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Category: 45 – Criteria for Plan Revisions for Nonattainment Areas

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

DATE: November 18, 1981

SUBJECT: Ozone SIP Data Base Review and Submittal Responsibilities

FROM: Richard G. Rhoads, Director
Monitoring and Data Analysis Division (MD-14)

TO: Director, Air and Hazardous Materials Division, Regions I-X
Director, Surveillance and Analysis Division, Regions I-X

Our January 22, 1981 ozone State Implementation Plan (SIP) policy requires that emission and air quality data bases be collected, analyzed and documented by December 31, 1987. Kathleen Bennett, in her memorandum of November 4, 1987 to the Regional Administrators, stressed the importance of these data bases to the SIP process. As a result, it is essential that adequate review be performed by the Regional Offices (ROs) to ensure, before the SIP process proceeds too far, that the States' plans are supported by technically sound data. The primary purpose of this memorandum is to outline the ROs' data base review and submittal responsibilities.

In summary, responsibility for review and acceptance of the ozone SIP data bases will rest with the ROs. Review should be in general accordance with the procedures outlined below for emission inventories and air quality/meteorological data. Final acceptance of these data bases should be indicated in formal correspondence from the ROs directly to the States. I would appreciate being copied on all correspondence concerning the ROs' dispositions of the reviews, but OAQPS concurrence will not be part of the review process unless the RO requests it.

OAQPS' role in this review process will be limited to establishing a data base repository for use in national air quality and policy analyses, reviewing the data bases for national consistency, and assisting in resolving common issues. In order to facilitate this involvement, the ROs should transmit copies of the ozone SIP data bases to OAQPS in a timely manner.

OAQPS will continue to provide technical guidance, as needed, in compiling the data bases. Also, we will continue to send you quarterly summaries of the status of the data bases and of any unresolved problems that may require special attention or corrective actions.

Emission Inventories

Emission data requirements for use in city-specific EKMA are outlined in Appendix D of EPA's ozone SIP policy and are described more specifically in

EPA-450/4-80-016, Final Emission Inventory Requirements for 1982 Ozone Implementation Plans (December 1980).

OAQPS currently plans only a limited review of each nonattainment area inventory submittal, to be largely conducted by the Air Management Technology Branch (AMTB) within my Division. Aside from evaluating each submittal for national consistency (i.e., looking for general adherence to EPA's guidance and identifying common problems), AMTB will also assist in coordinating reviews among ROs, where guidance or clarification provided in one Region may be helpful to other Regions. Finally, to the extent that AMTB can identify specific technical shortcomings, these problems will be summarized and quickly reported to the appropriate ROs.

In the SIP data base review process, OAQPS will act as a repository for the ozone SIP emission inventories. To ensure that OAQPS has these inventories, and can respond to the ROs in a timely manner, I urge that copies of the final inventories (including documentation) be forwarded to us as soon as possible after receipt from the local agencies. In this way, our limited reviews and those of the ROs can be concurrent.

In conducting technical reviews of the SIP inventories, the ROs must determine emissions data to be comprehensive, accurate and current, as prescribed in the Clean Air Act. To facilitate this review, Tom Lahre, in a March 31, 1981 memorandum to the Regional Office inventory contacts, distributed a point and area source checklist which complements the Office of Transportation and Land Use Policy's Guidelines for Review of Highly Source Emission Inventories for 1982 State Implementation Plans (EPA-440/12-80-002). The checks suggested in both of these references constitute a major step in assuring the quality of emission inventory data bases.

The SIP strategy projection inventories, required to be submitted to the ROs by July 1982, along with the SIPs, should also be forwarded to us as soon as possible after receipt. The major concern in reviewing these inventories is that they adequately reflect the emission reductions projected from the control strategies adopted in the SIPs. OAQPS will serve as a repository for these projections also. The ROs will continue to have lead responsibility in reviewing and accepting SIP strategy inventories, as well as baseline projection and base year inventories.

For further information on emission inventories, please contact Tom Lahre, Air Management Technology Branch, FTS 629-5585.

Air Quality and Meteorological Data

Air quality and meteorological data requirements for use in city-specific EKMA are also outlined in Appendix D of EPA's ozone SIP policy. These data are to be collected, analyzed and documented by December 31, 1981, and must include the most recent three years of data. Generally, data gathered in special studies during the summer of 1981 should be included. However, if these data cannot be assembled in time for SIP revision modeling, they may be submitted in July 1982 with the SIP. In such cases, the submittal should say how these data will affect the plan.

All air quality and meteorological data required for the SIPs should be

put into the SAROAD system by the ROs as early as possible, so we can have access to the data to meet our national oversight responsibilities. Data collected before 1981 already should have gone through an adequate verification process and been entered in SAROAD. Data collected in 1981, especially the summer study data, will probably still need to be verified. In most cases, these special studies will produce the best data available to support the SIPs. Hence, we recommend that extra effort be expended to compile, process and verify these data. Our recommendations for screening of air quality and meteorological data, respectively, are contained in Attachments 1 and 2.

