impact of fuel shortages but that, because the health problems which could result from suspending air quality standards are a grave concern, suspensions should not be granted lightly. The spokesperson should also advise that temporary energy emergency suspensions should be issued on a source-specific basis and only where the findings required by Section 110(f)(2)(A) and (B) have been made.

The purpose of the public hearing required in Section 110(f) is, in part, to provide a factual record for the Governor and EPA to use in determining whether temporary suspension of portions of the implementation plan are justified. As a minimum, the public hearing should cover the following:

(1) the nature and extent of the energy emergency;

(2) current and projected unemployment impacts associated with the energy emergency;

(3) current and projected loss of necessary energy supplies for residential use associated with the energy emergency;

(4) alternative strategies for reducing the adverse impacts of the energy emergency and the consequences of these strategies on unemployment and on residential energy supply;

(5) amount of energy savings expected to result from temporary suspension of portions of the implementation plan;

(6) to the extent possible, pollutant emission levels both before and after the proposed temporary suspension of portions of the implementation plan; and

(7) to the extent possible, preliminary assessment of the air quality and health effect impacts of the proposed temporary suspension of portions of the implementation plan.

Information provided on items (5) through (7) should, whenever possible, include source by source data for those sources which, because of their location, the nature and quantity of their emissions, the density of population in the area, or other reasons, we might reasonably anticipate would have an unacceptably adverse impact on public health should they be included under a temporary suspension determination.

Because of the emergency nature of this process, it is unlikely that the public will be given much notice (probably less than one week) prior to a hearing. Accordingly, it will be useful for those Regions likely to be affected to begin to prepare a position on SIP suspensions on a priority basis for each State within the Region. Efforts should begin immediately to evaluate possible adverse air quality impacts within States expected to initiate the Section 110(f) process as soon as necessary. Clearly, any air quality analyses done as part of this effort will be cursory and can only be intended to begin a screening process. Unless recent atmospheric dispersion modeling analyses for particular areas or sources has been done for other reasons, simple rollback (rollforward) estimates will have to suffice for projecting air quality impacts. Areas should be screened on the basis of recent ambient monitoring data and further on the basis of alert episode days. Source impacts should be screened on the basis of size, degree of reliance on affected fuel, emission density, stack heights, etc.

The general purpose of this analysis is to identify those specific areas or particular sources where a suspension of the SIP would be most likely to have severe air quality impacts and resultant severe public health effects. It would be most desirable to coordinate this effort to the maximum extent possible with the appropriate State agency since the State will make the initial decision on the case-by-case SIP suspensions.

B. <u>Regional Responsibilities Following SIP Suspension Decision:</u>

The Regional Office should maintain a current listing of all individual sources that are granted a suspension on a day-to-day basis. Each source granted a suspension should be contacted by the Regional Office to determine the specific course of action which the source intends to take in response to the suspension. Such information will facilitate a better assessment of the potential air quality impacts that can be expected.

The Regional Office should ensure that every effort is made to process at least daily data from all avilable ambient monitoring networks in and around those areas where SIP suspensions have been granted. To the extent that resource constraints limit this effort, highest priority should be placed on those areas that are most likely to reach episode levels based upon historical ambient air quality and the number, concentration, and size of sources granted SIP suspensions in the area. The Regional Office should notify the Division of Stationary Source Enforcement (DSSE) and the Office of Air Quality Planning and Standards (OAQPS) when air pollution concentrations in areas affected by SIP suspensions are exceeding dangerous levels (i.e., episode alert levels and higher). It is likely that timely air quality monitoring data will provide the single most important basis for supporting a determination by the Administrator to take an emergency action under Section 303 of the Clean Air Act or to recommend that the President rescind or not extend his emergency declarations for a specific area.

The EPA Administrator may disapprove a suspension issued by a Governor only in those limited situations in which the suspension does not meet the requirements of Section 110(f)(2)(A) and (B) of the Clean Air Act (i.e., where high levels of unemployment and loss of necessary energy supplies for residential dwellings do not exist or the unemployment or loss cannot be totally or partially alleviated by the SIP suspension). In order to assure that suspensions apply only to sources experiencing an emergency, EPA should act quickly to disapprove suspensions covering sources for which the necessary findings cannot be made. The authority to disapprove suspensions should be delegated to the Regional Administrators, with EPA headquarters concurrence, in order to assure expedited action. (A delegation of Section 110(f)(3) authority is included in the attached memorandum to the Regional Administrators for your signature.)

Regional Offices should give high priority to reviewing any actual suspension issued by Governors to assure that they are consistent with the criteria set forth in Section 110(f)(2)(A) and (B). Reviews should focus on sources in those areas (and, where known, major sources) for which DOE has determined, based on available supplies and possible interconnections, that the emergency is less critical. DSSE will keep the Regional Offices informed of DOE's determinations and will request DOE determinations as necessary to enable Regional Offices to set proper priorities for reviews of SIP suspensions.

The memorandum attached for your signature directs each Regional Administrator to designate a contact for energy emergency information. DSSE's Regional Programs Section will contact Regional Office designees each day to obtain information for inclusion in a daily status chart. DSSE will be primarily responsible for contacting the Regional Offices to request specific information, for answering any Regional questions, and for receiving and disseminating necessary data to appropriate Regional and headquarters Offices.

IV. EPA Response to Inquiries from States and Sources

Generally, inquiries can be expected to fall within the categories listed below. Suggested Regional Office responses are indicated.

A. Source inquiries about possible suspension of State promulgated implementation plan:

Response: Only the Governor can suspend such a SIP. Source may petition Governor to petition the President for a §110(f) emergency declaration. EPA will not concur in relaxation of environmental regulations prior to a declaration under §110(f).

B. Source inquiries about possible suspension of federally promulgated SIP:

Response: The President has not delegated his authority to suspend such a SIP. Sources may direct petitions to the President but should send copies to the Administrator and Regional Administrator to assure quick response. Source must present information to allow the President to determine: (1) that an energy emergency exists in the vicinity of the source of such severity that a temporary suspension of any part of the SIP may be necessary and other means of responding may be inadequate; (2) that there exists in the vicinity of such source a temporary energy emergency involving high levels of unemployment or loss of necessary energy supplies for residential dwellings; and (3) that such loss or unemployment can be totally or partially alleviated by a SIP suspension. (DSSE should be notified immediately of any expected petitions for suspension of federally promulgated SIP's.)

C. Source or State inquiries about possible suspension of non-SIP federal air pollution control requirements (e.g., New Source Performance Standards, interim requirements in federal orders or consent decrees, etc.):

Response: There is no statutory authority for emergency suspension of non-SIP requirements, since §110(f) relates only to SIP's. If, however, a determination of an emergency has been made under §110(f) relative to SIP's, EPA will exercise enforcement discretion on a case-by-case basis in dealing with non-SIP situations. Where the findings necessary for a SIP suspension could not have been made in a specific case, EPA will enforce the applicable requirements and will seek appropriate penalties. Where those findings could be made for a source subject to non-SIP federal requirements, EPA will generally refrain from enforcing or seeking penalties based on a source's noncompliance where all other possible steps are being taken to comply and where violation results from efforts to minimize the impacts of an emergency on high levels of unemployment or loss of necessary energy supplies to residences. A commitment not to enforce may be made only in writing to a specific source and only with the concurrence of the Division of Stationary Source Enforcement. In no event may a source be exempt from possible action under Section 303 of the Clean Air Act. It is unlikely that any relaxation of incremental compliance schedules will be appropriate.

D. Source or State inquiries about possible suspension of federal requirements for water pollution control:

Response: If, based on the provisions of Section 110(f) of the Clean Air Act, a proclamation is made and petitions for relief from NPDES requirements are received, the Regional Office should immediately contact the Office of Water Enforcement for guidance. The following conditions for temporary modification of individual discharge permits will generally apply:

1. On a case-by-case basis, EPA will review written applications for relief from individual permit conditions to determine:

   a. the specific permit conditions which the discharger wishes to have amended temporarily;

   b. the specific energy savings from each suspension of water treatment activity;

   c. additional steps the permittee is taking to reduce total plant energy consumption;

   d. the anticipated environmental damage which will result from the cessation of all or portions of the treatment process;

   e. other area wide energy conservation measures.

2. Except where a balancing test would dictate a contrary result, written requests will be disapproved if they petition for relief from the following:

a. a requirement which, if suspended, would result in short-term suspension of current treatment activity and which would result in long-term environmental damage;

b. a requirement limiting the discharge of toxic substances (NRDC, etc.);

c. the construction steps which are in their compliance schedules;

d. disinfection requirements where water is used for swimming or food processing, etc.

In all cases, relief may be granted using prosecutorial discretion and the Regions will issue legally enforceable documents which require full compliance at the end of the emergency period. These documents will also require increased levels of monitoring and reporting in order to safeguard the environment.

V. Recommendation

We recommend that you sign the attached memorandum to the Regional Administrators which emphasizes that EPA's response to an emergency must be handled as the highest Agency priority.

Marvin B. Durning

David G. Hawkins

Attachments

cc: DOE, attn: Ms. Yvonne Allen

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

March 6, 1979

THE ADMINISTRATOR

MEMORANDUM

TO: Regional Administrators, Regions I-X

SUBJECT: Response to Energy Emergency; Implementation of Section 110(f) of the Clean Air Act, as Amended

The Regional Offices should place highest priority on responding to any energy emergency which may arise and implementing EPA's responsibilities under Section 110(f) of the Clean Air Act. Each Regional Administrator should take action to implement the guidance and recommendations set forth in the attached memorandum to me from Mr. Durning and Mr. Hawkins.

The Clean Air Act provides that I may disapprove any SIP suspension which I determine does not comply with Section 110(f)(2)(A) and (B) of the Clean Air Act. To assure that disapprovals of inappropriate suspensions are expedited, I hereby delegate to the Regional Administrators my authority under Section 110(f)(3) to disapprove suspensions issued by Governors. This authority may be exercised by the Regional Administrators only with the prior concurrence of the Assistant Administrator for Enforcement and the Assistant Administrator for Air, Noise and Radiation. Concurrence from the Office of Enforcement and the Office of Air, Noise and Radiation should be requested and will be given by telephone through the designated EPA headquarters contact. I have designated Ms. Martha Prothro (FTS 755-2523) of the Division of Stationary Source Enforcement as the EPA Headquarters contact on all Section 110(f) matters. Ms. Prothro's alternate is Mr. Weldon Blake (FTS 755-2542). Each Regional Administrator should designate a regional contact and alternate and the contact should call Ms. Prothro as soon as possible.

In addition to this energy emergency plan to implement Section 110(f), we are initiating the development of an emergency plan to minimize adverse environmental effects which could result from a gasoline shortage. I will forward the gasoline plan with implementation guidance (if appropriate) in the future.

Douglas M. Costle

Attachment

cc: Department of Energy

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

THE ADMINISTRATOR

JUL 2 1979

MEMORANDUM

TO: Regional Administrators, Regions I-X

SUBJECT: Supplement to the Memorandum of March 6, 1979, Regarding Implementation of Section 110(f) of the Clean Air Act

On March 6, 1979, I sent to the Regional Administrators guidance on implementing Section 110(f) of the Clean Air Act. Since that time headquarter's staff has clarified the informational requirements for adequately addressing Section 110(f) issues and has also developed a policy concerning the use of price differentials between low and high sulfur fuel oils in Section 110(f) proceedings. Each Regional Administrator should take action to implement the supplemental guidance and recommendations set forth in the attached memorandum to me from Mr. Durning and Mr. Hawkins.

I have designated Mr. Paul Stolpman (phone: 426-2482) as the headquarters contact on the analysis needed to support all 110(f) actions. Mr. Stolpman's alternate is Mr. George Sugiyama (phone: 426-2482). Action on the 110(f) applications remains as set forth in previous guidance.

Barbara Blum
for Douglas M. Costle

Attachment

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

JUN 19 1979

THE ADMINISTRATOR

SUBJECT: Supplemental Guidance Regarding Implementation of Section 110(f) of the Clean Air Act - ACTION MEMORANDUM

FROM : Assistant Administrator for Air, Noise, and Radiation

Assistant Administrator for Enforcement

TO : The Administrator

Regional guidance on responding to an energy emergency under Section 110(f) was issued on March 6, 1979. Since that time the President has declared a regional energy emergency in Florida; Connecticut and New York have held hearings on low sulfur fuel oil availability; and the President has instructed EPA to use full authority to take price differentials into account in making recommendations on Section 110(f) waiver requests. Based on our experience subsequent to the Section 110(f) regional guidance we now propose the following supplemental guidance detailing information necessary for determining the existence of an energy emergency and policy guidance on the extent to which price differentials are to be incorporated in a waiver recommendation.

I. Policy on Price Differentials

The President, in his April 5, 1979, energy address, directed the Administrator to "consider unusually large increases in the price differential between complying and non-complying fuels as a basis for recommending approval of state suspension requests" and to "use his full authority to take into account price differentials and to provide the President with information on price differential increases when making recommendations to him on such requests." This directive does not imply that states must make a price differential case when petitioning for Section 110(f) waivers. It does allow the Administrator to consider price differentials whenever a state makes such a case.

On June 7, 1979, the State of New York held hearings on a request by a public utility for a Section 110(f) SIP suspension of the low sulfur fuel oil requirement. The issue before New York was not based on an actual unavailability of complying low sulfur fuel oil but was based on whether the high price of complying fuel oil relative to non-complying fuel oil was sufficient justification for a SIP suspension. EPA was requested by New York to provide policy guidance on this issue.

Price differentials between complying and non-complying fuel oils ma provide a sufficient justification for a SIP suspension only when such differentials actually cause (or are anticipated to cause) the effects of an energy emergency listed in Section 110(f)(2), i.e., high levels of unemployment or a loss of necessary energy supplies for residential dwellings and such effects could be totally or partially alleviated by an emergency suspension.

Whenever it appears that price differentials may become part of the basis or the basis of a Governor's petition to the President for a declaration of an energy emergency, Regional Administrators should make every effort to assure that the state develops an adequate record on the impact of price differentials. Recommendations to the President concerning petitions for an energy emergency shall not be based on price differentials in the absence of an adequate record establishing the impact of such price differentials. Further, in exercising the Section 110(f)(3) disapproval authority EPA shall examine he price differential impact of a SIP suspension to determine its continued validity and act accordingly. During the period of a suspension, price differentials and the impacts of price differentials will be monitored by EPA to determine the continued validity of a price differential basis for a SIP suspension.

II. Information Necessary to Document the Existence of An Energy Emergen

The following list of information needs is an expansion of those gen items listed in paragraph III(A) on pages 5 and 6 of the March 6, 1979, regional guidance. As the record of any EPA decision or recommendation regarding a Section 110(f) waiver request will be primarily the state's record, a concerted effort should be made to assure that such record contains the following information as well as any available information on the issues listed in paragraph III(A). Although EPA should provide assistance in developing the state's record, the responsibility of providir this information rests with the state and the source.

1. Identities of affected or potentially affected parties, including;

   (a) parties claiming a shortage together with the basis of their claims,

   (b) affected customers (ultimate users), and

   (c) suppliers (potential or actual) to parties experiencing shortages or cutbacks.

2. Information concerning the amount and duration of an expected shortage including:

   (a) monthly demand for two calendar quarters before and after a SIP suspension,

(b) projected shortfall of conforming fuel for the period in item (a).

(c) any circumstances affecting a shortage, such as abnormal weather conditions

(d) unanticipated changes in supply, demand, or availability of transportation.

3. A summary of the current inventories of the various parties affected, including the following information:.

(a) by type and sulfur content

(b) storage capacity/blending capacity

(c) historical comparison of supplies/inventory over last 2 years

(d) desulfurization capacity and a historical summary of such capability, including any recent (3 year) changes in desulfurization capacity.

4. Information on alternative supplies of available conforming fuel and documentation of those steps taken to locate such fuels. An adequate documentation will include a list of all suppliers contacted (including date of contact and mode of contact), the response of each supplier contacted, copies of correspondence with the suppliers (including telephone logs), and any other memoranda, notes, or reports evidencing the availability or unavailability of fuel oil.

5. Information on the availability of other fuel supplies which though not conforming represent a minimal increase in sulfur levels (i.e., 1% sulfur content versus 0.3% sulfur content).

6. A summary of the contractual arrangements between various parties, suppliers and users and a description of the available options in the event of a fuel oil shortage.

7. What actions have been taken or considered to mitigate the environmental, energy, and employment impacts of the shortage situation or to conserve conforming fuel (mandatory or voluntary)? Examples of such measures may be conservation measures, voltage reductions, thermostat reductions, wheeling and the substitution of natural gas for oil. The amount of conforming fuel oil saved by each measure should be detailed.

8. Which facilities may have to close down as a result of the shortages? What is the potential impact on employment in the area?

9. Which facilities can convert to alternate fuels? What is the lead time necessary for these facilities to convert?

10. How will SIP suspensions alleviate the shortage?

    (a) what is the present SIP limitation on fuel use

    (b) what would the new requirement be if the SIP is suspended.

    (c) how much conforming fuel would be saved.

    (d) can anything within the existing SIP be done to wholly or partially alleviate the shortage.

    (e) What steps will the state undertake to mitigate environmental impacts.

    (f) can a fuel user blend conforming and non-conforming fuels to minimize any local environmental impact of using non-conforming fuels?

11. Which sources would violate NAAQS if the emissions limitations are suspended? What is the present attainment status in the affected areas?

With regard to a request for a 110(f) suspension based on price differentials the following additional information would be required:

1. A discussion of fuel prices, including:

    (a) a one year history of prices paid for conforming fuel, under contract or on the spot market.

    (b) the prices of non-conforming fuels by sulfur content.

    (c) the prices of any available alternative fuels the use of which would not require a suspension.

2. The impact of price differentials of complying fuels relative to non-complying fuels (at various sulfur levels) on unemployment (e.g., layoffs plant closures) and residential energy supplies, including:

    (a) a examination of various sulfur content fuels and alternative fuels.

    (b) the mitigating effects of conservation measures and the substitution of natural gas for oil.

III. Recommendation

We recommend that you sign the attached memorandum to the Regional dministrators.

David G. Hawkins   Marvin B. Durning

REFERENCES FOR SECTION 8.4

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

31 MAR 1988

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Transmittal of Reissued OAQPS CEMS Policy

FROM: Gerald A. Emison, Director
Office of Air Quality Planning and Standards

TO: Air and Waste Management Division Director
Region II

Air Management Division Directors
Region I, III and IX

Air, Pesticides and Toxics Management Division
Directors
Regions IV and VI

Air and Toxics Division Directors
Regions VII, VIII and X

Air and Radiation Division Director
Region V

Attached is the OAQPS policy on Continuous Emission Monitoring Systems (CEMS) data. This policy was originally issued on July 28, 1987. However, because of the late transmittal date, FY 1988 implementation of the policy was done voluntarily. The policy, after minor streamlining, is being reissued at this time to insure implementation during FY 1989. It has been streamlined by removing the outdated section called "Future Actions."

In accordance with the Operating Year Plan, FTEs and LOE contract funds have been allocated to the Regional Offices for CEMS and compliance monitoring activities. Implementation of this strategy should help you utilize these available resources more efficiently and effectively.

Furthermore, note that tracking SO_2 CEMS requirements is an element of the FY 1989 Strategic Planning and Management System (SPMS). The FY 1989 SPMS requires determination and reporting of the compliance status of SO_2 sources subject to CEMS requirements. Specifically, these sources are to be identified, and their compliance status determined with respect to CEMS installation, certification, report submission and emission limits. While SO_2 sources are emphasized in SPMS, this measure should be carried out for all sources with CEMS requirements.

If you wish to discuss this further, please contact me or Louis Paley of SSCD at FTS 382-2835.

Attachment

cc: John Calcagni, AQMD
Jack R. Farmer, ESD
William Laxton, TSD
Don R. Clay, OAR
Bruce Armstrong, OPAR
Paul M. Stolpman, OPAR
Michael S. Alushin, AED
Alan W. Eckert, OGC
CEMS Technical Coordinators

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

31 MAR 1988

OFFICE OF
AIR AND RADIATION

SUBJECT: CEMS Policy

APPROVED: Gerald A. Emison, Director
Office of Air Quality Planning and Standards

DATE:

Purpose

This states the OAQPS policy, which is effective immediately, on the use of Continuous Emission Monitoring Systems (CEMS) data and provides specific guidance as to how that policy should be implemented.

Definition

CEMS is one of several self-monitoring techniques used by regulatory agencies to monitor continuous compliance of sources. Sampling and analysis of sulfur in fuel to assess SO_2 compliance of sources and recordkeeping for assessment of compliance with volatile organic compound (VOC) emission limitations are two other self-monitoring techniques.

Information

As the air compliance program resolves initial compliance problems and sources install control equipment, efforts to assure continuous compliance become increasingly important. Based on the review of State and Regional programs that promote the use of CEMS, OAQPS has found that CEMS is a valuable tool for assuring continuous compliance. Self-monitoring techniques should be integrated into the air compliance program as a means of assessing stationary source continuous compliance with air quality regulations.

Some of the States which effectively use CEMS data in compliance monitoring and in supplementing or supporting enforcement actions are Washington (with SO_2 and total reduced sulfur data) and Tennessee (with opacity monitoring data). Ohio has a comprehensive program for requiring CEMS in operating permits which has resulted in installation of CEMS on a wide variety of source types. Pennsylvania and Indiana have highly structured CEMS programs, including penalty programs based on reported excess emissions.

Policy

OAQPS is committed to promoting, encouraging and utilizing CEMS data as a compliance assessment measure. Our Office is also committed to the use of CEMS in direct enforcement where CEMS is the compliance test method and for supporting enforcement where CEMS is not the compliance test method. OAQPS encourages the use of CEMS data by States in compliance monitoring and in supplementing or supporting enforcement actions. If it is technically feasible, CEMS requirements should be incorporated into NSR preconstruction reviews, operating permits and resolutions of enforcement actions including consent decrees and administrative orders.

CEMS should be used to assure continuous compliance of sources in both attainment and nonattainment areas. Resources should be allocated to monitor continuous compliance of sources in areas where the greatest environmental benefit is likely to occur. Therefore, priority should be given to NESHAPS sources subject to continuous monitoring requirements (currently 40 CFR 61, subparts F, N, O and V) and to SIP (including major and minor NSR sources) and NSPS sources in nonattainment areas (for the pollutant for which the area is in nonattainment). Next, CEMS should be used to monitor the continuous compliance of NSPS and PSD sources in attainment areas. Sources with excessive emission limit excursions identified by CEMS data should be targeted for follow-up action (on-site inspection or §114 letter). Where CEMS is the compliance test method, CEMS data should be used to identify significant violators. These sources will then be tracked in accordance with the "Timely and Appropriate Enforcement Response Guidance," issued by OAR on April 11, 1986.

There are two different types of CEMS data - direct compliance monitoring data and excess emissions monitoring data. Where CEMS is the compliance test method, the status of the source is established and documented by CEMS data. Compliance status determined by CEMS data should be coded in the Compliance

Data System (CDS). Violations identified by direct compliance monitoring data require appropriate enforcement action including the assessment of penalties. There are plans to modify the CEM Subset of CDS to allow for entry of direct compliance monitoring data. Use of CEMS data for direct enforcement where CEMS is the compliance test method is discussed in "Guidance: Enforcement Applications of Continuous Emission Monitoring System Data," issued by OAQPS and OECM on April 22, 1986.

The second type of CEMS data is where CEMS is not the compliance method. In these cases, CEMS data should be used to monitor the continuous compliance of sources and to initiate follow-up action including on-site inspections, requesting further information, and issuing a notice of violation. This application is also discussed in the aforementioned guidance.

Conclusion

CEMS is an important technique for monitoring the continuous compliance of stationary sources. It should be an expanding component of the air compliance program. Evaluation of CEMS data has been shown to be effective for identifying sources with continuous compliance problems and has allowed agencies to utilize their compliance monitoring resources more effectively.

REFERENCES FOR SECTION 8.5

August 25, 1988

NOTE TO JERRY EMISON

SUBJECT: Gibson County, Indiana, SO_2 Plan

THRU: John Calcagni

This note is a "heads up" concerning Indiana's SO_2 control plan for Gibson County. The plan allows for delayed compliance with the SO_2 limitations (one limit for attainment of the primary NAAQS and a second limit for attainment of the secondary NAAQS with interim milestones) for Public Service of Indiana's (PSI) Gibson Power Plant. The plan also allows PSI Gibson to come in with alternate limitations. We concur with the plan for the reasons stated in the attached analysis.

If you have any questions, I will be happy to answer them.

Bob Bauman

Attachment

Gibson County, Indiana, SO_2 SIP

Issue

Delayed compliance schedule.

Background

The State plan contains the following requirements:

1. SO_2 Limitations

(lbs/mmBtu)	Unit	Compliance Dates
1.2	5	All times
5.1	1-4	Now to 12/31/91
3.57	1-4	12/31/91 - 12/30/93 (to attain the primary 24-hour NAAQS)
3.13	1-4	12/31/93 - 12/30/95
2.57	1-4	12/31/95 (to attain the secondary 3-hour NAAQS)

2. PSI Gibson is required to submit a compliance plan prior to 12/31/88 specifying control measures and increments of progress. The plan may also contain alternative individual limitations for units 1-4.

3. The IDEM is required to present a compliance plan to the Indiana Board prior to 11/30/89 and to submit a Board-adopted plan to EPA as a SIP revision by 5/30/90.

Analysis

The date to attain the primary NAAQS (12/31/91) is within the 3-year timeframe in section 110(a)(2)(A) for EPA's final approval of the State's plan. The date to attain the secondary NAAQS (12/31/95) is reasonable. In the case of attainment of the secondary NAAQS, section 110(a)(2)(A) requires that a plan specify a reasonable time to attain. Although EPA has defined reasonable at 40 CFR 51.110(c)(2), EPA does not have a written policy on what length of time constitutes a reasonable time. In past cases, EPA has deferred to the State.

PSI has not selected or been required to select the control method to achieve the limitations. The State submittal outlines three control methods and estimates times as required by section 110(a)(2)(B) to accomplish compliance: switch to low sulfur coal, install two FGD's with interim switch to low sulfur coal, and install one FGD with some low sulfur coal.

Indiana has provided justification which is summarized as follows.

State Justification

The compliance schedule and cost estimates recognize that PSI's existing coal contracts limit their ability to rapidly substitute lower sulfur coal for their existing supply. The State has provided for:

- Sufficient time to renegotiate current coal contracts to the benefit of the utility, ratepayers, coal companies, coal miners, and communities.

- Sufficient time to design and construct one or two FGD's if necessary.

- Time to thoroughly investigate emerging clean coal technologies.

- Phased-in costs.

- Time for local coal companies to develop existing coal reserves which could then supply compliance fuel.

Conclusion

Social and economic impacts are substantial and good cause exists for postponing application of control technology for more than 3 years from plan submission.

The degree of emission reduction (47 percent reduction), the social and economic problems involved in carrying out the control options, displacement of over 3 million tons of IN/IL coal or the design/construction/installation of two FGD's or combination thereof, the length of time for phase-in of control equipment, and the increased costs to ratepayers warrant effort to minimize impacts consistent with the requirements of the Clean Air Act and justify more than a 3-year schedule.

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

AUG - 7 1986

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Policy on SIP Revisions Requesting Compliance Date Extensions for VOC Sources

FROM: J. Craig Potter
Assistant Administrator
for Air and Radiation

TO: Regional Administrators
Regions I-X

A number of States have asked EPA to approve SIP revisions granting compliance date extensions for individual VOC sources in ozone nonattainment areas. The attached policy sets forth EPA's position on when approval of such SIP revisions is appropriate and what the States must demonstrate in order for EPA to approve them. Regional Offices should review the requests for SIP revisions for conformance to this policy. SIP revisions now pending at Headquarters will also need to be reviewed by the Regions in light of this policy.

Attachment

cc: Richard H. Mays, OECM
Gerald A. Emison, OAOPS
Alan Eckert, OGC
Air Division Directors, Regions I-X
Regional Counsels, Regions I-X

Policy on SIP Revisions Requesting Compliance Date Extensions for VOC Sources

In order to approve a source-specific compliance date extension, two tests must be met. First, a State must demonstrate that the extension will not interfere with timely attainment (attainment by the formally established attainment date) and maintenance of the ozone standard and, where relevant "reasonable further progress" (RFP) towards timely attainment. 1/ The attainment date will generally be December 31, 1982, or the date established under Section 110 where the State has adequately responded to a request for SIP revisions under §110(a)(2)(H), or December 31, 1987 in ozone extension areas. The demonstration may be based on a comparison between the margin for attainment predicted by the demonstration submitted with the approved ozone SIP 2/ and the increased emissions that would result under the proposed compliance date extension. 3/ If there is an adequate margin to absorb the increased emissions (and the extension would not interfere with RFP), then EPA may conclude that the compliance date extension will not interfere with the attainment and continued maintenance of the ozone standard.

1/ The reference to a demonstration of RFP towards timely attainment is not intended to redefine RFP but only reaffirms that an RFP analysis is required.

2/ For areas where revisions to the Part D SIP are required (such as 1987 extension areas or SIP call areas) and those revisions have not been fully approved, the State would have to submit a demonstration the equivalent of that required for EPA approval of the ozone SIP. Without an approvable demonstration EPA cannot determine whether the individual compliance date extension will interfere with timely attainment and maintenance of the standard, or with RFP. A de minimus showing would not be acceptable, since in the aggregate even very small sources would contribute significantly to ozone formation.

3/ In making such a comparison it will be necessary to determine what, if any, portion of the margin has been utilized by new sources of VOCs that may have located in the area since the SIP was approved, as well as by existing VOC sources that may have already been granted compliance date extensions.

If the State or EPA believes that there has been a substantial change in the inventory of VOC sources or total VOC emissions since the ozone SIP was approved so that the margin of attainment has changed significantly, a revised demonstration in support of the source-specific SIP revision should be submitted. 4/

Second, time extensions also must be consistent with the requirement that nonattainment area SIPs provide for "implementation of all reasonably available control measures as expeditiously as practicable" [§172(b)(2)]. Expeditiousness should be demonstrated by determining when the source was first put on notice of the applicable requirement (e.g., adoption of the current regulation by the State) and the time that has elapsed since then. EPA has generally determined that for most VOC sources this period is less than three years. 5/ Any source-specific SIP revision for a compliance date extension within these timeframes may be presumed to be expeditious. Compliance date extensions for periods longer than these timeframes, however, should be closely scrutinized to determine whether or not they are truly expeditious. 6/ This should include an examination of the compliance status of other sources nationally in the same VOC source category (this examination would be the responsibility of the State), and the most expeditious means of compliance available (including add on control equipment, process change, or raw material improvement) irrespective of the method proposed in the SIP

4/ Such a demonstration would be necessary, for example, in areas originally demonstrating attainment by 1982, but for which post-1982 monitoring data are indicating exceedances of the ozone standard or raising serious questions about the original prediction of attainment.

5/ For three source categories (can coating operations, graphic arts printing and automotive assembly plant paint shop operations), based on industry experience EPA has through policy statements concluded that expeditiousness may be longer than three years.

6/ The same holds true for review of individual compliance date extensions incorporated in any area-wide ozone SIP revisions submitted by a State (such as those being submitted pursuant to an EPA SIP call under Section 110(a)(2)(H)). Any change in the original deadline for an individual VOC source incorporated in an area-wide ozone SIP revision must be demonstrated to be expeditious (as well as not interfere with timely attainment and maintenance).

revision. Unless it can be shown that the original timeframe approved in the SIP did not allow sufficient time for an economically and technologically feasible compliance plan to be implemented, a SIP revision for a compliance date extension beyond the timeframes set forth above should be denied.

In conclusion, both the demonstration of timely attainment (including RFP where relevant) and maintenance and the expeditiousness tests must be met before a State SIP revision can be approved.

J. Craig Potter
Assistant Administrator
for Air and Radiation

AUG - 7 1986

REFERENCES FOR SECTION 9.2

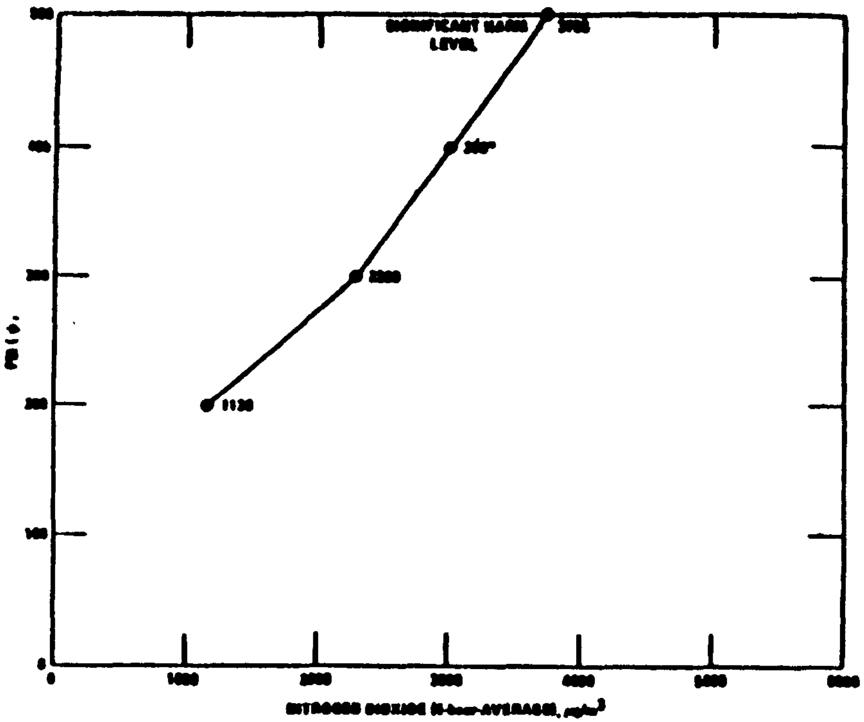

Figure 5. PSI function for nitrogen dioxide.

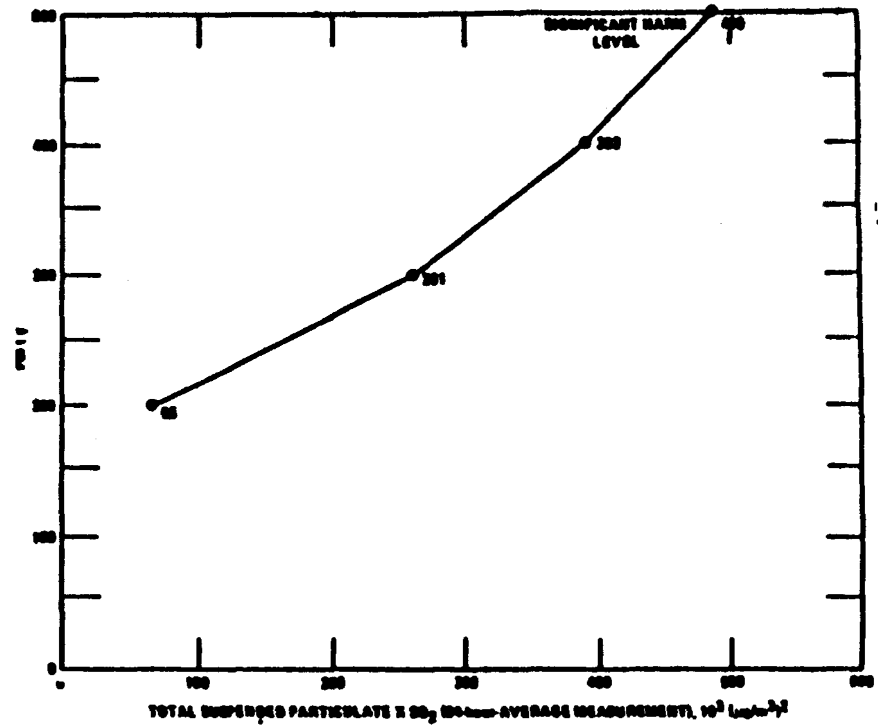

Figure 6. PSI function for product of total suspended particulate and sulfur dioxide.

[44 FR 27571, May 10, 1979; 44 FR 65070, Nov. 9, 1979; 44 FR 72592, Dec. 14, 1979, as amended at 51 FR 95600, Mar. 19, 1986; 52 FR 24749, 24750, July 1, 1987]

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Subpart A—General Provisions

Subpart B—Adoption and Submittal of State Plans for Designated Facilities

Sec.
60.25 Emission inventories, source surveillance, reports.
60.26 Legal authority.
60.27 Actions by the Administrator.
60.28 Plan revisions by the State.
60.29 Plan revisions by the Administrator.

Subpart C—Emission Guidelines and Compliance Times

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60.31 Definitions.
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60.34 Compliance times.

Subpart D—Standards of Performance for Fossil-Fuel Fired Steam Generators for Which Construction Is Commenced After August 17, 1971

60.40 Applicability and designation of affected facility.
60.41 Definitions.
60.42 Standard for particulate matter.
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60.44 Standard for nitrogen oxides.
60.45 Emission and fuel monitoring.
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60.47 Innovative technology waivers; waiver of sulfur dioxide standards of performance for new stationary sources for Homer City Unit No. 3 under section 111(j) of the Clean Air Act for Multi-Steam Coal Cleaning System.

Subpart Da—Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978

60.40a Applicability and designation of affected facility.
60.41a Definitions.
60.42a Standard for particulate matter.
60.43a Standard for sulfur dioxide.
60.44a Standard for nitrogen oxides.
60.45a Commercial demonstration permit.
60.46a Compliance provisions.
60.47a Emission monitoring.
60.48a Compliance determination procedures and methods.
60.49a Reporting requirements.

Subpart Db—Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

60.40b Applicability and delegation of authority.
60.41b Definitions.
60.42b Standard for sulfur dioxide.
60.43b Standard for particulate matter.
60.44b Standard for nitrogen oxides.

Sec.
60.45b Compliance and performance test methods and procedures for sulfur dioxide.
60.46b Compliance and performance test methods and procedures for particulate matter and nitrogen oxides.
60.47b Emission monitoring for sulfur dioxide.
60.48b Emission monitoring for particulate matter and nitrogen oxides.
60.49b Reporting and recordkeeping requirements.

Subpart E—Standards of Performance for Incinerators

60.50 Applicability and designation of affected facility.
60.51 Definitions.
60.52 Standard for particulate matter.
60.53 Monitoring of operations.
60.54 Test methods and procedures.

Subpart F—Standards of Performance for Portland Cement Plants

60.60 Applicability and designation of affected facility.
60.61 Definitions.
60.62 Standard for particulate matter.
60.63 Monitoring of operations.
60.64 Test methods and procedures.

Subpart G—Standards of Performance for Nitric Acid Plants

60.70 Applicability and designation of affected facility.
60.71 Definitions.
60.72 Standard for nitrogen oxides.
60.73 Emission monitoring.
60.74 Test methods and procedures.

Subpart H—Standards of Performance for Sulfuric Acid Plants

60.80 Applicability and designation of affected facility.
60.81 Definitions.
60.82 Standard for sulfur dioxide.
60.83 Standard for acid mist.
60.84 Emission monitoring.
60.85 Test methods and procedures.

Subpart I—Standards of Performance for Asphalt Concrete Plants

60.90 Applicability and designation of affected facility.
60.91 Definitions.
60.92 Standard for particulate matter.
60.93 Test methods and procedures.

Sec.

Subpart J—Standards of Performance for Petroleum Refineries

60.100 Applicability and designation of affected facility.
60.101 Definitions.
60.102 Standard for particulate matter.
60.103 Standard for carbon monoxide.
60.104 Standard for sulfur dioxide.
60.105 Emission monitoring.
60.106 Test methods and procedures.

Subpart K—Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978

60.110 Applicability and designation of affected facility.
60.111 Definitions.
60.112 Standard for volatile organic compounds (VOC).
60.113 Monitoring of operations.

Subpart Ka—Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984

60.110a Applicability and designation of affected facility.
60.111a Definitions.
60.112a Standard for volatile organic compounds (VOC).
60.113a Testing and procedures.
60.114a Alternative means of emission limitation.
60.115a Monitoring of operations.

Subpart Kb—Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984

60.110b Applicability and designation of affected facility.
60.111b Definitions.
60.112b Standard for volatile organic compounds (VOC).
60.113b Testing and procedures.
60.114b Alternative means of emission limitation.
60.115b Recordkeeping and reporting requirements.
60.116b Monitoring of operations.
60.117b Delegation of authority.

Sec.

Subpart L—Standards of Performance for Secondary Lead Smelters

60.120 Applicability and designation of affected facility.
60.121 Definitions.
60.122 Standard for particulate matter.
60.123 Test methods and procedures.

Subpart M—Standards of Performance for Secondary Brass and Bronze Production Plants

60.130 Applicability and designation of affected facility.
60.131 Definitions.
60.132 Standard for particulate matter.
60.133 Test methods and procedures.

Subpart N—Standards of Performance for Primary Emissions from Basic Oxygen Process Furnaces for Which Construction Is Commenced After June 11, 1973

60.140 Applicability and designation of affected facility.
60.141 Definitions.
60.142 Standard for particulate matter.
60.143 Monitoring of operations.
60.144 Test methods and procedures.

Subpart Na—Standards of Performance for Secondary Emissions from Basic oxygen Process Steelmaking Facilities for Which Construction Is Commenced After January 20, 1983

60.140a Applicability and designation of affected facilities.
60.141a Definitions.
60.142a Standards for particulate matter.
60.143a Monitoring of operations.
60.144a Test methods and procedures.
60.145a Compliance provisions.

Subpart O—Standards of Performance for Sewage Treatment Plants

60.150 Applicability and designation of affected facility.
60.151 Definitions.
60.152 Standard for particulate matter.
60.153 Monitoring of operations.
60.154 Test methods and procedures.

