1. In the first column "Brief description of proposed projects: Construct new airport terminal; Noise mitigation program", should read "Brief description of proposed projects: Construct new airport terminal".

2. In the second column "Class or classes of air carriers which the public agency has required requested not be required to collect PFCs:

Business Air Service South
Mayo Aviation, Inc.
Modesto Executive Air Charter
Raleigh Jet Charter
Valko, Inc.
Yecny Enterprises, Inc."

Should read "Class or classes of air carriers which the public agency has requested exemption from collecting PFC's: All Part 135 Air Taxi operation's at Ontario International Airport."

Issued in Los Angeles, California, on February 1, 1993.

Herman Bliss,

Manager, Airport Division, Western Pacific Region.

[FR Doc. 93–3394 Filed 2–11–93; 8:45 am]

BILLING CODE 4910–13–M

DEPARTMENT OF THE TREASURY

Public Information Collection Requirements Submitted to OMB for Review

February 8, 1993.

The Department of Treasury has submitted the following public information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1980, Public Law 96–511. Copies of the submission(s) may be obtained by calling the Treasury Bureau Clearance Officer listed. Comments regarding this information collection should be addressed to the OMB reviewer listed and to the Treasury Department Clearance Officer, Department of the Treasury, room 3171 Treasury Annex, 1500 Pennsylvania Avenue, NW., Washington, DC 20220.

Bureau of Engraving and Printing

OMB Number: 1520–0002
Form Number: BEP 5287
Type of Review: Extension
Title: Claim for Amounts Due in the Case of Deceased of Mutilated Currency
Description: Form 5287 is used when Treasury is required to determine ownership in cases of a deceased owner of damaged or mutilated currency
Respondents: Individuals or households, Businesses or other for-profit, Non-profit institutions, Small businesses or organizations
Estimated Number of Respondents: 180
Estimated Burden Hours Per Response: 55 minutes
Frequency of Response: On occasion
Estimated Total Reporting Burden: 165 hours
Clearance Officer: Pamela Grayson, (202) 447–0853, Bureau of Engraving and Printing, room 317A, Engraving and Printing Annex, 14th and C Streets, SW., Washington, DC 20228
OMB Reviewer: Milo Sunderhauf, (202) 395–6880, Office of Management and Budget, room 3001, New Executive Office Building, Washington, DC 20503

Lois K. Holland,

Departmental Reports Management Officer.

[FR Doc. 93–3379 Filed 2–11–93; 8:45 am]

BILLING CODE 4840–01–M

Public Information Collection Requirements Submitted to OMB for Review

February 8, 1993.

The Department of the Treasury has submitted the following public information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1980, Public Law 96–511. Copies of the submission(s) may be obtained by calling the Treasury Bureau Clearance Officer listed. Comments regarding this information collection should be addressed to the OMB reviewer listed and to the Treasury Department Clearance Officer, Department of the Treasury, room 3171 Treasury Annex, 1500 Pennsylvania Avenue, NW.. Washington, DC 20220.

Internal Revenue Service

OMB Number: 1545–0020

Form Number: IRS Form 709

Type of Review: Extension

Title: United States Gift (and Generation-Skipping Transfer) Tax Return

Description: Form 709 is used by individuals to report transfers subject to the gift and generation-skipping transfer taxes and to compute these taxes. IRS uses the information to enforce these taxes and to compute the estate tax.

Respondents: Individuals or households

Estimated Number of Respondents/ Recordkeepers: 110,000

Estimated Burden Hours Per Respondent/Recordkeeper:

Recordkeeping: 40 minutes

Learning about the law or the form: 56 minutes

Preparing the form: 1 hour, 41 minutes

Copying, assembling, and sending the form to the IRS: 1 hour, 3 minutes

Frequency of Response: Annually

Estimated Total Reporting/ Recordkeeping Burden: 471,900 hours

Clearance Officer: Garrick Shear, (202) 622–3869, Internal Revenue Service, room 5571, 1111 Constitution Avenue, NW., Washington, DC 20224

OMB Reviewer: Milo Sunderhauf, (202) 395–6880 Office of Management and Budget, room 3001, New Executive Office Building Washington, DC 20503

Lois K. Holland,

Departmental Reports Management Officer.