We want to emphasize that any data flagged by the various screening procedures be verified by the agencies submitting those data, before entry into SAROAD, use in SIP analysis, or submission with the plan.

Generally, for EKMA modeling, five high ozone days will be selected for modeling from the data base. For other models used for SIP analyses, some other number of modeling days may be selected. For each nonattainment area, we would like to know the days chosen soon after their selection. Some documentation of the selection of these days should also be included.

The ROs will be primarily responsible for assuring that all air quality and meteorological data are verified and put in SAROAD in a timely manner. OAQPS will be available to provide guidance, to help resolve problems, and to assist in determining data adequacy. However, in helping to assess data adequately, we ask that the Regional Office Quality Assurance Coordinator review any questionable data first to seek explanation in the quality assurance records.

For further information on the above air quality/meteorological data recommendations, please contact Marty Martinez, Air Management Technology Branch, FTS 629-5575. He should also be sent the requested information on selected high ozone days.

2 Attachments

cc: W. Barber
B. Greene, A-101
R. Smith, ANR-443
E. Tuerk, OANR
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Attachment 1

Recommended Screening Procedures for Air Quality Data

For ozone and NO_x data to be placed by the Regional Offices in the SAROAD system, we recommend that the routinely available, automated edits/screens be applied to the data. These consist of the TERMINAL EDIT test, NAA067, with the following options:

MRBV	(Gap/Pattern Test)	NAE067	(ozone, NO _x and NO ₂)
TRANS	(Transaction Proof List)	NAD067	(any pollutant)
STAN	(Values over Standard)	NAC067	(ozone only)

These edits/screens are designed to flag values for further examination and verification. The Gap/Pattern test could not previously be applied to NO_x, but it is being programmed to accept NO_x data using the same criteria as for NO₂. It should be noted, however, that if both NO_x and NO₂ are to be put into SAROAD, and the Gap/Pattern test applied to either one of the two, any data that are flagged and subsequently rejected will necessarily mean rejection of coincident values for the other pollutant.

Presently, only TRANS can be used to screen NMOC data. Part of the output for TRANS is a list of the four highest values. Either by means of TRANS or by manually examining data listings, we suggest that NMOC values greater than 4.0 ppmC be flagged.

It would be advisable to apply additional manual screening procedures to NMOC data. The Air Management Technology Branch can provide further guidance on such manual procedures. AMTB can also provide further guidance on NMOC data gathered by discrete sampling and analysis techniques, based on the sum-of-species method.

Attachment 2

Recommended Screening Procedures for Meteorological Data

Meteorological data should be screened by the criteria given below. These criteria can be applied to data listings manually or can be automated, but they are not yet available as automated options in SAROAD. Two sets of test criteria are included, to cover required wind speed, wind direction and surface temperature data, and are designed flag potentially invalid data. The first set applies to all collected data, while the second set need be applied only to days selected for modeling. If data fall outside the limits of the criteria, they should be examined and verified.

A. Wind Direction

1. For All Data ¹
 - a. Values less than 1 degree
 - b. Values greater than 360 degrees
 - c. Wind direction values when wind speed is calm
2. For Data on Modeling Days ²
 - a. Change in wind direction from one hour to the next of more than 90 degrees
 - b. More than five consecutive hourly wind direction values within +/- 1 degree
 - c. Daytime resultant wind direction from urban site and airport (NWS or FAA) station not within 45 degrees

B. Wind Speed

1. For All Data ¹
 - a. Values > 56 mi/hr. (25 m/s)
 - b. More than five consecutive hourly values within +/- 0.2 mi/hr.
2. For Data on Modeling Days ²
 - a. Daytime values greater than 20 mph for two or more consecutive hours
 - b. A change in speed of greater than 10 mph between two consecutive values

¹ From "Quality Assurance Manual for Meteorological Monitoring Systems" - September 1981 draft document, EPA Environmental Monitoring Systems Laboratory, Research Triangle Park, North Carolina

² These criteria provide for comparison of measured values to the expected range of these parameters during periods of highest ozone concentrations.

C. Temperature

1. For All Data ¹
 - a. Values 9 degrees F greater than the monthly mean daily maximum
 - b. Values 9 degrees F less than the monthly mean daily minimum
 - c. A change in temperature of greater than 10 degrees F between two consecutive values
2. For Data on Modeling Days ²
 - a. Daily maximum values less than 80 degrees F
 - b. More than three consecutive daytime values within +/- 1 degree F

D. Checks for Representativeness

Wind direction and wind speed data used in determining upwind and downwind directions, and the urban temperature data used in computing mixing heights, should be checked against regional values (perhaps through comparison with synoptic weather maps), to ensure further the representativeness of these data.