Subpart P—Standards of Performance for Primary Copper Smelters

60.160 Applicability and designation of affected facility.
60.161 Definitions.
60.162 Standard for particulate matter.
60.163 Standard for sulfur dioxide.
60.164 Standard for visible emissions.
60.165 Monitoring of operations.

AUTHORITY: 42 U.S.C. 7401, 7411, 7414, 7416, and 7601.

SOURCE: 36 FR 24877, Dec. 23, 1971, unless otherwise noted.

Subpart A—General Provisions

§ 60.1 Applicability.

Except as provided in Subparts B and C, the provisions of this part apply to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced after the date of publication in this part of any standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility.

[40 FR 53346, Nov. 17, 1975]

§ 60.2 Definitions.

The terms used in this part are defined in the Act or in this section as follows:

"*Act*" means the Clean Air Act (42 U.S.C. 1857 et seq., as amended by Pub. L. 91-604, 84 Stat. 1676).

"*Administrator*" means the Administrator of the Environmental Protection Agency or his authorized representative.

"*Affected facility*" means, with reference to a stationary source, any apparatus to which a standard is applicable.

"*Alternative method*" means any method of sampling and analyzing for an air pollutant which is not a reference or equivalent method but which has been demonstrated to the Administrator's satisfaction to, in specific cases, produce results adequate for his determination of compliance.

"*Capital expenditure*" means an expenditure for a physical or operational change to an existing facility which exceeds the product of the applicable "annual asset guideline repair allowance percentage" specified in the latest edition of Internal Revenue Service (IRS) Publication 534 and the existing facility's basis, as defined by section 1012 of the Internal Revenue Code. However, the total expenditure for a physical or operational change to an existing facility must not be reduced by any "excluded additions" as defined in IRS Publication 534, as would be done for tax purposes.

"*Commenced*" means, with respect to the definition of "new source" in section 111(a)(2) of the Act, that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

"*Construction*" means fabrication, erection, or installation of an affected facility.

"*Continuous monitoring system*" means the total equipment, required under the emission monitoring sections in applicable subparts, used to sample and condition (if applicable), to analyze, and to provide a permanent record of emissions or process parameters.

"*Equivalent method*" means any method of sampling and analyzing for an air pollutant which has been demonstrated to the Administrator's satisfaction to have a consistent and quantitatively known relationship to the reference method, under specified conditions.

"*Existing facility*" means, with reference to a stationary source, any apparatus of the type for which a standard is promulgated in this part, and the construction or modification of which was commenced before the date of proposal of that standard; or any apparatus which could be altered in such a way as to be of that type.

"*Isokinetic sampling*" means sampling in which the linear velocity of the gas entering the sampling nozzle is equal to that of the undisturbed gas stream at the sample point.

"*Malfunction*" means any sudden and unavoidable failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation, or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.

"*Modification*" means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.

"*Monitoring device*" means the total equipment, required under the monitoring of operations sections in applicable subparts, used to measure and record (if applicable) process parameters.

"*Nitrogen oxides*" means all oxides of nitrogen except nitrous oxide, as measured by test methods set forth in this part.

"*One-hour period*" means any 60-minute period commencing on the hour.

"*Opacity*" means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.

(a) The provision was promulgated by the Administrator, and

(b) The plan, as revised, will be consistent with the Act and with the requirements of this subpart.

Subpart C—Emission Guidelines and Compliance Times

SOURCE: 42 FR 55797, Oct. 18, 1977, unless otherwise noted.

§ 60.30 Scope.

This subpart contains emission guidelines and compliance times for the control of certain designated pollutants from certain designated facilities in accordance with section 111(d) of the Act and Subpart B.

§ 60.31 Definitions.

Terms used but not defined in this subpart have the meaning given them in the Act and in Subparts A and B of this part.

§ 60.32 Designated facilities.

(a) Sulfuric acids production units. The designated facility to which §§ 60.33(a) and 60.34(a) apply is each existing "sulfuric acid production unit" as defined in § 60.81(a) of Subpart H.

§ 60.33 Emission guidelines.

(a) Sulfuric acid production units. The emission guideline for designated facilities is 0.25 gram sulfuric acid mist (as measured by Reference Method 8, of Appendix A) per kilogram of sulfuric acid produced (0.5 lb/ton), the production being expressed as 100 percent H_2SO_4.

§ 60.34 Compliance times.

(a) Sulfuric acid production units. Planning, awarding of contracts, and installation of equipment capable of attaining the level of the emission guideline established under § 60.33(a) can be accomplished within 17 months after the affective date of a State emission standard for sulfuric acid mist.

Subpart D—Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction Is Commenced After August 17, 1971

§ 60.40 Applicability and designation of affected facility.

(a) The affected facilities to which the provisions of this subpart apply are:

(1) Each fossil-fuel-fired steam generating unit of more than 73 megawatts heat input rate (250 million Btu per hour).

(2) Each fossil-fuel and wood-residue-fired steam generating unit capable of firing fossil fuel at a heat input rate of more than 73 megawatts (250 million Btu per hour).

(b) Any change to an existing fossil-fuel-fired steam generating unit to accommodate the use of combustible materials, other than fossil fuels as defined in this subpart, shall not bring that unit under the applicability of this subpart.

(c) Except as provided in paragraph (d) of this section, any facility under paragraph (a) of this section that commenced construction or modification after August 17, 1971, is subject to the requirements of this subpart.

(d) The requirements of §§ 60.44 (a)(4), (a)(5), (b) and (d), and 60.45(f)(4)(vi) are applicable to lignite-fired steam generating units that commenced construction or modification after December 22, 1976.

(e) Any facility covered under Subpart Da is not covered under this subpart.

[42 FR 37936, July 25, 1977, as amended at 43 FR 9278, Mar. 7, 1978; 44 FR 33612, June 17, 1979]

§ 60.41 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act, and in Subpart A of this part.

(a) "Fossil-fuel fired steam generating unit" means a furnace or boiler used in the process of burning fossil fuel for the purpose of producing steam by heat transfer.

(b) "Fossil fuel" means natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat.

(c) "Coal refuse" means waste-products of coal mining, cleaning, and coal preparation operations (e.g. culm, gob, etc.) containing coal, matrix material, clay, and other organic and inorganic material.

(d) "Fossil fuel and wood residue-fired steam generating unit" means a furnace or boiler used in the process of burning fossil fuel and wood residue for the purpose of producing steam by heat transfer.

(e) "Wood residue" means bark, sawdust, slabs, chips, shavings, mill trim, and other wood products derived from wood processing and forest management operations.

(f) "Coal" means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American Society and Testing and Materials, Designation D388-77 (incorporated by reference—see §60.17).

[39 FR 20791, June 14, 1974, as amended at 40 FR 2803, Jan. 16, 1975; 41 FR 51398, Nov. 22, 1976; 43 FR 9278, Mar. 7, 1978; 48 FR 3736, Jan. 27, 1983]

§ 60.42 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which:

(1) Contain particulate matter in excess of 43 nanograms per joule heat input (0.10 lb per million Btu) derived from fossil fuel or fossil fuel and wood residue.

(2) Exhibit greater than 20 percent opacity except for one six-minute period per hour of not more than 27 percent opacity.

(b)(1) On or after December 28, 1979, no owner or operator shall cause to be discharged into the atmosphere from the Southwestern Public Service Company's Harrington Station #1, in Amarillo, Texas, any gases which exhibit greater than 35% opacity, except that a maximum or 42% opacity shall be permitted for not more than 6 minutes in any hour.

(2) Interstate Power Company shall not cause to be discharged into the atmosphere from its Lansing Station Unit No. 4 in Lansing, Iowa, any gases which exhibit greater than 32% opacity, except that a maximum of 39% opacity shall be permitted for not more than six minutes in any hour.

(3) Omaha Public Power District shall not cause to be discharged into the atmosphere from its Nebraska City Power Station in Nebraska City, Nebraska, any gases which exhibit greater than 30% opacity, except that a maximum of 37% opacity shall be permitted for not more than six minutes in any hour.

[39 FR 20792, June 14, 1974, as amended at 41 FR 51398, Nov. 22, 1976; 42 FR 61537, Dec. 5, 1977; 44 FR 76787, Dec. 28, 1979; 45 FR 36077, May 29, 1980; 45 FR 47146, July 14, 1980; 46 FR 57498, Nov. 24, 1981]

§ 60.43 Standard for sulfur dioxide.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which contain sulfur dioxide in excess of:

(1) 340 nanograms per joule heat input (0.80 lb per million Btu) derived from liquid fossil fuel or liquid fossil fuel and wood residue.

(2) 520 nanograms per joule heat input (1.2 lb per million Btu) derived from solid fossil fuel or solid fossil fuel and wood residue, except as provided in paragraph (e) of this section.

(b) When different fossil fuels are burned simultaneously in any combination, the applicable standard (in ng/J) shall be determined by proration using the following formula:

$$PS_{SO_2} = [y(340) + z(520)]/(y + z)$$

where:

PS_{SO_2} is the prorated standard for sulfur dioxide when burning different fuels simultaneously, in nanograms per joule heat input derived from all fossil fuels fired or from all fossil fuels and wood residue fired,

y is the percentage of total heat input derived from liquid fossil fuel, and z is the percentage of total heat input derived from solid fossil fuel.

(c) Compliance shall be based on the total heat input from all fossil fuels burned, including gaseous fuels.

(d) [Reserved]

(e) Units 1 and 2 (as defined in Appendix G) at the Newton Power Station owned or operated by the Central Illinois Public Service Company will be in compliance with paragraph (a)(2) of this section if Unit 1 and Unit 2 individually comply with paragraph (a)(2) of this section or if the combined emission rate from Units 1 and 2 does not exceed 470 nanograms per joule (1.1 lb per million Btu) combined heat input to Units 1 and 2.

[39 FR 20792, June 14, 1974, as amended at 41 FR 51398, Nov. 22, 1976; 52 FR 28954, Aug. 4, 1987]

§ 60.44 Standard for nitrogen oxides.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which contain nitrogen oxides, expressed as NO_2 in excess of:

(1) 86 nanograms per joule heat input (0.20 lb per million Btu) derived from gaseous fossil fuel.

(2) 129 nanograms per joule heat input (0.30 lb per million Btu) derived from liquid fossil fuel, liquid fossil fuel and wood residue, or gaseous fossil fuel and wood residue.

(3) 300 nanograms per joule heat input (0.70 lb per million Btu) derived from solid fossil fuel or solid fossil fuel and wood residue (except lignite or a solid fossil fuel containing 25 percent, by weight, or more of coal refuse).

(4) 260 nanograms per joule heat input (0.60 lb per million Btu) derived from lignite or lignite and wood residue (except as provided under paragraph (a)(5) of this section).

(5) 340 nanograms per joule heat input (0.80 lb per million Btu) derived from lignite which is mined in North Dakota, South Dakota, or Montana and which is burned in a cyclone-fired unit.

(b) Except as provided under paragraphs (c) and (d) of this section, when different fossil fuels are burned simultaneously in any combination, the applicable standard (in ng/J) is determined by proration using the following formula:

$$PS_{NO_x} = \frac{w(260) + x(86) + y(130) + z(300)}{w + x + y + z}$$

where:

PS_{NO_x} = is the prorated standard for nitrogen oxides when burning different fuels simultaneously, in nanograms per joule heat input derived from all fossil fuels fired or from all fossil fuels and wood residue fired;

w = is the percentage of total heat input derived from lignite;

x = is the percentage of total heat input derived from gaseous fossil fuel;

y = is the percentage of total heat input derived from liquid fossil fuel; and

z = is the percentage of total heat input derived from solid fossil fuel (except lignite).

(c) When a fossil fuel containing at least 25 percent, by weight, of coal refuse is burned in combination with gaseous, liquid, or other solid fossil fuel or wood residue, the standard for nitrogen oxides does not apply.

(d) Cyclone-fired units which burn fuels containing at least 25 percent of lignite that is mined in North Dakota, South Dakota, or Montana remain subject to paragraph (a)(5) of this section regardless of the types of fuel combusted in combination with that lignite.

[39 FR 20792, June 14, 1974, as amended at 41 FR 51398, Nov. 22, 1976; 43 FR 9278, Mar. 7, 1978; 51 FR 42797, Nov. 25, 1986]

§ 60.45 Emission and fuel monitoring.

(a) Each owner or operator shall install, calibrate, maintain, and operate continuous monitoring systems for measuring the opacity of emissions, sulfur dioxide emissions, nitrogen oxides emissions, and either oxygen or carbon dioxide except as provided in paragraph (b) of this section.

(b) Certain of the continuous monitoring system requirements under paragraph (a) of this section do not

apply to owners or operators under the following conditions:

(1) For a fossil fuel-fired steam generator that burns only gaseous fossil fuel, continuous monitoring systems for measuring the opacity of emissions and sulfur dioxide emissions are not required.

(2) For a fossil fuel-fired steam generator that does not use a flue gas desulfurization device, a continuous monitoring system for measuring sulfur dioxide emissions is not required if the owner or operator monitors sulfur dioxide emissions by fuel sampling and analysis under paragraph (d) of this section.

(3) Notwithstanding § 60.13(b), installation of a continuous monitoring system for nitrogen oxides may be delayed until after the initial performance tests under § 60.8 have been conducted. If the owner or operator demonstrates during the performance test that emissions of nitrogen oxides are less than 70 percent of the applicable standards in § 60.44, a continuous monitoring system for measuring nitrogen oxides emissions is not required. If the initial performance test results show that nitrogen oxide emissions are greater than 70 percent of the applicable standard, the owner or operator shall install a continuous monitoring system for nitrogen oxides within one year after the date of the initial performance tests under § 60.8 and comply with all other applicable monitoring requirements under this part.

(4) If an owner or operator does not install any continuous monitoring systems for sulfur oxides and nitrogen oxides, as provided under paragraphs (b)(1) and (b)(3) or paragraphs (b)(2) and (b)(3) of this section a continuous monitoring system for measuring either oxygen or carbon dioxide is not required.

(c) For performance evaluations under § 60.13(c) and calibration checks under § 60.13(d), the following procedures shall be used:

(1) Methods 3 or 3A, 6, 6A, 6B or 6C, and 7, 7A, 7C, 7D or 7E, as applicable, shall be used for conducting relative accuracy evaluations of sulfur dioxide and nitrogen oxides continuous emission monitoring systems. Methods 3A, 6C, and 7E shall be used only at the sole discretion of the source owner or operator.

(2) Sulfur dioxide or nitric oxide, as applicable, shall be used for preparing calibration gas mixtures under Performance Specification 2 of Appendix B to this part.

(3) For affected facilities burning fossil fuel(s), the span value for a continuous monitoring system measuring the opacity of emissions shall be 80, 90, or 100 percent and for a continuous monitoring system measuring sulfur oxides or nitrogen oxides the span value shall be determined as follows:

[In parts per million]

Fossil fuel	Span value for sulfur dioxide	Span value for nitrogen oxides
Gas	([1])	500
Liquid	1,000	500
Solid	1,500	500
Combinations	1,000y + 1,500z	500(x + y) + 1,000z

[1] Not applicable

where:

x = the fraction of total heat input derived from gaseous fossil fuel, and

y = the fraction of total heat input derived from liquid fossil fuel, and

z = the fraction of total heat input derived from solid fossil fuel.

(4) All span values computed under paragraph (c)(3) of this section for burning combinations of fossil fuels shall be rounded to the nearest 500 ppm.

(5) For a fossil fuel-fired steam generator that simultaneously burns fossil fuel and nonfossil fuel, the span value of all continuous monitoring systems shall be subject to the Administrator's approval.

(d) [Reserved]

(e) For any continuous monitoring system installed under paragraph (a) of this section, the following conversion procedures shall be used to convert the continuous monitoring data into units of the applicable standards (ng/J, lb/million Btu):

(1) When a continuous monitoring system for measuring oxygen is selected, the measurement of the pollutant concentration and oxygen concentration shall each be on a consistent basis (wet or dry). Alternative procedures

approved by the Administrator shall be used when measurements are on a wet basis. When measurements are on a dry basis, the following conversion procedure shall be used:

$$E = CF[20.9/(20.9-\text{percent } O_2)]$$

where:

E, C, F, and $\%O_2$ are determined under paragraph (f) of this section.

(2) When a continuous monitoring system for measuring carbon dioxide is selected, the measurement of the pollutant concentration and carbon dioxide concentration shall each be on a consistent basis (wet or dry) and the following conversion procedure shall be used:

$$E = CF_c\,[100/\text{percent } CO_2]$$

where:

E, C, F_c and $\%CO_2$ are determined under paragraph (f) of this section.

(f) The values used in the equations under paragraphs (e) (1) and (2) of this section are derived as follows:

(1) E = pollutant emissions, ng/J (lb/million Btu).

(2) C = pollutant concentration, ng/dscm (lb/dscf), determined by multiplying the average concentration (ppm) for each one-hour period by 4.15×10^{4} M ng/dscm per ppm (2.59×10^{-9} M lb/dscf per ppm) where M = pollutant molecular weight, g/g-mole (lb/lb-mole). M = 64.07 for sulfur dioxide and 46.01 for nitrogen oxides.

(3) $\%O_2$, $\%CO_2$ = oxygen or carbon dioxide volume (expressed as percent), determined with equipment specified under paragraph (d) of this section.

(4) F, F_c = a factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted (F), and a factor representing a ratio of the volume of carbon dioxide generated to the calorific value of the fuel combusted (F_c), respectively. Values of F and F_c are given as follows:

(i) For anthracite coal as classified according to ASTM D388-77 (incorporated by reference—see § 60.17), $F = 2.723\times10^{-7}$ dscm/J (10,140 dscf/million Btu and $F_c = 0.532\times10^{-7}$ scm CO_2/J (1,980 scf CO_2/million Btu).

(ii) For subbituminous and bituminous coal as classified according to ASTM D388-77 (incorporated by reference—see § 60.17), $F = 2.637\times10^{-7}$ dscm/J (9,820 dscf/million Btu) and $F_c = 0.486\times10^{-7}$ scm CO_2/J (1,810 scf CO_2/million Btu).

(iii) For liquid fossil fuels including crude, residual, and distillate oils, $F = 2.476\times10^{-7}$ dscm/J (9,220 dscf/million Btu) and $F_c = 0.384\times10^{-7}$ scm CO_2/J (1,430 scf CO_2/million Btu).

(iv) For gaseous fossil fuels, $F = 2.347\times10^{-7}$ dscm/J (8,740 dscf/million Btu). For natural gas, propane, and butane fuels, $F_c = 0.279\times10^{-7}$ scm CO_2/J (1,040 scf CO_2/million Btu) for natural gas, 0.322×10^{-7} scm CO_2/J (1,200 scf CO_2/million Btu) for propane, and 0.338×10^{-7} scm CO_2/J (1,260 scf CO_2/million Btu) for butane.

(v) For bark $F = 2.589\times10^{-7}$ dscm/J (9,640 dscf/million Btu) and $F_c = 0.500\times10^{-7}$ scm CO_2/J (1,840 scf CO_2/million Btu). For wood residue other than bark $F = 2.492\times10^{-7}$ dscm/J (9,280 dscf/million Btu) and $F_c = 0.494\times10^{-7}$ scm CO_2/J (1,860 scf CO_2/ million Btu).

(vi) For lignite coal as classified according to ASTM D388-77 (incorporated by reference—see § 60.17), $F = 2.659\times10^{-7}$ dscm/J (9,900 dscf/million Btu) and $F_c = 0.516\times10^{-7}$ scm CO_2/J (1,920 scf CO_2/million Btu).

(5) The owner or operator may use the following equation to determine an F factor (dscm/J or dscf/million Btu) on a dry basis (if it is desired to calculate F on a wet basis, consult the Administrator) or F_c factor (scm CO_2/J, or scf CO_2/million Btu) on either basis in lieu of the F or F_c factors specified in paragraph (f)(4) of this section:

$$F = 10^{-6}\,\frac{[227.2\,(\text{pct. H}) + 95.5\,(\text{pct. C}) + 35.6\,(\text{pct. S}) + 8.7\,(\text{pct. N}) - 28.7\,(\text{pct. O})]}{\text{GCV}}$$

$$F_c = \frac{2.0\times10^{-5}\,(\text{pct. C})}{\text{GCV}}$$

(SI units)

$$F = \frac{10^{6}[3.64(\%H) + 1.53(\%C) + 0.57(\%S) + 0.14(\%N) - 0.46(\%O)]}{GCV}$$

(English units)

$$F_c = \frac{20.0(\%C)}{GCV}$$

(SI units)

$$F_c = \frac{321\times10^{3}(\%C)}{GCV}$$

(English units)

(i) H, C, S, N, and O are content by weight of hydrogen, carbon, sulfur, nitrogen, and oxygen (expressed as percent), respectively, as determined on the same basis as GCV by ultimate analysis of the fuel fired, using ASTM method D3178-74 or D3176 (solid fuels) or computed from results using ASTM method D1137-53(75), D1945-64(76), or D1946-77 (gaseous fuels) as applicable. (These five methods are incorporated by reference—see § 60.17.)

(ii) GVC is the gross calorific value (kJ/kg, Btu/lb) of the fuel combusted determined by the ASTM test methods D2015-77 for solid fuels and D1826-77 for gaseous fuels as applicable. (These two methods are incorporated by reference—see § 60.17.)

(iii) For affected facilities which fire both fossil fuels and nonfossil fuels, the F or F_c value shall be subject to the Administrator's approval.

(6) For affected facilities firing combinations of fossil fuels or fossil fuels and wood residue, the F or F_c factors determined by paragraphs (f)(4) or (f)(5) of this section shall be prorated in accordance with the applicable formula as follows:

$$F = \sum_{i=1}^{n} X_i F_i \quad \text{or} \quad F_c = \sum_{i=1}^{n} X_i (F_c)_i$$

where:

X_i = the fraction of total heat input derived from each type of fuel (e.g. natural gas, bituminous coal, wood residue, etc.)

F_i or $(F_c)_i$ = the applicable F or F_c factor for each fuel type determined in accordance with paragraphs (f)(4) and (f)(5) of this section.

n = the number of fuels being burned in combination.

(g) For the purpose of reports required under § 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) *Opacity.* Excess emissions are defined as any six-minute period during which the average opacity of emissions exceeds 20 percent opacity, except that one six-minute average per hour of up to 27 percent opacity need not be reported.

(i) For sources subject to the opacity standard of § 60.42(b)(1), excess emissions are defined as any six-minute period during which the average opacity of emissions exceeds 35 percent opacity, except that one six-minute average per hour of up to 42 percent opacity need not be reported.

(ii) For sources subject to the opacity standard of § 60.42(b)(2), excess emissions are defined as any six-minute period during which the average opacity of emissions exceeds 32 percent opacity, except that one six-minute average per hour of up to 39 percent opacity need not be reported.

(iii) For sources subject to the opacity standard of § 60.42(b)(3), excess emissions are defined as any six-minute period during which the average opacity of emissions exceeds 30 percent opacity, except that one six-minute average per hour of up to 37 percent opacity need not be reported.

(2) *Sulfur dioxide.* Excess emissions for affected facilities are defined as:

20 137 0 89 9

(1) Any three-hour period during which the average emissions (arithmetic average of three contiguous one-hour periods) of sulfur dioxide as measured by a continuous monitoring system exceed the applicable standard under § 60.43.

(3) *Nitrogen oxides.* Excess emissions for affected facilities using a continuous monitoring system for measuring nitrogen oxides are defined as any three-hour period during which the average emissions (arithmetic average of three contiguous one-hour periods) exceed the applicable standards under § 60.44.

[40 FR 46256, Oct. 6, 1975]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 60.45, see the List of CFR Sections Affected in the Finding Aids section of this volume.

§ 60.46 Test methods and procedures.

(a) The reference methods in Appendix A of this part, except as provided in § 60.8(b), shall be used to determine compliance with the standards as prescribed in §§ 60.42, 60.43, and 60.44 as follows:

(1) Method 1 for selection of sampling site and sample traverses.

(2) Method 3 for gas analysis to be used when applying Method 5, 5B, 17, 6, 7, 7A, 7C, or 7D.

(3) Method 5, 5B, or 17 for concentration of particulate matter and the associated moisture content as follows: Method 5 is to be used at affected facilities without wet flue gas desulfurization (FGD) systems; Method 5B is to be used only after wet FGD systems; and Method 17 may be used at facilities with or without wet FGD systems provided that the stack gas temperature at the sampling location does not exceed an average temperature of 160 °C (320 °F). The procedures of sections 2.1 and 2.3 of Method 5B may be used with Method 17 only if it is used after wet FGD systems. Do not use Method 17 after wet FGD systems if the effluent gas is saturated or laden with water droplets.

(4) Method 6 or 6C for concentration of SO_2. Method 6A may be used whenever Methods 6 or 6C and 3 or 3A data are used to determine the SO_2 emission rate in ng/J. Method 6C shall be used only at the sole discretion of the source owner or operator.

(5) Method 7, 7A, 7C, 7D, or 7E for concentration of NO_x. Method 7E shall be used only at the sole discretion of the source owner or operator.

(b) For Method 5, 5B, or 17, Method 1 shall be used to select the sampling site and the number of traverse sampling points. The sampling time for each run shall be at least 60 minutes, and the minimum sampling volume shall be 0.85 dscm (30 dscf) except that smaller sampling times or volumes, when necessitated by process variables or other factors, may be approved by the Administrator. The probe and filter holder heating systems in the sampling train shall be set to provide a gas temperature of 160±14 °C (320±25 °F).

(c) For Methods 6 and 7, 7A, 7C, or 7D the sampling site shall be the same as that selected for Method 5, 5B, or 17. The sampling point in the duct shall be at the centroid of the cross section or at a point no closer to the walls than 1 m (3.28 ft). For Methods 6 and 7C or 7D, the sample shall be extracted at a constant volumetric flow rate.

(d) For Method 6, the minimum sampling time shall be 20 minutes and the minimum sampling volume 0.02 dscm (0.71 dscf) for each sample. The arithmetic mean of two samples shall constitute one run. Samples shall be taken at approximately 30-minute intervals.

(e) For Method 7 or 7A, each run shall consist of at least four grab samples taken at approximately 15-minute intervals. The arithmetic mean of the samples shall constitute the run value. For Method 7C or 7D, each run shall consist of a 1-hour sample.

(f) For each run using the methods specified by paragraphs (a)(3), (a)(4), and (a)(5) of this section, the emissions expressed in ng/J (lb/million Btu) shall be determined by the following procedure:

$$E = CF(20.9/20.9 \text{ percent } O_2)$$

where:

(1) E = pollutant emission ng/J (lb/million Btu).

(2) C = pollutant concentration, ng/dscm (lb/dscf) determined by Method 5, 6, 6C, 7, 7A, 7C, 7D, or 7E.

(3) Percent O_2 = Oxygen content by volume (expressed as percent), dry basis. Percent oxygen shall be determined by using the integrated or grab sampling and analysis procedures of Method 3 as applicable, or by using Method 3A. Method 3A shall be used only at the sole discretion of the source owner or operator. Oxygen samples shall be obtained as follows:

(i) For determination of sulfur dioxide by Method 6 or 6C and nitrogen oxides emissions by Method 7, 7A, 7C, 7D, or 7E, the oxygen sample shall be obtained simultaneously at the same point in the duct. For Method 7 or 7A, the oxygen sample shall be obtained using the grab sampling and analysis procedures of Method 3, or by using Method 3A.

(ii) For determination of particulate emissions, the oxygen sample shall be obtained simultaneously by traversing the duct at the same sampling location used for each run of Method 5, 5B, or 17 under paragraph (b) of this section. Method 1 shall be used for selection of the number of oxygen traverse points except that no more than 12 sample points are required.

(4) F = a factor as determined in paragraphs (f) (4), (5) or (6) of § 60.45.

(g) When combinations of fossil fuels or fossil fuel and wood residue are fired, the heat input, expressed in watts (Btu/hr), is determined during each testing period by multiplying the gross calorific value of each fuel fired (in J/kg or Btu/lb) by the rate of each fuel burned (in kg/sec or lb/hr). Gross calorific values are determined in accordance with ASTM methods D2015-77 (solid fuels), D240-76 (liquid fuels), or D1826-77 (gaseous fuels) as applicable. (These three methods are incorporated by reference—see § 60.17.) The method used to determine calorific value of wood residue must be approved by the Administrator. The owner or operator shall determine the rate of fuels burned during each testing period by suitable methods and shall confirm the rate by a material balance over the steam generation system.

(h) If the Central Illinois Publi Service Company elects, unde § 60.43(e), to comply with the con bined SO_2 emission rate of 470 nan grams per joule (1.1 lb per millio Btu) of combined heat input to Units and 2, the test methods and proce dures described in Appendix G, "Pro visions for an Alternative Method o Demonstrating Compliance with 4 CFR 60.43 for the Newton Power Sta tion of Central Illinois Public Servic Company" must be used.

[40 FR 46256, Oct. 6, 1975, as amended at 41 FR 53199, Nov. 22, 1976; 48 FR 3737, Jan. 27, 1983; 49 FR 38233, Sept. 27, 1984; 51 FR 21166, June 11, 1986; 51 FR 42841, Nov. 26, 1986; 52 FR 28955, Aug. 4, 1987]

§ 60.47 Innovative technology waivers; waiver of sulfur dioxide standards of performance for new stationary sources for Homer City Unit No. 3 under section 111(j) of the Clean Air Act for Multi-Steam Coal Cleaning System.

(a) Pursuant to section 111(j) of the Clean Air Act, 42 U.S.C. 7411(j), commencing on November 13, 1981 Pennsylvania Electric Company and New York State Electric & Gas Corporation shall comply with the following terms and conditions for electric generating Units Nos. 1, 2, and 3 at the Homer City Steam Electric Generating Station, Center Township, Indiana County, Pennsylvania.

(b) The foregoing terms and conditions shall remain effective through November 30, 1981, and pursuant to section 111(j)(B), shall be Federally promulgated standards of performance. As such, it shall be unlawful for Pennsylvania Electric Company and New York State Electric & Gas Corporation to operate Units Nos. 1, 2, and 3 in violation of the standards of performance established in this waiver. Violations of the terms and conditions of this waiver shall subject Pennsylvania Electric Company and New York State Electric & Gas Corporation to Federal enforcement under sections 113 (b) and (c), 42 U.S.C. 7413 (b) and (c), and 120, 42 U.S.C. 7420, of the Act as well as possible citizen enforcement under section 304 of the Act, 42 U.S.C. 7604. Pursuant to section 111(c)(1) of the Act, 42 U.S.C. 7411(c)(1), at 45 FR 3109, January 16, 1980, the Administrator delegated to the Commonwealth of Pennsylvania authority to implement and enforce the Federal Standards of Performance for New Stationary Sources of 1.2 lb $SO_2/10^6$ Btu applicable to Homer City Unit No. 3. The SO_2 emission limitations specified in this waiver for Unit No. 3 are new Federally promulgated Standards of Performance for New Stationary Sources for a limited time period. Thus, during the period this waiver is effective, the delegated authority of the Commonwealth of Pennsylvania to enforce the Federal Standards of Performance for New Stationary Sources of 1.2 lb $SO_2/10^6$ Btu applicable to Homer City Unit No. 3 is superseded and enforcement of the terms and conditions of this waiver shall be the responsibility of the Administrator of EPA. The Commonwealth of Pennsylvania may, and is encouraged to, seek delegation of authority, pursuant to section 111(c)(1), to enforce the temporary Federal Standards of Performance for New Stationary Sources specified in this waiver. Should such authority be delegated to the State, the terms and conditions of this waiver shall be enforceable by the Administrator of EPA and the Commonwealth of Pennsylvania, concurrently. Nothing in this waiver shall affect the rights of the Commonwealth of Pennsylvania under the Decree filed in the Pennsylvania Commonwealth Court on January 28, 1981, at Docket No. 161 C.D. 1981.

(c) On December 1, 1981, and continuing thereafter, at no time shall emissions of SO_2 from Unit No. 3 exceed 1.2 lb/10^6 Btu of heat input, as specified in 40 CFR 60.43(a)(2) (July 1, 1979).

(d) On January 15, 1982, Pennsylvania Electric Company and New York State Electric & Gas Corporation shall demonstrate compliance at Homer City Unit No. 3 with 40 CFR 60.43(a)(2) (July 1, 1979) in accordance with the test methods and procedures set forth in 40 CFR 60.8 (b), (c), (d), (e) and (f) (July 1, 1979).

(e) *Emission limitations.* (1) Commencing on November 13, 1981 and continuing until November 30, 1981:

(i) At no time shall emissions of SO_2 from Units Nos. 1, 2, and 3, combined,[1] exceed: 2.87 lb $SO_2/10^6$ Btu of heat input in a rolling 30-day period (starting with the 60th day after the effective date of the waiver); 3.6 lb $SO_2/10^6$ Btu of heat input in any day;[1] and 3.1 lb $SO_2/10^6$ Btu of heat input on more than 4 days in any rolling 30-day period.

(ii) At no time shall emissions of SO_2 from Units Nos. 1, 2, and 3, combined,[2] exceed 695 tons in any day.

(iii) At no time shall emissions of SO_2 from Units Nos. 1, 2, and 3, combined,[2] exceed 91 tons in any discrete[1] 3-hour period.

(iv) At no time shall emissions of SO_2 from Units Nos. 1 and 2, combined, exceed 463 tons in any day.

(v) At no time shall emissions of SO_2 from Units Nos. 1 and 2, combined, exceed 61 tons in any discrete[1] 3-hour period.

(f) *Installation schedule.* (1) Pennsylvania Electric and New York State Electric & Gas have selected engineering designs for necessary modifications to the Multi-Stream Coal Cleaning System (MCCS) 93B Circuit.

(2) Pennsylvania Electric and New York State Electric & Gas have placed purchase orders for all major equipment necessary to complete necessary modifications to the MCCS 93B circuit.

(3) Pennsylvania Electric and New York State Electric & Gas have completed design engineering of the modifications to the MCCS 93B circuit.

(4) On or before September 15, 1981, Pennsylvania Electric and New York State Electric & Gas shall complete construction of the MCCS 93B circuit.

(5) On or before October 15, 1981, Pennsylvania Electric and New York State Electric & Gas shall start-up the MCCS 93B circuit.

(g) *Monitoring and reporting.* Throughout the waiver period the Company shall acquire sufficient quantities of emission monitoring and

[1] A "day" (a 24-hour period) and a "discrete 3-hour period" is defined in section (g)(7)(iv).

[2] The procedures used for calculating combined SO_2 emissions are given in paragraph (g)(5) of this section.

fuel analysis data to continuously demonstrate compliance with the combined emission limitations. The Company shall acquire heat input and emission data (sufficient to demonstrate compliance) from each boiler during all operating periods (i.e., whenever fuel is being fired), including periods of process start-up, shutdown, and malfunction. This requirement shall be met through the use of continuous emission monitoring systems (CEMS) (or as supplemented by continuous bubbler (CB) systems), heating value as determined by as-fired fuel analysis, and coal mass feedrate measurements.

(1) *Continuous Emission Monitoring System (CEMS): Primary compliance monitoring method.* (i) The Company shall install, test, operate, and maintain all CEMS as the primary compliance monitoring method in such a manner as to result in the acquisition of validated data which are representative of each boiler's 3-hour, 24-hour, and 30-day emission rates. (See paragraph (g)(7) of this section.)

(ii) The validity of the emission data obtained with CEMS shall be determined initially by conducting a performance specification test (PST). Subsequent CEMS data validations shall be performed in accordance with paragraphs (g)(6) and (g)(7) of this section. All PSTs of CEMS shall include at least: (A) All of the specifications and test procedures contained in the January 26, 1981 proposed Performance Specifications 2 and 3 (Ref. 1), 46 FR 8352; and (B) the calibration error and response time specifications and test procedures contained in the October 10, 1979 proposed Performance Specifications 2 and 3 (Ref. 2), 44 FR 58602. The calibration error, response time, and all drift tests shall be conducted using calibration gases which conform to the requirements of paragraph (g)(6)(iii) of this section.

(2) *Continuous Bubbler System (CB): Secondary compliance test method.* (i) The Company shall use the CB system as a secondary compliance monitoring method to supplement CEMS data whenever a CEMS is out of service or is otherwise providing data of insufficient quality or quantity. The CB technique shall also be used to periodically assess the validity of CEMS data (See paragraph (g)(6)(i)(C) of this section).

(ii) The CB technique for quantitatively assessing SO_2 emissions (in lb/10^6 Btu) is delineated in Appendix I of this waiver. This technique is based upon combining the basic wet-chemical technique of EPA's Reference Method 6 at 40 CFR Part 60, Appendix I, July 1, 1979, (for determining SO_2 concentrations) with the gravimetric method (absorption of CO_2 onto ascarite) for determining CO_2 concentrations. Using reduced flow rates and increased reagent volumes and concentrations, the CB system may be run for much longer periods of time than Reference Method 6 at 40 CFR Part 60, Appendix I (July 1, 1979). The Company may make the following modifications to the CB method as long as they periodically demonstrate that their modified CB method meets the performance criteria of paragraph (g)(6)(ii) of this section:

(A) Use a heated sample probe.

(B) Use an in-stack filter (up stream of the impingers) to remove particulate matter.

(C) Eliminate the isopropanol (initial) impingers.

(D) Use a diaphragm pump with flow regulators in place of the peristaltic pump.

(iii) The Company shall initially demonstrate its proficiency in acquiring SO_2/CO_2 data with the CB method by comparing the results obtained using the CB method with those obtained using Reference Methods 3 and 6 (See Ref. 3 and paragraph (g)(6)(ii)(B) of this section). The CB data shall be deemed initially acceptable if the results of this test are within the limits prescribed in paragraph (g)(6)(ii) (A) and (B) of this section. Subsequently, the CB data shall be periodically revalidated as per the QA requirements of paragraph (g)(6)(ii) (A) and (B) of this section.

(3) *Requirements for obtaining 3-hour and 24-hour emission data from individual boilers.* Using the methods set forth in this waiver, the Company shall obtain the following quantities of 3-hour and 24-hour emission data. Failure to acquire the specified quantity or quality of data shall constitute a

violation of the terms and conditions of this waiver.

(i) Data and calculation requirements for continuous emission monitoring system (CEMS). During normal operation of a CEMS (primary compliance method) to obtain emission data from one or more of Units Nos. 1, 2, and 3, the Company shall obtain the following data from each CEMS:

(A) 3-hour discrete averaging times using CEMS.—For each boiler, continuously measure and calculate eight discrete 3-hour averages each day, using the three consecutive (exclusive of exemptions below) 1-hour emission averages (each consisting of four equally spaced data points per 1-hour period). The only periods when CEMS measurements are exempted are periods of routine maintenance (as specified in the Lear Siegler Operator's Manual) and as required for daily zero/span checks and calibrations. Such exemptions notwithstanding, at no time shall less than six discrete 3-hour averages per day be obtained. Note that in calculations each 3-hour average one only uses the data available from that specific discrete average.

(B) 24-hour averaging times using CEMS. For each boiler, continuously measure and calculate one discrete 24-hour average per day, using the available (18-24) 1-hour emission averages obtained during that specific day. The only periods when CEMS measurements are exempted are periods of routine maintenance (as specified in the Lear Siegler Operator's Manual) and as required on daily zero/span checks and calibrations. Such exemptions notwithstanding, and except for the instances when a boiler operated for only part of the day, at no time shall a calculated 24 hour average consist of less than a total of eighteen 1-hour averages.

(ii) Data requirements when switching from CEMS to CB system. If it becomes necessary to take a CEMS out of service (because of CEMS inoperability or failure to meet the performance requirements (paragraph (g)(6)(i) of the section), the Company shall immediately initiate the activities necessary to begin sampling with the secondary (CB) compliance test method. However, EPA recognizes that some reasonable amount of time will be necessary to diagnose a CEMS problem, to determine whether minor maintenance will be sufficient to resolve the problem, or to determine if the monitoring system must be taken out of service. Additionally, CEMS downtime could occur during the night time shifts or other times when immediate corrective action cannot reasonably be made. Therefore, the waiver requires that at no time shall more than six hours elapse between acceptable operation of the CEMS and the start of CB sampling. All data which are obtained during any interrupted averaging period(s) shall be used to calculate the reported average(s), and the Company shall clearly indicate this data "shortfall" (e.g., acquisition of only 2 hours of data for a 3-hour averaging period) in the subsequent report (See paragraph (g)(8) of this section).

(A) 3-hour averaging times during CEMS-to-CB transition.—During any day in which a transition (from the CEMS) to the secondary compliance method is made, at least four (4) 3-hour average rates of the affected boiler's emissions shall be obtained.

NOTE: At least six (6) 3-hour emission averages are required when a planned CB-to-CEMS transition is performed.

(B) 24-hour averaging times that include a CEMS-to-CB transition. During any day in which a transition (from the CEMS) to the secondary compliance method is made, a 24-hour average rate of the affected boiler's emissions shall be obtained, using the combination of all available 1-hour CEMS emission averages and 3-hour CB emission averages. Such a calculation shall weight (e.g., one CB average is equivalent to three 1-hour CEMS average values) the CB data appropriately.

(iii) Data and calculation requirements for continuous bubbler (CB) monitoring systems. During all periods when a CEMS is out of service and a CB system is in use at one or more of Units Nos. 1, 2, or 3, the Company shall obtain the following data from each CB:

(A) 3-hour averaging times using CB systems. For each boiler being monitored by a CB system, measure and calculate at least six discrete 3-hour emission rates each day.

(B) 24-hour averaging times using CB systems. For each boiler being monitored by the CB method, calculate one 24-hour average emission rate each day. Each average shall be based upon a continuous 24-hour sample.

(4) *Requirements for measuring and calculating heat input rates.* (i) The Company shall determine the coal feed rate, for each boiler that is being fired, for each 24-hour period in accordance with the Company's standard procedures for weighing coal being fed to the boilers.