[FR Doc. 93–3378 Filed 2–11–93; 8:45 am]

BILLING CODE 4830–01–M

Sunshine Act Meetings

Federal Register
Vol. 58, No. 28
Friday, February 12, 1993

This section of the FEDERAL REGISTER contains notices of meetings published under the "Government in the Sunshine Act" (Pub. L. 94-409) 5 U.S.C. 552b(e)(3).

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

TIME AND DATE: 10 a.m., Wednesday, February 17, 1993.

PLACE: Marriner S. Eccles Federal Reserve Board Building, C Street entrance between 20th and 21st Streets, NW., Washington, DC 20551.

STATUS: Closed.

MATTERS TO BE CONSIDERED:

1. Personnel actions (appointments, promotions, assignments, reassignments, and salary actions) involving individual Federal Reserve System employees.
2. Any items carried forward from a previously announced meeting.

CONTACT PERSON FOR MORE INFORMATION: Mr. Joseph R. Coyne, Assistant to the Board; (202) 452–3204. You may call (202) 452–3207, beginning at approximately 5 p.m. two business days before this meeting, for a recorded announcement of bank and bank holding company applications scheduled for the meeting.

Dated: February 9, 1993.

Jennifer J. Johnson,

Associate Secretary of the Board.

[FR Doc. 93–3473 Filed 2–9–93; 4:48 pm]

BILLING CODE 6210–01–M

Corrections

Federal Register
Vol. 58, No. 28
Friday, February 12, 1993

This section of the FEDERAL REGISTER contains editorial corrections of previously published Presidential, Rule, Proposed Rule, and Notice documents. These corrections are prepared by the Office of the Federal Register. Agency prepared corrections are issued as signed documents and appear in the appropriate document categories elsewhere in the issue.

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[G-910-G3-0009-4210-04; NMNM 71324]

Notice of Realty Action-Exchange; New Mexico

Correction

In notice document 92-29346 beginning on page 57508 in the issue of Friday, December 4, 1992, make the following corrections:

On page 57508, in the third column:

(a) In the first land description, T. 30 N., R. 12 W., in Sec. 19, in the second line "SW¼SE¼NE¼" should read "SW¼SW¼NE¼".

(b) In the second land description, T. 32 N., R. 13 W., in Sec. 15, in the first line, insert "NE¼" before "SW¼," each time it appears.

BILLING CODE 1505-01-D

NATIONAL INDIAN GAMING COMMISSION

25 CFR Parts 501, 519, 522, 523, 524, 556, 558

RIN 3141-AA01

Purpose and Scope; Service; Approval of Class II and Class III Gaming Ordinances; Background Investigations and Gaming Licenses Under the Indian Gaming Regulatory Act

Correction

In rule document 93-1062 beginning on page 5802 in the issue of Friday, January 22, 1993, make the following corrections:

1. On page 5803, in the third column, in the ninth line, insert a period after "2702(2)".

2. On the same page, in the same column, in the 15th and 16th lines, "(the IGRA)." should read "[the IGRA]."

3. On page 5805, in the second column, in the eighth line, "o(f)" should read "o[f]".

4. On the same page, in the same column, in the second full paragraph, in the ninth and tenth lines, the phrase "concerning individually owned gaming operations" should appear in brackets, not parentheses.

5. On page 5807, in the 1st column, in the 1st full paragraph, in the 15th line, "with" should read "such".

6. On page 5808, in the first column, in the second line, "(operation)" should read "[operation]".

7. On the same page, in the same column, in the fourth line, "(a) tribe" should read "[a] tribe".

BILLING CODE 1505-01-D

NATIONAL INDIAN GAMING COMMISSION

25 CFR Parts 531, 533, 535, 537 and 539

RIN 3141-AA03

Management Contract Requirements and Procedures Under the Indian Gaming Regulatory Act

Correction

In rule document 93-1064 beginning on page 5818 in the issue of Friday, January 22, 1993, make the following correction:

On page 5819, in the second column, in the fourth full paragraph, in the seventh line, "dies" should read "does".

BILLING CODE 1505-01-D

NATIONAL INDIAN GAMING COMMISSION

25 CFR Part 515

RIN 3141-AA01

Privacy Act Procedures

Correction

In rule document 93-1063 beginning on page 5814 in the issue of Friday, January 22, 1993, make the following correction:

On page 5815, in the 1st column, in the 11th line, "complied" should read "compiled".