(ii) The Company shall determine the heat content (gross calorific value) of the coal, for each boiler being fired and for each 24-hour period, in accordance with the Company's established procedures for as-fired, 24-hour fuel sampling (15-minute sample intervals) and composite automated analysis.

(iii) The Company shall calculate the average heat input rate for each boiler for each 24-hour period (10^6 Btu/24-hours). For each boiler, multiply the average heat content of the coal (Btu/lb) by the coal feed rate as determined for the same 24-hour averaging period.

(iv) The Company shall estimate the average 3-hour heat input rate (10^6 Btu/3-hours) for each boiler from the previously determined 24-hour values. To estimate a 3-hour heat input rate multiply the corresponding 24-hour value (10^6 Btu/24-hours) by the ratio of the respective 3-hour to the 24-hour megawatt outputs.

(5) *Requirements for calculating combined SO_2 emissions.* (i) 3-hour averaging period: The combined emission rates from the operating boilers are equal to the sum of the products of the individual heat input rates (10^6 Btu/3-hours) and the SO_2 emission rates (lb/10^6 Btu as determined for the 3-hour period). This quantity, when divided by 2000 lb/ton, equals the combined tons of 3-hour SO_2 emissions (see Equation 1).

$$M_j = \sum_{i=1}^{n} \frac{E_{ij} H_{ij}}{2000} \qquad \text{Equation 1}$$

Where:

M_j = combined (e.g., Units Nos. 1 and 2 or Units Nos. 1, 2, and 3) emission rates for the operating units in tons SO_2, for the jth averaging period (3-hour or 24-hour).

E_{ij} = average emission rates from the "ith" unit in lb SO_2, for the jth average period where j = 3-hour or 24-hour.

H_{ij} = average heat input rates for the "ith" unit in 10^6 Btu per "jth" averaging period where j = 3-hour or 24-hour.

n = number of operating units.

NOTE: Equation 1 is to be used for calculating: (1) combined tons of SO_2 emissions from Units Nos. 1 and 2 and (2) combined tons of SO_2 emissions from Units Nos. 1, 2, and 3. Equation 1 is applicable to both 3-hour and 24-hour averaging periods. Furthermore, if a unit is not combusting fuel, "H_{ij}" will be zero.

(ii) 24-hour averaging period:

(A) The combined emissions from the operating boilers is equal to the sum of the products of the individual heat inputs (10^6 Btu/24-hour) and the SO_2 emissions (lb/10^6 Btu as determined for the 24-hour period). This quantity, when divided by 2000 lb/ton, equals the combined tons of 24-hour SO_2 emissions (see Equation 1).

(B) The combined emissions from the operating boilers, in the units lb/10^6 Btu, is equal to the sum of the products of the individual heat inputs (10^6 Btu/24-hour) and the SO_2 emissions (lb/10^6 Btu as determined for the 24-hour period) divided by the sum of the combined heat inputs (see Equation 2).

$$E = \sum_{i=1}^{n} \frac{(E_i H_i)}{H_i} \qquad \text{Equation 2}$$

Where:

E = combined emission rates for the operating units in lb SO_2/10^6 Btu, for the 24-hour averaging period.

E_i = 24-hour average emission rates from the "ith" unit in lb SO_2/10^6 Btu.

H_i = 24-hour average heat input rates for the "ith" unit in 10^6 Btu/24-hour.

n = number of operating units.

NOTE: If a unit is not combusting fuel, "H_i" will be zero.

(iii) 30-day rolling average: Once every day, calculate combined 30-calendar day emission average rates (beginning 60 days after the effective date of this waiver), using all available combined 24-hour emission rate averages (paragraph (g)(5)(ii)(B) of this section), for the *most recent* 30 consecutive calendar days. To make the two calculations for the combined (Units Nos. 1, 2, and 3; Units Nos. 1 and 2) emission rates, add the 30 consecutive daily combined average emission rates (lb $SO_2/10^6$ Btu) and divide the sum by 30 days.

(6) *Quality Assurance (QA) requirements.* The Company shall validate the required emission data by performing at least the quality assurance procedures specified herein. These QA requirements are considered the minimum necessary to ensure that the sampling methods employed produce valid data. The performance criteria that are established in this section and that are restated in Table 1 are considered both necessary and reasonably achievable. If, for any reason, a CEMS system fails to achieve the required specifications, the CEMS shall be immediately taken out of service and sampling with a CB system shall be initiated. If, for any reason, a CB (which is being used while a CEMS is out of service) fails to meet the required specifications, the Company shall notify the Director of the Division of Stationary Source Enforcement (Washington, DC) within 72 hours, as per paragraph (g)(8)(iv) of this section. The Company is encouraged to supplement these procedures to improve the quality of the emission data obtained.

(i) *QA requirements, calculation procedures, and specification limits for CEMS.* At a minimum, the Company shall conduct the following initial, daily, weekly, and quarterly QA evaluations of each boiler's CEMS data. Where designated, the response time and calibration error test procedures contained in Reference 2 and the remaining performance test procedures, including those for relative accuracy, of the January 26, 1981 proposed Performance Specifications 2 and 3 (Ref. 1) shall be used.

(A) *Daily zero and calibration checks of the CEMS.* Conduct the following zero and calibration drift checks of each CEMS at approximately 24-hour intervals, and use the equations provided here to determine if the CEMS meets the designated drift specifications. All monitors that have exhibited drift during the previous 24-hour period must be adjusted immediately after the drift checks have been performed and the results have been recorded.

(*1*) 24-hour *zero* drift of the SO_2 monitor (this test is to be performed using low range (2-5%) span gas):

Specification limits: 5.0% of span in any 24-hour period; 2.0% of span for any three consecutive 24-hour periods.

Equation 3

$$\text{24-hour } SO_2 \text{ zero drift} = \left| \frac{CEMS_z - G_z}{CEMS_s} \right| \times 100$$

where:
$CEMS_z$ = monitor zero value (ppm)
G_z = zero gas value (ppm)
$CEMS_s$ = monitor span value (ppm)

(*2*) 24-hour *zero* drift of the O_2 monitor:

Specification limits: 2.0% O_2 in any 24-hour period; 0.5% O_2 for any three consecutive 24-hour periods.

Equation 4

$$\text{24-hour } O_2 \text{ zero drift} = \left| CEMS_z - G_z \right| \times 100$$

where:
$CEMS_z$ = monitor zero value (%O_2)
G_z = zero gas value (%O_2)

(*3*) 24-hour *calibration* drift of the SO_2 monitor (this test is to be performed using 85-95% span gas):

Specification limits: 10.0% of span in any one 24-hour period; 2.5% of span for any three consecutive 24-hour periods.

Equation 5

$$\text{24-hour } SO_2 \text{ calibration drift} = \left| \frac{CEMS_c - G_c}{CEM_s} \right| \times 100$$

where:
$CEMS_c$ = monitor reading (ppm)
G_c = calibration gas value (ppm)
$CEMS_s$ = monitor span value (ppm)

(*4*) 24-hour *calibration* drift of the O_2 monitor:

Specification limits: 2.0% O_2 in any one 24-hour period; 0.5% O_2 for any three consecutive 24-hour periods.

Equation 6

$$\text{24-hour } O_2 \text{ calibration drift} = \left| CEMS_c - G_c \right| \times 100$$

where:
$CEMS_c$ = monitor reading (%O_2)
G_c = calibration gas value (%O_2)

(B) *Daily mid-range checks of the CEMS.* Conduct the following mid-range calibration checks of each CEMS *after* performing the zero and calibration drift checks. The purpose for requiring mid-range calibration checks is to verify CEMS linearity between the zero and calibration values. The mid-range calibration checks shall be conducted at approximately 24-hour intervals (or more frequently), and the equations provided shall be used to determine if the CEMS meets the designated specification limits:

24-hour *mid-range* drift check of the SO_2 *and* the O_2 monitors (this test is to be performed using 45-55% span gas): Specification limits (same for SO_2 and O_2 monitors): 10% of mid-range gas in any one 24-hour period and 5.0% of mid-range gas in any three consecutive 24-hour periods.

Equation 7

$$SO_2 \text{ and } O_2 \text{ mid-range drift} = \left| \frac{CEMS_m}{G_m} - 1 \right| \times 100$$

where:
$CEMS_m$ = monitor reading (ppm SO_2 or %O_2)
G_m = mid-range gas value (ppm SO_2 or %O_2)

(C) *Initial and weekly checks of the CEMS.* Initially and once each week, conduct at least one 24-hour modified relative accuracy test of each CEMS (combined SO_2 and O_2 channels in units of SO_2 lb/10^6 Btu) using the CB method. If the difference between the CEMS and CB exceeds the designated specification limit, the 24-hour test must be repeated, within the next 24-hour period. If the CEMS again fails to meet the specification limit, remove the monitor from service.

Specification limit: ±20% (maximum percent difference between CEMS and CB)

Equation 8

$$\text{24-hour percent difference (CEM vs. CB)} = \left| \frac{CEMS}{CB} - 1 \right| \times 100$$

where:
CEMS = SO_2/O_2 monitor system reading (SO_2 lb/10^6 Btu)
CB = CB measurement results (SO_2 lb/10^6 Btu)

(D) *Initial and quarterly performance specification tests of CEMS.* Initially and once each three months, conduct at least one 3-hour relative accuracy test (combined SO_2 and O_2 channels as per Reference 1), and a response time and calibration error test, (as per Reference 2). The calculation procedures provided in References 1 and 2 shall also be used.

Specification limits:
Relative Accuracy = ±20% (maximum percent difference between the CEMS and the RM data in units of lb $SO_2/10^6$ Btu)
Response Time = 15 minutes
Calibration Error = 5.0% (SO_2 and O_2 channels separately)

(E) *Unscheduled performance specification tests of the CEMS.* If for any reason (other than routine maintenance as specified in the Lear Siegler operating manual) the CEMS is taken out of service or its performance is not within the specification limits of paragraph (g)(6) of this section, the Company shall conduct a complete Performance Specification Test (PST) of the CEMS, according to the combined requirements of References 1 and 2, as per paragraph (g)(6)(i)(D) of this section. Whenever a CEMS is taken out of service and a supplementary CB system is being used, the CEMS shall not replace the CB system until such time that the Company has demonstrated that the performance of the CEMS is within all of the performance limits established by paragraphs (g)(6)(i) (A), (B), (C), and (D) of this section.

(ii) *QA requirements, calculation procedures, and specification limits* *for CB systems.* At a minimum, the Company shall conduct the following initial, weekly, and quarterly QA evaluations of *all* CB systems that are being used:

(*1*) For any quality assurance evaluations of a CEMS; and

(*2*) As the secondary compliance method when a CEMS is out of service. If a CB system does not meet these specifications, then:

(*1*) The CB must immediately be taken out of service;

(*2*) The Company must notify the Director, Division of Stationary Source Enforcement (Washington, DC) within 72 hours after this determination is made; and

(*3*) The Company will be considered in violation of the provisions of the waiver until an acceptable monitoring method is initiated (see paragraph (g)(6)(iii) of this section).

(A) *Initial and weekly mid-range calibration checks of the CB system.* Calibration checks of the CB system, using mixed SO_2/CO_2 mid-range calibration gas, shall be performed initially and at least once each week thereafter. The calibration gas shall be sampled by the CB system for no less than 2 hours at a flow rate approximately the same as used during emission sampling. The following equation shall be used to determine if the CB meets the designated mid-range calibration specification limit.

Specification limit: 10.0% (maximum percent difference between CB value and mid-range gas value).

Equation 9

$$\text{Percent difference (CB vs calibration gas)} = \left| \frac{CB}{G_c} - 1 \right| \times 100$$

where:

CB = bubbler value (SO_2 lb/10^6 Btu)

G_c = mixed SO_2/CO_2 mid range calibration gas value (SO_2 lb/10^6 Btu)

(B) *Initial and quarterly relative accuracy tests of the CB systems.* Operate at least one of the CB systems used during the quarter for a 3-hour period. During the same three hour period, collect at least one paired set of Reference Method 3 and 6 samples. Each paired set shall consist of at least three to six 20-60 minute consecutive ("back-to-back") runs. The following equation shall be used to determine if the CB meets the designated relative accuracy specifications limit.

CB Specification limit: 10.0% (maximum percent difference between CB value and RM value).

Equation 10

$$\text{Percent difference (CB vs. RM)} = \left| \frac{CB}{RM} - 1 \right| \times 100$$

where:

CB = bubbler value (SO_2 lb/10^6 Btu)

RM = average value of the paired Reference Method 3 and 6 runs (SO_2 lb/10^6 Btu)

(iii) *QA requirements and specification limit for calibration gases.* All calibration gases used for daily, weekly, or quarterly calibration drift checks, CB calibration checks and performance specification tests shall be analyzed following EPA Traceability Protocol No. 1 (see reference 4) or with Method 3 or 6. If Method 3 or 6 is used, do the following. Within two weeks prior to its use on a CEMS, perform triplicate analyses of the cylinder gas with the applicable reference method until the results of three consecutive individual runs agree within 10 percent of the average. Then use this average for the cylinder gas concentration.

(iv) *Quality assurance checks for laboratory analysis.* Each day that the Company conducts Reference Method 6 or CB laboratory analyses, at least two SO_2 audit samples shall be analyzed concurrently, by the same personnel, and in the same manner as the Company uses when analyzing its daily emission samples. Audit samples must be obtained from EPA. The following equation shall be used to calculate the designated specification limit to determine if the Company's laboratory analysis procedures are adequate.

Analysis specification limit (for each of two audit samples): 5% (maximum percent difference between laboratory value and the average of the actual value of the audit samples).

Equation 11

$$\text{Percent difference (laboratory vs. actual)} = \left| \frac{SLV}{SAV} - 1 \right| \times 100$$

where:

SLV = *laboratory* value (mg/DSCM) of the audit sample

SAV = *actual* value (mg/DSCM) of the audit sample

(v) *QA requirements, calculation procedures, and specification limits for 24-hour fuel sampling and analysis.* At a minimum, the Company shall conduct the following bi-weekly QA evaluations of each boiler's fuel sampling and analysis data.

(A) Initially and at least bi-weekly the Company (or its own contractor laboratory) shall prepare and split a 60 mesh (250 micron) sample of coal (24-hour composite) with an independent laboratory. The Company shall compare the independent laboratory's heat content values to those of the Company's respective analyses. Use the following equation to determine if the Company's coal analysis procedures are adequate.

Specification limit: 500 Btu/lb (maximum difference between the two laboratories' results)

Equation 12

$$\text{Inter-laboratory difference} = \left| CPA - IFA \right|$$

where:

CPA = Company's fuel analysis (Btu/lb)

IFA = Independent laboratory anlysis (Btu/lb)

(B) Analysis of reference coal—At a minimum, the Company shall initially (and thereafter bi-weekly), but on alternating weeks from above (g)(6)(v)(A) of this section analysis, analyze the heat content of at least one reference coal sample. Reference coal samples must be obtained from EPA. Use the following equation to determine if the Company's fuel analysis procedures are adequate.

Specification limit: 500 Btu/lb (maximum difference between the Company laboratory's value and the heat content of the reference coal).

Equation 13

$$\text{Difference between Company's laboratory and reference} = \left| FAV - FLV \right|$$

where:

FLV = laboratory value (Btu/lb)

FAV = reference value (Btu/lb)

(vi) *The use of more than the minimum quantities of data to calculate the QA specifications.* Whenever the Company supplements, expands, or otherwise obtains more than the minimum amount of QA data required by paragraph (g)(6) of this section for the QA evaluations, the Company shall use all available data in assessing achievement of the QA specifications. All of the equations delineated above may be expanded algebraically to accommodate increased data, sample runs, or test repetitions.

(7) *Compliance provisions.* (i) Compliance with all of the provisions of this waiver requires:

(A) Documentation that the combined emission levels (of Units Nos. 1, 2, and 3 or 1 and 2, as appropriate) did not exceed the emission limitations specified in paragraph (e) of this section.

(B) Documentation that the Company acquired at least the minimum quantity and quality of valid emission data specified in paragraph (g)(3) of this section.

(C) Documentation that the Company performed at least the minimum quality assurance checks specified in paragraph (g)(6) of this waiver; and

(D) Timely and adequate reporting of all data specified in paragraph (g)(8) of this section.

Failure to meet any of these requirements constitutes a violation of this waiver.

(ii) SO_2 emissions rate data from individual boilers shall be obtained by the primary compliance test method (CEMS), by the secondary compliance test method (CB), or other methods approved by the Administrator. Data for the heat input determination shall be obtained by 24-hour as-fired fuel analysis and 24-hour coal feed rate measurements, or other methods approved by the Administrator. Compliance with all SO_2 emission limitations shall be determined in accordance with the calculation procedures set forth in paragraph (g)(5) of this section or other procedures approved by the Administrator. The Company must demonstrate compliance with all 3-hour, 24-hour, and 30-day SO_2 emission limitations during all periods of fuel combustion in one or more boilers (beginning with the effective date of the waiver), and including all periods of process start-up, shutdown, and malfunction.

(iii) If the minimum quantity or quality of emission data (required by paragraph (g) of this section) were not obtained, compliance of the affected facility with the emission requirements specified in this waiver may be determined by the Administrator using all available data which is deemed relevant.

(iv) For the purpose of demonstrating compliance with the emission limitations and data requirements of this waiver:

(A) "A day" (24 hour period) begins at 12:01 p.m. and ends at 12:00 noon the following day. The Company may select an alternate designation for the beginning and end of the 24-hour day. However, the Agency must be notified of any alternate designation of a "day" and must be maintained throughout the waiver period. Also, for the purpose of reporting, each day shall be designated by the calendar date corresponding with the beginning of the 24 hour period;

(B) Where concurrent 24-hour data averages are required (i.e., coal feed rate, fuel sampling/analysis, SO_2 tons/24 hours, and SO_2 lb/10^6 Btu), the designated 24-hour period comprising a day shall be consistent for all such averages and measurement data; and

(C) There are eight discrete 3-hour averaging periods during each day.

(8) *Notification and reporting requirements*—(i) Notification: The Company shall provide at least 30 days notice to the Director, Division of Stationary Source Enforcement (Washington, DC) of any forthcoming quarterly CEMS Performance Specification Tests and CB accuracy tests.

(ii) Quarterly Compliance and Monitoring Assessment Report requirements: The Company shall submit to the Director, Division of Stationary Source Enforcement (Washington, DC) "hard copy" quarterly reports that present compliance data and relevant monitoring and process data (e.g., process output rate, heat input rate, monitoring performance, and quality assurance) acquired during the reporting period. Quarterly reports shall be postmarked no later than 30 days after the completion of every (whole or partial) calendar quarter during which the waiver is in effect.

NOTE: These requirements do not replace or preclude the "Unscheduled Reporting Requirements" contained in paragraph (g)(8)(iii) of this section.

The following specific information shall be furnished for every calendar day:

(A) *General information.* (*1*) Calendar date;

(*2*) The method(s), including description, used to determine the 24-hour heat input to each boiler (in units of Btu/hour);

(*3*) The "F" factor(s) used for all applicable calculations, the method of its determination, and the type of fuel burned;

(B) *Emission data.* (*1*) Combined (Units Nos. 1, 2, and 3) 24-hour average SO_2 emission rate (in units of lb/MMBtu);

(*2*) Combined (Units Nos. 1, 2 and 3) rolling 30-day average SO_2 emission rate (in units of lb/MMBtu);

(*3*) Combined (Units Nos. 1, 2, and 3) 3-hour average emission rates (in units of tons SO_2);

(*4*) Combined (Units Nos. 1, 2, and 3) 24-hour average emission rates (in units of tons SO_2);

(*5*) Combined (Units Nos. 1 and 2) 3-hour average emission rates (in units of tons SO_2); and

(*6*) Combined (Units Nos. 1 and 2) 24-hour average emission rates (in units of tons SO_2).

(C) *Quality assurance check data.* (*1*) The date and summary of results from all (initial and repetitions) of the quality assurance checks performed during the quarter. This includes all analytical results on EPA's SO_2 and coal audit samples.

(*2*) Description(s) of any modification(s) made to the CEMS or CB which could affect the ability of those systems to comply with the performance specifications in References 1 and 2, or the CB performance specifications established by section (g) of this waiver.

(D) *Atypical operations.* (*1*) Identification of specific periods during the calendar quarter when each boiler was not combusting fuel;

(*2*) Periods of time when 3-hour, 24-hour, and/or 30-day averages were obtained using continuous bubbler data;

(*3*) All emission averages which have been calculated using a composite of two or more different sampling methods (i.e., periods when both CEMS and CB systems have been used) must be identified by designating all duration(s) and cause(s) of data loss during such periods;

(*4*) For each instance when a CEMS has been out of service, the Company shall designate:

(*i*) Time, date, duration;

(*ii*) Reason for such downtime;

(*iii*) Corrective action taken;

(*iv*) Duration before CB sampling began;

(*v*) Time, date, and performance specification test (summary) results acquired before CEMS returned to service; and

(*vi*) Time and date when CEMS actually returned to service, relative to terminating CB sampling.

(*5*) Where only a portion of continuous data from any averaging period(s) was obtained, the duration per averaging period(s) when data were acquired and were used to calculate the emission average(s) must be identified;

(*6*) If the required quantity or quality of emission data (as per paragraph (g) of this section) were not obtained for any averaging period(s), the following information must also be reported for each affected boiler. (See also Unscheduled Reporting Requirements, paragraph (g)(7)(iv) of this section:

(*i*) Reason for failure to acquire sufficient data;

(*ii*) Corrective action taken;

(*iv*) Characteristics (percent sulfur, ash content, heating value, and moisture) of the fuel burned;

(*v*) Fuel feed rates and steam production rates;

(*vi*) All emission and quality assurance data available from this quarter; and

(*vii*) Statement (signed by a responsible Company official) indicating if any changes were made in the operation of the boiler or any measurement change (±20 percent) from the previous averaging period) in the type of fuel or firing rate during such period.

(E) *Company certifications.* The Company shall submit a statement (signed by a responsible Company official) indicating:

(*1*) Whether or not the QA requirements of this waiver for the CEMs, CB, and fuel sampling/analysis methods, or other periodic audits, have been performed in accordance with the provisions of this waiver;

(*2*) Whether or not the data used to determine compliance was obtained in accordance with the method and procedures required by this waiver, including the results of the quality assurance checks;

(*3*) Whether or not the data requirements have been met or, if the minimum data requirements have not been met due to errors that were unavoidable (attach explanation);

(*4*) Whether or not compliance with all of the emission standards established by this waiver have been achieved during the reporting period.

(iii) Unscheduled reporting requirements. The Company shall submit to the Director, Division of Stationary Source Enforcement (Washington, DC).

(A) Complete results of all CEMS performance specification tests within 45 days after the initiation of such tests;

(B) The Company shall report, within 72 hours, each instance of:

(*1*) Failure to maintain the combined (Units Nos. 1, 2, and 3 and Units Nos. 1 and 2, respectively) SO_2 emission rates below the emission limitations prescribed in section (e) of this waiver;

(*2*) Failure to acquire the specified minimum quantity of valid emission data; and

(*3*) Failure of the Company's CB(s) to meet the quality assurance checks.

REFERENCES

1. Standards of Performance for New Stationary Sources; Revisions to General Provisions and Additions to Appendix A, and Reproposal of Revisions to Appendix B. 46 FR 8352 (January 26, 1981).

2. Proposed Standards of Performance for New Stationary Sources, Continuous Monitoring Performance Specifications 44 FR 58602 (October 10, 1979).

3. 40 CFR Part 60, Appendix A (July 1, 1979).

4. *Quality Assurance Handbook for Air Pollution Measurement Systems*, Volume III, Stationary Source Specific Methods. EPA-600/4-77-027b, August 1977.

TABLE 1—REQUIRED PERFORMANCE CRITERIA FOR QUALITY ASSURANCE (QA) EVALUATIONS

Sampling method	Minimum frequency	QA check	Specification limit	Duration	Calculation procedures
CEMS	Daily	24-hour zero drift SO_2	2.0 percent span	3 consecutive days	Equation 4
CEMS	Daily	24-hour zero drift SO_2	8.0 percent span	24 hours	Equation 4
CEMS	Daily	24-hour calibration drift SO_2	2.5 percent span	3 consecutive days	Equation 5
CEMS	Daily	24-hour calibration drift SO_2	10.0 percent span	24 hours	Equation 5
CEMS	Daily	24-hour zero drift O_2	0.5 percent O_2	3 consecutive days	Equation 6
CEMS	Daily	24-hour zero drift O_2	2.0 percent O_2	24 hours	Equation 6
CEMS	Daily	24-hour calibration drift O_2	0.5 percent O_2	3 consecutive days	Equation 7
CEMS	Daily	24-hour calibration drift O_2	2.0 percent O_2	24 hours	Equation 7
CEMS	Daily	24-hour mid-range check (SO_2,O_2)	5.0 percent calibration gas value	3 consecutive days	Equation 8
CEMS	Daily	24-hour mid-range check (SO_2,O_2)	10.0 percent calibration gas value	24 hours	Equation 8
CEMS [1]	Weekly [1]	Modified relative accuracy [1]	20.0 percent difference [1]	24 hours [1]	Equation 9 [1]
CEMS	Initial and quarterly	Relative accuracy (SO_2/O_2 combined)	20.0 percent difference	9–12 hours	See Reference 1
CEMS	Initial and quarterly	Calibration error	50.0 percent calibration gas value	(N/A)	See Reference 2
CEMS	Initial and quarterly	Response time	15 minutes	(N/A)	See Reference 2
CEMS	Initial and quarterly	24 hour calibration drift (SO_2 and O_2 or CO_2)	2.5 percent span	7 consecutive days	See Reference 1
CB	Initial and weekly	Mid-range check (SO_2/CO_2)	10.0 percent calibration gas value	(N/A)	Equation 10
CB	Initial and quarterly	Relative accuracy (SO_2/CO_2 combined)	10.0 percent difference	3 hours	Equation 11
Fuel S&A	Initial and bi-weekly	Split sample analysis	500 Btu/hr difference	(N/A)	Equation 13
Fuel S&A	Initial and bi-weekly	Reference coal analysis	500 Btu/hr difference	(N/A)	Equation 14
Laboratory analysis	Daily	Method 6 audit sample analysis	5.0 percent difference	(N/A)	Equation 12

[1] Failure to meet this specification requires the test to be repeated one time. If this test documents a second failure the CEMS must be taken out of service.

APPENDIX I DETERMINATION OF SULFUR DIOXIDE EMISSIONS FROM FOSSIL FUEL FIRED COMBUSTION SOURCES (CONTINUOUS BUBBLER METHOD)

(NOTE. The Company may use the method or its modifications which it requested and which are restated in section (g)(2)(ii)(A) during the waiver period.)

1. *Applicability and Principle.*

1.1 Applicability. This method applies to the determination of sulfur dioxide (SO_2) emissions from combustion sources in terms of emission rate ng/J (lb/MMBtu).

1.2. Principle. A gas sample is extracted from the sampling point (in the emission exhaust duct or stack) over a 24-hour or other specified time period. The SO_2 and CO_2 contained in the sampled exhaust gases are separated and collected in the sampling train. The SO_2 fraction is measured by the barium-thorium titration method and CO_2 is determined gravimetrically.

2. *Apparatus.*

2.1 Sampling. The sampling train is shown in Figure 1; the equipment required is the same as for Method 6, except as specified below:

2.1.1 Impingers. Three 150 ml. Mae West impingers with a 1-mm restricted tip.

2.1.2 Absorption Tubes. Two 51 mm x 178 mm glass tubes with matching one-hole stoppers.

2.2 Sample Recovery and Analysis. The equipment needed for sample recovery and analysis is the same as required for Method 6. In addition, a balance to measure (within 0.05g) is needed for analysis.

3. *Reagents.*

Unless otherwise indicated, all reagents must conform to the specifications established by the Committee on Analytical Reagents of the American Chemical Society. Where such specifications are not available, use the best available grade.

3.1. Sampling. The reagents required for sampling are the same as specified in Method 6, except that 10 percent hydrogen peroxide is used. In addition, the following reagents are required:

3.1.1 Drierite. Anhydrous calcium sulfate ($CaSO_4$) dessicant, 8 mesh.

3.1.2 Ascarite. Sodium hydroxide coated asbestos for absorption of CO_2, 8 to 20 mesh.

3.2 Sample Recovery and Analysis. The reagents needed for sample recovery and analysis are the same as for Method 6, Sections 3.2 and 3.3, respectively.

4. *Preparation of Collection Train.*

Measure 75 ml. of 80 percent IPA into the first impinger and 75 ml. of 10 percent hydrogen peroxide into each of the remaining impingers. Into one of the absorption tubes place a one-hole stopper and glass wool plug in the end and add 150 to 200 grams of drierite to the tube. As the drierite is added shake the tube to evenly pack the absorbent. Cap the tube with another plug of glass wool and a one-hold stopper (use this end as the inlet for even flow). The ascarite tube is filled in a similar manner, using 150-175 grams of ascarite. Clean and dry the outside of the ascarite tube and weigh (at room temperatue, 20 degrees C) to the nearest 0.1 gram. Record this initial mass as M_{ai}. Assemble the train as shown in Figure 1. Adjust the probe heater to a temperature sufficient to prevent water condensation.

4.1.1 Sampling. The bubbler shall be operated continuously at a sampling rate sufficient to collect 70-80 liters of source effluent during the desired sampling period. For example, a sampling rate of 0.05 liter/min. is sufficient for a 24-hour average and 0.40 liter per minute for a 3-hour average. The sampling rate shall not, however, exceed 1.0 liter/min.

4.2 Sample Recovery.

4.2.1 Peroxide Solution. Pour the contents of the second and third impingers into a leak-free polyethylene bottle for storage or shipping. Rinse the two impingers and connecting tubing with deionized distilled water, and add the washings to the same storage container.

4.2.2 Ascarite Tube. Allow the ascarite tube to equilibrate with room temperature (about 10 minutes), clean and dry the outside, and weigh to the nearest 0.1g in the same manner as in Section 4.1.1. Record this final mass (M_{af}) and discard the used ascarite.

4.3 Sample Analysis. The sample analysis procedure for SO_2 is the same as specified in Method 6, Section 4.3.

5. *Calculations.*

5.1 SO_2 mass collected.

$$M_{SO_2} = 32.03\ (V_t - V_{tb})\ N\ V_{soln}/V_a$$

Equation A1-1

Where:

M_{SO_2} = mass of SO_2 collected, mg

V_t = volume of barium perchlorate titrant used for the sample, ml (average of replicate titrations).

V_{tb} = volume of barium perchlorate titrant used for the blank, ml.

N = normality of barium perchlorate titrant, milliequivalents/ml.

V_{soln} = total volume of solution in which the sulfur dioxide sample is contained, ml.

V_a = volume of sample aliquot titrated, ml.

5.2 Sulfur dioxide emission rate

$$E_{SO_2} = F_c\ (K_1)[M_{SO_2}/(M_{af} - M_{ai})]$$

Equation A1-2

Where:

M_{ai} = Initial mass of ascarite, grams.

M_{af} = final mass of ascarite, grams.

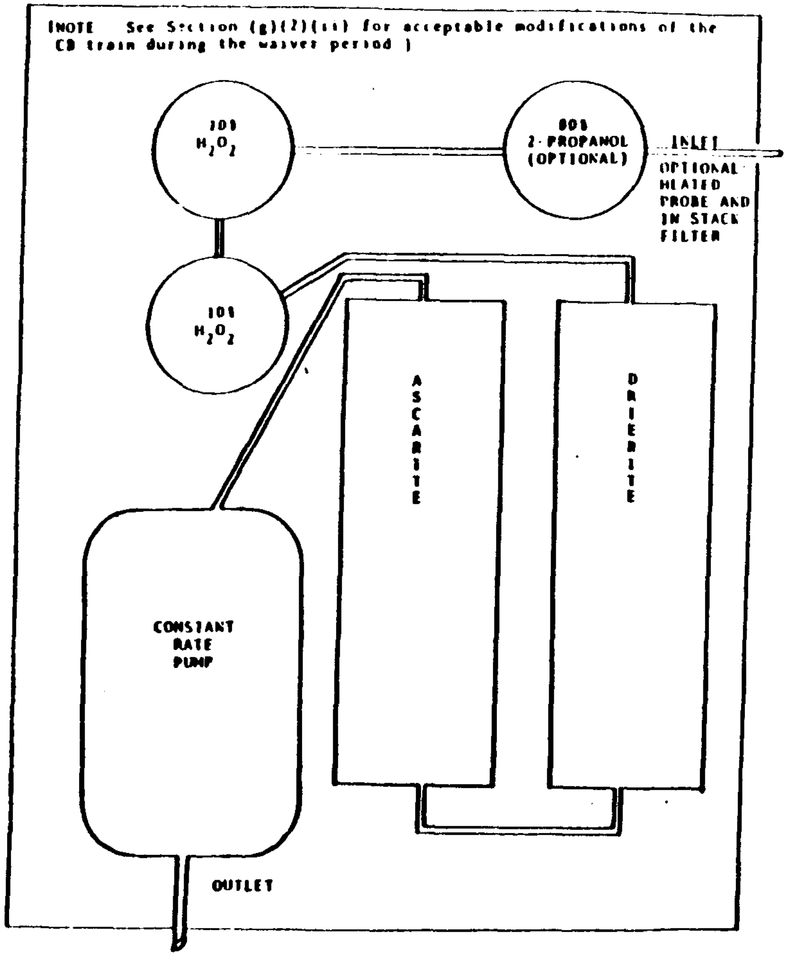
E_{SO_2} = Emission rate of SO_2, ng/J (lb/MMBtu).

F_c = Carbon F factor for the fuel burned, M^3/J, from Method 19 (Ref. 2)

$K_1 = 1.829 \times 10^{9}$

FIGURE 1

CONTINOUOUS BUBBLER (SO_2/CO_2) SAMPLING TRAIN



Subpart Da—Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978

SOURCE: 44 FR 33613, June 11, 1979, unless otherwise noted.

§ 60.40a Applicability and designation of affected facility.

(a) The affected facility to which this subpart applies is each electric utility steam generating unit:

(1) That is capable of combusting more than 73 megawatts (250 million Btu/hour) heat input of fossil fuel (either alone or in combination with any other fuel); and

(2) For which construction or modification is commenced after September 18, 1978.

(b) This subpart applies to electric utility combined cycle gas turbines that are capable of combusting more than 73 megawatts (250 million Btu/hour) heat input of fossil fuel in the steam generator. Only emissions resulting from combustion of fuels in the steam generating unit are subject to this subpart. (The gas turbine emissions are subject to Subpart GG.)

(c) Any change to an existing fossil-fuel-fired steam generating unit to accommodate the use of combustible materials, other than fossil fuels, shall not bring that unit under the applicability of this subpart.

(d) Any change to an existing steam generating unit originally designed to fire gaseous or liquid fossil fuels, to accommodate the use of any other fuel (fossil or nonfossil) shall not bring that unit under the applicability of this subpart.

§ 60.41a Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this part.

"*Steam generating unit*" means any furnace, boiler, or other device used for combusting fuel for the purpose of producing steam (including fossil-fuel-fired steam generators associated with combined cycle gas turbines; nuclear steam generators are not included).

"*Electric utility steam generating unit*" means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the affected facility.

"*Fossil fuel*" means natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such material for the purpose of creating useful heat.

"*Subbituminous coal*" means coal that is classified as subbituminous A, B, or C according to the American Society of Testing and Materials (ASTM) Standard Specification for Classification of Coals by Rank D388-77 (incorporated by reference—see §60.17).

"*Lignite*" means coal that is classified as lignite A or B according to the American Society of Testing and Materials' (ASTM) Standard Specification for Classification of Coals by Rank D388-77 (incorporated by reference—see §60.17).

"*Coal refuse*" means waste products of coal mining, physical coal cleaning, and coal preparation operations (e.g. culm, gob, etc.) containing coal, matrix material, clay, and other organic and inorganic material.

"*Potential combustion concentration*" means the theoretical emissions (ng/J, lb/million Btu heat input) that would result from combustion of a fuel in an uncleaned state without emission control systems) and:

(a) For particulate matter is:

(1) 3,000 ng/J (7.0 lb/million Btu) heat input for solid fuel; and

(2) 75 ng/J (0.17 lb/million Btu) heat input for liquid fuels.

(b) For sulfur dioxide is determined under § 60.48a(b).

(c) For nitrogen oxides is:

(1) 290 ng/J (0.67 lb/million Btu) heat input for gaseous fuels;

(2) 310 ng/J (0.72 lb/million Btu) heat input for liquid fuels; and

(3) 990 ng/J (2.30 lb/million Btu) heat input for solid fuels.

"*Combined cycle gas turbine*" means a stationary turbine combustion system where heat from the turbine exhaust gases is recovered by a steam generating unit.

"*Interconnected*" means that two or more electric generating units are electrically tied together by a network of power transmission lines, and other power transmission equipment.

"*Electric utility company*" means the largest interconnected organization, business, or governmental entity that generates electric power for sale (e.g., a holding company with operating subsidiary companies).

"*Principal company*" means the electric utility company or companies which own the affected facility.

"*Neighboring company*" means any one of those electric utility companies with one or more electric power interconnections to the principal company and which have geographically adjoining service areas.

"*Net system capacity*" means the sum of the net electric generating capability (not necessarily equal to rated capacity) of all electric generating equipment owned by an electric utility company (including steam generating units, internal combustion engines, gas turbines, nuclear units, hydroelectric units, and all other electric generating equipment) plus firm contractual purchases that are interconnected to the affected facility that has the malfunctioning flue gas desulfurization system. The electric generating capability of equipment under multiple ownership is prorated based on ownership unless the proportional entitlement to electric output is otherwise established by contractual arrangement.

"*System load*" means the entire electric demand of an electric utility company's service area interconnected with the affected facility that has the malfunctioning flue gas desulfurization system plus firm contractual sales to other electric utility companies. Sales to other electric utility companies (e.g., emergency power) not on a firm contractual basis may also be included in the system load when no available system capacity exists in the electric utility company to which the power is supplied for sale.

"*System emergency reserves*" means an amount of electric generating capacity equivalent to the rated capacity of the single largest electric generating unit in the electric utility company (including steam generating units, internal combustion engines, gas turbines, nuclear units, hydroelectric units, and all other electric generating equipment) which is interconnected with the affected facility that has the malfunctioning flue gas desulfurization system. The electric generating capability of equipment under multiple ownership is prorated based on ownership unless the proportional entitlement to electric output is otherwise established by contractual arrangement.

"*Available system capacity*" means the capacity determined by subtracting the system load and the system emergency reserves from the net system capacity.

"*Spinning reserve*" means the sum of the unutilized net generating capability of all units of the electric utility company that are synchronized to the power distribution system and that are capable of immediately accepting additional load. The electric generating capability of equipment under multiple ownership is prorated based on ownership unless the proportional entitlement to electric output is otherwise established by contractual arrangement.

"*Available purchase power*" means the lesser of the following:

(a) The sum of available system capacity in all neighboring companies.

(b) The sum of the rated capacities of the power interconnection devices between the principal company and all neighboring companies, minus the sum of the electric power load on these interconnections.

(c) The rated capacity of the power transmission lines between the power interconnection devices and the electric generating units (the unit in the principal company that has the malfunctioning flue gas desulfurization system and the unit(s) in the neighboring company supplying replacement electrical power) less the electric power load on these transmission lines.

"*Spare flue gas desulfurization system module*" means a separate system of sulfur dioxide emission control equipment capable of treating an amount of flue gas equal to the total amount of flue gas generated by an affected facility when operated at maximum capacity divided by the total number of nonspare flue gas desulfurization modules in the system.

"*Emergency condition*" means that period of time when:

(a) The electric generation output of an affected facility with a malfunctioning flue gas desulfurization system cannot be reduced or electrical output must be increased because:

(1) All available system capacity in the principal company interconnected with the affected facility is being operated, and

(2) All available purchase power interconnected with the affected facility is being obtained, or

(b) The electric generation demand is being shifted as quickly as possible from an affected facility with a malfunctioning flue gas desulfurization system to one or more electrical generating units held in reserve by the principal company or by a neighboring company, or

(c) An affected facility with a malfunctioning flue gas desulfurization system becomes the only available unit to maintain a part or all of the principal company's system emergency reserves and the unit is operated in spinning reserve at the lowest practical electric generation load consistent with not causing significant physical damage to the unit. If the unit is operated at a higher load to meet load demand, an emergency condition would not exist unless the conditions under (a) of this definition apply.

"*Electric utility combined cycle gas turbine*" means any combined cycle gas turbine used for electric generation that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam distribution system that is constructed for the purpose of providing steam to a steam electric generator that would produce electrical power for sale is also considered in determining the electrical energy output capacity of the affected facility.

"*Potential electrical output capacity*" is defined as 33 percent of the maximum design heat input capacity of the steam generating unit (e.g., a steam generating unit with a 100-MW (340 million Btu/hr) fossil-fuel heat input capacity would have a 33-MW potential electrical output capacity). For electric utility combined cycle gas turbines the potential electrical output capacity is determined on the basis of the fossil-fuel firing capacity of the steam generator exclusive of the heat input and electrical power contribution by the gas turbine.

"*Anthracite*" means coal that is classified as anthracite according to the American Society of Testing and Materials' (ASTM) Standard Specification for Classification of Coals by Rank D388-77 (incorporated by reference—see §60.17).

"*Solid-derived fuel*" means any solid, liquid, or gaseous fuel derived from solid fuel for the purpose of creating useful heat and includes, but is not limited to, solvent refined coal, liquified coal, and gasified coal.

"*24-hour period*" means the period of time between 12:01 a.m. and 12:00 midnight.

"*Resource recovery unit*" means a facility that combusts more than 75 percent non-fossil fuel on a quarterly (calendar) heat input basis.

"*Noncontinental area*" means the State of Hawaii, the Virgin Islands, Guam, American Samoa, the Commonwealth of Puerto Rico, or the Northern Mariana Islands.

"*Boiler operating day*" means a 24-hour period during which fossil fuel is combusted in a steam generating unit for the entire 24 hours.

[44 FR 33613, June 11, 1979, as amended at 48 FR 3737, Jan. 27, 1983]

§ 60.42a Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted under § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of:

(1) 13 ng/J (0.03 lb/million Btu) heat input derived from the combustion of solid, liquid, or gaseous fuel;

(2) 1 percent of the potential combustion concentration (99 percent reduction) when combusting solid fuel; and

(3) 30 percent of potential combustion concentration (70 percent reduction) when combusting liquid fuel.

(b) On and after the date the particulate matter performance test required to be conducted under § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which exhibit greater than 20 percent opacity (6-minute average), except for one 6 minute period per hour of not more than 27 percent opacity.

§ 60.43a Standard for sulfur dioxide.

(a) On and after the date on which the initial performance test required to be conducted under § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility which combusts solid fuel or solid-derived fuel, except as provided under paragraphs (c), (d), (f) or (h) of this section, any gases which contain sulfur dioxide in excess of:

(1) 520 ng/J (1.20 lb/million Btu) heat input and 10 percent of the potential combustion concentration (90 percent reduction), or

(2) 30 percent of the potential combustion concentration (70 percent reduction), when emissions are less than 260 ng/J (0.60 lb/million Btu) heat input.

(b) On and after the date on which the initial performance test required to be conducted under § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility which combusts liquid or gaseous fuels (except for liquid or gaseous fuels derived from solid fuels and as provided under paragraphs (e) or (h) of this section), any gases which contain sulfur dioxide in excess of:

(1) 340 ng/J (0.80 lb/million Btu) heat input and 10 percent of the potential combustion concentration (90 percent reduction), or

(2) 100 percent of the potential combustion concentration (zero percent reduction) when emissions are less than 86 ng/J (0.20 lb/million Btu) heat input.

(c) On and after the date on which the initial performance test required to be conducted under § 60.8 is complete, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility which combusts solid solvent refined coal (SRC-I) any gases which contain sulfur dioxide in excess of 520 ng/J (1.20 lb/million Btu) heat input and 15 percent of the potential combustion concentration (85 percent reduction) except as provided under paragraph (f) of this section; compliance with the emission limitation is determined on a 30-day rolling average basis and compliance with the percent reduction requirement is determined on a 24-hour basis.

(d) Sulfur dioxide emissions are limited to 520 ng/J (1.20 lb/million Btu) heat input from any affected facility which:

(1) Combusts 100 percent anthracite,

(2) Is classified as a resource recovery facility, or

(3) Is located in a noncontinental area and combusts solid fuel or solid-derived fuel.

(e) Sulfur dioxide emissions are limited to 340 ng/J (0.80 lb/million Btu) heat input from any affected facility which is located in a noncontinental area and combusts liquid or gaseous fuels (excluding solid-derived fuels).

(f) The emission reduction requirements under this section do not apply to any affected facility that is operated under an SO_2 commercial demonstration permit issued by the Administrator in accordance with the provisions of § 60.45a.

(g) Compliance with the emission limitation and percent reduction requirements under this section are both determined on a 30-day rolling average basis except as provided under paragraph (c) of this section.

(h) When different fuels are combusted simultaneously, the applicable standard is determined by proration using the following formula:

(1) If emissions of sulfur dioxide to the atmosphere are greater than 260 ng/J (0.60 lb/million Btu) heat input

$E_{SO_2} = [340\ x + 520\ y]/100$ and
$P_{SO_2} = 10$ percent

(2) If emissions of sulfur dioxide to the atmosphere are equal to or less than 260 ng/J (0.60 lb/million Btu) heat input:

$E_{SO_2} = [340\ x + 520\ y]/100$ and
$P_{SO_2} = [90\ x + 70\ y]/100$

where:

E_{SO_2} is the prorated sulfur dioxide emission limit (ng/J heat input),

P_{SO_2} is the percentage of potential sulfur dioxide emission allowed (percent reduction required = $100 - P_{SO_2}$),

x is the percentage of total heat input derived from the combustion of liquid or gaseous fuels (excluding solid-derived fuels)

y is the percentage of total heat input derived from the combustion of solid fuel (including solid-derived fuels)

§ 60.44a Standard for nitrogen oxides.

(a) On and after the date on which the initial performance test required to be conducted under § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility, except as provided under paragraph (b) of this section, any gases which contain nitrogen oxides in excess of the following emission limits, based on a 30-day rolling average.

(1) *NO_x emission limits.*

Fuel type	Emission limit for heat input	
	ng/J	(lb/million Btu)
Gaseous fuels:		
Coal-derived fuels	210	0.50
All other fuels	86	0.20
Liquid fuels:		
Coal-derived fuels	210	0.50
Shale oil	210	0.50
All other fuels	130	0.30
Solid fuels:		
Coal-derived fuels	210	0.50
Any fuel containing more than 25%, by weight, coal refuse	(1)	(1)
Any fuel containing more than 25%, by weight, lignite if the lignite is mined in North Dakota, South Dakota, or Montana, and is combusted in a slag tap furnace	340	0.80
Lignite not subject to the 340 ng/J heat input emission limit	260	0.60
Subbituminous coal	210	0.50
Bituminous coal	260	0.60
Anthracite coal	260	0.60
All other fuels	260	0.60

[1] Exempt from NO_x standards and NO_x monitoring requirements

(2) *NO_x reduction requirement.*

Fuel type	Percent reduction of potential combustion concentration
Gaseous fuels	25
Liquid fuels	30
Solid fuels	65

(b) The emission limitations under paragraph (a) of this section do not apply to any affected facility which is combusting coal-derived liquid fuel and is operating under a commercial demonstration permit issued by the Administrator in accordance with the provisions of § 60.45a.

(c) When two or more fuels are combusted simultaneously, the applicable standard is determined by proration using the following formula:

$E_{NO_x} = [86\ w + 130\ x + 210\ y + 260\ z]/100$

where:5

E_{NO_x} is the applicable standard for nitrogen oxides when multiple fuels are combusted simultaneously (ng/J heat input);

w is the percentage of total heat input derived from the combustion of fuels subject to the 86 ng/J heat input standard;

x is the percentage of total heat input derived from the combustion of fuels subject to the 130 ng/J heat input standard;

y is the percentage of total heat input derived from the combustion of fuels subject to the 210 ng/J heat input standard; and

z is the percentage of total heat input derived from the combustion of fuels subject to the 260 ng/J heat input standard.

§ 60.45a Commercial demonstration permit.

(a) An owner or operator of an affected facility proposing to demonstrate an emerging technology may apply to the Administrator for a commercial demonstration permit. The Administrator will issue a commercial demonstration permit in accordance with paragraph (e) of this section. Commercial demonstration permits may be issued only by the Administrator, and this authority will not be delegated.

(b) An owner or operator of an affected facility that combusts solid solvent refined coal (SRC-I) and who is issued a commercial demonstration permit by the Administrator is not subject to the SO_2 emission reduction requirements under § 60.43a(c) but must, as a minimum, reduce SO_2 emissions to 20 percent of the potential combustion concentration (80 percent reduction) for each 24-hour period of steam generator operation and to less than 520 ng/J (1.20 lb/million Btu) heat input on a 30-day rolling average basis.

(c) An owner or operator of a fluidized bed combustion electric utility steam generator (atmospheric or pressurized) who is issued a commercial demonstration permit by the Administrator is not subject to the SO_2 emission reduction requirements under § 60.43a(a) but must, as a minimum, reduce SO_2 emissions to 15 percent of the potential combustion concentration (85 percent reduction) on a 30-day rolling average basis and to less than 520 ng/J (1.20 lb/million Btu) heat input on a 30-day rolling average basis.

(d) The owner or operator of an affected facility that combusts coal-derived liquid fuel and who is issued a commercial demonstration permit by the Administrator is not subject to the applicable NO_x emission limitation and percent reduction under § 60.44a(a) but must, as a minimum, reduce emissions to less than 300 ng/J (0.70 lb/million Btu) heat input on a 30-day rolling average basis.

(e) Commercial demonstration permits may not exceed the following equivalent MW electrical generation capacity for any one technology category, and the total equivalent MW electrical generation capacity for all commercial demonstration plants may not exceed 15,000 MW.

Technology	Pollutant	Equivalent electrical capacity (MW electrical output)
Solid solvent refined coal (SRC I)	SO_2	6,000-10,000
Fluidized bed combustion (atmospheric)	SO_2	400-3,000
Fluidized bed combustion (pressurized)	SO_2	400-1,200
Coal liquification	NO_x	750-10,000
Total allowable for all technologies		15,000

§ 60.46a Compliance provisions.

(a) Compliance with the particulate matter emission limitation under § 60.42a(a)(1) constitutes compliance with the percent reduction requirements for particulate matter under § 60.42a(a)(2) and (3).

(b) Compliance with the nitrogen oxides emission limitation under § 60.44a(a) constitutes compliance with the percent reduction requirements under § 60.44a(a)(2).

(c) The particulate matter emission standards under § 60.42a and the nitrogen oxides emission standards under § 60.44a apply at all times except during periods of startup, shutdown, or malfunction. The sulfur dioxide emission standards under § 60.43a apply at all times except during periods of startup, shutdown, or when both emergency conditions exist and the procedures under paragraph (d) of this section are implemented.

(d) During emergency conditions in the principal company, an affected facility with a malfunctioning flue gas desulfurization system may be operated if sulfur dioxide emissions are minimized by:

(1) Operating all operable flue gas desulfurization system modules, and bringing back into operation any malfunctioned module as soon as repairs are completed,

(2) Bypassing flue gases around only those flue gas desulfurization system modules that have been taken out of operation because they were incapable of any sulfur dioxide emission reduction or which would have suffered significant physical damage if they had remained in operation, and

(3) Designing, constructing, and operating a spare flue gas desulfurization system module for an affected facility larger than 365 MW (1,250 million Btu/hr) heat input (approximately 125 MW electrical output capacity). The Administrator may at his discretion require the owner or operator within 60 days of notification to demonstrate spare module capability. To demonstrate this capability, the owner or operator must demonstrate compliance with the appropriate requirements under paragraph (a), (b), (d), (e), and (i) under § 60.43a for any period of operation lasting from 24 hours to 30 days when:

(i) Any one flue gas desulfurization module is not operated,

(ii) The affected facility is operating at the maximum heat input rate,

(iii) The fuel fired during the 24-hour to 30-day period is representative of the type and average sulfur content of fuel used over a typical 30-day period, and

(iv) The owner or operator has given the Administrator at least 30 days notice of the date and period of time over which the demonstration will be performed.

(e) After the initial performance test required under § 60.8, compliance with the sulfur dioxide emission limitations and percentage reduction requirements under § 60.43a and the nitrogen oxides emission limitations under § 60.44a is based on the average emission rate for 30 successive boiler operating days. A separate performance test is completed at the end of each boiler operating day after the initial performance test, and a new 30 day average emission rate for both sulfur dioxide and nitrogen oxides and a new percent reduction for sulfur dioxide are calculated to show compliance with the standards.

(f) For the initial performance test required under § 60.8, compliance with the sulfur dioxide emission limitations and percent reduction requirements under § 60.43a and the nitrogen oxides emission limitation under § 60.44a is based on the average emission rates for sulfur dioxide, nitrogen oxides, and percent reduction for sulfur dioxide for the first 30 successive boiler operating days. The initial performance test is the only test in which at least 30 days prior notice is required unless otherwise specified by the Administrator. The initial performance test is to be scheduled so that the first boiler operating day of the 30 successive boiler operating days is completed within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility.

(g) Compliance is determined by calculating the arithmetic average of all hourly emission rates for SO_2 and NO_x for the 30 successive boiler operating days, except for data obtained during startup, shutdown, malfunction (NO_x only), or emergency conditions (SO_2 only). Compliance with the percentage reduction requirement for SO_2 is determined based on the average inlet and average outlet SO_2 emission rates for the 30 successive boiler operating days.

(h) If an owner or operator has not obtained the minimum quantity of emission data as required under § 60.47a of this subpart, compliance of the affected facility with the emission requirements under §§ 60.43a and 60.44a of this subpart for the day on which the 30-day period ends may be determined by the Administrator by following the applicable procedures in sections 6.0 and 7.0 of Reference Method 19 (Appendix A).

§ 60.47a Emission monitoring.

(a) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring the opacity of emissions discharged to the atmosphere, except where gaseous fuel is the only fuel combusted. If opacity interference due to water droplets exists in the stack (for example, from the use of an FGD system), the opacity is monitored upstream of the interference (at the inlet to the FGD system). If opacity interference is experienced at all locations (both at the inlet and outlet of the sulfur dioxide control system), alternate parameters indicative of the particulate matter control system's performance are monitored (subject to the approval of the Administrator).

(b) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring sulfur dioxide emissions, except where natural gas is the only fuel combusted, as follows:

(1) Sulfur dioxide emissions are monitored at both the inlet and outlet of the sulfur dioxide control device.

(2) For a facility which qualifies under the provisions of § 60.43a(d),

sulfur dioxide emissions are only monitored as discharged to the atmosphere.

(3) An "as fired" fuel monitoring system (upstream of coal pulverizers) meeting the requirements of Method 19 (Appendix A) may be used to determine potential sulfur dioxide emissions in place of a continuous sulfur dioxide emission monitor at the inlet to the sulfur dioxide control device as required under paragraph (b)(1) of this section.

(c) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring nitrogen oxides emissions discharged to the atmosphere.

(d) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring the oxygen or carbon dioxide content of the flue gases at each location where sulfur dioxide or nitrogen oxides emissions are monitored.

(e) The continuous monitoring systems under paragraphs (b), (c), and (d) of this section are operated and data recorded during all periods of operation of the affected facility including periods of startup, shutdown, malfunction or emergency conditions, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments.

(f) When emission data are not obtained because of continuous monitoring system breakdowns, repairs, calibration checks and zero and span adjustments, emission data will be obtained by using other monitoring systems as approved by the Administrator or the reference methods as described in paragraph (h) of this section to provide emission data for a minimum of 18 hours in at least 22 out of 30 successive boiler operating days.

(g) The 1-hour averages required under paragraph § 60.13(h) are expressed in ng/J (lbs/million Btu) heat input and used to calculate the average emission rates under § 60.46a. The 1-hour averages are calculated using the data points required under § 60.13(b). At least two data points must be used to calculate the 1-hour averages.

(h) Methods used to supplement continuous emission monitoring system data to meet the minimum data requirements in § 60.47a(f) will be used as specified below or as otherwise approved by the Administrator.

(1) Methods 3 or 3A, 6 or 6C and 7, 7A, 7C, 7D or 7E as applicable, are used. Method 6A or 6B may be used whenever Methods 6 and 3 data are required to determine the SO_2 emission rate in ng/J. Methods 3A, 6C, and 7E are used only at the sole discretion of the source owner or operator. The sampling location(s) are the same as those specified for the continuous emission monitoring system.

(2) For Method 6 or 6A, the minimum sampling is 20 minutes and the minimum sampling volume is 0.02 dsm³ (0.71 dscf) for each sample. Samples are collected at approximately 60-minute intervals. Each sample represents a 1-hour average. Method 6B shall be operated for 24 hours per sample, and the minimum sample volume is 0.02 dsm³ (0.71 dscf) for each sample. Each Method 6b sample represents 24 1-hour averages.

(3) For Method 7 or 7A, samples are taken at approximately 30-minute intervals. The arithmetic average of these two consective samples represent a 1-hour average. For Method 7C or 7D, each run shall consist of a 1-hour sample.

(4) For Method 3, the oxygen or carbon dioxide sample is to be taken for each hour when continuous SO_2 and NO_x data are taken or when Methods 6 or 6C and 7, 7A, 7C, 7D, or 7E are required. Each sample shall be taken for a minimum of 30 minutes in each hour using the integrated bag method specified in Method 3. Each sample represents a 1-hour average.

(5) For each 1-hour average, the emissions expressed in ng/J (lb/million Btu) heat input are determined and used as needed to achieve the minimum data requirements of paragraph (f) of this section.

(i) The following procedures are used to conduct monitoring system performance evaluations under § 60.13(c) and calibration checks under § 60.13(d).

(1) Methods 3 or 3A, 6, 6A, 6B or 6C, and 7, 7A, 7C, 7D or 7E, as applicable, are used for conducting relative accuracy evaluations of sulfur dioxide and nitrogen oxides continuous emission monitoring systems. Methods 3A, 6C, and 7E are used only at the sole discretion of the source owner or operator.

(2) Sulfur dioxide or nitrogen oxides, as applicable, is used for preparing calibration gas mixtures under performance specification 2 of appendix B to this part.

(3) For affected facilities burning only fossil fuel, the span value for a continuous monitoring system for measuring opacity is between 60 and 80 percent and for a continuous monitoring system measuring nitrogen oxides is determined as follows:

Fossil fuel	Span value for nitrogen oxides (ppm)
Gas	500
Liquid	500
Solid	1,000
Combination	500 (x + y) + 1,000z

where:

x is the fraction of total heat input derived from gaseous fossil fuel,

y is the fraction of total heat input derived from liquid fossil fuel, and

z is the fraction of total heat input derived from solid fossil fuel.

(4) All span values computed under paragraph (b)(3) of this section for burning combinations of fossil fuels are rounded to the nearest 500 ppm.

(5) For affected facilities burning fossil fuel, alone or in combination with non-fossil fuel, the span value of the sulfur dioxide continuous monitoring system at the inlet to the sulfur dioxide control device is 125 percent of the maximum estimated hourly potential emissions of the fuel fired, and the outlet of the sulfur dioxide control device is 50 percent of maximum estimated hourly potential emissions of the fuel fired.

[44 FR 33613, June 11, 1979, as amended at 47 FR 54075, Dec. 1, 1982; 51 FR 21166, June 11, 1986; 52 FR 21007, June 4, 1987]

§ 60.48a Compliance determination procedures and methods.

(a) The following procedures and reference methods are used to determine compliance with the standards for particulate matter under § 60.42a.

(1) Method 3 is used for gas analysis when applying Method 5, 5B, or 17.

(2) Method 5, 5B, or 17 is used for determining particulate matter emissions and associated moisture content as follows: Method 5 is to be used at affected facilities without wet FGD systems; Method 5B is to be used only after wet FGD systems; and Method 17 may be used at facilities with or without wet FGD systems provided that the stack gas temperature at the sampling location does not exceed a temperature of 160 °C (320 °F). The procedures of sections 2.1 and 2.3 of Method 5B may be used in Method 17 only if it is used after wet FGD systems. Do not use Method 17 after wet FGD systems if the effluent is saturated or laden with water droplets.

(3) For Method 5, 5B, or 17, Method 1 is used to select the sampling site and the number of traverse sampling points. The sampling time for each run is at least 120 minutes and the minimum sampling volume is 1.7 dscm (60 dscf) except that smaller sampling times or volumes, when necessitated by process variables or other factors, may be approved by the Administrator.

(4) For Method 5 or 5B the probe and filter holder heating system in the sampling train is set to provide an average gas temperature of 160 °C (320 °F).

(5) For determination of particulate emissions, the oxygen or carbon dioxide sample is obtained simultaneously with each run of Method 5, 5B, or 17 by traversing the duct at the same sampling location. Method 1 is used for selection of the number of oxygen or carbon dioxide traverse points except that no more than 12 sample points are required.

(6) For each run using Method 5, 5B, or 17, the emission rate expressed in ng/J heat input is determined using the oxygen or carbon-dioxide measurements and particulate matter measurements obtained under this section.

the dry basis Fc-factor and the dry basis emission rate calculation procedure contained in Method 19 (Appendix A).

(b) The following procedures and methods are used to determine compliance with the sulfur dioxide standards under § 60.43a.

(1) Determine the percent of potential combustion concentration (percent PCC) emitted to the atmosphere as follows:

(i) *Fuel pretreatment* (% R_f): Determine the percent reduction achieved by any fuel pretreatment using the procedures in Method 19 (Appendix A). Calculate the average percent reduction for fuel pretreatment on a quarterly basis using fuel analysis data. The determination of percent R_f to calculate the percent of potential combustion concentration emitted to the atmosphere is optional. For purposes of determining compliance with any percent reduction requirements under § 60.43a, any reduction in potential SO_2 emissions resulting from the following processes may be credited:

(A) Fuel pretreatment (physical coal cleaning, hydrodesulfurization of fuel oil, etc.),

(B) Coal pulverizers, and

(C) Bottom and flyash interactions.

(ii) *Sulfur dioxide control system* (% R_g): Determine the percent sulfur dioxide reduction achieved by any sulfur dioxide control system using emission rates measured before and after the control system, following the procedures in Method 19 (Appendix A); or, a combination of an "as fired" fuel monitor and emission rates measured after the control system, following the procedures in Method 19 (Appendix A). When the "as fired" fuel monitor is used, the percent reduction is calculated using the average emission rate from the sulfur dioxide control device and the average SO_2 input rate from the "as fired" fuel analysis for 30 successive boiler operating days.

(iii) *Overall percent reduction* (% R_o): Determine the overall percent reduction using the results obtained in paragraphs (b)(1) (i) and (ii) of this section following the procedures in Method 19 (Appendix A). Results are calculated for each 30-day period using the quarterly average percent sulfur reduction determined for fuel pretreatment from the previous quarter and the sulfur dioxide reduction achieved by a sulfur dioxide control system for each 30-day period in the current quarter.

(iv) *Percent emitted* (% PCC): Calculate the percent of potential combustion concentration emitted to the atmosphere using the following equation: Percent PCC = 100 − Percent R_o

(2) Determine the sulfur dioxide emission rates following the procedures in Method 19 (Appendix A).

(c) The procedures and methods outlined in Method 19 (Appendix A) are used in conjunction with the 30-day nitrogen-oxides emission data collected under § 60.47a to determine compliance with the applicable nitrogen oxides standard under § 60.44.

(d) Electric utility combined cycle gas turbines are performance tested for particulate matter, sulfur dioxide, and nitrogen oxides using the procedures of Method 19 (Appendix A). The sulfur dioxide and nitrogen oxides emission rates from the gas turbine used in Method 19 (Appendix A) calculations are determined when the gas turbine is performance tested under Subpart GG. The potential uncontrolled particulate matter emission rate from a gas turbine is defined as 17 ng/J (0.04 lb/million Btu) heat input.

[44 FR 33613, June 11, 1979, as amended at 51 FR 42842, Nov. 26, 1986]

§ 60.49a Reporting requirements.

(a) For sulfur dioxide, nitrogen oxides, and particulate matter emissions, the performance test data from the initial performance test and from the performance evaluation of the continuous monitors (including the transmissometer) are submitted to the Administrator.

(b) For sulfur dioxide and nitrogen oxides the following information is reported to the Administrator for each 24-hour period.

(1) Calendar date.

(2) The average sulfur dioxide and nitrogen oxide emission rates (ng/J or lb/million Btu) for each 30 successive boiler operating days, ending with the last 30-day period in the quarter; reasons for non-compliance with the

emission standards; and, description of corrective actions taken.

(3) Percent reduction of the potential combustion concentration of sulfur dioxide for each 30 successive boiler operating days, ending with the last 30-day period in the quarter; reasons for non-compliance with the standard; and, description of corrective actions taken.

(4) Identification of the boiler operating days for which pollutant or diluent data have not been obtained by an approved method for at least 18 hours of operation of the facility; justification for not obtaining sufficient data; and description of corrective actions taken.

(5) Identification of the times when emissions data have been excluded from the calculation of average emission rates because of startup, shutdown, malfunction (NO_x only), emergency conditions (SO_2 only), or other reasons, and justification for excluding data for reasons other than startup, shutdown, malfunction, or emergency conditions.

(6) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

(7) Identification of times when hourly averages have been obtained based on manual sampling methods.

(8) Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system.

(9) Description of any modifications to the continuous monitoring system which could affect the ability of the continuous monitoring system to comply with Performance Specifications 2 or 3.

(c) If the minimum quantity of emission data as required by § 60.47a is not obtained for any 30 successive boiler operating days, the following information obtained under the requirements of § 60.46a(h) is reported to the Administrator for that 30-day period:

(1) The number of hourly averages available for outlet emission rates (n_o) and inlet emission rates (n_i) as applicable.

(2) The standard deviation of hourly averages for outlet emission rates (s_o) and inlet emission rates (s_i) as applicable.

(3) The lower confidence limit for the mean outlet emission rate (E_o^*) and the upper confidence limit for the mean inlet emission rate (E_i^*) as applicable.

(4) The applicable potential combustion concentration.

(5) The ratio of the upper confidence limit for the mean outlet emission rate (E_o^*) and the allowable emission rate (E_{std}) as applicable.

(d) If any standards under § 60.43a are exceeded during emergency conditions because of control system malfunction, the owner or operator of the affected facility shall submit a signed statement:

(1) Indicating if emergency conditions existed and requirements under § 60.46a(d) were met during each period, and

(2) Listing the following information:

(i) Time periods the emergency condition existed;

(ii) Electrical output and demand on the owner or operator's electric utility system and the affected facility;

(iii) Amount of power purchased from interconnected neighboring utility companies during the emergency period;

(iv) Percent reduction in emissions achieved;

(v) Atmospheric emission rate (ng/J) of the pollutant discharged; and

(vi) Actions taken to correct control system malfunction.

(e) If fuel pretreatment credit toward the sulfur dioxide emission standard under § 60.43a is claimed, the owner or operator of the affected facility shall submit a signed statement:

(1) Indicating what percentage cleaning credit was taken for the calendar quarter, and whether the credit was determined in accordance with the provisions of § 60.48a and Method 19 (Appendix A); and

(2) Listing the quantity, heat content, and date each pretreated fuel shipment was received during the previous quarter; the name and location of the fuel pretreatment facility; and the total quantity and total heat content of all fuels received at the affected facility during the previous quarter.

(f) For any periods for which opacity, sulfur dioxide or nitrogen oxides emissions data are not available, the owner or operator of the affected facility shall submit a signed statement indicating if any changes were made in operation of the emission control system during the period of data unavailability. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of data unavailability.

(g) The owner or operator of the affected facility shall submit a signed statement indicating whether:

(1) The required continuous monitoring system calibration, span, and drift checks or other periodic audits have or have not been performed as specified.

(2) The data used to show compliance was or was not obtained in accordance with approved methods and procedures of this part and is representative of plant performance.

(3) The minimum data requirements have or have not been met; or, the minimum data requirements have not been met for errors that were unavoidable.

(4) Compliance with the standards has or has not been achieved during the reporting period.

(h) For the purposes of the reports required under § 60.7, periods of excess emissions are defined as all 6-minute periods during which the average opacity exceeds the applicable opacity standards under § 60.42a(b). Opacity levels in excess of the applicable opacity standard and the date of such excesses are to be submitted to the Administrator each calendar quarter.

(i) The owner or operator of an affected facility shall submit the written reports required under this section and subpart A to the Administrator for every calendar quarter. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.

Subpart Db—Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

SOURCE: 52 FR 47842, Dec. 16, 1987, unless otherwise noted.

§ 60.40b Applicability and delegation of authority.

(a) The affected facility to which this subpart applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu/hour).

(b) Any affected facility meeting the applicability requirements under paragraph (a) of this section and commencing construction, modification, or reconstruction after June 19, 1984, but on or before June 19, 1986, is subject to the following standards:

(1) Coal-fired affected facilities having a heat input capacity between 29 and 73 MW (100 and 250 million Btu/hour), inclusive, are subject to the particulate matter and nitrogen oxides standards under this subpart.

(2) Coal-fired affected facilities having a heat input capacity greater than 73 MW (250 million Btu/hour) and meeting the applicability requirements under Subpart D (Standards of performance for fossil-fuel-fired steam generators; § 60.40) are subject to the particulate matter and nitrogen oxides standards under this subpart and to the sulfur dioxide standards under Subpart D (§ 60.43).

(3) Oil-fired affected facilities having a heat input capacity between 29 and 73 MW (100 and 250 million Btu/hour), inclusive, are subject to the nitrogen oxides standards under this subpart.

(4) Oil-fired affected facilities having a heat input capacity greater than 73 MW (250 million Btu/hour) and meeting the applicability requirements under Subpart D (Standards of performance for fossil-fuel-fired steam generators; § 60.40) are also subject to the nitrogen oxides standards under this subpart and the particulate matter and sulfur dioxide standards under Subpart D (§ 60.42 and § 60.43).

(c) Affected facilities which also meet the applicability requirements under Subpart J (Standards of performance for petroleum refineries; § 60.104) are subject to the particulate matter and nitrogen oxides standards under this subpart and the sulfur dioxide standards under Subpart J (§ 60.104).

(d) Affected facilities which also meet the applicability requirements under Subpart E (Standards of performance for incinerators; § 60.50) are subject to the nitrogen oxides and particulate matter standards under this subpart.

(e) Steam generating units meeting the applicability requirements under Subpart Da (Standards of performance for electric utility steam generating units; § 60.40a) are not subject to this subpart.

(f) Any change to an existing steam generating unit for the sole purpose of combusting gases containing TRS as defined under § 60.281 is not considered a modification under § 60.14 and the steam generating unit is not subject to this subpart.

(g) In delegating implementation and enforcement authority to a State under section 111(c) of the Act, the following authorities shall be retained by the Administrator and not transferred to a State.

(1) Section 60.44b(f).

(2) Section 60.44b(g).

(3) Section 60.49b(a)(4).

§ 60.41b Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this part.

"Annual capacity factor" means the ratio between the actual heat input to a steam generating unit from the fuels listed in § 60.42b(a), § 60.43b(a), or § 60.44b(a), as applicable, during a calendar year and the potential heat input to the steam generating unit had it been operated for 8,760 hours during a calendar year at the maximum steady state design heat input capacity. In the case of steam generating units that are rented or leased, the actual heat input shall be determined based on the combined heat input from all operations of the affected facility in a calendar year.

"Byproduct/waste" means any liquid or gaseous substance produced at chemical manufacturing plants or petroleum refineries (except natural gas, distillate oil, or residual oil) and combusted in a steam generating unit for heat recovery or for disposal. Gaseous substances with carbon dioxide levels greater than 50 percent or carbon monoxide levels greater than 10 percent are not byproduct/waste for the purposes of this subpart.

"Chemical manufacturing plants" means industrial plants which are classified by the Department of Commerce under Standard Industrial Classification (SIC) Code 28.

"Coal" means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American Society of Testing and Materials in ASTM D388-77, Standard Specification for Classification of Coals by Rank (IBR—see § 60.17), coal refuse, and petroleum coke. Coal-derived synthetic fuels, including but not limited to solvent refined coal, gasified coal, coal-oil mixtures, and coal-water mixtures, are also included in this definition for the purposes of this subpart.

"Coal refuse" means any byproduct of coal mining or coal cleaning operations with an ash content greater than 50 percent, by weight, and a heating value less than 13,900 kJ/kg (6,000 Btu/lb) on a dry basis.

"Combined cycle system" means a system in which a separate source, such as a gas turbine, internal combustion engine, kiln, etc., provides exhaust gas to a heat recovery steam generating unit.

"Conventional technology" means wet flue gas desulfurization (FGD) technology, dry FGD technology, atmospheric fluidized bed combustion technology, and oil hydrodesulfurization technology.

"Distillate oil" means fuel oils that contain 0.05 weight percent nitrogen or less and comply with the specifications for fuel oil numbers 1 and 2, as defined by the American Society of Testing and Materials in ASTM D396-78, Standard Specifications for Fuel emissions data are not available, the owner or operator of the affected facility shall submit a signed statement indicating if any changes were made in operation of the emission control system during the period of data unavailability. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of data unavailability.

(g) The owner or operator of the affected facility shall submit a signed statement indicating whether:

(1) The required continuous monitoring system calibration, span, and drift checks or other periodic audits have or have not been performed as specified.

(2) The data used to show compliance was or was not obtained in accordance with approved methods and procedures of this part and is representative of plant performance.

(3) The minimum data requirements have or have not been met; or, the minimum data requirements have not been met for errors that were unavoidable.

(4) Compliance with the standards has or has not been achieved during the reporting period.

(h) For the purposes of the reports required under § 60.7, periods of excess emissions are defined as all 6-minute periods during which the average opacity exceeds the applicable opacity standards under § 60.42a(b). Opacity levels in excess of the applicable opacity standard and the date of such excesses are to be submitted to the Administrator each calendar quarter.

(i) The owner or operator of an affected facility shall submit the written reports required under this section and subpart A to the Administrator for every calendar quarter. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.

Subpart Db—Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

Source: 52 FR 47842, Dec. 16, 1987, unless otherwise noted.

§ 60.40b Applicability and delegation of authority.

(a) The affected facility to which this subpart applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu/hour).

(b) Any affected facility meeting the applicability requirements under paragraph (a) of this section and commencing construction, modification, or reconstruction after June 19, 1984, but on or before June 19, 1986, is subject to the following standards:

(1) Coal-fired affected facilities having a heat input capacity between 29 and 73 MW (100 and 250 million Btu/hour), inclusive, are subject to the particulate matter and nitrogen oxides standards under this subpart.

(2) Coal-fired affected facilities having a heat input capacity greater than 73 MW (250 million Btu/hour) and meeting the applicability requirements under Subpart D (Standards of performance for fossil-fuel-fired steam generators; § 60.40) are subject to the particulate matter and nitrogen oxides standards under this subpart and to the sulfur dioxide standards under Subpart D (§ 60.43).

(3) Oil-fired affected facilities having a heat input capacity between 29 and 73 MW (100 and 250 million Btu/hour), inclusive, are subject to the nitrogen oxides standards under this subpart.

(4) Oil-fired affected facilities having a heat input capacity greater than 73 MW (250 million Btu/hour) and meeting the applicability requirements under Subpart D (Standards of performance for fossil-fuel-fired steam generators; § 60.40) are also subject to the nitrogen oxides standards under this subpart and the particulate matter and sulfur dioxide standards under Subpart D (§ 60.42 and § 60.43).

(c) Affected facilities which also meet the applicability requirements under Subpart J (Standards of performance for petroleum refineries; § 60.104) are subject to the particulate matter and nitrogen oxides standards under this subpart and the sulfur dioxide standards under Subpart J (§ 60.104).

(d) Affected facilities which also meet the applicability requirements under Subpart E (Standards of performance for incinerators; § 60.50) are subject to the nitrogen oxides and particulate matter standards under this subpart.

(e) Steam generating units meeting the applicability requirements under Subpart Da (Standards of performance for electric utility steam generating units; § 60.40a) are not subject to this subpart.

(f) Any change to an existing steam generating unit for the sole purpose of combusting gases containing TRS as defined under § 60.281 is not considered a modification under § 60.14 and the steam generating unit is not subject to this subpart.

(g) In delegating implementation and enforcement authority to a State under section 111(c) of the Act, the following authorities shall be retained by the Administrator and not transferred to a State.

(1) Section 60.44b(f).

(2) Section 60.44b(g).

(3) Section 60.49b(a)(4).

§ 60.41b Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this part.

"Annual capacity factor" means the ratio between the actual heat input to a steam generating unit from the fuels listed in § 60.42b(a), § 60.43b(a), or § 60.44b(a), as applicable, during a calendar year and the potential heat input to the steam generating unit had it been operated for 8,760 hours during a calendar year at the maximum steady state design heat input capacity. In the case of steam generating units that are rented or leased, the actual heat input shall be determined based on the combined heat input from all operations of the affected facility in a calendar year.

"Byproduct/waste" means any liquid or gaseous substance produced at chemical manufacturing plants or petroleum refineries (except natural gas, distillate oil, or residual oil) and combusted in a steam generating unit for heat recovery or for disposal. Gaseous substances with carbon dioxide levels greater than 50 percent or carbon monoxide levels greater than 10 percent are not byproduct/waste for the purposes of this subpart.

"Chemical manufacturing plants" means industrial plants which are classified by the Department of Commerce under Standard Industrial Classification (SIC) Code 28.

"Coal" means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American Society of Testing and Materials in ASTM D388-77, Standard Specification for Classification of Coals by Rank (IBR—see § 60.17), coal refuse, and petroleum coke. Coal-derived synthetic fuels, including but not limited to solvent refined coal, gasified coal, coal-oil mixtures, and coal-water mixtures, are also included in this definition for the purposes of this subpart.

"Coal refuse" means any byproduct of coal mining or coal cleaning operations with an ash content greater than 50 percent, by weight, and a heating value less than 13,900 kJ/kg (6,000 Btu/lb) on a dry basis.

"Combined cycle system" means a system in which a separate source, such as a gas turbine, internal combustion engine, kiln, etc., provides exhaust gas to a heat recovery steam generating unit.

"Conventional technology" means wet flue gas desulfurization (FGD) technology, dry FGD technology, atmospheric fluidized bed combustion technology, and oil hydrodesulfurization technology.

"Distillate oil" means fuel oils that contain 0.05 weight percent nitrogen or less and comply with the specifications for fuel oil numbers 1 and 2, as defined by the American Society of Testing and Materials in ASTM D396-78, Standard Specifications for Fuel

Oils (incorporated by reference—see § 60.17).

"Dry flue gas desulfurization technology" means a sulfur dioxide control system that is located downstream of the steam generating unit and removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline slurry or solution and forming a dry powder material. This definition includes devices where the dry powder material is subsequently converted to another form. Alkaline slurries or solutions used in dry flue gas desulfurization technology include but are not limited to lime and sodium.

"Duct burner" means a device that combusts fuel and that is placed in the exhaust duct from another source, such as a stationary gas turbine, internal combustion engine, kiln, etc., to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a heat recovery steam generating unit.

"Emerging technology" means any sulfur dioxide control system that is not defined as a conventional technology under this section, and for which the owner or operator of the facility has applied to the Administrator and received approval to operate as an emerging technology under § 60.49b(a)(4).

"Federally enforceable" means all limitations and conditions that are enforceable by the Administrator, including the requirements of 40 CFR Parts 60 and 61, requirements within any applicable State Implementation Plan, and any permit requirements established under 40 CFR 52.21 or under 40 CFR 51.18 and 40 CFR 51.24.

"Fluidized bed combustion technology" means combustion of fuel in a bed or series of beds (including but not limited to bubbling bed units and circulating bed units) of limestone aggregate (or other sorbent materials) in which these materials are forced upward by the flow of combustion air and the gaseous products of combustion.

"Fuel pretreatment" means a process that removes a portion of the sulfur in a fuel before combustion of the fuel in a steam generating unit.

"Full capacity" means operation of the steam generating unit at 90 percent or more of the maximum steady-state design heat input capacity.

"Heat input" means heat derived from combustion of fuel in a steam generating unit and does not include the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines, kilns, etc.

"Heat release rate" means the steam generating unit design heat input capacity (in MW or Btu/hour) divided by the furnace volume (in cubic meters or cubic feet); the furnace volume is that volume bounded by the front furnace wall where the burner is located, the furnace side waterwall, and extending to the level just below or in front of the first row of convection pass tubes.

"Heat transfer medium" means any material that is used to transfer heat from one point to another point.

"High heat release rate" means a heat release rate greater than 730,000 J/sec-m^3 (70,000 Btu/hour-ft^3).

"Lignite" means a type of coal classified as lignite A or lignite B by the American Society of Testing and Materials in ASTM D388-77, Standard Specification for Classification of Coals by Rank (IBR—see § 60.17).

"Low heat release rate" means a heat release rate of 730,000 J/sec-m^3 (70,000 Btu/hour-ft^3) or less.

"Mass feed stoker steam generating unit" means a steam generating unit where solid fuel is introduced directly into a retort or is fed directly onto a grate where it is combusted.

"Maximum heat input capacity" means the ability of a steam generating unit to combust a stated maximum amount of fuel on a steady state basis, as determined by the physical design and characteristics of the steam generating unit.

"Municipal-type solid waste" means refuse, more than 50 percent of which is waste consisting of a mixture of paper, wood, yard wastes, food wastes, plastics, leather, rubber, and other combustible materials, and noncombustible materials such as glass and rock.

"Natural gas" means (1) a naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal constituent is methane; or (2) liquid petroleum gas, as defined by the American Society for Testing and Materials in ASTM D1835-82, "Standard Specification for Liquid Petroleum Gases" (IBR—see § 60.17).

"Noncontinental area" means the State of Hawaii, the Virgin Islands, Guam, American Samoa, the Commonwealth of Puerto Rico, or the Northern Mariana Islands.

"Oil" means crude oil or petroleum or a liquid fuel derived from crude oil or petroleum, including distillate and residual oil.

"Petroleum refinery" means industrial plants as classified by the Department of Commerce under Standard Industrial Classification (SIC) Code 29.

"Potential sulfur dioxide emission rate" means the theoretical sulfur dioxide emissions (ng/J, lb/million Btu heat input) that would result from combusting fuel in an uncleaned state and without using emission control systems.

"Process heater" means a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst.

"Pulverized coal-fired steam generating unit" means a steam generating unit in which pulverized coal is introduced into an air stream that carries the coal to the combustion chamber of the steam generating unit where it is fired in suspension. This includes both conventional pulverized coal-fired and micropulverized coal-fired steam generating units.

"Residual oil" means crude oil, fuel oil numbers 1 and 2 that have a nitrogen content greater than 0.05 weight percent, and all fuel oil numbers 4, 5 and 6, as defined by the American Society of Testing and Materials in ASTM D396-78, Standard Specifications for Fuel Oils (IBR—see § 60.17).

"Spreader stoker steam generating unit" means a steam generating unit in which solid fuel is introduced to the combustion zone by a mechanism that throws the fuel onto a grate from above. Combustion takes place both in suspension and on the grate.

"Steam generating unit" means a device that combusts any fuel or byproduct/waste to produce steam or to heat water or any other heat transfer medium. This term includes any municipal-type solid waste incinerator with a heat recovery steam generating unit or any steam generating unit that combusts fuel and is part of a cogeneration system or a combined cycle system. This term does not include process heaters as they are defined in this subpart.