BILLING CODE 1505-01-D

NATIONAL INDIAN GAMING COMMISSION

25 CFR Parts 571, 573, 575, 577

RIN 3141-AA02

Compliance and Enforcement Procedures Under the Indian Gaming Regulatory Act

Correction

In rule document 93-1065 beginning on page 5833 in the issue of Friday, January 22, 1993, make the following corrections:

1. On page 5838, in the second column, in the eighth full paragraph, in the fifth line, "of" should read "or".

§ 571.2 [Corrected]

2. On page 5842, in the second column, in § 571.2, in the eighth paragraph, in the first line, "*Respondent*" was misspelled.

BILLING CODE 1505-01-D

NUCLEAR REGULATORY COMMISSION

48 CFR Chapter 20

RIN 3150-AC01

Acquisition Regualtion (NRCAR)

Correction

In rule document 92-30419 beginning on page 61152 in the issue of Wednesday, December 23, 1992, make the following corrections:

1. On page 61153, in the first column, in the first line, before "requirement" insert the beginning of paragraph "Another section of the proposed COI policy on which the Commission received objections related to the".

2001.602-3 [Corrected]

2. On page 61159, in the first column, in section 2001.602-3(c), in the first line, "Request" should read "Requests".

2009.570-2 [Corrected]

3. On page 61162, in the first column, in section 2009.570-2, in the second full paragraph, in the sixth line, and in the fourth paragraph, in the seventh line, "director" should read "directors".

2015.604 [Corrected]

4. On page 61167, in the first column, in section 2015.604(b), in the fourth line, "or" should read "of".

2015.605 [Corrected]

5. On the same page, in the same column, in section 2015.605, in the second line from the end of the paragraph, "go/on go", should read "go/no go".

2015.611 [Corrected]

6. On page 61167, in the second column, in section 2015.611, in the first line, "evaluations" should read "evaluates".

PART 2052—[CORRECTED]

7. On page 61171, in the third column, in part 2052, in the table of contents, in the 18th line, "2052.216–84" should read "2052.215–84".

2052.216–74 [Corrected]

8. On page 61179, in the third column, in section 2052.216–74, in the contract, in paragraph (b)(2), in the fourth line, "Contracting" should read "Contract".

2052.231–70 [Corrected]

9. On page 61180, in the first column, in section 2052.231–70, in the contract, in the first paragraph, in the fifth line, "data" should read "date".

BILLING CODE 1505–01–D

federal register

Friday
February 12, 1993

Part II

Environmental Protection Agency

40 CFR Part 58
Ambient Air Quality Surveillance; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 58

[AD-FRL-4099-6]

RIN 2060-AD18

Ambient Air Quality Surveillance

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This final rule revises the ambient air quality surveillance regulations to include provisions for the enhanced monitoring of ozone and its precursors including oxides of nitrogen, volatile organic compounds (including carbonyls) and meteorological parameters. These revisions satisfy the requirements of title I, section 182 of the 1990 Clean Air Act Amendments. These revisions require States to establish photochemical assessment monitoring stations (PAMS) as part of their State Implementation Plan (SIP) monitoring network in ozone nonattainment areas classified as serious, severe, or extreme. Included in these revisions are minimum criteria for network design, monitor siting, monitoring methods, operating schedules, quality assurance, and data submittal.

EFFECTIVE DATE: These regulations take effect on February 12, 1993.

ADDRESSES: Docket Statement: All comments received relative to this rule have been placed in Docket No. A-91-22, located in the Central Docket Section, Room M1500 (First Floor, Waterside Mall), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460. This docket is available for public inspection and copying from 8:30-12 a.m. and from 1:30-3:30 p.m., Monday through Friday. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Geri Dorosz-Stargardt, Technical Support Division (MD-14), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, phone: (919) 541-5492.

SUPPLEMENTARY INFORMATION:

Background

Section 110(a)(2)(C) of the Clean Air Act requires ambient air quality monitoring for purposes of the State Implementation Plan (SIP) and reporting of the data to EPA. Uniform criteria for measuring air quality and provisions for the reporting of a daily air pollution index are required by section 319 of the Act. To satisfy these requirements, on May 10, 1979 (44 FR 27571), EPA established 40 CFR part 58 which provided detailed requirements for air quality surveillance and data reporting for all the pollutants except lead for which ambient air quality standards (criteria pollutants) had been established. On September 3, 1981 (46 FR 44164) similar rules were promulgated for lead and on July 1, 1987 (52 FR 24740) for particulate matter (PM_{10}).