"Steam generating unit operating day" means a 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time in the steam generating unit. It is not necessary for fuel to be combusted continuously for the entire 24-hour period.

"Very low sulfur oil" means a distillate oil or residual oil that when combusted without post combustion SO_2 control has an SO_2 emission rate equal to or less than 130 ng/J (0.30 lb SO_2/million Btu).

"Wet flue gas desulfurization technology" means a sulfur dioxide control system that is located downstream of the steam generating unit and removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gas with an alkaline slurry or solution and forming a liquid material. This definition applies to devices where the aqueous liquid material product of this contact is subsequently converted to other forms. Alkaline reagents used in wet flue gas desulfurization technology include, but are not limited to, lime, limestone, and sodium.

"Wet scrubber system" means any emission control device that mixes an aqueous stream or slurry with the exhaust gases from a steam generating unit to control emissions of particulate matter or sulfur dioxide.

"Wood" means wood, wood residue, bark, or any derivative fuel or residue thereof, in any form, including, but not limited to, sawdust, sanderdust, wood chips, scraps, slabs, millings, shavings, and processed pellets made from wood or other forest residues.

§ 60.42b Standard for sulfur dioxide.

(a) Except as provided in paragraphs (b), (c), or (d) of this section, on and after the date on which the performance test is completed or required to be completed under § 60.8 of this part, whichever date comes first, no owner or operator of an affected facility that combusts coal or oil shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of 10 percent (0.10) of the potential sulfur dioxide emission rate (90 percent reduction) and that contain sulfur dioxide in excess of the emission limit determined according to the following formula:

$$E_s = (K_a H_a + K_b H_b)/(H_a + H_b)$$

where:

E_s is the sulfur dioxide emission limit, in ng/J or lb/million Btu heat input,
K_a is 520 ng/J (or 1.2 lb/million Btu),
K_b is 340 ng/J (or 0.80 lb/million Btu),
H_a is the heat input from the combustion of coal, in J (million Btu),
H_b is the heat input from the combustion of oil, in J (million Btu).

Only the heat input supplied to the affected facility from the combustion of coal and oil is counted under this section. No credit is provided for the heat input to the affected facility from the combustion of natural gas, wood, municipal-type solid waste, or other fuels or heat input to the affected facility from exhaust gases from another source, such as gas turbines, internal combustion engines, kilns, etc.

(b) On and after the date on which the performance test is completed or required to be completed under § 60.8 of this part, whichever comes first, no owner or operator of an affected facility that combusts coal refuse alone in a fluidized bed combustion steam generating unit shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of 20 percent of the potential sulfur dioxide emission rate (80 percent reduction) and that contain sulfur dioxide in excess of 520 ng/J (1.2 lb/million Btu) heat input. If coal or oil is fired with coal refuse, the affected facility is subject to paragraph (a) or (d) of this section, as applicable.

(c) On and after the date on which the performance test is completed or is required to be completed under § 60.8 of this part, whichever comes first, no owner or operator of an affected facility that combusts coal or oil, either alone or in combination with any other fuel, and that uses an emerging technology for the control of sulfur dioxide emissions, shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of 50 percent of the potential sulfur dioxide emission rate (50 percent reduction) and that contain sulfur dioxide in excess of the emission limit determined according to the following formula:

$$E_s = (K_c H_c + K_d H_d)/(H_c + H_d)$$

where:

E_s is the sulfur dioxide emission limit, expressed in ng/J (lb/million Btu) heat input,
K_c is 260 ng/J (0.60 lb/million Btu),
K_d is 170 ng/J (0.40 lb/million Btu),
H_c is the heat input from the combustion of coal, J (million Btu),
H_d is the heat input from the combustion of oil, J (million Btu).

Only the heat input supplied to the affected facility from the combustion of coal and oil is counted under this section. No credit is provided for the heat input to the affected facility from the combustion of natural gas, wood, municipal-type solid waste, or other fuels, or from the heat input to the affected facility from exhaust gases from another source, such as gas turbines, internal combustion engines, kilns, etc.

(d) On and after the date on which the performance test is completed or required to be completed under § 60.8 of this part, whichever comes first, no owner or operator of an affected facility listed in paragraphs (d) (1), (2), (3), or (4) of this section shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of 520 ng/J (1.2 lb/million Btu) heat input if the affected facility combusts coal, or 130 ng/J (0.30 lb/million Btu) heat input if the affected facility combusts oil. Percent reduction requirements are not applicable to affected facilities under this paragraph:

(1) Affected facilities that have an annual capacity factor for coal and oil of 30 percent (0.30) or less and are subject to a federally enforceable permit limiting the operation of the affected facility to an annual capacity factor for coal and oil to 30 percent (0.30) or less;

(2) Affected facilities located in a noncontinental area;

(3) Affected facilities combusting coal or oil, alone or in combination with any other fuel, in a duct burner as part of a combined cycle system where 30 percent (0.30) or less of the heat input to the steam generating unit is from combustion of coal and oil in the duct burner and 70 percent (0.70) or more of the heat input to the steam generating unit is from the exhaust gases entering the duct burner; or

(4) Affected facilities combusting very low sulfur oil.

(e) Except as provided in paragraph (f) of this section, compliance with the emission limit(s) and percent reduction requirements under this section are determined on a 30-day rolling average basis.

(f) Compliance with the emission limits under this section are determined on a 24-hour average basis for affected facilities which (1) have a federally enforceable permit limiting the annual capacity factor for oil to 10 percent or less, (2) combust only oil which emits less than 130 ng/J (0.3 lb SO_2/million Btu), and (3) do not combust any other fuel.

(g) Except as provided in paragraph (i) of this section, the sulfur dioxide emission limits and percent reduction requirements under this section apply at all times, including periods of startup, shutdown, and malfunction.

(h) Reductions in the potential sulfur dioxide emission rate through fuel pretreatment are not credited toward the percent reduction requirement under paragraph (c) of this section unless:

(1) Fuel pretreatment results in a 50 percent or greater reduction in potential sulfur dioxide emissions and

(2) Emissions from the pretreated fuel (without combustion or post combustion sulfur dioxide control) are equal to or less than the emission limits specified in paragraph (c) of this section.

(i) An affected facility subject to paragraph (a), (b), or (c) of this section may combust very low sulfur oil or natural gas when the sulfur dioxide control system is not being operated because of malfunction or maintenance of the sulfur dioxide control system.

§ 60.43b Standard for particulate matter.

(a) On and after the date on which the initial performance test is completed or is required to be completed under § 60.8 of this part, whichever comes first, no owner or operator of an affected facility which combusts coal or combusts mixtures of coal with other fuels, shall cause to be discharged into the atmosphere from that affected facility any gases that contain particulate matter in excess of the following emission limits:

(1) 22 ng/J (0.05 lb/million Btu) heat input,

(i) If the affected facility combusts only coal, or

(ii) If the affected facility combusts coal and other fuels and has an annual capacity factor for the other fuels of 10 percent (0.10) or less.

(2) 43 ng/J (0.10 lb/million Btu) heat input if the affected facility combusts coal and other fuels and has an annual capacity factor for the other fuels greater than 10 percent (0.10) and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor greater than 10 percent (0.10) for fuels other than coal.

(3) 86 ng/J (0.20 lb/million Btu) heat input if the affected facility combusts coal or coal and other fuels and

(i) Has an annual capacity factor for coal or coal and other fuels of 30 percent (0.30) or less,

(ii) Has a maximum heat input capacity of 73 MW (250 million Btu/hour) or less,

(iii) Has a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor of 30 percent (0.30) or less for coal or coal and other solid fuels, and

(iv) Construction of the affected facility commenced after June 19, 1984, and before November 25, 1986.

(b) On and after the date on which the performance test is completed or required to be completed under § 60.8 of this part, whichever date comes first, no owner or operator of an affected facility that combusts oil or that combusts mixtures of oil with other fuels shall cause to be discharged into the atmosphere from that affected facility any gases that contain particulate matter in excess of 43 ng/J (0.10 lb/million Btu) heat input.

(c) On and after the date on which the initial performance test is completed or is required to be completed under § 60.8 of this part, whichever date comes first, no owner or operator of an affected facility that combusts wood, or wood with other fuels, except coal, shall cause to be discharged from that affected facility any gases that contain particulate matter in excess of the following emission limits:

(1) 43 ng/J (0.10 lb/million Btu) heat input if the affected facility has an annual capacity factor greater than 30 percent (0.30) for wood.

(2) 86 ng/J (0.20 lb/million Btu) heat input if

(i) The affected facility has an annual capacity factor of 30 percent (0.30) or less for wood,

(ii) Is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor of 30 percent (0.30) or less for wood, and

(iii) Has a maximum heat input capacity of 73 MW (250 million Btu/hour) or less.

(d) On and after the date on which the initial performance test is completed or is required to be completed under § 60.8 of this part, whichever date comes first, no owner or operator of an affected facility that combusts municipal-type solid waste or mixtures of municipal-type solid waste with other fuels, shall cause to be discharged into the atmosphere from that affected facility any gases that contain particulate matter in excess of the following emission limits:

(1) 43 ng/J (0.10 lb/million Btu) heat input,

(i) If the affected facility combusts only municipal type solid waste, or

(ii) If the affected facility combusts municipal type solid waste and other fuels and has an annual capacity factor for the other fuels of 10 percent (0.10) or less

(2) 86 ng/J (0.20 lb/million Btu) heat input if the affected facility combusts municipal-type solid waste or municipal-type solid waste and other fuels; and

(i) Has an annual capacity factor for municipal-type solid waste and other fuels of 30 percent (0.30) or less,

(ii) Has a maximum heat input capacity of 73 MW (250 million Btu/hour) or less,

(iii) Has a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor of 30 percent (0.30) for municipal-type solid waste, or municipal-type solid waste and other fuels, and

(iv) Construction of the affected facility commenced after June 19, 1984, but before November 25, 1986.

(e) For the purposes of this section, the annual capacity factor is determined by dividing the actual heat input to the steam generating unit during the calendar year from the combustion of coal, wood, or municipal-type solid waste, and other fuels, as applicable, by the potential heat input to the steam generating unit if the steam generating unit had been operated for 8,760 hours at the maximum design heat input capacity.

(f) On and after the date on which the initial performance test is completed or is required to be completed under § 60.8 of this part, whichever date comes first, no owner or operator of an affected facility subject to the particulate matter emission limits under paragraph (a), (b) or (c) of this section shall cause to be discharged into the atmosphere any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity.

(g) The particulate matter and opacity standards apply at all times, except during periods of startup, shutdown or malfunction.

§ 60.44b Standard for nitrogen oxides.

(a) On and after the date on which the initial performance test is completed or is required to be completed under § 60.8 of this part, whichever date comes first, no owner or operator of an affected facility that is subject

to the provisions of this section and that combusts only coal, oil, or natural gas shall cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides (expressed as NO_2) in excess of the following emission limits:

Fuel/Steam generating unit type	Nitrogen oxide emission limits ng/J (lb/million Btu) (expressed as NO_2) heat input
(1) Natural gas and distillate oil, except (4):	
(i) Low heat release rate	43 (0.10)
(ii) High heat release rate	86 (0.20)
(2) Residual oil:	
(i) Low heat release rate	130 (0.30)
(ii) High heat release rate	170 (0.40)
(3) Coal:	
(i) Mass-feed stoker	210 (0.50)
(ii) Spreader stoker and fluidized bed combustion	260 (0.60)
(iii) Pulverized coal	300 (0.70)
(iv) Lignite, except (v)	260 (0.60)
(v) Lignite mined in North Dakota, South Dakota, or Montana and combusted in a slag tap furnace	340 (0.80)
(vi) Coal-derived synthetic fuels	210 (0.50)
(4) Duct burner used in a combined cycle system:	
(i) Natural gas and distillate oil	86 (0.20)
(ii) Residual oil	170 (0.40)

(b) On and after the date on which the initial performance test is completed or is required to be completed under § 60.8 of this part, whichever date comes first, no owner or operator of an affected facility that simultaneously combusts mixtures of coal, oil, or natural gas shall cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides in excess of a limit determined by use of the following formula:

$$E_n = [(EL_{go}\ H_{go}) + (EL_{ro}\ H_{ro}) + (EL_c\ H_c)]/(H_{go} + H_{ro} + H_c)$$

where:

E_n is the nitrogen oxides emission limit (expressed as NO_2), ng/J (lb/million Btu)

EL_{go} is the appropriate emission limit from paragraph (a)(1) for combustion of natural gas or distillate oil, ng/J (lb/million Btu)

H_{go} is the heat input from combustion of natural gas or distillate oil,

EL_{ro} is the appropriate emission limit from paragraph (a)(2) for combustion of residual oil,

H_{ro} is the heat input from combustion of residual oil,

EL_c is the appropriate emission limit from paragraph (a)(3) for combustion of coal, and

H_c is the heat input from combustion of coal.

(c) On and after the date on which the initial performance test is completed or is required to be completed under § 60.8 of this part, whichever comes first, no owner or operator of an affected facility that simultaneously combusts coal or oil, or a mixture of these fuels with natural gas, and wood, municipal-type solid waste, or any other fuel shall cause to be discharged into the atmosphere any gases that contain nitrogen oxides in excess of the emission limit for the coal or oil, or mixture of these fuels with natural gas combusted in the affected facility, as determined pursuant to paragraph (a) or (b) of this section, unless the affected facility has an annual capacity factor for coal or oil, or mixture of these fuels with natural gas of 10 percent (0.10) or less and is subject to a federally enforceable requirement that limits operation of the facility to an annual capacity factor of 10 percent (0.10) or less for coal, oil, or a mixture of these fuels with natural gas.

(d) On and after the date on which the initial performance test is completed or is required to be completed under § 60.8 of this part, whichever date comes first, no owner or operator of an affected facility that simultaneously combusts natural gas with wood, municipal-type solid waste, or other solid fuel, except coal, shall cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides in excess of 130 ng/J (0.30 lb/million Btu) heat input unless the affected facility has an annual capacity factor for natural gas of 10 percent (0.10) or less and is subject to a federally enforceable requirement that limits operation of the affected facility to an annual capacity factor of 10 percent (0.10) or less for natural gas.

(e) On and after the date on which the initial performance test is completed or is required to be completed under § 60.8 of this part, whichever date comes first, no owner or operator of an affected facility that simultaneously combusts coal, oil, or natural gas with byproduct/waste shall cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides in excess of an emission limit determined by the following formula unless the affected facility has an annual capacity factor for coal, oil, and natural gas of 10 percent (0.10) or less and is subject to a federally enforceable requirement which limits operation of the affected facility to an annual capacity factor of 10 percent (0.10) or less:

$$E_n = [(EL_{go}\ H_{go}) + (EL_{ro}\ H_{ro}) + (EL_c\ H_c)] / (H_{go} + H_{ro} + H_c)$$

where:

E_n is the nitrogen oxides emission limit (expressed as NO_2), ng/J (lb/million Btu)

EL_{go} is the appropriate emission limit from paragraph (a)(1) for combustion of natural gas or distillate oil, ng/J (lb/million Btu).

H_{go} is the heat input from combustion of natural gas, distillate oil and gaseous byproduct/waste, ng/J (lb/million Btu).

EL_{ro} is the appropriate emission limit from paragraph (a)(2) for combustion of residual oil, ng/J (lb/million Btu)

H_{ro} is the heat input from combustion of residual oil and/or liquid byproduct/waste.

EL_c is the appropriate emission limit from paragraph (a)(3) for combustion of coal, and

H_c is the heat input from combustion of coal.

(f) Any owner or operator of an affected facility that combusts byproduct/waste with either natural gas or oil may petition the Administrator within 180 days of the initial startup of the affected facility to establish a nitrogen oxides emission limit which shall apply specifically to that affected facility when the byproduct/waste is combusted. The petition shall include sufficient and appropriate data, as determined by the Administrator, such as nitrogen oxides emissions from the affected facility, waste composition (including nitrogen content), and combustion conditions to allow the Administrator to confirm that the affected facility is unable to comply with the emission limits in paragraph (e) of this section and to determine the appropriate emission limit for the affected facility.

(1) Any owner or operator of an affected facility petitioning for a facility-specific nitrogen oxides emission limit under this section shall:

(i) Demonstrate compliance with the emission limits for natural gas and distillate oil in paragraph (a)(1) of this section or for residual oil in paragraph (a)(2) of this section, as appropriate, by conducting a 30-day performance test as provided in § 60.46b(e). During the performance test only natural gas, distillate oil, or residual oil shall be combusted in the affected facility; and

(ii) Demonstrate that the affected facility is unable to comply with the emission limits for natural gas and distillate oil in paragraph (a)(1) of this section or for residual oil in paragraph (a)(2) of this section, as appropriate, when gaseous or liquid byproduct/waste is combusted in the affected facility under the same conditions and using the same technological system of emission reduction applied when demonstrating compliance under paragraph (f)(1)(i) of this section.

(2) The nitrogen oxides emission limits for natural gas or distillate oil in paragraph (a)(1) of this section or for residual oil in paragraph (a)(2) of this section, as appropriate, shall be applicable to the affected facility until and unless the petition is approved by the Administrator. If the petition is approved by the Administrator, a facility-specific nitrogen oxides emission limit will be established at the nitrogen oxides emission level achievable when the affected facility is combusting oil or natural gas and byproduct/waste in a manner that the Administrator determines to be consistent with minimizing nitrogen oxides emissions.

(g) Any owner or operator of an affected facility that combusts hazardous waste (as defined by 40 CFR Part 261 or 40 CFR Part 761) with natural gas or oil may petition the Administrator within 180 days of the initial startup of the affected facility for a waiver from compliance with the nitrogen oxides emission limit which applies specifically to that affected facility. The petition must include sufficient and appropriate data, as determined by the Administrator, on nitrogen oxides emissions from the affected facility, waste destruction efficiencies, waste composition (including nitrogen content), the quantity of specific wastes to be combusted and combustion conditions to allow the Administrator to determine if the affected facility is able to comply with the nitrogen oxides emission limits required by this section. The owner or operator of the affected facility shall demonstrate that when hazardous waste is combusted in the affected facility, thermal destruction efficiency requirements for hazardous waste specified in an applicable federally enforceable requirement preclude compliance with the nitrogen oxides emission limits of this section. The nitrogen oxides emission limits for natural gas or distillate oil in paragraph (a)(1) of this section or for residual oil in paragraph (a)(2) of this section, as appropriate, are applicable to the affected facility until and unless the petition is approved by the Administrator. (See 40 CFR 761.70 for regulations applicable to the incineration of materials containing polychlorinated biphenyls (PCB's).)

(h) The nitrogen oxide standards under this section apply at all times including periods of startup, shutdown or malfunction.

§ 60.45b Compliance and performance test methods and procedures for sulfur dioxide.

(a) The sulfur dioxide emission standards under § 60.42b apply at all times.

(b) In conducting the performance tests required under § 60.8, the owner or operator shall use the methods and procedures in Appendix A of this part or the method and procedures as specified in this section, except as provided in § 60.8(b). Section 60.8(f) does not apply to this subpart. The 30-day notice required in § 60.8(d) applies only to the initial performance test unless otherwise specified by the Administrator.

(c) The owner or operator of an affected facility shall conduct performance tests to determine compliance with the percent of potential sulfur dioxide emission rate (% P_s) and the sulfur dioxide emission rate (E_s) pursuant to § 60.42b following the procedures listed below, except as provided under paragraph (d) of this section.

(1) The initial performance test shall be conducted over the first 30 consecutive operating days of the steam generating unit. Compliance with the sulfur dioxide standards shall be determined using a 30-day average. The first operating day included in the initial performance test shall be scheduled within 30 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility.

(2) If only coal or only oil is combusted, the following procedures are used:

(i) The procedures in Method 19 are used to determine the hourly sulfur dioxide emission rate (E_{ho}) and the 30-day average emission rate (E_{ao}). The hourly averages used to compute the 30-day averages are obtained from the continuous emission monitoring system of § 60.47b (a) or (b).

(ii) The percent of potential sulfur dioxide emission rate (% P_s) emitted to the atmosphere is computed using the following formula:

$$\% P_s = 100 (1 - \% R_g/100)(1 - \% R_f/100)$$

where:

% R_g is the sulfur dioxide removal efficiency of the control device as determined by Method 19, in percent.

% R_f is the sulfur dioxide removal efficiency of fuel pretreatment as determined by Method 19, in percent.

(3) If coal or oil is combusted with other fuels, the same procedures required in paragraph (c)(2) of this section are used, except as provided in the following:

(i) An adjusted hourly sulfur dioxide emission rate ($E_{ho}{^\circ}$) is used in Equation 19-19 of Method 19 to compute an adjusted 30-day average emission rate ($E_{ao}{^\circ}$). The E_{ho} is computed using the following formula:

$$E_{ho}{^\circ} = [E_{ho} - E_w(1 - X_k)]/X_k$$

where:

$E_{ho}{^\circ}$ is the adjusted hourly sulfur dioxide emission rate, ng/J (lb/million Btu).

E_{ho} is the hourly sulfur dioxide emission rate, ng/J (lb/million Btu).

E_w is the sulfur dioxide concentration in fuels other than coal and oil combusted in the affected facility, as determined by the fuel sampling and analysis procedures in Method 19, ng/J (lb/million Btu). The value E_w for each fuel lot is used for each hourly average during the time that the lot is being combusted.

X_k is the fraction of total heat input from fuel combustion derived from coal, oil, or coal and oil, as determined by applicable procedures in Method 19.

(ii) To compute the percent of potential sulfur dioxide emission rate (% P_s), an adjusted % R_g (% R_g°) is computed from the adjusted E_{ao}° from paragraph (b)(3)(i) of this section and an adjusted average sulfur dioxide inlet rate (E_{ai}°) using the following formula:

$$\% R_g^\circ = 100\,(1.0 - E_{ao}^\circ / E_{ai}^\circ)$$

To compute E_{ai}°, an adjusted hourly sulfur dioxide inlet rate (E_{hi}°) is used. The E_{hi}° is computed using the following formula:

$$E_{hi}^\circ = [E_{hi} - E_w(1 - X_k)]/X_k$$

where:

E_{hi}° is the adjusted hourly sulfur dioxide inlet rate, ng/J (lb/million Btu).

E_{hi} is the hourly sulfur dioxide inlet rate, ng/J (lb/million Btu).

(4) The owner or operator of an affected facility subject to paragraph (b)(3) of this section does not have to measure parameters E_w or X_k if the owner or operator elects to assume that $X_k = 1.0$. Owners or operators of affected facilities who assume $X_k = 1.0$ shall

(i) Determine % P_s following the procedures in paragraph (c)(2) of this section, and

(ii) Sulfur dioxide emissions (E_s) are considered to be in compliance with sulfur dioxide emission limits under § 60.42b.

(5) The owner or operator of an affected facility that qualifies under the provisions of § 60.42b(d) does not have to measure parameters E_w or X_k under paragraph (b)(3) of this section if the owner or operator of the affected facility elects to measure sulfur dioxide emission rates of the coal or oil following the fuel sampling and analysis procedures under Method 19.

(d) The owner or operator of an affected facility that combusts only oil emitting less than 130 ng/J (0.3 lb/million Btu) SO_2, has an annual capacity factor for oil of 10 percent (0.10) or less, and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity for oil of 10 percent (0.10) or less shall:

(1) Conduct the initial performance test over 24 consecutive steam generating unit operating hours at full load;

(2) Determine compliance with the standards after the initial performance test based on the arithmetic average of the hourly emissions data during each steam generating unit operating day if a continuous emission measurement system (CEMS) is used, or based on a daily average if Method 6B or fuel sampling and analysis procedures under Method 19 are used.

(e) The owner or operator of an affected facility subject to § 60.42b(d)(1) shall demonstrate the maximum design capacity of the steam generating unit by operating the facility at maximum capacity for 24 hours. This demonstration will be made during the initial performance test and a subsequent demonstration may be requested at any other time. If the 24-hour average firing rate for the affected facility is less than the maximum design capacity provided by the manufacturer of the affected facility, the 24-hour average firing rate shall be used to determine the capacity utilization rate for the affected facility, otherwise the maximum design capacity provided by the manufacturer is used.

(f) For the initial performance test required under § 60.8, compliance with the sulfur dioxide emission limits and percent reduction requirements under § 60.42b is based on the average emission rates and the average percent reduction for sulfur dioxide for the first 30 consecutive steam generating unit operating days, except as provided under paragraph (d) of this section. The initial performance test is the only test for which at least 30 days prior notice is required unless otherwise specified by the Administrator. The initial performance test is to be scheduled so that the first steam generating unit operating day of the 30 successive steam generating unit operating days is completed within 30 days

after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility. The boiler load during the 30-day period does not have to be the maximum design load, but must be representative of future operating conditions and include at least one 24-hour period at full load.

(g) After the initial performance test required under § 60.8, compliance with the sulfur dioxide emission limits and percent reduction requirements under § 60.42b is based on the average emission rates and the average percent reduction for sulfur dioxide for 30 successive steam generating unit operating days, except as provided under paragraph (d). A separate performance test is completed at the end of each steam generating unit operating day after the initial performance test, and a new 30-day average emission rate and percent reduction for sulfur dioxide are calculated to show compliance with the standard.

(h) Except as provided under paragraph (i) of this section, the owner or operator of an affected facility shall use all valid sulfur dioxide emissions data in calculating % P_s and E_{ho} under paragraph (c), of this section whether or not the minimum emissions data requirements under § 60.46b are achieved. All valid emissions data, including valid sulfur dioxides emission data collected during periods of startup, shutdown and malfunction, shall be used in calculating % P_s and E_{ho} pursuant to paragraph (c) of this section.

(i) During periods of malfunction or maintenance of the sulfur dioxide control systems when oil is combusted as provided under § 60.42b(i), emission data are not used to calculate % P_s or E_s under § 60.42b (a), (b) or (c), however, the emissions data are used to determine compliance with the emission limit under § 60.42b(i).

§ 60.46b Compliance and performance test methods and procedures for particulate matter and nitrogen oxides.

(a) The particulate matter emission standards and opacity limits under § 60.43b apply at all times except during periods of startup, shutdown, or malfunction. The nitrogen oxides emission standards under § 60.44b apply at all times.

(b) Compliance with the particulate matter emission standards under § 60.43b shall be determined through performance testing as described in paragraph (d) of this section.

(c) Compliance with the nitrogen oxides emission standards under § 60.44b shall be determined through performance testing as described in paragraph (e) or (f) of this section.

(d) The following procedures and reference methods are used to determine compliance with the standards for particulate matter emissions under § 60.43b.

(1) Method 3 is used for gas analysis when applying Method 5 or Method 17.

(2) Method 5, Method 5B, or Method 17 shall be used to measure the concentration of particulate matter as follows:

(i) Method 5 shall be used at affected facilities without wet flue gas desulfurization (FGD) systems; and

(ii) Method 17 may be used at facilities with or without wet scrubber systems provided the stack gas temperature does not exceed a temperature of 160 °C (320 °F). The procedures of sections 2.1 and 2.3 of Method 5B may be used in Method 17 only if it is used after a wet FGD system. Do not use Method 17 after wet FGD systems if the effluent is saturated or laden with water droplets.

(iii) Method 5B is to be used only after wet FGD systems.

(3) Method 1 is used to select the sampling site and the number of traverse sampling points. The sampling time for each run is at least 120 minutes and the minimum sampling volume is 1.7 dscm (60 dscf) except that smaller sampling times or volumes may be approved by the Administrator when necessitated by process variables or other factors.

(4) For Method 5, the temperature of the sample gas in the probe and filter holder is monitored and is maintained at 160 °C (320 °F).

(5) For determination of particulate matter emissions, the oxygen or carbon dioxide sample is obtained simultaneously with each run of

Method 5, Method 5B or Method 17 by traversing the duct at the same sampling location.

(6) For each run using Method 5, Method 5B or Method 17, the emission rate expressed in nanograms per joule heat input is determined using:

(i) The oxygen or carbon dioxide measurements and particulate matter measurements obtained under this section,

(ii) The dry basis F factor, and

(iii) The dry basis emission rate calculation procedure contained in Method 19 (Appendix A).

(7) Method 9 is used for determining the opacity of stack emissions.

(e) To determine compliance with the emission limits for nitrogen oxides required under § 60.44b, the owner or operator of an affected facility shall conduct the performance test as required under § 60.8 using the continuous system for monitoring nitrogen oxides under § 60.48(b).

(1) For the initial compliance test, nitrogen oxides from the steam generating unit are monitored for 30 successive steam generating unit operating days and the 30-day average emission rate is used to determine compliance with the nitrogen oxides emission standards under § 60.44b. The 30-day average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day test period.

(2) Following the date on which the initial performance test is completed or is required to be completed under § 60.8 of this part, whichever date comes first, the owner or operator of an affected facility which combusts coal or which combusts residual oil having a nitrogen content greater than 0.30 weight percent shall determine compliance with the nitrogen oxides emission standards under § 60.44b on a continuous basis through the use of a 30 day rolling average emission rate. A new 30-day rolling average emission rate is calculated each steam generating unit operating day as the average of all of the hourly nitrogen oxides emission data for the preceding 30 steam generating unit operating days.

(3) Following the date on which the initial performance test is completed or is required to be completed under § 60.8 of this part, whichever date comes first, the owner or operator of an affected facility which has a heat input capacity greater than 73 MW (250 million Btu/hour) and which combusts natural gas, distillate oil, or residual oil having a nitrogen content of 0.30 weight percent or less shall determine compliance with the nitrogen oxides standards under § 60.44b on a continuous basis through the use of a 30-day rolling average emission rate. A new 30-day rolling average emission rate is calculated each steam generating unit operating day as the average of all of the hourly nitrogen oxides emission data for the preceding 30 steam generating unit operating days.

(4) Following the date on which the initial performance test is completed or required to be completed under § 60.8 of this part, whichever date comes first, the owner or operator of an affected facility which has a heat input capacity of 73 MW (250 million Btu/hour) or less and which combusts natural gas, distillate oil, or residual oil having a nitrogen content of 0.30 weight percent or less shall upon request determine compliance with the nitrogen oxides standards under § 60.44b through the use of a 30-day performance test. During periods when performance tests are not requested, nitrogen oxides emissions data collected pursuant to § 60.48b(g)(1) or § 60.48b(g)(2) are used to calculate a 30-day rolling average emission rate on a daily basis and used to prepare excess emission reports, but will not be used to determine compliance with the nitrogen oxides emission standards. A new 30-day rolling average emission rate is calculated each steam generating unit operating day as the average of all of the hourly nitrogen oxides emission data for the preceding 30 steam generating unit operating days.

(5) If the owner or operator of an affected facility which combusts residual oil does not sample and analyze the residual oil for nitrogen content, as specified in § 60.49b(e), the requirements of paragraph (iii) of this section apply and the provisions of paragraph (iv) of this section are inapplicable.

(f) To determine compliance with the emission limit for nitrogen oxides required by § 60.44b(a)(4) for duct burners used in combined cycle systems, the owner or operator of an affected facility shall conduct the performance test required under § 60.8 using the nitrogen oxides and oxygen measurement procedures in 40 CFR Part 60 Appendix A, Method 20. During the performance test, one sampling site shall be located as close as practicable to the exhaust of the turbine, as provided by section 6.1.1 of Method 20. A second sampling site shall be located at the outlet to the steam generating unit. Measurements of nitrogen oxides and oxygen shall be taken at both sampling sites during the performance test. The nitrogen oxides emission rate from the combined cycle system shall be calculated by subtracting the nitrogen oxides emission rate measured at the sampling site at the outlet from the turbine from the nitrogen oxides emission rate measured at the sampling site at the outlet from the steam generating unit.

§ 60.47b Emission monitoring for sulfur dioxide.

(a) Except as provided in paragraph (b) of this section, the owner or operator of an affected facility subject to the sulfur dioxide standards under § 60.42b shall install, calibrate, maintain, and operate continuous emission monitoring systems (CEMS) for measuring sulfur dioxide concentrations and either oxygen (O_2) or carbon dioxide (CO_2) concentrations and shall record the output of the systems. The sulfur dioxide and either oxygen or carbon dioxide concentrations shall both be monitored at the inlet and outlet of the sulfur dioxide control device.

(b) As an alternative to operating CEMS as required under paragraph (a) of this section, an owner or operator may elect to determine the average sulfur dioxide emissions and percent reduction by:

(1) Collecting coal or oil samples in an as-fired condition at the inlet to the steam generating unit and analyzing them for sulfur and heat content according to Method 19. Method 19 provides procedures for converting these measurements into the format to be used in calculating the average sulfur dioxide input rate, or

(2) Measuring sulfur dioxide according to Method 6B at the inlet or outlet to the sulfur dioxide control system. An initial stratification test is required to verify the adequacy of the Method 6B sampling location. The stratification test shall consist of three paired runs of a suitable sulfur dioxide and carbon dioxide measurement train operated at the candidate location and a second similar train operated according to the procedures in Section 3.2 and the applicable procedures in Section 7 of Performance Specification 2. Method 6B, Method 6A, or a combination of Methods 6 and 3 or Methods 6C and 3A are suitable measurement techniques. If Method 6B is used for the second train, sampling time and timer operation may be adjusted for the stratification test as long as an adequate sample volume is collected; however, both sampling trains are to be operated similarly. For the location to be adequate for Method 6B 24-hour tests, the mean of the absolute difference between the three paired runs must be less than 10 percent.

(3) A daily sulfur dioxide emission rate, E_p, shall be determined using the procedure described in Method 6A, Section 7.6.2 (Equation 6A-8) and stated in ng/J (lb/million Btu) heat input.

(4) The mean 30-day emission rate is calculated using the daily measured values in ng/J (lb/million Btu) for 30 successive steam generating unit operating days using equation 19-20 of Method 19.

(c) The owner or operator of an affected facility shall obtain emission data for at least 75 percent of the operating hours in at least 22 out of 30 successive boiler operating days. If this minimum data requirement is not met with a single monitoring system, the owner or operator of the affected facility shall supplement the emission data with data collected with other monitoring systems as approved by the Administrator or the reference methods and procedures as described in paragraph (b) of this section.

(d) The 1-hour average sulfur dioxide emission rates measured by the CEMS required by paragraph (a) of this section and required under § 60.13(h) is expressed in ng/J or lb/million Btu heat input and is used to calculate the average emission rates under § 60.42b. Each 1-hour average sulfur dioxide emission rate must be based on more than 30 minutes of steam generating unit operation and include at least 2 data points with each representing a 15-minute period. Hourly sulfur dioxide emission rates are not calculated if the affected facility is operated less than 30 minutes in a 1-hour period and are not counted toward determination of a steam generating unit operating day.

(e) The procedures under § 60.13 shall be followed for installation, evaluation, and operation of the CEMS.

(1) All CEMS shall be operated in accordance with the applicable procedures under Performance Specifications 1, 2, and 3 (Appendix B).

(2) Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with Procedure 1 (Appendix F).

(3) For affected facilities combusting coal or oil, alone or in combination with other fuels, the span value of the sulfur dioxide CEMS at the inlet to the sulfur dioxide control device is 125 percent of the maximum estimated hourly potential sulfur dioxide emissions of the fuel combusted, and the span value of the CEMS at the outlet to the sulfur dioxide control device is 50 percent of the maximum estimated hourly potential sulfur dioxide emissions of the fuel combusted.

§ 60.48b Emission monitoring for particulate matter and nitrogen oxides.

(a) The owner or operator of an affected facility subject to the opacity standard under § 60.43b shall install, calibrate, maintain, and operate a continuous monitoring system for measuring the opacity of emissions discharged to the atmosphere and record the output of the system.

(b) Except as provided in paragraphs (g) and (h) of this section, the owner or operator of an affected facility subject to the nitrogen oxides standard of § 60.44b(a) shall install, calibrate, maintain, and operate a continuous monitoring system for measuring nitrogen oxides emissions discharged to the atmosphere and record the output of the system.

(c) The continuous monitoring systems required under paragraph (b) of this section shall be operated and data recorded during all periods of operation of the affected facility except for continuous monitoring system breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments.

(d) The 1-hour average nitrogen oxides emission rates measured by the continuous nitrogen oxides monitor required by paragraph (b) of this section and required under § 60.13(h) shall be expressed in ng/J or lb/million Btu heat input and shall be used to calculate the average emission rates under § 60.44b. The 1-hour averages shall be calculated using the data points required under § 60.13(b). At least 2 data points must be used to calculate each 1-hour average.

(e) The procedures under § 60.13 shall be followed for installation, evaluation, and operation of the continuous monitoring systems.

(1) For affected facilities combusting coal, wood or municipal-type solid waste, the span value for a continuous monitoring system for measuring opacity shall be between 60 and 80 percent.

(2) For affected facilities combusting coal, oil, or natural gas, the span value for nitrogen oxides is determined as follows:

Fuel	Span values for nitrogen oxides (PPM)
Natural gas	500
Oil	500
Coal	1,000
Mixtures	500(x + y) + 1,000z

where:

x is the fraction of total heat input derived from natural gas,

y is the fraction of total heat input derived from oil, and

z is the fraction of total heat input derived from coal.

(3) All span values computed under paragraph (e)(2) of this section for combusting mixtures of regulated fuels are rounded to the nearest 500 ppm.

(f) When nitrogen oxides emission data are not obtained because of continuous monitoring system breakdowns, repairs, calibration checks and zero and span adjustments, emission data will be obtained by using standby monitoring systems, Method 7, Method 7A, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days.

(g) The owner or operator of an affected facility that has a heat input capacity of 73 MW (250 million Btu/hour) or less, and which has an annual capacity factor for residual oil having a nitrogen content [illegible] 0.30 weight percent or less, natural gas, distillate oil, or any mixture of these fuels, greater than 10 percent (0.10) shall:

(1) Comply with the provisions of paragraphs (b), (c), (d), (e)(2), (e)(3), and (f) of this section, or

(2) Monitor steam generating unit operating conditions and predict nitrogen oxides emission rates as specified in a plan submitted pursuant to § 60.49b(c).

(h) The owner or operator of an affected facility which is subject to the nitrogen oxides standards of § 60.44b(a)(4) is not required to install or operate a continuous monitoring system to measure nitrogen oxides emissions.

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§ 60.49b Reporting and recordkeeping requirements.

(a) The owner or operator of each affected facility shall submit notification of the date of initial startup, as provided by § 60.7. This notification shall include:

(1) The design heat input capacity of the affected facility and identification of the fuels to be combusted in the affected facility,

(2) If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any *fuel or mixture of fuels* under

§ 60.42b(d)(1), § 60.43(b)(a)(2), § 60.43b(a)(3)(iii), § 60.43b(c)(2)(ii), § 60.43b(d)(2)(iii), § 60.44b(c), § 60.44b(d), § 60.44b(e), or § 60.45b(d),

(3) The annual capacity factor at which the owner or operator anticipates operating the facility based on all fuels fired and based on each individual fuel fired, and,

(4) Notification that an emerging technology will be used for controlling emissions of sulfur dioxide. The Administrator will examine the description of the emerging technology and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of § 60.42b(a) unless and until this determination is made by the Administrator.

(b) The owner or operator of each affected facility subject to the sulfur dioxide, particulate matter and nitrogen oxides emission limits under § 60.42b, § 60.43b, and § 60.44b, shall submit to the Administrator the performance test data from the initial performance test and the performance evaluation of the CEMS using the applicable performance specifications in Appendix B.

(c) The owner or operator of each affected facility subject to the nitrogen oxides standard of § 60.44b who seeks to demonstrate compliance with those standards through the monitoring of steam generating unit operating conditions under the provisions of § 60.48b(g)(2) shall submit to the Administrator for approval a plan that identifies the operating conditions to be monitored under § 60.48b(g)(2) and the records to be maintained under § 60.49b(j). This plan shall be submitted to the Administrator for approval within 360 days of the initial startup of the affected facility. The plan shall:

(1) Identify the specific operating conditions to be monitored and the re-

lationship between these operating conditions and nitrogen oxides emission rates (i.e., ng/J or lbs/million Btu heat input). Steam generating unit operating conditions include, but are not limited to, the degree of staged combustion (i.e., the ratio of primary air to secondary and/or tertiary air) and the level of excess air (i.e., flue gas oxygen level);

(2) Include the data and information that the owner or operator used to identify the relationship between nitrogen oxides emission rates and these operating conditions;

(3) Identify how these operating conditions, including steam generating unit load, will be monitored under § 60.48b(g) on an hourly basis by the owner or operator during the period of operation of the affected facility; the quality assurance procedures or practices that will be employed to ensure that the data generated by monitoring these operating conditions will be representative and accurate; and the type and format of the records of these operating conditions, including steam generating unit load, that will be maintained by the owner or operator under § 60.49b(j).

If the plan is approved, the owner or operator shall maintain records of predicted nitrogen oxide emission rates and the monitored operating conditions, including steam generating unit load, identified in the plan.

(d) The owner or operator of an affected facility shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for coal, distillate oil, residual oil, natural gas, wood, and municipal-type solid waste for each calendar quarter. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month.

(e) For affected facilities that: (1) Combust residual oil having a nitrogen content of 0.3 weight percent or less; (2) have heat input capacities of 73 MW (250 million Btu/hour) or less; and (3) monitor nitrogen oxides emissions or steam generating unit operating conditions under § 60.48b(g), the owner or operator shall maintain records of the nitrogen content of the oil combusted in the affected facility and calculate the average fuel nitrogen content on a per calendar quarter basis. The nitrogen content shall be determined using ASTM Method D3431-80, Test Method for Trace Nitrogen in Liquid Petroleum Hydrocarbons (IBR—see § 60.17), or fuel specification data obtained from fuel suppliers. If residual oil blends are being combusted, fuel nitrogen specifications may be prorated based on the ratio of residual oils of different nitrogen content in the fuel blend.

(f) For facilities subject to the opacity standard under § 60.43b, the owner or operator shall maintain records of opacity.

(g) For facilities subject to nitrogen oxides standards under § 60.44b, the owner or operator shall maintain records of the following information for each steam generating unit operating day:

(1) Calendar date.

(2) The average hourly nitrogen oxides emission rates (expressed as NO_2) (ng/J or lb/million Btu heat input) measured or predicted.

(3) The 30-day average nitrogen oxides emission rates (ng/J or lb/million Btu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days.

(4) Identification of the steam generating unit operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under § 60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken.

(5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.

(6) Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.

(7) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

(8) Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system.

(9) Description of any modifications to the continuous monitoring system that could affect the ability of the continuous monitoring system to comply with Performance Specification 2 or 3.

(10) Results of daily CEMS drift tests and quarterly accuracy assessments as required under Appendix F, Procedure 1.

(h) The owner or operator of any affected facility in any category listed in paragraphs (h) (1) or (2) of this section is required to submit excess emission reports for any calendar quarter during which there are excess emissions from the affected facility. If there are no excess emissions during the calendar quarter, the owner or operator shall submit a report semiannually stating that no excess emissions occurred during the semiannual reporting period.

(1) Any affected facility subject to the opacity standards under § 60.43b(e) or to the operating parameter monitoring requirements under § 60.13(i)(1).

(2) Any affected facility that is subject to the nitrogen oxides standard of § 60.44b, and that

(i) Combusts natural gas, distillate oil, or residual oil with a nitrogen content of 0.3 weight percent or less, or

(ii) Has a heat input capacity of 73 MW (250 million Btu/hour) or less and is required to monitor nitrogen oxides emissions on a continuous basis under § 60.48b(g)(1) or steam generating unit operating conditions under § 60.48b(g)(2).

(3) For the purpose of § 60.43b, excess emissions are defined as all 6-minute periods during which the average opacity exceeds the opacity standards under § 60.43b(f).

(4) For purposes of § 60.48b(g)(1), excess emissions are defined as any calculated 30-day rolling average nitrogen oxides emission rate, as determined under § 60.46b(e), which exceeds the applicable emission limits in § 60.44b.

(i) The owner or operator of any affected facility subject to the continuous monitoring requirements for nitrogen oxides under § 60.48(b) shall submit a quarterly report containing the information recorded under paragraph (g) of this section. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.

(j) The owner or operator of any affected facility subject to the sulfur dioxide standards under § 60.42b shall submit written reports to the Administrator for every calendar quarter. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.

(k) For each affected facility subject to the compliance and performance testing requirements of § 60.45b and the reporting requirement in paragraph (j) of this section, the following information shall be reported to the Administrator:

(1) Calendar dates covered in the reporting period.

(2) Each 30-day average sulfur dioxide emission rate (ng/J or lb/million Btu heat input) measured during the reporting period, ending with the last 30-day period in the quarter; reasons for noncompliance with the emission standards; and a description of corrective actions taken.

(3) Each 30-day average percent reduction in sulfur dioxide emissions calculated during the reporting period, ending with the last 30-day period in the quarter; reasons for noncompliance with the emission standards; and a description of corrective actions taken.

(4) Identification of the steam generating unit operating days that coal or oil was combusted and for which sulfur dioxide or diluent (oxygen or carbon dioxide) data have not been obtained by an approved method for at least 75 percent of the operating hours in the steam generating unit operating day; justification for not obtaining sufficient data; and description of corrective action taken.

(5) Identification of the times when emissions data have been excluded from the calculation of average emis-

sion rates; justification for excluding data; and description of corrective action taken if data have been excluded for periods other than those during which coal or oil were not combusted in the steam generating unit.

(6) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

(7) Identification of times when hourly averages have been obtained based on manual sampling methods.

(8) Identification of the times when the pollutant concentration exceeded full span of the CEMS.

(9) Description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specification 2 or 3.

(10) Results of daily CEMS drift tests and quarterly accuracy assessments as required under Appendix F, Procedure 1.

(11) The annual capacity factor of each fired as provided under paragraph (d) of this section.

(l) For each affected facility subject to the compliance and performance testing requirements of § 60.45b(d) and the reporting requirements of paragraph (j) of this section, the following information shall be reported to the Administrator:

(1) Calendar dates when the facility was in operation during the reporting period;

(2) The 24-hour average sulfur dioxide emission rate measured for each steam generating unit operating day during the reporting period that coal or oil was combusted, ending in the last 24-hour period in the quarter; reasons for noncompliance with the emission standards; and a description of corrective actions taken;

(3) Identification of the steam generating unit operating days that coal or oil was combusted for which sulfur dioxide or diluent (oxygen or carbon dioxide) data have not been obtained by an approved method for at least 75 percent of the operating hours; justification for not obtaining sufficient data; and description of corrective action taken.

(4) Identification of the times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and description of corrective action taken if data have been excluded for periods other than those during which coal or oil were not combusted in the steam generating unit.

(5) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

(6) Identification of times when hourly averages have been obtained based on manual sampling methods.

(7) Identification of the times when the pollutant concentration exceeded full span of the CEMS.

(8) Description of any modifications to the CEMS which could affect the ability of the CEMS to comply with Performance Specification 2 or 3.

(9) Results of daily CEMS drift tests and quarterly accuracy assessments as required under Appendix F, Procedure 1.

(m) For each affected facility subject to the sulfur dioxide standards under § 60.42b for which the minimum amount of data required under § 60.47b(f) were not obtained during a calendar quarter, the following information is reported to the Administrator in addition to that required under paragraph (k) of this section:

(1) The number of hourly averages available for outlet emission rates and inlet emission rates.

(2) The standard deviation of hourly averages for outlet emission rates and inlet emission rates, as determined in Method 19, Section 7.

(3) The lower confidence limit for the mean outlet emission rate and the upper confidence limit for the mean inlet emission rate, as calculated in Method 19, Section 7.

(4) The ratio of the lower confidence limit for the mean outlet emission rate and the allowable emission rate, as determined in Method 19, Section 7.

(n) If a percent removal efficiency by fuel pretreatment (i.e., % R_f) is used to determine the overall percent reduction (i.e., % R_o) under § 60.45b, the owner or operator of the affected facility shall submit a signed statement with the quarterly report:

(1) Indicating what removal efficiency by fuel pretreatment (i.e., % R_f) was credited for the calendar quarter;

(2) Listing the quantity, heat content, and date each pretreated fuel shipment was received during the previous calendar quarter; the name and location of the fuel pretreatment facility; and the total quantity and total heat content of all fuels received at the affected facility during the previous calendar quarter;

(3) Documenting the transport of the fuel from the fuel pretreatment facility to the steam generating unit.

(4) Including a signed statement from the owner or operator of the fuel pretreatment facility certifying that the percent removal efficiency achieved by fuel pretreatment was determined in accordance with the provisions of Method 19 (Appendix A) and listing the heat content and sulfur content of each fuel before and after fuel pretreatment.

(o) All records required under this section shall be maintained by the owner or operator of the affected facility for a period of 2 years following the date of such record.

(Approved by the Office of Management and Budget under control number 2060-0135)

Subpart E—Standards of Performance for Incinerators

§ 60.50 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to each incinerator of more than 45 metric tons per day charging rate (50 tons/day), which is the affected facility.

(b) Any facility under paragraph (a) of this section that commences construction or modification after August 17, 1971, is subject to the requirements of this subpart.

[42 FR 37936, July 25, 1977]

§ 60.51 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this part.

(a) "Incinerator" means any furnace used in the process of burning solid waste for the purpose of reducing the volume of the waste by removing combustible matter.

(b) "Solid waste" means refuse, more than 50 percent of which is municipal type waste consisting of a mixture of paper, wood, yard wastes, food wastes, plastics, leather, rubber, and other combustibles, and noncombustible materials such as glass and rock.

(c) "Day" means 24 hours.

[36 FR 24877, Dec. 23, 1971, as amended at 39 FR 20792, June 14, 1974]

§ 60.52 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this part shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.18 g/dscm (0.08 gr/dscf) corrected to 12 percent CO_2.

[39 FR 20792, June 14, 1974]

§ 60.53 Monitoring of operations.

(a) The owner or operator of any incinerator subject to the provisions of this part shall record the daily charging rates and hours of operation.

§ 60.54 Test methods and procedures.

(a) The reference methods in Appendix A to this part, except as provided for in § 60.8(b), shall be used to determine compliance with the standard prescribed in § 60.52 as follows:

(1) Method 5 for the concentration of particulate matter and the associated moisture content;

(2) Method 1 for sample and velocity traverses;

(3) Method 2 for velocity and volumetric flow rate; and

(4) Method 3 for gas analysis and calculation of excess air, using the integrated sample technique.

(b) For Method 5, the sampling time for each run shall be at least 60 minutes and the minimum sample volume shall be 0.85 dscm (30.0 dscf) except that smaller sampling times or sample volumes, when necessitated by process variables or other factors, may be approved by the Administrator.

(c) If a wet scrubber is used, the gas analysis sample shall reflect flue gas conditions after the scrubber, allowing for carbon dioxide absorption by sampling the gas on the scrubber inlet and

$C_s = (10^{-3})(C_{ss}/S_s)$ (Metric Units) or
$C_s = (2000)(C_{ss}/S_s)$ (English Units)

where:

C_s = particulate emission discharge, g/kg dry sludge (English units: lb/ton dry sludge).

10^{-3} = Metric conversion factor, g/mg.

2000 = English conversion factor, lb/ton.

[39 FR 9319, Mar. 8, 1974; 39 FR 13776, Apr. 17, 1974; 39 FR 15396, May 3, 1974]

Subpart P—Standards of Performance for Primary Copper Smelters

SOURCE: 41 FR 2338, Jan. 15, 1976, unless otherwise noted.

§ 60.160 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to the following affected facilities in primary copper smelters: Dryer, roaster, smelting furnace, and copper converter.

(b) Any facility under paragraph (a) of this section that commences construction or modification after October 16, 1974, is subject to the requirements of this subpart.

[42 FR 37937, July 25, 1977]

§ 60.161 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this part.

(a) "Primary copper smelter" means any installation or any intermediate process engaged in the production of copper from copper sulfide ore concentrates through the use of pyrometallurgical techniques.

(b) "Dryer" means any facility in which a copper sulfide ore concentrate charge is heated in the presence of air to eliminate a portion of the moisture from the charge, provided less than 5 percent of the sulfur contained in the charge is eliminated in the facility.

(c) "Roaster" means any facility in which a copper sulfide ore concentrate charge is heated in the presence of air to eliminate a significant portion (5 percent or more) of the sulfur contained in the charge.

(d) "Calcine" means the solid materials produced by a roaster.

(e) "Smelting" means processing techniques for the melting of a copper sulfide ore concentrate or calcine charge leading to the formation of separate layers of molten slag, molten copper, and/or copper matte.

(f) "Smelting furnace" means any vessel in which the smelting of copper sulfide ore concentrates or calcines is performed and in which the heat necessary for smelting is provided by an electric current, rapid oxidation of a portion of the sulfur contained in the concentrate as it passes through an oxidizing atmosphere, or the combustion of a fossil fuel.

(g) "Copper converter" means any vessel to which copper matte is charged and oxidized to copper.

(h) "Sulfuric acid plant" means any facility producing sulfuric acid by the contact process.

(i) "Fossil fuel" means natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat.

(j) "Reverberatory smelting furnace" means any vessel in which the smelting of copper sulfide ore concentrates or calcines is performed and in which the heat necessary for smelting is provided primarily by combustion of a fossil fuel.

(k) "Total smelter charge" means the weight (dry basis) of all copper sulfide ore concentrates processed at a primary copper smelter, plus the weight of all other solid materials introduced into the roasters and smelting furnaces at a primary copper smelter, except calcine, over a one-month period.

(l) "High level of volatile impurities" means a total smelter charge containing more than 0.2 weight percent arsenic, 0.1 weight percent antimony, 4.5 weight percent lead or 5.5 weight percent zinc, on a dry basis.

§ 60.162 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any dryer any gases which contain particulate matter in excess of 50 mg/dscm (0.022 gr/dscf).

§ 60.163 Standard for sulfur dioxide.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any roaster, smelting furnace, or copper converter any gases which contain sulfur dioxide in excess of 0.065 percent by volume, except as provided in paragraphs (b) and (c) of this section.

(b) Reverberatory smelting furnaces shall be exempted from paragraph (a) of this section during periods when the total smelter charge at the primary copper smelter contains a high level of volatile impurities.

(c) A change in the fuel combusted in a reverberatory smelting furnace shall not be considered a modification under this part.

§ 60.164 Standard for visible emissions.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any dryer any visible emissions which exhibit greater than 20 percent opacity.

(b) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility that uses a sulfuric acid plant to comply with the standard set forth in § 60.163, any visible emissions which exhibit greater than 20 percent opacity.

§ 60.165 Monitoring of operations.

(a) The owner or operator of any primary copper smelter subject to § 60.163 (b) shall keep a monthly record of the total smelter charge and the weight percent (dry basis) of arsenic, antimony, lead and zinc contained in this charge. The analytical methods and procedures employed to determine the weight of the total smelter charge and the weight percent of arsenic, antimony, lead and zinc shall be approved by the Administrator and shall be accurate to within plus or minus ten percent.

(b) The owner or operator of any primary copper smelter subject to the provisions of this subpart shall install and operate:

(1) A continuous monitoring system to monitor and record the opacity of gases discharged into the atmosphere from any dryer. The span of this system shall be set at 80 to 100 percent opacity.

(2) A continuous monitoring system to monitor and record sulfur dioxide emissions discharged into the atmosphere from any roaster, smelting furnace or copper converter subject to § 60.163 (a). The span of this system shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

(i) The continuous monitoring system performance evaluation required under § 60.13(c) shall be completed prior to the initial performance test required under § 60.8. During the performance evaluation, the span of the continuous monitoring system may be set at a sulfur dioxide concentration of 0.15 percent by volume if necessary to maintain the system output between 20 percent and 90 percent of full scale. Upon completion of the continuous monitoring system performance evaluation, the span of the continuous monitoring system shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

(ii) For the purpose of the continuous monitoring system performance evaluation required under § 60.13(c) the reference method referred to under the Field Test for Accuracy (Relative) in Performance Specification 2 of Appendix B to this part shall be Reference Method 6. For the performance evaluation, each concentration measurement shall be of one hour duration. The pollutant gas used to prepare the calibration gas mixtures required under Performance Specification 2 of Appendix B, and for calibration checks under § 60.13 (d), shall be sulfur dioxide.

(c) Six-hour average sulfur dioxide concentrations shall be calculated and recorded daily for the four consecutive 6-hour periods of each operating day. Each six-hour average shall be determined as the arithmetic mean of the appropriate six contiguous one-hour average sulfur dioxide concentrations provided by the continuous monitoring system installed under paragraph (b) of this section.

(d) For the purpose of reports required under § 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) *Opacity.* Any six-minute period during which the average opacity, as measured by the continuous monitoring system installed under paragraph (b) of this section, exceeds the standard under § 60.164(a).

(2) *Sulfur dioxide.* All six-hour periods during which the average emissions of sulfur dioxide, as measured by the continuous monitoring system installed under § 60.163, exceed the level of the standard. The Administrator will not consider emissions in excess of the level of the standard for less than or equal to 1.5 percent of the six-hour periods during the quarter as indicative of a potential violation of § 60.11(d) provided the affected facility, including air pollution control equipment, is maintained and operated in a manner consistent with good air pollution control practice for minimizing emissions during these periods. Emissions in excess of the level of the standard during periods of startup, shutdown, and malfunction are not to be included within the 1.5 percent.

[41 FR 2338, Jan. 15, 1976; 41 FR 8346, Feb. 26, 1976, as amended at 42 FR 57126, Nov. 1, 1977; 48 FR 23611, May 25, 1983]

§ 60.166 Test methods and procedures.

(a) The reference methods in Appendix A to this part, except as provided for in § 60.8(b), shall be used to determine compliance with the standards prescribed in §§ 60.162, 60.163 and 60.164 as follows:

(1) Method 5 for the concentration of particulate matter and the associated moisture content.

(2) Sulfur dioxide concentrations shall be determined using the continuous monitoring system installed in accordance with § 60.165(b). One 6-hour average period shall constitute one run. The monitoring system drift during any run shall not exceed 2 percent of span.

(b) For Method 5, Method 1 shall be used for selecting the sampling site and the number of traverse points, Method 2 for determining velocity and volumetric flow rate and Method 3 for determining the gas analysis. The sampling time for each run shall be at least 60 minutes and the minimum sampling volume shall be 0.85 dscm (30 dscf) except that smaller times or volumes, when necessitated by process variables or other factors, may be approved by the Administrator.

Subpart Q—Standards of Performance for Primary Zinc Smelters

SOURCE: 41 FR 2340, Jan. 15, 1976, unless otherwise noted.

§ 60.170 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to the following affected facilities in primary zinc smelters: roaster and sintering machine.

(b) Any facility under paragraph (a) of this section that commences construction or modification after October 16, 1974, is subject to the requirements of this subpart.

[42 FR 37937, July 25, 1977]

§ 60.171 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this part.

(a) "Primary zinc smelter" means any installation engaged in the production, or any intermediate process in the production, of zinc or zinc oxide from zinc sulfide ore concentrates through the use of pyrometallurgical techniques.

(b) "Roaster" means any facility in which a zinc sulfide ore concentrate charge is heated in the presence of air to eliminate a significant portion (more than 10 percent) of the sulfur contained in the charge.

(c) "Sintering machine" means any furnace in which calcines are heated in the presence of air to agglomerate the calcines into a hard porous mass called "sinter."

(d) "Sulfuric acid plant" means any facility producing sulfuric acid by the contact process.

§ 60.172 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any sintering machine any gases which contain particulate matter in excess of 50 mg/dscm (0.022 gr/dscf).

§ 60.173 Standard for sulfur dioxide.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any roaster any gases which contain sulfur dioxide in excess of 0.065 percent by volume.

(b) Any sintering machine which eliminates more than 10 percent of the sulfur initially contained in the zinc sulfide ore concentrates will be considered as a roaster under paragraph (a) of this section.

§ 60.174 Standard for visible emissions.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any sintering machine any visible emissions which exhibit greater than 20 percent opacity.

(b) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility that uses a sulfuric acid plant to comply with the standard set forth in § 60.173, any visible emissions which exhibit greater than 20 percent opacity.

§ 60.175 Monitoring of operations.

(a) The owner or operator of any primary zinc smelter subject to the provisions of this subpart shall install and operate:

(1) A continuous monitoring system to monitor and record the opacity of gases discharged into the atmosphere from any sintering machine. The span of this system shall be set at 80 to 100 percent opacity.

(2) A continuous monitoring system to monitor and record sulfur dioxide emissions discharged into the atmosphere from any roaster subject to § 60.173. The span of this system shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

(i) The continuous monitoring system performance evaluation required under § 60.13(c) shall be completed prior to the initial performance test required under § 60.8. During the performance evaluation, the span of the continuous monitoring system may be set at a sulfur dioxide concentration of 0.15 percent by volume if necessary to maintain the system output between 20 percent and 90 percent of full scale. Upon completion of the continuous monitoring system performance evaluation, the span of the continuous monitoring system shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

(ii) For the purpose of the continuous monitoring system performance evaluation required under § 60.13(c), the reference method referred to under the Field Test for Accuracy (Relative) in Performance Specification 2 of Appendix B to this part shall be Reference Method 6. For the performance evaluation, each concentration measurement shall be of 1 hour duration. The pollutant gas used to prepare the calibration gas mixtures required under Performance Specification 2 of Appendix B, and for calibration checks under § 60.13(d), shall be sulfur dioxide.

(b) Two-hour average sulfur dioxide concentrations shall be calculated and recorded daily for the 12 consecutive 2-hour periods of each operating day. Each 2-hour average shall be determined as the arithmetic mean of the appropriate two contiguous 1-hour average sulfur dioxide concentrations provided by the continuous monitoring system installed under paragraph (a) of this section.

(c) For the purpose of reports required under § 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) Opacity. Any 6-minute period during which the average opacity, as measured by the continuous monitoring system installed under paragraph (a) of this section, exceeds the standard under § 60.174(a).

(2) Sulfur dioxide. Any 2-hour period, as described in paragraph (b) of this section, during which the average emissions of sulfur dioxide, as measured by the continuous monitoring system installed under paragraph (a) of this section, exceeds the standard under § 60.173.

[41 FR 2340, Jan. 15, 1976, as amended at 48 FR 23611, May 25, 1983]

§ 60.176 Test methods and procedures.

(a) The reference methods in Appendix A to this part, except as provided for in § 60.8(b), shall be used to determine compliance with the standards prescribed in §§ 60.172, 60.173 and 60.174 as follows:

(1) Method 5 for the concentration of particulate matter and the associated moisture content.

(2) Sulfur dioxide concentrations shall be determined using the continuous monitoring system installed in accordance with § 60.175(a). One 2-hour average period shall constitute one run.

(b) For Method 5, Method 1 shall be used for selecting the sampling site and the number of traverse points, Method 2 for determining velocity and volumetric flow rate and Method 3 for determining the gas analysis. The sampling time for each run shall be at least 60 minutes and the minimum sampling volume shall be 0.85 dscm (30 dscf) except that smaller times or volumes, when necessitated by process variables or other factors, may be approved by the Administrator.

Subpart R—Standards of Performance for Primary Lead Smelters

SOURCE: 41 FR 2340, Jan. 15, 1976, unless otherwise noted.

§ 60.180 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to the following affected facilities in primary lead smelters: sintering machine, sintering machine discharge end, blast furnace, dross reverberatory furnace, electric smelting furnace, and converter.

(b) Any facility under paragraph (a) of this section that commences construction or modification after October 16, 1974, is subject to the requirements of this subpart.

[42 FR 37937, July 25, 1977]

§ 60.181 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this part.

(a) "Primary lead smelter" means any installation or any intermediate process engaged in the production of lead from lead sulfide ore concentrates through the use of pyrometallurgical techniques.

(b) "Sintering machine" means any furnace in which a lead sulfide ore concentrate charge is heated in the presence of air to eliminate sulfur contained in the charge and to agglomerate the charge into a hard porous mass called "sinter."

(c) "Sinter bed" means the lead sulfide ore concentrate charge within a sintering machine.

(d) "Sintering machine discharge end" means any apparatus which receives sinter as it is discharged from the conveying grate of a sintering machine.

(e) "Blast furnace" means any reduction furnace to which sinter is charged and which forms separate layers of molten slag and lead bullion.

(f) "Dross reverberatory furnace" means any furnace used for the removal or refining of impurities from lead bullion.

(g) "Electric smelting furnace" means any furnace in which the heat necessary for smelting of the lead sulfide ore concentrate charge is generated by passing an electric current through a portion of the molten mass in the furnace.

(h) "Converter" means any vessel to which lead concentrate or bullion is charged and refined.

(i) "Sulfuric acid plant" means any facility producing sulfuric acid by the contact process.

§ 60.182 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any blast furnace, dross reverberatory furnace, or sintering machine discharge end any gases which contain particulate matter in excess of 50 mg/dscm (0.022 gr/dscf).

§ 60.183 Standard for sulfur dioxide.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any sintering machine, electric smelting furnace, or converter gases which contain sulfur dioxide in excess of 0.065 percent by volume.

§ 60.184 Standard for visible emissions.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any blast furnace, dross reverberatory furnace, or sintering machine discharge end any visible emissions which exhibit greater than 20 percent opacity.

(b) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility that uses a sulfuric acid plant to comply with the standard set forth in § 60.183, any visible emissions which exhibit greater than 20 percent opacity.

§ 60.185 Monitoring of operations.

(a) The owner or operator of any primary lead smelter subject to the provisions of this subpart shall install and operate:

(1) A continuous monitoring system to monitor and record the opacity of gases discharged into the atmosphere from any blast furnace, dross reverberatory furnace, or sintering machine discharge end. The span of this system shall be set at 80 to 100 percent opacity.

(2) A continuous monitoring system to monitor and record sulfur dioxide emissions discharged into the atmosphere from any sintering machine, electric furnace or converter subject to § 60.183. The span of this system shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

(i) The continuous monitoring system performance evaluation required under § 60.13(c) shall be completed prior to the initial performance test required under § 60.8. During the performance evaluation, the span of the continuous monitoring system may be set at a sulfur dioxide concentration of 0.15 percent by volume if necessary to maintain the system output between 20 percent and 90 percent of full scale. Upon completion of the continuous monitoring system performance evaluation, the span of the continuous monitoring system shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

(ii) For the purpose of the continuous monitoring system performance evaluation required under § 60.13(c), the reference method referred to under the Field Test for Accuracy (Relative) in Performance Specification 2 of Appendix B to this part shall be Reference Method 6. For the performance evaluation, each concentration measurement shall be of one hour duration. The pollutant gases used to prepare the calibration gas mixtures required under Performance Specification 2 of Appendix B, and for calibration checks under § 60.13(d), shall be sulfur dioxide.

(b) Two-hour average sulfur dioxide concentrations shall be calculated and recorded daily for the twelve consecutive two-hour periods of each operating day. Each two-hour average shall be determined as the arithmetic mean of the appropriate two contiguous one-hour average sulfur dioxide concentrations provided by the continuous monitoring system installed under paragraph (a) of this section.

(c) For the purpose of reports required under § 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) Opacity. Any six-minute period during which the average opacity, as measured by the continuous monitoring system installed under paragraph (a) of this section, exceeds the standard under § 60.184(a).

(2) Sulfur dioxide. Any two-hour period, as described in paragraph (b) of this section, during which the average emissions of sulfur dioxide, as measured by the continuous monitoring system installed under paragraph (a) of this section, exceeds the standard under § 60.183.

[41 FR 2340, Jan. 15, 1976, as amended at 48 FR 23611, May 25, 1983]

§ 60.186 Test methods and procedures.

(a) The reference methods in Appendix A to this part, except as provided for in § 60.8(b), shall be used to determine compliance with the standards prescribed in §§ 60.182, 60.183 and 60.184 as follows:

(1) Method 5 for the concentration of particulate matter and the associated moisture content.

(2) Sulfur dioxide concentrations shall be determined using the continuous monitoring system installed in accordance with § 60.185(a). One 2-hour average period shall constitute one run.

(b) For Method 5, Method 1 shall be used for selecting the sampling site and the number of traverse points, Method 2 for determining velocity and volumetric flow rate and Method 3 for determining the gas analysis. The sampling time for each run shall be at least 60 minutes and the minimum sampling volume shall be 0.85 dscm (30 dscf) except that smaller times or volumes, when necessitated by process variables or other factors, may be approved by the Administrator.

Subpart S—Standards of Performance for Primary Aluminum Reduction Plants

SOURCE: 45 FR 44207, June 30, 1980, unless otherwise noted.

§ 60.190 Applicability and designation of affected facility.

(a) The affected facilities in primary aluminum reduction plants to which this subpart applies are potroom groups and anode bake plants.

(b) Any facility under paragraph (a) of this section that commences construction or modification after October 23, 1974, is subject to the requirements of this subpart.

[42 FR 37937, July 25, 1977, as amended at 45 FR 44206, June 30, 1980]

§ 60.191 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

"*Aluminum equivalent*" means an amount of aluminum which can be produced from a Mg of anodes produced by an anode bake plant as determined by § 60.195(g).

"*Anode bake plant*" means a facility which produces carbon anodes for use in a primary aluminum reduction plant.

"*Potroom*" means a building unit which houses a group of electrolytic cells in which aluminum is produced.

"*Potroom group*" means an uncontrolled potroom, a potroom which is controlled individually, or a group of potrooms or potroom segments ducted to a common control system.

"*Primary aluminum reduction plant*" means any facility manufacturing aluminum by electrolytic reduction.

"*Primary control system*" means an air pollution control system designed to remove gaseous and particulate flourides from exhaust gases which are captured at the cell.

"*Roof monitor*" means that portion of the roof of a potroom where gases not captured at the cell exit from the potroom.

"*Total fluorides*" means elemental fluorine and all fluoride compounds as measured by reference methods specified in § 60.195 or by equivalent or alternative methods (see § 60.8(b)).

§ 60.192 Standards for fluorides.

(a) On and after the date on which the initial performance test required

to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases containing total fluorides, as measured according to § 60.8 above, in excess of:

(1) 1.0 kg/Mg (2.0 lb/ton) of aluminum produced for potroom groups at Soderberg plants: except that emissions between 1.0 kg/Mg and 1.3 kg/Mg (2.6 lb/ton) will be considered in compliance if the owner or operator demonstrates that exemplary operation and maintenance procedures were used with respect to the emission control system and that proper control equipment was operating at the affected facility during the performance tests;

(2) 0.95 kg/Mg (1.9 lb/ton) of aluminum produced for potroom groups at prebake plants; except that emissions between 0.95 kg/Mg and 1.25 kg/Mg (2.5 lb/ton) will be considered in compliance if the owner or operator demonstrates that exemplary operation and maintenance procedures were used with respect to the emission control system and that proper control equipment was operating at the affected facility during the performance test; and

(3) 0.05 kg/Mg (0.1 lb/ton) of aluminum equivalent for anode bake plants.

(b) Within 30 days of any performance test which reveals emissions which fall between the 1.0 kg/Mg and 1.3 kg/Mg levels in paragraph (a)(1) of this section or between the 0.95 kg/Mg and 1.25 kg/Mg levels in paragraph (a)(2) of this section, the owner or operator shall submit a report indicating whether all necessary control devices were on-line and operating properly during the performance test, describing the operating and maintenance procedures followed, and setting forth any explanation for the excess emissions, to the Director of the Enforcement Division of the appropriate EPA Regional Office.

§ 60.193 Standard for visible emissions.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere:

(1) From any potroom group any gases which exhibit 10 percent opacity or greater, or

(2) From any anode bake plant any gases which exhibit 20 percent opacity or greater.

§ 60.194 Monitoring of operations.

(a) The owner or operator of any affected facility subject to the provisions of this subpart shall install, calibrate, maintain, and operate monitoring devices which can be used to determine daily the weight of aluminum and anode produced. The weighing devices shall have an accuracy of ± 5 percent over their operating range.

(b) The owner or operator of any affected facility shall maintain a record of daily production rates of aluminum and anodes, raw material feed rates, and cell or potline voltages.

§ 60.195 Test methods and procedures.

(a) Following the initial performance test as required under § 60.8(a), an owner or operator shall conduct a performance test at least once each month during the life of the affected facility, except when malfunctions prevent representative sampling, as provided under § 60.8(c). The owner or operator shall give the Administrator at least 15 days advance notice of each test. The Administrator may require additional testing under section 114 of the Clean Air Act.

(b) An owner or operator may petition the Administrator to establish an alternative testing requirement that requires testing less frequently than once each month for a primary control system or an anode bake plant. If the owner or operator show that emissions from the primary control system or the anode bake plant have low variability during day-to-day operations, the Administrator may establish such an alternative testing requirement. The alternative testing requirement shall include a testing schedule and, in the case of a primary control system, the method to be used to determine primary control system emissions for the purpose of performance tests. The Administrator shall publish the alter-used to manufacture hot mix asphalt by heating and drying aggregate and mixing with asphalt cements.

[51 FR 12325, Apr. 10, 1986]

§ 60.92 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall discharge or cause the discharge into the atmosphere from any affected facility any gases which:

(1) Contain particulate matter in excess of 90 mg/dscm (0.04 gr/dscf).

(2) Exhibit 20 percent opacity, or greater.

[39 FR 9314, Mar. 8, 1974, as amended at 40 FR 46259, Oct. 6, 1975]

§ 60.93 Test methods and procedures.

(a) The reference methods appended to this part, except as provided for in § 60.8(b), shall be used to determine compliance with the standards prescribed in § 60.92 as follows:

(1) Method 5 for the concentration of particulate matter and the associated moisture content,

(2) Method 1 for sample and velocity traverses,

(3) Method 2 for velocity and volumetric flow rate, and

(4) Method 3 for gas analysis.

(b) For Method 5, the sampling time for each run shall be at least 60 minutes and the sampling rate shall be at least 0.9 dscm/hr (0.53 dscf/min) except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the Administrator.

Subpart J—Standards of Performance for Petroleum Refineries

§ 60.100 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to the following affected facilities in petroleum refineries: fluid catalytic cracking unit catalyst regenerators, fuel gas combustion devices, and all Claus sulfur recovery plants except Claus plants of 20 long tons per day (LTD) or less. The Claus sulfur recovery plant need not be physically located within the boundaries of a petroleum refinery to be an affected facility, provided it processes gases produced within a petroleum refinery.

(b) Any fluid catalytic cracking unit catalyst regenerator or fuel gas combustion device under paragraph (a) of this section which commences construction or modification after June 11, 1973, or any Claus sulfur recovery plant under paragraph (a) of this section which commences construction or modification after October 4, 1976, is subject to the requirements of this part.

[43 FR 10868, Mar. 15, 1978, as amended at 44 FR 61542, Oct. 25, 1979]

§ 60.101 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A.

(a) "Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum or through redistillation, cracking or reforming of unfinished petroleum derivatives.

(b) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

(c) "Process gas" means any gas generated by a petroleum refinery process unit, except fuel gas and process upset gas as defined in this section.

(d) "Fuel gas" means any gas which is generated at a petroleum refinery and which is combusted. Fuel gas also includes natural gas when the natural gas is combined and combusted in any proportion with a gas generated at a refinery. Fuel gas does not include gases generated by catalytic cracking unit catalyst regenerators and fluid coking burners.

(e) "Process upset gas" means any gas generated by a petroleum refinery process unit as a result of start-up, shut-down, upset or malfunction.

(f) "Refinery process unit" means any segment of the petroleum refinery in which a specific processing operation is conducted.

(g) "Fuel gas combustion device" means any equipment, such as process heaters, boilers and flares used to combust fuel gas, except facilities in which gases are combusted to produce sulfur or sulfuric acid.

(h) "Coke burn-off" means the coke removed from the surface of the fluid catalytic cracking unit catalyst by combustion in the catalyst regenerator. The rate of coke burn-off is calculated by the formula specified in § 60.106.

(i) "Claus sulfur recovery plant" means a process unit which recovers sulfur from hydrogen sulfide by a vapor-phase catalytic reaction of sulfur dioxide and hydrogen sulfide.

(j) "Oxidation control system" means an emission control system which reduces emissions from sulfur recovery plants by converting these emissions to sulfur dioxide.

(k) "Reduction control system" means an emission control system which reduces emissions from sulfur recovery plants by converting these emissions to hydrogen sulfide.

(l) "Reduced sulfur compounds" means hydrogen sulfide (H_2S), carbonyl sulfide (COS) and carbon disulfide (CS_2).

[39 FR 9315, Mar. 8, 1974, as amended at 43 FR 10868, Mar. 15, 1978; 44 FR 13481, Mar. 12, 1979; 44 FR 61543, Oct. 25, 1979; 45 FR 79453, Dec. 1, 1980]

§ 60.102 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall discharge or cause the discharge into the atmosphere from any fluid catalytic cracking unit catalyst regenerator or from any fluid catalytic cracking unit regenerator:

(1) Particulate matter in excess of 1.0 kg/1000 kg (1.0 lb/1000 lb) of coke burn-off in the catalyst regenerator.

(2) Gases exhibiting greater than 30 percent opacity, except for one six-minute average opacity reading in any one hour period.

(b) Where the gases discharged by the fluid catalytic cracking unit catalyst regenerator pass through an incinerator or waste heat boiler in which auxiliary or supplemental liquid or solid fossil fuel is burned, particulate matter in excess of that permitted by paragraph (a)(1) of this section may be emitted to the atmosphere, except that the incremental rate of particulate matter emissions shall not exceed 43.0 g/MJ (0.10 lb/million Btu) of heat input attributable to such liquid or solid fossil fuel.

[39 FR 9315, Mar. 8, 1974, as amended at 42 FR 32427, June 24, 1977; 42 FR 39389, Aug. 4, 1977; 43 FR 10868, Feb. 15, 1978]

§ 60.103 Standard for carbon monoxide.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall discharge or cause the discharge into the atmosphere from the fluid catalytic cracking unit catalyst regenerator any gases which contain carbon monoxide in excess of 0.050 percent by volume.

[39 FR 9315, Mar. 8, 1974]

§ 60.104 Standard for sulfur dioxide.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall:

(1) Burn in any fuel gas combustion device any fuel gas which contains hydrogen sulfide in excess of 230 mg/dscm (0.10 gr/dscf), except that the gases resulting from the combustion of fuel gas may be treated to control sulfur dioxide emissions provided the owner or operator demonstrates to the satisfaction of the Administrator that this is as effective in preventing sulfur dioxide emissions to the atmosphere as restricting the H_2 concentration in the fuel gas to 230 mg/dscm or less. The combustion in a flare of process upset gas, or fuel gas which is released to the flare as a result of relief valve leakage, is exempt from this paragraph.

(2) Discharge or cause the discharge of any gases into the atmosphere from any Claus sulfur recovery plant containing in excess of:

(i) 0.025 percent by volume of sulfur dioxide at zero percent oxygen on a dry basis if emissions are controlled by an oxidation control system, or a reduction control system followed by incineration, or

(ii) 0.030 percent by volume of reduced sulfur compounds and 0.0010 percent by volume of hydrogen sulfide calculated as sulfur dioxide at zero percent oxygen on a dry basis if emissions are controlled by a reduction control system not followed by incineration.

[43 FR 10869, Mar. 15, 1978]

§ 60.105 Emission monitoring.

(a) Continuous monitoring systems shall be installed, calibrated, maintained, and operated by the owner or operator as follows:

(1) A continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the fluid catalytic cracking unit catalyst regenerator. The continuous monitoring system shall be spanned at 60, 70, or 80 percent opacity.

(2) An instrument for continuously monitoring and recording the concentration of carbon monoxide in gases discharged into the atmosphere from fluid catalytic cracking unit catalyst regenerators. The span of this continuous monitoring system shall be 1,000 ppm. Installation of carbon monoxide (CO) continuous monitoring systems is not required if the owner or operator files a written request for exemption to the Administrator and demonstrates, by the exemption performance test described below, that the average CO emissions are less than 10 percent of the applicable standard listed in § 60.103. The exemption performance test shall consist of continuously monitoring CO emissions for 30 days using an instrument that meets the requirements of Performance Specification 4 of Appendix B, except the span value shall be 100 ppm instead of 1000 ppm, and if required, the relative accuracy limit shall be 10 percent or 5 ppm, whichever is greater.

(3) A continuous monitoring system for the measurement of sulfur dioxide in the gases discharged into the atmosphere from the combustion of fuel gases (except where a continuous monitoring system for the measurement of hydrogen sulfide is installed under paragraph (a) (4) of this section). The pollutant gas used to prepare calibration gas mixtures under Performance Specification 2 and for calibration checks under § 60.13(d), shall be sulfur dioxide (SO_2). The span shall be set at 100 ppm. For conducting monitoring system performance evaluations under § 60.13(c), Reference Method 6 shall be used.

(4) An instrument for continuously monitoring and recording concentrations of hydrogen sulfide in fuel gases burned in any fuel gas combustion device, if compliance with § 60.104(a)(1) is achieved by removing H_2S from the fuel gas before it is burned; fuel gas combustion devices having a common source of fuel gas may be monitored at one location, if monitoring at this location accurately represents the concentration of H_2S in the fuel gas burned. The span of this continuous monitoring system shall be 300 ppm.

(5) An instrument for continuously monitoring and recording concentrations of SO_2 in the gases discharged into the atmosphere from any Claus sulfur recovery plant if compliance with § 60.104(a)(2) is achieved through the use of an oxidation control system or a reduction control system followed by incineration. The span of this continuous monitoring system shall be set at 500 ppm.

(6) An instrument(s) for continuously monitoring and recording the concentration of H_2S and reduced sulfur compounds in the gases discharged into the atmosphere from any Claus sulfur recovery plant if compliance with § 60.104(a)(2) is achieved through the use of a reduction control system not followed by incineration. The span(s) of this continuous monotoring system(s) shall be set at 20 ppm for monitoring and recording the concentration of H_2S and 600 ppm for monitoring and recording the concentration of reduced sulfur compounds.

(b) [Reserved]

(c) The average coke burn-off rate (thousands of kilogram/hr) and hours of operation for any fluid catalytic cracking unit catalyst regenerator subject to § 60.102 or § 60.103 shall be recorded daily.

(d) For any fluid catalytic cracking unit catalyst regenerator which is subject to § 60.102 and which utilizes an incinerator-waste heat boiler to combust the exhaust gases from the catalyst regenerator, the owner or operator shall record daily the rate of combustion of liquid or solid fossil fuels (liters/hr or kilograms/hr) and the hours of operation during which liquid or solid fossil fuels are combusted in the incinerator-waste heat boiler.

(e) For the purpose of reports under § 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) *Opacity.* All one-hour periods which contain two or more six-minute periods during which the average opacity as measured by the continuous monitoring system exceeds 30 percent.

(2) *Carbon monoxide.* All hourly periods during which the average carbon monoxide concentration in the gases discharged into the atmosphere from any fluid catalytic cracking unit catalyst regenerator subject to § 60.103 exceeds 0.050 percent by volume.

(3) *Sulfur dioxide.* (i) Any three-hour period during which the average concentration of H_2S in any fuel gas combusted in any fuel gas combustion device subject to § 60.104(a)(1) exceeds 230 mg/dscm (0.10 gr/dscf), if compliance is achieved by removing H_2S from the fuel gas before it is burned; or any three-hour period during which the average concentration of SO_2 in the gases discharged into the atmosphere from any fuel gas combustion device subject to § 60.104(a)(1) exceeds the level specified in § 60.104(a)(1), if compliance is achieved by removing SO_2 from the combusted fuel gases.

(ii) Any twelve-hour period during which the average concentration of SO_2 in the gases discharged into the atmosphere from any Claus sulfur recovery plant subject to § 60.104(a)(2) exceeds 250 ppm at zero percent oxygen on a dry basis if compliance with § 60.104(b) is achieved through the use of an oxidation control system or a reduction control system followed by incineration; or any twelve-hour period during which the average concentration of H_2S, or reduced sulfur compounds in the gases discharged into the atmosphere of any Claus sulfur plant subject to § 60.104(a)(2)(b) exceeds 10 ppm or 300 ppm, respectively, at zero percent oxygen and on a dry basis if compliance is achieved through the use of a reduction control system not followed by incineration.

(4) Any six-hour period during which the average emissions (arithmetic average of six contiguous one-hour periods) of sulfur dioxide as measured by a continuous monitoring system exceed the standard under § 60.104.

[39 FR 9315, Mar. 8, 1974, as amended at 40 FR 46259, Oct. 6, 1975; 42 FR 32427, June 24, 1977; 42 FR 39389, Aug. 4, 1977; 43 FR 10869, Mar. 15, 1978; 48 FR 23611, May 25, 1983; 50 FR 31701, Aug. 5, 1985]

§ 60.106 Test methods and procedures.

(a) For the purpose of determining compliance with § 60.102(a)(1), the following reference methods and calculation procedures shall be used:

(1) For gases released to the atmosphere from the fluid catalytic cracking unit catalyst regenerator:

(i) Method 5B or 5F is to be used to determine particulate matter emissions and associated moisture content from affected facilities without wet FGD systems; only Method 5B is to be used after wet FGD systems.

(ii) Method 1 for sample and velocity traverses, and

(iii) Method 2 for velocity and volumetric flow rate.

(2) For Method 5B or 5F, the sampling time for each run shall be at least 60 minutes and the sampling rate shall be at least 0.015 dscm/min (0.53 dscf/min), except that shorter sampling times may be approved by the Administrator when process variables or other factors preclude sampling for at least 60 minutes.

(3) For exhaust gases from the fluid catalytic cracking unit catalyst regenerator prior to the emission control system: the integrated sample techniques of Method 3 and Method 4 for gas analysis and moisture content, respectively; Method 1 for velocity traverses; and Method 2 for velocity and volumetric flow rate.

(4) Coke burn off rate shall be determined by the following formula:

$R_c = 0.2982\ Q_{RE}\ (\%CO_2 + \%CO) + 2.088\ Q_{RA} - (0.0994\ Q_{RE}\ [\%CO/2 + \%CO_2 + \%O_2]$ (Metric Units) or

$R_c = 0.0186\ Q_{RE}\ (\%CO_2 + \%CO) + 0.1303\ Q_{RA} - 0.0062\ Q_{RE}\ [\%CO/2 + \%CO_2 + \%O_2]$ (English Units)

where:

R_c = coke burn-off rate, kg/hr (English units: lb/hr).

0.2982 = metric units material balance factor divided by 100, kg-min/hr-m³.

0.0186 = English units material balance factor divided by 100, lb-min/hr-ft³.

Q_{RE} = fluid catalytic cracking unit catalyst regenerator exhaust gas flow rate before entering the emission control system, as determined by method 2, dscm/min (English units: dscf/min)

$\%CO_2$ = percent carbon dioxide by volume, dry basis, as determined by Method 3.

$\%CO$ = percent carbon monoxide by volume, dry basis, as determined by Method 3.

$\%O_2$ = percent oxygen by volume, dry basis, as determined by Method 3.

2.088 = metric units material balance factor divided by 100, kg-min/hr-m³.

0.1303 = English units material balance factor divided by 100, lb-min/hr-ft³.

Q_{RA} = air rate to fluid catalytic cracking unit catalyst regenerator, as determined from fluid catalytic cracking unit control room instrumentation, dscm/min (English units: dscf/min).

0.0994 = metric units material balance factor divided by 100, kg-min/hr-m³.

0.0062 = English units material balance factor divided by 100, lb-min/hr-ft³.

(5) Particulate emissions shall be determined by the following equation:

$$R_E = (60 \times 10^{-6}) Q_{RV} C_s \text{ (Metric Units)}$$

or

$$R_E = (8.57 \times 10^{-3}) Q_{RV} C_s \text{ (English Units)}$$

where:

R_E = particulate emission rate, kg/hr (English units: lb/hr).

60×10^{-6} = metric units conversion factor, min-kg/hr-mg.

8.57×10^{-3} = English units conversion factor, min-lb/hr-gr.

Q_{RV} = volumetric flow rate of gases discharged into the atmosphere from the fluid catalytic cracking unit catalyst regenerator following the emission control system, as determined by Method 2, dscm/min (English units: dscf/min).

C_s = particulate emission concentration discharged into the atmosphere, as determined by Method 5, mg/dscm (English units: gr/dscf).

(6) For each run, emissions expressed in kg/1000 kg (English units: lb/1000 lb) of coke burn-off in the catalyst regenerator shall be determined by the following equation:

$$R_s = 1000 (R_E/R_c) \text{ (Metric or English Units)}$$

where:

R_s = particulate emission rate, kg/1000 kg (English units: lb/1000 lb) of coke burn-off in the fluid catalytic cracking unit catalyst regenerator.

1000 = conversion factor, kg to 1000 kg (English units: lb to 1000 lb).

R_E = particulate emission rate, kg/hr (English units: lb/hr).

R_c = coke burn-off rate, kg/hr (English units: lb/hr).

(7) In those instances in which auxiliary liquid or solid fossil fuels are burned in an incinerator-waste heat boiler, the rate of particulate matter emissions permitted under § 60.102(b) must be determined. Auxiliary fuel heat input, expressed in millions of cal/hr (English units: Millions of Btu/hr) shall be calculated for each run by fuel flow rate measurement and analysis of the liquid or solid auxiliary fossil fuels. For each run, the rate of particulate emissions permitted under § 60.102(b) shall be calculated from the following equation:

$$R_s = 1.0 + (0.18\ H/R_c) \text{ (Metric Units)}$$

or

$$R_s = 1.0 + (0.10\ H/R_c) \text{ (English Units)}$$

where:

R_s = allowable particulate emission rate, kg/1000 kg (English units: lb/1000 lb) of coke burn-off in the fluid catalytic cracking unit catalyst regenerator.

1.0 = emission standard, 1.0 kg/1000 kg (English units: 1.0 lb/1000 lb) of coke burn-off in the fluid catalytic cracking unit catalyst regenerator.

0.18 = metric units maximum allowable incremental rate of particulate emissions, g/million cal.

0.10 = English units maximum allowable incremental rate of particulate emissions, lb/million Btu.

H = heat input from solid or liquid fossil fuel, million cal/hr (English units: million Btu/hr).

R_c = coke burn-off rate, kg/hr (English units: lb/hr).

(b) For the purpose of determining compliance with § 60.103, the integrated sample technique of Method 10 shall be used. The sample shall be extracted at a rate proportional to the gas velocity at a sampling point near the centroid of the duct. The sampling time shall not be less than 60 minutes.

(c) For the purpose of determining compliance with § 60.104(a)(1), Method 11 shall be used to determine the concentration of H_2S and Method 6 shall be used to determine the concentration of SO_2.

(1) If Method 11 is used, the gases sampled shall be introduced into the sampling train at approximately atmospheric pressure. Where refinery fuel gas lines are operating at pressures substantially above atmosphere, this may be accomplished with a flow control valve. If the line pressure is high enough to operate the sampling train without a vacuum pump, the pump may be eliminated from the sampling train. The sample shall be drawn from a point near the centroid of the fuel gas line. The minimum sampling time shall be 10 minutes and the minimum sampling volume 0.01 dscm (0.35 dscf) for each sample. The arithmetic average of two samples of equal sampling time shall constitute one run. Samples shall be taken at approximately 1-hour intervals. For most fuel gases, sample times exceeding 20 minutes may result in depletion of the collecting solution, although fuel gases containing low concentrations of hydrogen sulfide may necessitate sampling for longer periods of time.

(2) If Method 6 is used, Method 1 shall be used for velocity traverses and Method 2 for determining velocity and volumetric flow rate. The sampling site for determining SO_2 concentration by Method 6 shall be the same as for determining volumetric flow rate by Method 2. The sampling point in the duct for determining SO_2 concentration by Method 6 shall be at the centroid of the cross section if the cross sectional area is less than 5 m² (54 ft²) or at a point no closer to the walls than 1 m (39 inches) if the cross sectional area is 5 m² or more and the centroid is more than one meter from the wall. The sample shall be extracted at a rate proportional to the gas velocity at the sampling point. The minimum sampling time shall be 10 minutes and the minimum sampling volume 0.01 dscm (0.35 dscf) for each sample. The arithmetic average of two samples of equal sampling time shall constitute one run. Samples shall be taken at approximately 1-hour intervals.

(d) For the purpose of determining compliance with § 60.104(a)(2), Method 6 shall be used to determine the concentration of SO_2 and Method 15 shall be used to determine the concentation of H_2S and reduced sulfur compounds. Method 15A may be used as an alternative method for determining reduced sulfur compounds.

(1) If Method 6 is used, the procedure outlined in paragraph (c)(2) of this section shall be followed except that each run shall span a minimum of four consecutive hours of continuous sampling. A number of separate samples may be taken for each run, provided the total sampling time of these samples adds up to a minimum of four consecutive hours. Where more than one sample is used, the average SO_2 concentration for the run shall be calculated as the time weighted average of the SO_2 concentration for each sample according to the formula:

$$C_R = \sum_{i=1}^{N} C_{Si} \frac{t_{Si}}{T}$$

where:

C_R = SO_2 concentration for the run.

N = Number of samples.

C_{Si} = SO_2 concentration for sample i.

t_{Si} = Continuous sampling time of sample i.

T = Total continuous sampling time of all N samples.

(2) If Method 15 is used, each run shall consist of 16 samples taken over a minimum of 3 hours. If Method 15A is used, each run shall consist of one 3-hour sample or three 1-hour samples. The sampling point shall be at the centroid of the cross section of the duct if the cross-sectional area is less than 5 m² (54 ft²) or at a point no closer to the walls than 1 m (39 in.) if the cross-sectional area is 5 m² or more and the centroid is more than 1 m from the wall. For Method 15, to ensure minimum residence time for the sample inside the sample lines, the sampling rate shall be at least 3 liters/min (0.1 ft³/min). The SO_2 equivalent for each run shall be calculated as the arithmetic average of the SO_2 equivalent of each sample during the run.

Method 4 shall be used to determine the moisture content of the gases when using Method 15. The sampling point for Method 4 shall be adjacent to the sampling point for Method 15. The sample shall be extracted at a rate proportional to the gas velocity at the sampling point. Each run shall span a minimum of 4 consecutive hours of continuous sampling. A number of separate samples may be taken for each run provided the total sampling time of these samples adds up to a minimum of 4 consecutive hours. Where more than one sample is used, the average moisture content for the run shall be calculated as the time weighted average of the moisture content of each sample according to the formula:

$$B_{wo} = \sum_{i=1}^{N} B_{si} \frac{t_{si}}{T}$$

where:

B_{wo} = Proportion by volume of water vapor in the gas stream for the run.
N = Number of samples.
B_{si} = Proportion by volume of water vapor in the gas stream for the sample i.
t_{si} = Continuous sampling time for sample i.
T = Total continuous sampling time of all N samples.

[39 FR 9315, Mar. 8, 1974, as amended at 42 FR 32427, June 24, 1977; 43 FR 10869, Mar. 15, 1978; 51 FR 42842, Nov. 26, 1986; 52 FR 20392, June 1, 1987]

Subpart K—Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978

§ 60.110 Applicability and designation of affected facility.

(a) Except as provided in § 60.110(b), the affected facility to which this subpart applies is each storage vessel for petroleum liquids which has a storage capacity greater than 151,412 liters (40,000 gallons).

(b) This subpart does not apply to storage vessels for petroleum or condensate stored, processed, and/or treated at a drilling and production facility prior to custody transfer.

(c) Subject to the requirements of this subpart is any facility under paragraph (a) of this section which:

(1) Has a capacity greater than 151,416 liters (40,000 gallons), but not exceeding 246,052 liters (65,000 gallons), and commences construction or modification after March 8, 1974, and prior to May 19, 1978.

(2) Has a capacity greater than 246,052 liters (65,000 gallons) and commences construction or modification after June 11, 1973, and prior to May 19, 1978.

[42 FR 37937, July 25, 1977, as amended at 45 FR 23379, Apr. 4, 1980]

§ 60.111 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this part.

(a) "Storage vessel" means any tank, reservoir, or container used for the storage of petroleum liquids, but does not include:

(1) Pressure vessels which are designed to operate in excess of 15 pounds per square inch gauge without emissions to the atmosphere except under emergency conditions,

(2) Subsurface caverns or porous rock reservoirs, or

(3) Underground tanks if the total volume of petroleum liquids added to and taken from a tank annually does not exceed twice the volume of the tank.

(b) "Petroleum liquids" means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery but does not mean Nos. 2 through 6 fuel oils as specified in ASTM D396-78, gas turbine fuel oils Nos. 2-GT through 4-GT as specified in ASTM D2880-78, or diesel fuel oils Nos. 2-D and 4-D as specified in ASTM D975-78. (These three methods are incorporated by reference—see §60.17.)

(c) "Petroleum refinery" means each facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum or through redistillation, cracking, extracting, or reforming of unfinished petroleum derivatives.

(d) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

(e) "Hydrocarbon" means any organic compound consisting predominantly of carbon and hydrogen.

(f) "Condensate" means hydrocarbon liquid separated from natural gas which condenses due to changes in the temperature and/or pressure and remains liquid at standard conditions.

(g) "Custody transfer" means the transfer of produced petroleum and/or condensate, after processing and/or treating in the producing operations, from storage tanks or automatic transfer facilities to pipelines or any other forms of transportation.

(h) "Drilling and production facility" means all drilling and servicing equipment, wells, flow lines, separators, equipment, gathering lines, and auxiliary nontransportation-related equipment used in the production of petroleum but does not include natural gasoline plants.

(i) "True vapor pressure" means the equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with methods described in American Petroleum Institute Bulletin 2517, Evaporation Loss from External Floating-Roof Tanks, Second Edition, February 1980 (incorporated by reference—see §60.17).

(j) "Floating roof" means a storage vessel cover consisting of a double deck, pontoon single deck, internal floating cover or covered floating roof, which rests upon and is supported by the petroleum liquid being contained, and is equipped with a closure seal or seals to close the space between the roof edge and tank wall.

(k) "Vapor recovery system" means a vapor gathering system capable of collecting all hydrocarbon vapors and gases discharged from the storage vessel and a vapor disposal system capable of processing such hydrocarbon vapors and gases so as to prevent their emission to the atmosphere.

(l) "Reid vapor pressure" is the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids, except liquified petroleum gases, as determined by ASTM D323-82 (incorporated by reference—see § 60.17).

[39 FR 9317, Mar. 8, 1974; 39 FR 13776, Apr. 17, 1974, as amended at 39 FR 20794, June 14, 1974; 45 FR 23379, Apr. 4, 1980; 48 FR 3737, Jan. 27, 1983; 52 FR 11429, Apr. 8, 1987]

§ 60.112 Standard for volatile organic compounds (VOC).

(a) The owner or operator of any storage vessel to which this subpart applies shall store petroleum liquids as follows:

(1) If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 78 mm Hg (1.5 psia) but not greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a floating roof, a vapor recovery system, or their equivalents.

(2) If the true vapor pressure of the petroleum liquid as stored is greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a vapor recovery system or its equivalent.

[39 FR 9317, Mar. 8, 1974; 39 FR 13776, Apr. 17, 1974, as amended at 45 FR 23379, Apr. 4, 1980]

§ 60.113 Monitoring of operations.

(a) Except as provided in paragraph (d) of this section, the owner or operator subject to this subpart shall maintain a record of the petroleum liquid stored, the period of storage, and the maximum true vapor pressure of that liquid during the respective storage period.

(b) Available data on the typical Reid vapor pressure and the maximum expected storage temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517, unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s).

(c) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa (2.0 psia) or whose physical properties preclude determination by the recommended method is to be determined from availcase-by-case basis if the owner or operator can demonstrate to the satisfaction of the Administrator that testing of representative stacks yields results comparable to those that would be obtained by testing all stacks.

Subpart FF—[Reserved]

Subpart GG—Standards of Performance for Stationary Gas Turbines

SOURCE: 44 FR 52798, Sept. 10, 1979, unless otherwise noted.

§ 60.330 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to the following affected facilities: All stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour, based on the lower heating value of the fuel fired.

(b) Any facility under paragraph (a) of this section which commences construction, modification, or reconstruction after October 3, 1977, is subject to the requirements of this part except as provided in paragraphs (e) and (j) of § 60.332.

[44 FR 52798, Sept. 10, 1979, as amended at 52 FR 42434, Nov. 5, 1987]

§ 60.331 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this part.

(a) "Stationary gas turbine" means any simple cycle gas turbine, regenerative cycle gas turbine or any gas turbine portion of a combined cycle steam/electric generating system that is not self propelled. It may, however, be mounted on a vehicle for portability.

(b) "Simple cycle gas turbine" means any stationary gas turbine which does not recover heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine, or which does not recover heat from the gas turbine exhaust gases to heat water or generate steam.

(c) "Regenerative cycle gas turbine" means any stationary gas turbine which recovers heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine.

(d) "Combined cycle gas turbine" means any stationary gas turbine which recovers heat from the gas turbine exhaust gases to heat water or generate steam.

(e) "Emergency gas turbine" means any stationary gas turbine which operates as a mechanical or electrical power source only when the primary power source for a facility has been rendered inoperable by an emergency situation.

(f) "Ice fog" means an atmospheric suspension of highly reflective ice crystals.

(g) "ISO standard day conditions" means 288 degrees Kelvin, 60 percent relative humidity and 101.3 kilopascals pressure.

(h) "Efficiency" means the gas turbine manufacturer's rated heat rate at peak load in terms of heat input per unit of power output based on the lower heating value of the fuel.

(i) "Peak load" means 100 percent of the manufacturer's design capacity of the gas turbine at ISO standard day conditions.

(j) "Base load" means the load level at which a gas turbine is normally operated.

(k) "Fire-fighting turbine" means any stationary gas turbine that is used solely to pump water for extinguishing fires.

(l) "Turbines employed in oil/gas production or oil/gas transportation" means any stationary gas turbine used to provide power to extract crude oil/natural gas from the earth or to move crude oil/natural gas, or products refined from these substances through pipelines.

(m) A "Metropolitan Statistical Area" or "MSA" as defined by the Department of Commerce.

(n) "Offshore platform gas turbines" means any stationary gas turbine located on a platform in an ocean.

(o) "Garrison facility" means any permanent military installation.

(p) "Gas turbine model" means a group of gas turbines having the same nominal air flow, combuster inlet pressure, combuster inlet temperature, firing temperature, turbine inlet temperature and turbine inlet pressure.

(q) "Electric utility stationary gas turbine" means any stationary gas turbine constructed for the purpose of supplying more than one-third of its potential electric output capacity to any utility power distribution system for sale.

(r) "Emergency fuel" is a fuel fired by a gas turbine only during circumstances, such as natural gas supply curtailment or breakdown of delivery system, that make it impossible to fire natural gas in the gas turbine.

(s) "Regenerative cycle gas turbine" means any stationary gas turbine that recovers thermal energy from the exhaust gases and utilizes the thermal energy to preheat air prior to entering the combustor.

[44 FR 52798, Sept. 10, 1979, as amended at 47 FR 3770, Jan. 27, 1982]

§ 60.332 Standard for nitrogen oxides.

(a) On and after the date of the performance test required by § 60.8 is completed, every owner or operator subject to the provisions of this subpart as specified in paragraphs (b), (c), and (d) of this section shall comply with one of the following, except as provided in paragraphs (e), (f), (g), (h), (i), (j), (k), and (l) of this section.

(1) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$STD = 0.0075 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NO_x emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO_x emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of this section.

(2) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$STD = 0.0150 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NO_x emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated peak load (kilojoules per watt hour), or actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO_x emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of this section.

(3) F shall be defined according to the nitrogen content of the fuel as follows:

Fuel-bound nitrogen (percent by weight)	F (NO_x percent by volume)
$N \leq 0.015$	0
$0.015 < N \leq 0.1$	0.04(N)
$0.1 < N \leq 0.25$	0.004 + 0.0067(N-0.1)
$N > 0.25$	0.005

where:

N = the nitrogen content of the fuel (percent by weight).

or:

Manufacturers may develop custom fuel-bound nitrogen allowances for each gas turbine model they manufacture. These fuel-bound nitrogen allowances shall be substantiated with data and must be approved for use by the Administrator before the initial performance test required by § 60.8. Notices of approval of custom fuel-bound nitrogen allowances will be published in the FEDERAL REGISTER.

(b) Electric utility stationary gas turbines with a heat input at peak load greater than 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired shall comply with the provisions of paragraph (a)(1) of this section.

(c) Stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour

(10 million Btu/hour) but less than or equal to 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired, shall comply with the provisions of paragraph (a)(2) of this section.

(d) Stationary gas turbines with a manufacturer's rated base load at ISO conditions of 30 megawatts or less except as provided in § 60.332(b) shall comply with paragraph (a)(2) of this section.

(e) Stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 million Btu/hour) but less than or equal to 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired and that have commenced construction prior to October 3, 1982 are exempt from paragraph (a) of this section.

(f) Stationary gas turbines using water or steam injection for control of NO_x emissions are exempt from paragraph (a) when ice fog is deemed a traffic hazard by the owner or operator of the gas turbine.

(g) Emergency gas turbines, military gas turbines for use in other than a garrison facility, military gas turbines installed for use as military training facilities, and fire fighting gas turbines are exempt from paragraph (a) of this section.

(h) Stationary gas turbines engaged by manufacturers in research and development of equipment for both gas turbine emission control techniques and gas turbine efficiency improvements are exempt from paragraph (a) on a case-by-case basis as determined by the Administrator.

(i) Exemptions from the requirements of paragraph (a) of this section will be granted on a case-by-case basis as determined by the Administrator in specific geographical areas where mandatory water restrictions are required by governmental agencies because of drought conditions. These exemptions will be allowed only while the mandatory water restrictions are in effect.

(j) Stationary gas turbines with a heat input at peak load greater than 107.2 gigajoules per hour that commenced construction, modification, or reconstruction between the dates of October 3, 1977, and January 27, 1982, and were required in the September 10, 1979, FEDERAL REGISTER (44 FR 52792) to comply with paragraph (a)(1) of this section, except electric utility stationary gas turbines, are exempt from paragraph (a) of this section.

(k) Stationary gas turbines with a heat input greater than or equal to 10.7 gigajoules per hour (10 million Btu/hour) when fired with natural gas are exempt from paragraph (a)(2) of this section when being fired with an emergency fuel.

(l) Regenerative cycle gas turbines with a heat input less than or equal to 107.2 gigajoules per hour (100 million Btu/hour) are exempt from paragraph (a) of this section.

[44 FR 52798, Sept. 10, 1979, as amended at 47 FR 3770, Jan. 27, 1982]

§ 60.333 Standard for sulfur dioxide.

On and after the date on which the performance test required to be conducted by § 60.8 is completed, every owner or operator subject to the provision of this subpart shall comply with one or the other of the following conditions:

(a) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine any gases which contain sulfur dioxide in excess of 0.015 percent by volume at 15 percent oxygen and on a dry basis.

(b) No owner or operator subject to the provisions of this subpart shall burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 percent by weight.

§ 60.334 Monitoring of operations.

(a) The owner or operator of any stationary gas turbine subject to the provisions of this subpart and using water injection to control NO_x emissions shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. This system shall be accurate to within ±5.0 percent and shall be approved by the Administrator.

(b) The owner or operator of any stationary gas turbine subject to the provisions of this subpart shall monitor sulfur content and nitrogen content of the fuel being fired in the turbine. The frequency of determination of these values shall be as follows:

(1) If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.

(2) If the turbine is supplied its fuel without intermediate bulk storage the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Administrator before they can be used to comply with paragraph (b) of this section.

(c) For the purpose of reports required under § 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) *Nitrogen oxides.* Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with § 60.332 by the performance test required in § 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in § 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under § 60.335(a).

(2) *Sulfur dioxide.* Any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 percent.

(3) *Ice fog.* Each period during which an exemption provided in § 60.332(g) is in effect shall be reported in writing to the Administrator quarterly. For each period the ambient conditions existing during the period, the date and time the air pollution control system was deactivated, and the date and time the air pollution control system was reactivated shall be reported. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.

(4) *Emergency fuel.* Each period during which an exemption provided in § 60.332(k) is in effect shall be included in the report required in § 60.7(c). For each period, the type, reasons, and duration of the firing of the emergency fuel shall be reported.

[44 FR 52798, Sept. 10, 1979, as amended at 47 FR 3770, Jan. 27, 1982]

§ 60.335 Test methods and procedures.

(a) The reference methods in Appendix A to this part, except as provided in § 60.8(b), shall be used to determine compliance with the standards prescribed in § 60.332 as follows:

(1) Reference Method 20 for the concentration of nitrogen oxides and oxygen. For affected facilities under this subpart, the span value shall be 300 parts per million of nitrogen oxides.

(i) The nitrogen oxides emission level measured by Reference Method 20 shall be adjusted to ISO standard day conditions by the following ambient condition correction factor:

$$NO_x = (NO_{x_{obs}}) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19(H_{obs} - 0.00633)} \left(\frac{T_{AMB}}{288^\circ K}\right)^{1.53}$$

where:

NO_x = emissions of NO_x at 15 percent oxygen and ISO standard ambient conditions.

$NO_{x_{obs}}$ = measured NO_x emissions at 15 percent oxygen, ppmv.

P_{ref} = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure.
P_{obs} = measured combustor inlet absolute pressure at test ambient pressure.
H_{obs} = specific humidity of ambient air at test.
e = transcendental constant (2.718).
T_{amb} = temperature of ambient air at test.

The adjusted NO_x emission level shall be used to determine compliance with § 60.332.

(ii) Manufacturers may develop custom ambient condition correction factors for each gas turbine model they manufacture in terms of combustor inlet pressure, ambient air pressure, ambient air humidity and ambient air temperature to adjust the nitrogen oxides emission level measured by the performance test as provided for in § 60.8 to ISO standard day conditions. These ambient condition correction factors shall be substantiated with data and must be approved for use by the Administrator before the initial performance test required by § 60.8. Notices of approval of custom ambient condition correction factors will be published in the FEDERAL REGISTER.

(iii) The water-to-fuel ratio necessary to comply with § 60.332 will be determined during the initial performance test by measuring NO_x emission using Reference Method 20 and the water-to-fuel ratio necessary to comply with § 60.332 at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer.

(2) The analytical methods and procedures employed to determine the nitrogen content of the fuel being fired shall be approved by the Administrator and shall be accurate to within ±5 percent.

(b) The method for determining compliance with § 60.333, except as provided in § 60.8(b), shall be as follows:

(1) Reference Method 20 for the concentration of sulfur dioxide and oxygen or

(2)(i) ASTM D 2880 71 for the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 for the sulfur content of gaseous fuels (these methods are incorporated by reference—see § 60.17). These methods shall also be used to comply with § 60.334(b).

(ii) The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples prior to analysis (with verification of the dilution ratio) is allowable subject to the approval of the Administrator.

(c) Analysis for the purpose of determining the sulfur content and the nitrogen content of the fuel as required by § 60.334(b), this subpart, may be performed by the owner/operator, a service contractor retained by the owner/operator, the fuel vendor, or any other qualified agency provided that the analytical methods employed by these agencies comply with the applicable paragraphs of this section.

[44 FR 52798, Sept. 10, 1979, as amended at 49 FR 30672, July 31, 1984]

Subpart HH—Standards of Performance for Lime Manufacturing Plants

SOURCE: 49 FR 18080, Apr. 26, 1984, unless otherwise noted.

§ 60.340 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to each rotary lime kiln used in the manufacture of lime.

(b) The provisions of this subpart are not applicable to facilities used in the manufacture of lime at kraft pulp mills.

(c) Any facility under paragraph (a) of this section that commences construction or modification after May 3, 1977, is subject to the requirements of this subpart.

§ 60.341 Definitions.

As used in this subpart, all terms not defined herein shall have the same meaning given them in the Act and in the General Provisions.

(a) "Lime manufacturing plant" means any plant which uses a rotary lime kiln to produce lime product from limestone by calcination.

(b) "Lime product" means the product of the calcination process including, but not limited to, calcitic lime, dolomitic lime, and dead-burned dolomite.

(c) "Positive-pressure fabric filter" means a fabric filter with the fans on the upstream side of the filter bags.

(d) "Rotary lime kiln" means a unit with an inclined rotating drum that is used to produce a lime product from limestone by calcination.

(e) "Stone feed" means limestone feedstock and millscale or other iron oxide additives that become part of the product.

§ 60.342 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any rotary lime kiln any gases which:

(1) Contain particulate matter in excess of 0.30 kilogram per megagram (0.60 lb/ton) of stone feed.

(2) Exhibit greater than 15 percent opacity when exiting from a dry emission control device.

§ 60.343 Monitoring of emissions and operations.

(a) The owner or operator of a facility that is subject to the provisions of this subpart shall install, calibrate, maintain, and operate a continuous monitoring system, except as provided in paragraphs (b) and (c) of this section, to monitor and record the opacity of a representative portion of the gases discharged into the atmosphere from any rotary lime kiln. The span of this system shall be set at 40 percent opacity.

(b) The owner or operator of any rotary lime kiln having a control device with a multiple stack exhaust or a roof monitor may, in lieu of the continuous opacity monitoring requirement of § 60.343(a), monitor visible emissions at least once per day of operation by using a certified visible emissions observer who, for each site where visible emissions are observed, will perform three Method 9 tests and record the results. Visible emission observations shall occur during normal operation of the rotary lime kiln at least once per day. For at least three 6-minute periods, the opacity shall be recorded for any point(s) where visible emissions are observed, and the corresponding feed rate of the kiln shall also be recorded. Records shall be maintained of any 6-minute average that is in excess of the emissions specified in § 60.342(a) of this subpart.

(c) The owner or operator of any rotary lime kiln using a wet scrubbing emission control device subject to the provisions of this subpart shall not be required to monitor the opacity of the gases discharged as required in paragraph (a) of this section, but shall install, calibrate, maintain, operate, and record the resultant information from the following continuous monitoring devices:

(1) A monitoring device for the continuous measurement of the pressure loss of the gas stream through the scrubber. The monitoring device must be accurate within ±250 pascals (one inch of water).

(2) A monitoring device for continuous measurement of the scrubbing liquid supply pressure to the control device. The monitoring device must be accurate within ±5 percent of the design scrubbing liquid supply pressure.

(d) For the purpose of conducting a performance test under § 60.8, the owner or operator of any lime manufacturing plant subject to the provisions of this subpart shall install, calibrate, maintain, and operate a device for measuring the mass rate of stone feed to any affected rotary lime kiln. The measuring device used must be accurate to within ±5 percent of the mass rate over its operating range.

(e) For the purpose of reports required under § 60.7(c), periods of excess emissions that shall be reported are defined as all 6-minute periods during which the average opacity of the visible emissions from any lime kiln subject to paragraph (a) of this subpart is greater than 15 percent or, in the case of wet scrubbers, any period in which the scrubber pressure drop is greater than 30 percent below the rate established during the per-

Subpart G—Standards of Performance for Nitric Acid Plants

§ 60.70 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to each nitric acid production unit, which is the affected facility.

(b) Any facility under paragraph (a) of this section that commences construction or modification after August 17, 1971, is subject to the requirements of this subpart.

[42 FR 37936, July 25, 1977]

§ 60.71 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this part.

(a) "Nitric acid production unit" means any facility producing weak nitric acid by either the pressure or atmospheric pressure process.

(b) "Weak nitric acid" means acid which is 30 to 70 percent in strength.

§ 60.72 Standard for nitrogen oxides.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which:

(1) Contain nitrogen oxides, expressed as NO_2, in excess of 1.5 kg per metric ton of acid produced (3.0 lb per ton), the production being expressed as 100 percent nitric acid.

(2) Exhibit 10 percent opacity, or greater.

[39 FR 20794, June 14, 1974, as amended at 40 FR 46250, Oct. 6, 1975]

§ 60.73 Emission monitoring.

(a) A continuous monitoring system for the measurement of nitrogen oxides shall be installed, calibrated, maintained, and operated by the owner or operator. The pollutant gas used to prepare calibration gas mixtures under paragraph 2.1, Performance Specification 2 and for calibration checks under § 60.13(d) to this part shall be nitrogen dioxide (NO_2). The span shall be set at 500 ppm of NO_2. Method 7, 7A, 7B, 7C, or 7D shall be used for conducting monitoring system performance evaluations under § 60.13(c).

(b) The owner or operator shall establish a conversion factor for the purpose of converting monitoring data into units of the applicable standard (kg/metric ton, lb/short ton). The conversion factor shall be established by measuring emissions with the continuous monitoring system concurrent with measuring emissions with the applicable reference method tests. Using only that portion of the continuous monitoring emission data that represents emission measurements concurrent with the reference method test periods, the conversion factor shall be determined by dividing the reference method test data averages by the monitoring data averages to obtain a ratio expressed in units of the applicable standard to units of the monitoring data, i.e., kg/metric ton per ppm (lb/short ton per ppm). The conversion factor shall be reestablished during any performance test under § 60.8 or any continuous monitoring system performance evaluation under § 60.13(c).

(c) The owner or operator shall record the daily production rate and hours of operation.

(d) [Reserved]

(e) For the purpose of reports required under § 60.7(c), periods of excess emissions that shall be reported are defined as any 3-hour period during which the average nitrogen oxides emissions (arithmetic average of three contiguous 1-hour periods) as measured by a continuous monitoring system exceed the standard under § 60.72(a).

[39 FR 20794, June 14, 1974, as amended at 40 FR 46258, Oct. 6, 1975; 50 FR 15894, Apr. 22, 1985]

§ 60.74 Test methods and procedures.

(a) The reference methods in Appendix A to this part, except as provided for in § 60.8(b), shall be used to determine compliance with the standard prescribed in § 60.72 as follows:

(1) Method 7, 7A, 7B, 7C, or 7D for the concentration of NO_x;

(2) Method 1 for sample and velocity traverses;

(3) Method 2 for velocity and volumetric flow rate; and

(4) Method 3 for gas analysis.

(b) For Method 7, 7A, 7B, 7C, or 7D the sample site shall be selected according to Method 1 and the sampling point shall be the centroid of the stack or duct or at a point no closer to the walls than 1 m (3.28 ft). For Method 7, 7A, or 7B, each run shall consist of four grab samples taken at approximately 15-minute intervals. The arithmetic mean of the samples shall constitute the run value. For Method 7C or 7D, each run shall consist of a 1-hour sample. A velocity traverse shall be performed once per run.

(c) Acid production rate, expressed in metric tons per hour of 100 percent nitric acid, shall be determined during each testing period by suitable methods and shall be confirmed by a material balance over the production system.

(d) For each run, nitrogen oxides, expressed in g/metric ton of 100 percent nitric acid, shall be determined by dividing the emission rate in g/hr by the acid production rate. The emission rate shall be determined by the equation,

$$g/hr = Q_s \times c$$

where

Q_s = volumetric flow rate of the effluent in dscm/hr, as determined in accordance with paragraph (a)(3) of this section, and

c = NO_x concentration in g/dscm, as determined in accordance with paragraph (a)(1) of this section.

[39 FR 20794, June 14, 1974, as amended at 50 FR 15894, Apr. 22, 1985]

Subpart H—Standards of Performance for Sulfuric Acid Plants

§ 60.80 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to each sulfuric acid production unit, which is the affected facility.

(b) Any facility under paragraph (a) of this section that commences construction or modification after August 17, 1971, is subject to the requirements of this subpart.

[42 FR 37936, July 25, 1977]

§ 60.81 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this part.

(a) "Sulfuric acid production unit" means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, organic sulfides and mercaptans, or acid sludge, but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.

(b) "Acid mist" means sulfuric acid mist, as measured by Method 8 of Appendix A to this part or an equivalent or alternative method.

[36 FR 24877, Dec. 23, 1971, as amended at 39 FR 20794, June 14, 1974]

§ 60.82 Standard for sulfur dioxide.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which contain sulfur dioxide in excess of 2 kg per metric ton of acid produced (4 lb per ton), the production being expressed as 100 percent H_2SO_4.

[39 FR 20794, June 14, 1974]

§ 60.83 Standard for acid mist.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which:

(1) Contain acid mist, expressed as H_2SO_4, in excess of 0.075 kg per metric ton of acid produced (0.15 lb per ton), the production being expressed as 100 percent H_2SO_4.

(2) Exhibit 10 percent opacity, or greater.

[39 FR 20794, June 14, 1974, as amended at 40 FR 46258, Oct. 6, 1975]

§ 60.84 Emission monitoring.

(a) A continuous monitoring system for the measurement of sulfur dioxide shall be installed, calibrated, maintained, and operated by the owner or operator. The pollutant gas used to prepare calibration gas mixtures under Performance Specification 2 and for calibration checks under § 60.13(d), shall be sulfur dioxide (SO_2). Reference Method 8 shall be used for conducting monitoring system performance evaluations under § 60.13(c) except that only the sulfur dioxide portion of the Method 8 results shall be used. The span shall be set at 1000 ppm of sulfur dioxide.

(b) The owner or operator shall establish a conversion factor for the purpose of converting monitoring data into units of the applicable standard (kg/metric ton, lb/short ton). The conversion factor shall be determined, as a minimum, three times daily by measuring the concentration of sulfur dioxide entering the converter using suitable methods (e.g., the Reich test, National Air Pollution Control Administration Publication No. 999-AP-13) and calculating the appropriate conversion factor for each eight-hour period as follows:

$$CF = k[(1.000 - 0.015r)/(r - s)]$$

where:

CF = conversion factor (kg/metric ton per ppm, lb/short ton per ppm).

k = constant derived from material balance. For determining CF in metric units, k = 0.0653. For determining CF in English units, k = 0.1306.

r = percentage of sulfur dioxide by volume entering the gas converter. Appropriate corrections must be made for air injection plants subject to the Administrator's approval.

s = percentage of sulfur dioxide by volume in the emissions to the atmosphere determined by the continuous monitoring system required under paragraph (a) of this section.

(c) The owner or operator shall record all conversion factors and values under paragraph (b) of this section from which they were computed (i.e., CF, r, and s).

(d) Alternatively, a source that processes elemental sulfur or an ore that contains elemental sulfur and uses air to supply oxygen may use the following continuous emission monitoring approach and calculation procedures in determining SO_2 emission rates in terms of the standard. This procedure is not required, but is an alternative that would alleviate problems encountered in the measurement of gas velocities or production rate. Continuous emission monitoring of SO_2, O_2, and CO_2 (if required) shall be installed, calibrated, maintained, and operated by the owner or operator and subjected to the certification procedures in Performance Specifications 2 and 3. The calibration procedure and span value for this SO_2 monitor shall be as specified in paragraph (b) of this section. The span value for CO_2 (if required) shall be 10 percent and for O_2 shall be 20.9 percent (air). A conversion factor based on process rate data is not necessary. Calculate the SO_2 emission rate as follows:

$$E_{SO_2} = C_{SO_2} S \frac{1}{0.265 - 0.0126(O_2) - A(CO_2)}$$

Where:

E_{SO_2} = SO_2 emission rate, kg/t acid (lb/ton acid).

C_{SO_2} = SO_2 concentration, kg/dscm (lb/dscf) (see table below).

S = Acid production rate factor.
 = 368 dscm/t acid for metric units.
 = 11800 dscf/ton acid for English units.

O_2 = O_2 concentration, percent.

A = Auxiliary fuel factor.
 = 0.00 for no fuel.
 = 0.0226 for methane.
 = 0.0217 for natural gas.
 = 0.0196 for propane.
 = 0.0172 for #2 oil.
 = 0.0161 for #6 oil.
 = 0.0140 for coal.
 = 0.0126 for coke.

O_2 = CO_2 concentration, percent.

NOTE: It is necessary in some cases to convert measured concentration units to other units for these calculations:

Use the following table for such conversions:

From—	To—	Multiply by—
g/scm	kg/scm	10^{-3}
mg/scm	kg/scm	10^{-6}
ppm (SO_2)	kg/scm	$2\,660 \times 10^{-9}$
ppm (SO_2)	lb/scf	$1\,660 \times 10^{-10}$

(e) For the purpose of reports under § 60.7(c), periods of excess emissions shall be all three-hour periods (or the arithmetic average of three consecutive one-hour periods) during which the integrated average sulfur dioxide emissions exceed the applicable standards under § 60.82.

[39 FR 20794, June 14, 1974, as amended at 40 FR 46259, Oct. 6, 1975; 48 FR 23611, May 25, 1983; 48 FR 4700, Sept. 29, 1983; 48 FR 48669, Oct. 20, 1983]

§ 60.85 Test methods and procedures.

(a) The reference methods in Appendix A to this part, except as provided for in § 60.8(b), shall be used to determine compliance with the standards prescribed in §§ 60.82 and 60.83 as follows:

(1) Method 8 for the concentrations of SO_2 and acid mist;

(2) Method 1 for sample and velocity traverses;

(3) Method 2 for velocity and volumetric flow rate; and

(4) Method 3 for gas analysis.

(b) The moisture content can be considered to be zero. For Method 8 the sampling time for each run shall be at least 60 minutes and the minimum sample volume shall be 1.15 dscm (40.6 dscf) except that smaller sampling times or sample volumes, when necessitated by process variables or other factors, may be approved by the Administrator.

(c) Acid production rate, expressed in metric tons per hour of 100 percent H_2SO_4, shall be determined during each testing period by suitable methods and shall be confirmed by a material balance over the production system.

(d) Acid mist and sulfur dioxide emissions, expressed in g/metric ton of 100 percent H_2SO_4, shall be determined by dividing the emission rate in g/hr by the acid production rate. The emission rate shall be determined by the equation:

$$g/hr = Q_s \times c,$$

where:

Q_s = volumetric flow rate of the effluent in dscm/hr as determined in accordance with paragraph (a)(3) of this section, and

c = acid mist and SO_2 concentrations in g/dscm as determined in accordance with paragraph (a)(1) of this section.

(e) Alternatively, a source that processes elemental sulfur or an ore that contains elemental sulfur and uses air to supply oxygen may use the SO_2, acid mist, O_2, and CO_2 (if required) measurement data in determining SO_2 and acid mist emission rates in terms of the standard. Data from the reference method tests as specified in (a) of this part are required; that is, Method 8 for SO_2 and acid mist and Method 3 for O_2 and CO_2. No determinations of production rate or total gas flow rate are necessary. Calculate the SO_2 and acid mist emission rate as described in § 60.84(d) substituting the acid mist concentration for C_{SO_2} as appropriate.

[39 FR 20794, June 14, 1974, as amended at 48 FR 44701, Sept. 29, 1983; 48 FR 48669, Oct. 20, 1983]

Subpart I—Standards of Performance for Hot Mix Asphalt Facilities

§ 60.90 Applicability and designation of affected facility.

(a) The affected facility to which the provisions of this subpart apply is each hot mix asphalt facility. For the purpose of this subpart, a hot mix asphalt facility is comprised only of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler, systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems.

(b) Any facility under paragraph (a) of this section that commences construction or modification after June 11, 1973, is subject to the requirements of this subpart.

[42 FR 37936, July 25, 1977, as amended at 51 FR 12325, Apr. 10, 1986]

§ 60.91 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this part.

(a) "Hot mix asphalt facility" means any facility, as described in § 60.90,

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toring procedures or requirements of this part including, but not limited to the following:

(1) Alternative monitoring requirements when installation of a continuous monitoring system or monitoring device specified by this part would not provide accurate measurements due to liquid water or other interferences caused by substances with the effluent gases.

(2) Alternative monitoring requirements when the affected facility is infrequently operated.

(3) Alternative monitoring requirements to accommodate continuous monitoring systems that require additional measurements to correct for stack moisture conditions.

(4) Alternative locations for installing continuous monitoring systems or monitoring devices when the owner or operator can demonstrate that installation at alternate locations will enable accurate and representative measurements.

(5) Alternative methods of converting pollutant concentration measurements to units of the standards.

(6) Alternative procedures for performing daily checks of zero and span drift that do not involve use of span gases or test cells.

(7) Alternatives to the A.S.T.M. test methods or sampling procedures specified by any subpart.

(8) Alternative continuous monitoring systems that do not meet the design or performance requirements in Performance Specification 1, Appendix B, but adequately demonstrate a definite and consistent relationship between its measurements and the measurements of opacity by a system complying with the requirements in Performance Specification 1. The Administrator may require that such demonstration be performed for each affected facility.

(9) Alternative monitoring requirements when the effluent from a single affected facility or the combined effluent from two or more affected facilities are released to the atmosphere through more than one point.

(j) An alternative to the relative accuracy test specified in Performance Specification 2 of Appendix B may be requested as follows:

(1) An alternative to the reference method tests for determining relative accuracy is available for sources with emission rates demonstrated to be less than 50 percent of the applicable standard. A source owner or operator may petition the Administrator to waive the relative accuracy test in section 7 of Performance Specification 2 and substitute the procedures in section 10 if the results of a performance test conducted according to the requirements in § 60.8 of this subpart or other tests performed following the criteria in § 60.8 demonstrate that the emission rate of the pollutant of interest in the units of the applicable standard is less than 50 percent of the applicable standard. For sources subject to standards expressed as control efficiency levels, a source owner or operator may petition the Administrator to waive the relative accurancy test and substitute the procedures in section 10 of Performance Specification 2 if the control device exhaust emission rate is less than 50 percent of the level needed to meet the control efficiency requirement. The alternative procedures do not apply if the continuous emission monitoring system is used to determine compliance continuously with the applicable standard. The petition to waive the relative accurancy test shall include a detailed description of the procedures to be applied. Included shall be location and procedure for conducting the alternative, the concentration or response levels of the alternative RA materials, and the other equipment checks included in the alternative procedure. The Administrator will review the petition for completeness and applicability. The determination to grant a waiver will depend on the intended use of the CEMS data (e.g., data collection purposes other than NSPS) and may require specifications more stringent than in Performance Specification 2 (e.g., the applicable emission limit is more stringent than NSPS).

(2) The waiver of a CEMS relative accuracy test will be reviewed and may be rescinded at such time following successful completion of the alternative RA procedure that the CEMS data indicate the source emissions approaching the level of the applicable

standard. The criterion for reviewing the waiver is the collection of CEMS data showing that emissions have exceeded 70 percent of the applicable standard for seven, consecutive, averaging periods as specified by the applicable regulation(s). For sources subject to standards expressed as control efficiency levels, the criterion for reviewing the waiver is the collection of CEMS data showing that exhaust emissons have exceeded 70 percent of the level needed to meet the control efficiency requirement for seven, consecutive, averaging periods as specified by the applicable regulation(s) [e.g., § 60.45(g) (2) and (3), § 60.73(e), and § 60.84(e)]. It is the responsibility of the source operator to maintain records and determine the level of emissions relative to the criterion on the waiver of relative accuracy testing. If this criterion is exceeded, the owner or operator must notify the Administrator within 10 days of such occurrence and include a description of the nature and cause of the increasing emissions. The Administrator will review the notification and may rescind the waiver and require the owner or operator to conduct a relative accuracy test of the CEMS as specified in section 7 of Performance Specification 2.

[40 FR 46255, Oct. 6, 1975; 40 FR 59205, Dec. 22, 1975, as amended at 41 FR 35185, Aug. 20, 1976; 48 FR 13326, Mar. 30, 1983; 48 FR 23610, May 25, 1983; 48 FR 32986, July 20, 1983; 52 FR 9782, Mar. 26, 1987; 52 FR 17555, May 11, 1987; 52 FR 21007, June 4, 1987]

§ 60.14 Modification.

(a) Except as provided under paragraphs (e) and (f) of this section, any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere.

(b) Emission rate shall be expressed as kg/hr of any pollutant discharged into the atmosphere for which a standard is applicable. The Administrator shall use the following to determine emission rate:

(1) Emission factors as specified in the latest issue of "Compilation of Air Pollutant Emission Factors," EPA Publication No. AP-42, or other emission factors determined by the Administrator to be superior to AP-42 emission factors, in cases where utilization of emission factors demonstrate that the emission level resulting from the physical or operational change will either clearly increase or clearly not increase.

(2) Material balances, continuous monitor data, or manual emission tests in cases where utilization of emission factors as referenced in paragraph (b)(1) of this section does not demonstrate to the Administrator's satisfaction whether the emission level resulting from the physical or operational change will either clearly increase or clearly not increase, or where an owner or operator demonstrates to the Administrator's satisfaction that there are reasonable grounds to dispute the result obtained by the Administrator utilizing emission factors as referenced in paragraph (b)(1) of this section. When the emission rate is based on results from manual emission tests or continuous monitoring systems, the procedures specified in Appendix C of this part shall be used to determine whether an increase in emission rate has occurred. Tests shall be conducted under such conditions as the Administrator shall specify to the owner or operator based on representative performance of the facility. At least three valid test runs must be conducted before and at least three after the physical or operational change. All operating parameters which may affect emissions must be held constant to the maximum feasible degree for all test runs.

(c) The addition of an affected facility to a stationary source as an expansion to that source or as a replacement for an existing facility shall not by itself bring within the applicability of this part any other facility within that source.

(d) [Reserved]

(e) The following shall not, by themselves, be considered modifications under this part:

(1) Maintenance, repair, and replacement which the Administrator determines to be routine for a source category, subject to the provisions of paragraph (c) of this section and § 60.15.

(2) An increase in production rate of an existing facility, if that increase can be accomplished without a capital expenditure on that facility.

(3) An increase in the hours of operation.

(4) Use of an alternative fuel or raw material if, prior to the date any standard under this part becomes applicable to that source type, as provided by § 60.1, the existing facility was designed to accommodate that alternative use. A facility shall be considered to be designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications as amended prior to the change. Conversion to coal required for energy considerations, as specified in section 111(a)(8) of the Act, shall not be considered a modification.

(5) The addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or is replaced by a system which the Administrator determines to be less environmentally beneficial.

(6) The relocation or change in ownership of an existing facility.

(f) Special provisions set forth under an applicable subpart of this part shall supersede any conflicting provisions of this section.

(g) Within 180 days of the completion of any physical or operational change subject to the control measures specified in paragraph (a) of this section, compliance with all applicable standards must be achieved.

[40 FR 58419, Dec. 16, 1975, amended at 43 FR 34347, Aug. 3, 1978; 45 FR 5617, Jan. 23, 1980]

§ 60.15 Reconstruction.

(a) An existing facility, upon reconstruction, becomes an affected facility, irrespective of any change in emission rate.

(b) "Reconstruction" means the replacement of components of an existing facility to such an extent that:

(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and

(2) It is technologically and economically feasible to meet the applicable standards set forth in this part.

(c) "Fixed capital cost" means the capital needed to provide all the depreciable components.

(d) If an owner or operator of an existing facility proposes to replace components, and the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, he shall notify the Administrator of the proposed replacements. The notice must be postmarked 60 days (or as soon as practicable) before construction of the replacements is commenced and must include the following information:

(1) Name and address of the owner or operator.

(2) The location of the existing facility.

(3) A brief description of the existing facility and the components which are to be replaced.

(4) A description of the existing air pollution control equipment and the proposed air pollution control equipment.

(5) An estimate of the fixed capital cost of the replacements and of constructing a comparable entirely new facility.

(6) The estimated life of the existing facility after the replacements.

(7) A discussion of any economic or technical limitations the facility may have in complying with the applicable standards of performance after the proposed replacements.

(e) The Administrator will determine, within 30 days of the receipt of the notice required by paragraph (d) of this section and any additional information he may reasonably require, whether the proposed replacement constitutes reconstruction.

(f) The Administrator's determination under paragraph (e) shall be based on:

(1) The fixed capital cost of the replacements in comparison to the fixed capital cost that would be required to construct a comparable entirely new facility;

(2) The estimated life of the facility after the replacements compared to the life of a comparable entirely new facility;

(3) The extent to which the components being replaced cause or contribute to the emissions from the facility; and

(4) Any economic or technical limitations on compliance with applicable standards of performance which are inherent in the proposed replacements.

(g) Individual subparts of this part may include specific provisions which refine and delimit the concept of reconstruction set forth in this section.

[40 FR 58420, Dec. 16, 1975]

§ 60.16 Priority list.

PRIORITIZED MAJOR SOURCE CATEGORIES

Priority Number [1]	Source Category
1.	Synthetic Organic Chemical Manufacturing Industry (SOCMI) and Volatile Organic Liquid Storage Vessels and Handling Equipment
	(a) SOCMI unit processes
	(b) Volatile organic liquid (VOL) storage vessels and handling equipment
	(c) SOCMI fugitive sources
	(d) SOCMI secondary sources
2	Industrial Surface Coating: Cans
3.	Petroleum Refineries: Fugitive Sources
4	Industrial Surface Coating: Paper
5.	Dry Cleaning
	(a) Perchloroethylene
	(b) Petroleum solvent
6	Graphic Arts
7	Polymers and Resins: Acrylic Resins
8	Mineral Wool (Deleted)
9	Stationary Internal Combustion Engines
10	Industrial Surface Coating: Fabric
11	Industrial-Commercial-Institutional Steam Generating Units
12	Incineration: Non-Municipal (Deleted)
13	Non-Metallic Mineral Processing
14	Metallic Mineral Processing
15	Secondary Copper (Deleted)
16	Phosphate Rock Preparation
17	Foundries: Steel and Gray Iron
18	Polymers and Resins: Polyethylene
19	Charcoal Production
20	Synthetic Rubber
	(a) Tire manufacture
	(b) SBR production
21	Vegetable Oil
22	Industrial Surface Coating: Metal Coil
23.	Petroleum Transportation and Marketing
24	By-Product Coke Ovens
25	Synthetic Fibers
26	Plywood Manufacture
27	Industrial Surface Coating: Automobiles
28	Industrial Surface Coating: Large Appliances
29	Crude Oil and Natural Gas Production
30	Secondary Aluminum
31.	Potash (Deleted)
32.	Lightweight Aggregate Industry: Clay, Shale, and Slate [2]
33	Glass
34.	Gypsum
35	Sodium Carbonate
36	Secondary Zinc (Deleted)
37.	Polymers and Resins: Phenolic
38.	Polymers and Resins: Urea-Melamine
39	Ammonia (Deleted)
40	Polymers and Resins: Polystyrene
41	Polymers and Resins: ABS-SAN Resins
42	Fiberglass
43	Polymers and Resins: Polypropylene
44	Textile Processing
45	Asphalt Processing and Asphalt Roofing Manufacture
46	Brick and Related Clay Products
47	Ceramic Clay Manufacturing (Deleted)
48	Ammonium Nitrate Fertilizer
49	Castable Refractories (Deleted)
50	Borax and Boric Acid (Deleted)
51	Polymers and Resins: Polyester Resins
52.	Ammonium Sulfate
53.	Starch
54	Perlite
55	Phosphoric Acid: Thermal Process (Deleted)
56	Uranium Refining
57	Animal Feed Defluorination (Deleted)
58.	Urea (for fertilizer and polymers)
59	Detergent (Deleted)

Other Source Categories

Lead acid battery manufacture [3]

Organic solvent cleaning [3]

Industrial surface coating: metal furniture [3]

Stationary gas turbines [4]

[1] Low numbers have highest priority, e.g., No. 1 is high priority, No. 59 is low priority.

[2] Formerly titled "Sintering: Clay and Fly Ash".

[3] Minor source category, but included on list since an NSPS is being developed for that source category.

[4] Not prioritized, since an NSPS for this major source category has already been promulgated.

[47 FR 951, Jan. 8, 1982, as amended at 47 FR 31876, July 23, 1982; 51 FR 42796, Nov. 25, 1986; 52 FR 11428, Apr. 8, 1987]

§ 60.17 Incorporations by reference.

The materials listed below are incorporated by reference in the corresponding sections noted. These incorporations by reference were approved by the Director of the Federal Register on the date listed. These materials are incorporated as they exist on the

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

FEB 1 5 1989

Mr. John W. Boston
Vice President
Wisconsin Electric Power Company
Post Office Box 2046
Milwaukee, Wisconsin 52301

OFFICE OF
GENERAL COUNSEL

Dear Mr. Boston:

This is a revised final determination, on reconsideration, regarding the applicability of the Clean Air Act's New Source Performance Standards (NSPS) and Prevention of Significant Deterioration (PSD) provisions to the proposed life extension project at the Port Washington steam electric generating station, which is owned and operated by Wisconsin Electric Power Company (WEPCO). This determination supplements the determination set forth in an October 14, 1988 letter to you from Lee M. Thomas, which in turn incorporated my September 9, 1988 memorandum. I find it necessary to reconsider EPA's original determination and issue this revised determination in part to address matters raised by, and new information submitted by, WEPCO representatives since the October 14 letter. WEPCO believes that these new aspects call into question the accuracy of EPA's prior determination.

For the following reasons, EPA today reaffirms, with limited exceptions detailed below, its earlier findings regarding the Port Washington life extension project. I hereby incorporate by reference the October 14 letter and the September 9 memorandum, and reaffirm the findings and conclusions in those two documents except where they are specifically superseded below.

This action constitutes final agency action for purposes of judicial review under section 307(b) of the Clean Air Act, 42 U.S.C. § 7607(b).

I. <u>CAPITAL EXPENDITURE</u>

EPA explained in its earlier determination that under the General Provisions of the NSPS regulations, a physical or operational change which increases emissions at an affected facility is a modification subject to NSPS. See 40 CFR 60.14(a). However, 40 CFR 60.14(e) provides certain exceptions to that general rule. In particular, section 60.14(e)(2) provides that an increase in production rate at an affected facility would not, by itself, be considered a modification if that increase is accomplished without a capital expenditure.

As has been discussed in recent meetings between WEPCO and EPA, the October 14, 1988 letter from Lee M. Thomas was based in part on information supplied by WEPCO in a letter dated October 11, 1988 which indicated that the increase in production rate at each of the five units would be accomplished with a capital expenditure. On October 13, 1988, and November 22, 1988 WEPCO submitted revised capital expenditure calculations. EPA has carefully reconsidered its earlier determination based on those two additional submissions.[1] However, as explained below, they provide no grounds on which to alter EPA's earlier finding on capital expenditure.

The modification provisions are designed in part to subject to NSPS those emissions increases caused by an increase in production rate that is in turn attributable to a significant investment in improvements to the capital stock. Consistent with this intent, capital expenditure calculations employ the total, as opposed to annual, cost of a given project at each affected facility.

Thus, the December 16, 1975 preamble to the promulgated definition of capital expenditure states that "...the total cost of increasing the production or operating rate must be determined. All expenditures necessary to increasing the facility's operating rate must be included in this total" (40 FR 58416) (emphasis added). The total cost of the planned work at each facility is then compared to the product of the existing facility's basis and the annual asset guideline repair allowance percentage used by the Internal Revenue Service for taxation purposes. If the total project cost for each facility exceeds the product of the basis and repair percentage for each facility, there is a capital expenditure at that facility. See 40 CFR 60.2.

It is appropriate to accumulate, for capital expenditure purposes, the cost of the renovations necessary to increase the facility's production rate, because the overall work necessary to increase a facility's production rate pursuant to a particular renovation project is the same whether the work is performed in one calendar year or during two (or more) years. The use of annual costs could encourage sources to distort normal business planning by artificially stretching out costs over time as a means of evading a finding of capital expenditure and consequent NSPS coverage.[2]

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[1] The October 13, 1988 submission was not received in time to be considered in issuing EPA's letter of October 14, 1988.

[2] Indeed, it appears that WEPCO may have extended the planned length of the Port Washington life extension project for precisely this purpose after being informed by EPA in the Octob

Rather, the purpose of the exemption in 40 CFR 60.14(e)(2) is to exclude from NSPS coverage increases in production rate that are accomplished without "an expenditure for long-term additions or improvements." See 39 FR 36948 (preamble to proposed NSPS regulations). Where the economic realities of the case are that increased production and, hence, emissions, are due to normal fluctuations in the business cycle rather than a considered decision to invest in substantial capital improvements, the NSPS do not apply.

The letter submitted on October 13 from Neil Childress of your staff to Gary McCutchen of EPA presented updated basis figures (determined by multiplying the original capital investment in the facility by a coefficient representing the inflation in construction costs between the year of the investment and the year in which the capital expenditure calculation is made) for each of the emissions units at Port Washington. These figures included costs of repair or replacement of equipment, such as steam turbines, that is not part of the existing affected facility for NSPS purposes. Since applicability determinations under the NSPS modification provisions are based on the existing affected facility, capital expenditure determinations likewise are limited to costs associated with the affected facility. For NSPS Subpart Da, the affected facility is the steam generating unit as defined at 40 CFR 60.40a. Therefore, EPA staff requested WEPCO to limit the basis figures to the steam generating unit.

The November 22, 1988 letter from Neil Childress to Walt Stevenson of EPA presented revised cost figures on the renovation work on steam generating units 1 - 4 related to the capital expenditure calculations. These November 22 basis figures are understood to be limited to costs associated with the affected facility. The November 22 letter also presented a revised and extended schedule for the renovation work, under which the costs of repairs in any one year would not exceed the product of the annual asset guideline repair allowance percentage, which is 5% for electric utility steam generating units, and the basis of each unit. Mr Childress' letter concluded that since 5% of each

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14, 1988 letter that there would be a capital expenditure using the original schedule. The unit 1 renovations have been extended from four years to five; unit 2 has been extended from four years to six; unit 3 has been extended from three years to six; unit 4 has been extended from two years to four. (Compare Telecopier Transmission, Neil Childress, WEPCO, to Gary McCutchen, EPA, October 11, 1988 (table attached to Response to Question No. 4) with Letter, Neil Childress, WEPCO, to Walt Stevenson, EPA, November 22, 1988, at page 2.)

unit's updated basis is not exceeded by the cost of renovation work in any one year, there would not be a capital expenditure at any of the units. The revised figures also show that the total costs for each unit over the entire renovation period would exceed the 5% basis figure by 50% to 325%.

As explained above, it is the total cost, not the annual cost of a renovation project that determines whether a capital expenditure has occurred. Accordingly, based on the calculations and total project costs in WEPCO's November 22, 1988 letter, the proposed project would result in a capital expenditure at each of the five Port Washington units, and those units would not qualify for the exemption in the NSPS modification provisions at 40 CFR 60.14(e)(2).[3] As to unit 5, WEPCO did not submit cost data limited to the affected facility. Thus, I have no reason to alter EPA's original determination that WEPCO has not demonstrated that the increase in production rate at unit 5 can be accomplished without a capital expenditure.

In addition, I have determined that it is more appropriate to utilize the <u>original</u> basis of each affected facility (as adjusted to reflect past capital improvements), expressed in nominal dollars, rather than the <u>updated</u> basis, expressed in current dollars, in determining NSPS applicability. Thus, even if WEPCO were correct that annual renovation costs, rather than total costs, should be used in capital expenditure calculations, in this case a comparison of annual renovation costs and the

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[3] WEPCO has argued that since the definition of capital expenditure at 40 CFR 60.2 refers to the IRS "<u>annual</u> asset guideline repair allowance percentage" (emphasis added), EPA is bound by the literal language of its own regulations to use annual rather than total project costs in making capital expenditure calculations. However, the regulations do not dictate such a result. Instead, on their face they call for a comparison between <u>total</u> renovation costs and the annual asset guideline. Had EPA intended the result suggested by WEPCO, it would have explicitly called for comparison of annual costs of the change for projects exceeding one year with the annual asset guideline. This it did not do. In addition, as indicated above, the purpose of the capital expenditure provision would not be served by annualizing project costs for capital expenditure purposes.

(adjusted) original basis of each affected facility shows that a capital expenditure would still occur.[4]

In making a more detailed inquiry into the capital expenditure matter in response to WEPCO's request, I have found that neither the NSPS General Provisions nor the preamble thereto contain any discussion of the matter of original versus updated basis, and that EPA has rarely been called upon to address this issue. However, upon review of EPA's past practice in this area, I have found that in developing performance standards for particular industries, EPA has provided the regulated community a mechanism to calculate the original basis in making capital expenditure calculations. See, e.g., "Equipment Leaks of VOC in Petroleum Refining Industry -- Background Information for Promulgated Standards," EPA-450/3-81-015b, December 7, 1983.[5] This suggests that EPA intended the original basis to be utilized to determine whether a capital expenditure is going to be made.

Moreover, I believe that the use of original basis is consistent with the overall purpose of the NSPS modification regulations in general, and the capital expenditure provisions in particular. The effect of using original basis is that the greater the age of an affected facility, the more likely it is that a given investment resulting in increased production will be deemed a capital expenditure and trigger NSPS. This is consistent with Congress' intent in adopting new source performance standards. Older facilities are more likely to use outdated equipment which does not reduce pollution to the extent more current technology does. Congress included modified sources within the new source performance standards of section 111 to ensure the use of new technology on such sources. <u>See</u> CAA §§ 111(a)(2), 111(a)(4);

II. AIR HEATER RENOVATIONS AT UNIT 1

In January 1989, WEPCO asked EPA to determine whether replacement of the heat transfer surface elements on the unit 1 air heater would trigger PSD or NSPS applicability. However, in a letter dated February 3, 1989, WEPCO withdrew this request,

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[4] It is worth noting in this regard that if EPA were to adhere to a literal reading of IRS guidelines as urged by WEPCO, it would have no choice but to use <u>original</u> basis as well as annualized costs in making capital expenditure calculations for Port Washington. Using this formula, WEPCO would exceed the repair allowance percentage at units 1 - 5 for most years, and NSPS would still apply.

[5] This Background Information Document provides an alternative to the method prescribed in the General Provision when it is difficult to determine original costs. The formula uses replacement costs and an inflation index to "approximate the original cost basis of the affected facility."

asserting that it could not receive approval in the time necessary, while reserving the right to renew it at a later time as to unit 1 or any other unit at Port Washington. Because this issue may arise again, and because I believe it bears upon the project as a whole, I find it appropriate to address the matter of air heater element replacement. Based on the information submitted regarding this new plan, as well as the earlier information submitted regarding air heater replacement work, I conclude that if WEPCO were to proceed under its revised and now withdrawn plan, it would not alter EPA's earlier finding that PSD and NSPS would apply. In order to explain this finding, it is useful to first summarize the relevant facts.

Originally, WEPCO advised EPA that it planned to replace the air heaters at units 1 - 4 in their entirety. As WEPCO explained:

> Air heaters are subject to the erosive and corrosive effects of the flue gas passing through them and require regular maintenance of the heat transfer surfaces.
>
> The plate-type air heaters on Units 1 - 4 do not lend themselves to replacement of the individual elements. Worn sections have been patched and blocked, where accessible, over the years. Now, however, overall corrosion and perforation has passed beyond the practical point of repair, and replacement of the air heaters is the economical way to maintain the air preheater system.
>
> The air heaters on Port Washington Unit 5 and the other units on the Wisconsin Electric system [other than Port Washington units 1 - 4] are of the Ljungstrom basket design, which allows the heat transfer surfaces (baskets) to be replaced easily. ***

See, e.g., List of Port Washington Projects, p. 6 (Attachment to April 22, 1988 letter from John W. Boston, WEPCO, to Gary McCutchen, EPA).

On January 11, 1989, WEPCO informed the State of Wisconsin that it was considering replacing all the plate elements at unit 1. In a letter to the State of Wisconsin, WEPCO described this project as routine repair work, "necessary to halt the continuing decrease in the capability of Unit 1," and submitted a list of 40 generating units where significant portions of the air heater have been replaced. See Letter, with attachment, from Mark P. Steinberg, WEPCO, to Dale Ziege, Wisconsin Department of Natural Resources, January 11, 1989.

In a telephone conversation with EPA staff the next day, WEPCO indicated that it desired to perform the unit 1 plate replacement work during a current unit outage; that it intended to replace only half, not all, of the elements, at a cost of approximately $500,000; that it intended to later scrap this work and replace the entire air heater as described in the original scope of work, at a cost of $2,600,000; and that it was considering performing the same work at unit 4 also. See Record of Telephone Conversation between David Schulz, EPA, and Mark Steinberg, Neil Childress, and Walter Woelfle, WEPCO, January 12, 1989.

In a meeting on January 17, 1989, WEPCO related that if it replaced half of the plate elements now, it probably would replace the remainder as part of the total renovation project at a later date and not replace the air heater in whole. WEPCO also related that complete replacement of the plate elements should increase unit 1's capability to the original design capacity. Finally, WEPCO stated in response to questions from EPA staff that none of the air heaters or plate elements at units 1 - 4 had ever been replaced in the past. See Memorandum, Meeting with WEPCO regarding the Port Washington Generating Station, from David Schulz, EPA, to Files, January 27, 1989.

In addition to the above information, I note that WEPCO's list of 40 units at which air heater element replacements have occurred include no units containing plate elements such as those on units 1 - 4 at Port Washington. Instead, all of the examples submitted are of the Ljungstrom basket type or the tubular type. I conclude that those examples are too dissimilar to the plate-type elements in use at units 1 - 4 to support WEPCO's contention that the work in question is routine.[6]

Based on all of the foregoing, I find no reason to depart from EPA's earlier conclusion that PSD and NSPS would apply to the air heater work on unit 1. It appears that despite WEPCO's recent recharacterization of this work as a separate project, it is properly viewed as an integral part of the overall Port Washington life extension project. WEPCO cannot evade PSD and NSPS applicability by carving out, and seeking separate treatment of, significant portions of an otherwise integrated renovation program. Such piecemeal actions, if allowed to go unchallenged, could readily eviscerate the clear intent of the Clean Air Act's

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[6] Further, even the list of air heater replacement work submitted by WEPCO did not establish this as routine repair work. Those 40 units comprise only a small fraction of total operating utility units, and even at the 40 units, air heater repair or replacement appears to have been a one-time occurrence, not routine repair.

new source provisions. Accordingly, if seen as part of WEPCO's previously proposed renovation project, the recent recharacterization of the unit 1 air heater work does nothing to alter the factors determinative of PSD and NSPS coverage.

III. CAPACITY TESTING FOR UNITS 1 - 4

A. Impact of Test Results on NSPS Applicability.

In Lee Thomas' October 14, 1988 letter, EPA stated that baseline emissions for NSPS purposes are determined by hourly maximum capacity just prior to the renovations. EPA relied on actual operating data to determine that current maximum capacity at units 1 - 4 has significantly deteriorated, such that the restoration of original design capacity through the life extension project would result in corresponding emissions increases. As to unit 5, EPA stated that current capacity at unit 5 is zero because it is physically inoperable. EPA rejected WEPCO's unsupported assertions that all five units could be operated at high capacities, but held open the possibility of further discussions on that point. Subsequently, in November and December of 1988, following discussions with EPA, WEPCO conducted capacity tests to determine current actual capacity.

Based on its review and analysis of the test data, EPA finds that the tests adequately demonstrate that units 2 and 3 can be operated at their original design capacity on a sustained basis. Accordingly, I hereby supersede EPA's earlier determination and find that NSPS would not apply to units 2 and 3 by virtue of the proposed renovations so long as the capacity of these units after completion of the work is no higher than demonstrated in the recent tests (694,000 and 690,000 pounds of steam per hour, respectively). As discussed in more detail below, this revised NSPS determination does not affect our determination that the PSD provisions would be applicable to the proposed work on these two units.

During the tests on units 1 and 4, WEPCO was able to operate these units at 497,000 and 586,000 pounds of steam per hour, respectively, representing 72% and 89% of these units' respective original design capacities. These tests are adequate to confirm EPA's original determination that units 1 and 4 are not capable of operating at their original design capacities, and that restoration of the lost capacity through the life extension will trigger NSPS coverage. EPA today also determines that these tests are not adequate to show that current actual capacity for purposes of establishing the NSPS baseline is as high as the levels achieved during the recent tests. Rather, I reaffirm that baseline for those units is determined by the lower capacities reflected in recent actual operating data as set forth in Lee Thomas' October 14 letter. EPA must reject the tests for purposes of establishing actual NSPS baselines because during the testing discussed above, there were significant, measured exceedances of the applicable particulate mass emission limit, and several measured exceedances of the applicable opacity limit contained in the Wisconsin State Implementation Plan. One of the purposes of these tests was to determine the maximum actual capacity of the Port Washington units that can be achieved in a lawful manner. As a consequence of the measured exceedances, WEPCO's tests cannot be relied on to demonstrate that the company could lawfully sustain the levels achieved during the testing.

Regarding unit 5, I find that by declining to conduct or schedule capacity tests, WEPCO has effectively conceded that unit 5 is at present inoperable. Therefore, I reaffirm that its baseline for NSPS purposes is zero.

B. Impact of Test Results on PSD Applicability.

In its February 3, 1989 letter, WEPCO asserted that EPA's October 14, 1988 determination assumed that the emission rate of each unit would increase following the renovations. Thus, WEPCO claims, EPA did not address the question whether units that are not increasing their emission rates following renovation can be deemed to trigger PSD. WEPCO is incorrect on both counts.

EPA's prior determination explained that under the PSD program, unlike NSPS, baseline emissions are determined by representative actual emissions prior to the physical or operational change. Accordingly, the results of testing conducted by WEPCO, intended to determine current maximum hourly capacity, have no impact on the existence of a significant net emissions increase for PSD purposes. Hence, those test results provide no reason to alter EPA's prior determination regarding PSD applicability.

Actual emissions are the product of the emission rate (amount of pollution per unit of production or throughput, e.g., pounds of sulfur dioxide per ton of coal combusted), the production rate or capacity utilization (amount of production or throughput per hour, e.g., tons of coal combusted per hour), and the hours of operation (e.g., hours per year). In its prior determination, EPA explained that an increase in any one of these three factors, if attributable to a physical or operational change, can trigger an emissions increase for PSD purposes, and rejected WEPCO's contention that only increases in the emission rate were determinative. In so doing, EPA explicitly assumed that emissions increases at Port Washington would come not from an increase in emission rate, but rather from increases in production rate or hours of operation. See Memorandum from Don R. Clay, September 9, 1988 at 8.

WEPCO further implies in its February 3, 1989 letter that the demonstration that units 2 and 3 can operate now at maximum design capacity means that there will be no increase in production rate for PSD purposes following the renovations. This is not the case because PSD baseline emissions are determined by representative actual emission rate, production rate, and hours of operation prior to the physical change. Representative actual emissions are determined by examining the actual emissions during a representative two year period, (See 40 CFR 52.21(b)(21)(ii)) which in this case the Administrator determined to be 1983 and 1984 (See Lee Thomas' Oct. 14 letter, at 5). The hourly capacity demonstration for NSPS purposes is not relevant to the PSD analysis.

IV. NSPS OPERATIONAL LIMITATIONS

In my September 9, 1988 memorandum, I pointed out that an affected facility cannot avoid NSPS applicability by offsetting, through the use of fuel with a lower sulfur content, an increase in the emission rate that would otherwise occur due to a physical or operational change. As I explained at that time, 40 CFR 60.14(e) provides that use of an alternative fuel or raw material -- such as higher-sulfur coal -- which an existing facility was designed to accommodate before a physical or operational change does not constitute a modification for NSPS purposes. It follows that the facility cannot avoid NSPS by switching to lower-sulfur fuel to counteract a prospective increase in emission rate because, under the regulations, the facility would always have to option to switch back to a higher-sulfur fuel at a later date without triggering NSPS.

Subsequent to the issuance of EPA's October 14, 1988 letter, WEPCO inquired whether it might be able to utilize lower-sulfur coal to avoid NSPS at Port Washington, notwithstanding the regulatory provision explained above, by agreeing to federally enforceable permit conditions that would bar the company from switching back to higher sulfur coal in the future. Restrictions of this nature are acceptable for netting transactions under the Act's PSD provisions. However, the statute reflects a basic political decision that fossil fuel-fired sources not rely only on natural occurring less-polluting fuels to comply with the NSPS. Instead, Congress declared that compliance must depend in part upon the application of flue gas treatment or other pollution control technologies. Thus, section 111(a)(1)(A)(ii) defines "standard of performance" for fossil fuel-fired sources as

> requiring the achievement of a percentage reduction in the emissions from such category of sources from the emissions which would have resulted from the use of

> fuels which are not subject to treatment prior to combustion ... .

Congress further clarified this point in a later paragraph of section 111(a) by adding:

> For the purpose of subparagraph (1)(A)(ii), any cleaning of the fuel or reduction in the pollution characteristics of the fuel after extraction and prior to combustion may be credited ... to a source which burns such fuel.

This core policy judgment is reflected as well in the legislative history of the 1977 Clean Air Act amendments. For example, the Conference Report states:

> The Senate concurs in the House provision with minor amendments. The agreement requires (1) that the standards of performance for fossil fuel-fired boilers be substantially upgraded to require the use of the best technological system of continuous emission reduction and to preclude use of untreated low sulfur coal alone as a means of compliance; ... (3) that for fossil fuel-fired sources, the new source performance standards must be comprised of both a standard of performance for emissions and an enforceable requirement for a percentage reduction in pollution from untreated fuel.

H.R. Rep. No. 95-564, 95th Cong., 1st Sess. 130.

Because the will of Congress is so clear that lower-sulfur fuels alone will not suffice to <u>comply</u> with NSPS, it would be inconsistent with the legislative intent for EPA to allow sources to use lower-sulfur fuel to <u>avoid coverage</u> of NSPS in the first instance in the manner suggested by WEPCO. If EPA were to follow such a course, numerous modifications to existing facilities could escape coverage in a manner contrary to the statutory purpose.

V. <u>THE TIMING OF THE LIFE EXTENSION PROJECT</u>

In discussions with EPA, WEPCO has challenged, on grounds of timing, EPA's position on baseline emissions for NSPS purposes. In its prior determination, EPA explained that under the NSPS regulations, baseline emissions are determined by hourly maximum capacity just prior to the renovations. Thus, the baseline for unit 5 at Port Washington is zero because the unit has been shut down for several years due to safety concerns. In response, WEPCO has presented the hypothetical question whether EPA would still have found a zero baseline if unit 5 had been shut down on a Friday due to some unexpected or catastrophic failure of a major component previously in good working order, and WEPCO had sought to replace that component on the following Monday. WEPCO asserts that in such circumstances, EPA should have established baseline emissions using the emissions rate just prior to the breakdown.

I find it unnecessary to engage in speculation by addressing the hypothetical situation presented by WEPCO, because it is far removed from the true circumstances surrounding the proposed Port Washington life extension project. In fact, unit 5 has been shut down for over four years, not a weekend, and that is the foundation of EPA's analysis and determination.

In conclusion, with limited exceptions, EPA today reaffirms the decisions reached in the October 14 determination. In addition, EPA has concluded that the work on each unit constitutes a capital expenditure and that the proposed air heater plate replacement work on unit 1 would trigger PSD and NSPS. As a result of the capacity test demonstration, however, I find that units 2 and 3 at Port Washington can be operated at their design capacity on a sustained basis. Therefore EPA's earlier determination with respect to NSPS applicability is superseded and NSPS would not apply to units 2 and 3 by virtue of the proposed renovations so long as the capacity of these units after the completion of this work is no higher than demonstrated in the recent tests. This determination does not affect PSD applicability for these two units. If you should have any questions about the foregoing, please feel free to contact me. Thank you for your cooperation in this matter.

Sincerely,

Don R. Clay
Acting Assistant Administrator
for Air & Radiation

APPENDIX B

SO_2 CHECKLIST

SO_2 Checklist

This checklist was developed from several other checklists and from the SO_2 Guideline itself for use in SIP processing oversight as required by SIP processing reform. It should be used as a guide to identify problems when reviewing a SIP and to prevent problems from occuring when writing a SIP. This checklist is an overview and is not intended to be comprehensive. Readers are encouraged to refer to the appropriate chapter in the SO_2 Guideline for more information.

SO_2 CHECKLIST   YES NO REFERENCE

Determining Air Quality Status of Areas

* Modeling is used in demonstration (see below)

* Justifies exclusion of any areas as not ambient air

* Demonstration that SIP is being implemented

* Redesignation will result in a change in emission limits

  -- Redesignation allows emission increase

  -- Emission increase justified by SIP revision

* Monitoring includes eight quarters of data showing attainment

Ambient Air Quality Monitoring and Data Usage

* Monitoring data are included

  -- Data are quality assured

  -- Data are part of SLAMS network

* Monitors located at points of expected maximum ground level concentrations

Air Quality Modeling

* Specifies version of Guideline on Air Quality Models (Guideline) used

  -- If prior to current version, specifies reason for grandfathering

* Specifies model(s) used

* Specifies terrain

* Specifies the 5-year set of meteorological data used

  -- If on-site data exist but were not used, provides rationale

* Outputs include 3 and 24 hour and annual average results

* Inputs reflect maximum allowable emissions for short-term analyses

  -- Justifies treatment of any emissions not input at maximum allowable

* Justifies stack heights input with respect to good engineering practice (GEP) requirements

  -- Modeling does not credit above formula GEP stack height

* Justifies any merged gas streams input with respect to stack height regulation

* Does not include varying emission rates with meteorological conditions

* Specifies background sources or justifies absence

  -- If background sources are present they are explicitly modeled

  -- Justifies background concentrations for those sources not modeled

* If actual stack height is below formula GEP, downwash modeling is provided

* Justifies any deviations from <u>Guideline</u>

Stack Height Regulations

* Stack height negative declaration evaluates sources:

  -- with stacks > 65 meters

  -- with merged gas streams and emissions > 5000 tons/year

  -- grandfathered and shows date of documention for grandfathering

Control Strategy

* Specifies block (or running) averages used

* Demonstrates no exceedance of NAAQS and PSD increment

* Justifies rollback or multipoint rollback

SIP Provisions

* Revision contains PSD analysis

* Bubbling, trading or balancing is included

  -- Justifies use of above

  -- Describes before and after conditions of bubble, trade or balance

* Sulfur variability is not credited

* Documents interstate and international impacts

Implementation Enforcement Aspects

* Test method uses averaging time consistent with modeling demonstration

* Test method does not rely on 30-day averaging

* Does not allow administrative revisions to the rule/permit requirements

* Specifies EPA test method

* Rule/permit does not include an expiration date

* Rule/permit justifies any malfunction, startup/shutdown, or maintenance provision

* Rule/permit requires Continuous Emission Monitoring

* Units of compliance are specified in the rule/permit (e.g. lbs/mmBtu)

* Justifies any mass/time limits

* Rule/permit specifies final compliance date

    -- compliance date does not exceed 3 years

* Rule/permit specifies more than one emission limit for any emission point

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(Please read Instructions on the reverse before completing)

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15. SUPPLEMENTARY NOTES

16. ABSTRACT

The SO_2 Guideline is an integration and clarification of policy and guidance information available for SO_2 programs. This Guideline is to aid the States and EPA Regional Offices, especially in the development, review, and enforcement of future SO_2 SIP revisions.

Each chapter of the Guideline presents a distillation of key policy and guidance for various subjects that are important to SO_2 programs. Each chapter also contains comprehensive references to the original material upon which the chapter is based. These references include relevant statutory and regulatory requirements (i.e., the Clean Air Act and the Code of Federal Regulations), FR notices, EPA guideline documents, and Agency policy and guidance correspondence.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
SO_2 State implementation plan (SIP) Attainment Ambient Air Ambient Monitoring Dispersion Modeling Stack Height NSPS Redesignation Enforcement		

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