On March 4, 1992, these rules were proposed in the **Federal Register** as amendments to 40 CFR part 58. These regulations address the minimum requirements for the monitoring of speciated volatile organic compounds (VOC), oxides of nitrogen (NO_X), and meteorological parameters as well as additional ambient air monitoring for ozone (O_3). Title I, section 182 of the 1990 Clean Air Act Amendments requires EPA to promulgate regulations for the enhanced monitoring of O_3 and its precursors and for the affected States to incorporate the requirements as a part of their State Implementation Plans. Also, section 184(d) requires that the best available air quality monitoring and modeling techniques be used in making determinations concerning the contribution of sources in one area to concentrations of O_3 in another area which is a nonattainment area for ozone. Additionally, these enhanced ozone and ozone precursor monitoring rules adhere to the fundamental recommendations, regarding ambient monitoring, of the National Academy of Sciences (NAS) in the report entitled, Rethinking the Ozone Problem in Urban and Regional Air Pollution, which was prepared pursuant to section 185B of the 1990 Clean Air Act Amendments. In that report, the NAS noted the need for additional feedback mechanisms for evaluating the effectiveness of ozone control strategies.

The intent of these enhanced ozone and ozone precursor monitoring regulations is to require air pollution control agencies to obtain an air quality database that will assist in evaluating, tracking the progress of, and, if necessary, refining control strategies for attaining the ozone National Ambient Air Quality Standards (NAAQS). Photochemical assessment monitoring stations (PAMS) will be established to collect ambient concentrations of ozone (O_3), oxides of nitrogen (NO_X), nitrogen dioxide (NO_2), nitrogen oxide (NO), and speciated VOC including carbonyls, and meteorological data to better characterize the nature and extent of the O_3 problem, aid in tracking VOC and NO_X emission inventory reductions, assess air quality trends, and make attainment/nonattainment decisions. In addition, the PAMS will provide a more definitive database for evaluating photochemical model performance, especially for future control strategy mid-course corrections as part of the continuing air quality management process. The data will be particularly useful to States in ensuring the implementation of the most cost-effective regulatory controls.

In the process of developing these regulations, EPA sought the assistance of the Standing Air Monitoring Work Group (SAMWG). SAMWG was established by EPA in 1975 to assist in developing air monitoring strategies, correcting identified monitoring problems, and improving overall national monitoring operations. SAMWG members represent State and local air pollution control agencies and EPA program and Regional Offices. SAMWG members were active partners in developing and reviewing the 1979 part 58 rulemaking package which formally established the existing framework of the ambient air quality surveillance and data reporting regulations. The group also played a prominent role in all subsequent revisions to part 58.

Public Comments

The object of **Federal Register** proposals is to allow comments on new regulations prior to their promulgation, thereby providing an opportunity for the public to participate in the rulemaking process. On March 4, 1992, these rules were proposed in the **Federal Register** with a 30-day comment period. In response to requests from the public, especially from the regulated community of State and local air pollution control agencies, on April 3, 1992, EPA extended the public comment period on the enhanced O_3 and O_3 precursor monitoring regulations until May 4, 1992.

EPA received 40 written comment letters on the proposal of March 4, 1992. All of the written comments submitted to EPA are contained in EPA's Docket No. A-91-22. Of the letters reviewed, 16 come from State agencies, 10 from industry, 2 from institutes and universities, 6 from State/local associations, 5 from local agencies, and 1 from a federal agency. A list of all commenters writing to the public docket is provided in Docket A-91-22.

The following discussion covers the substantive comments. A detailed discussion of the basic concepts of the regulations can be found in the preamble to the March 4, 1992 proposal.

A. General Comments

The comments discussed under this heading were not specific to any rule or appendix, but were general comments on some aspect of the proposed monitoring program.

One commenter noted that the Muskegon nonattainment area had been reclassified from a serious to a moderate classification and therefore should be withdrawn from consideration in the final rules. Since this area and the Sheyboygan area have been reclassified and are no longer serious, severe, or extreme O_3 nonattainment areas, EPA agrees that these rules would not apply to either Muskegon or Sheyboygan. Accordingly, Muskegon and Sheyboygan are not included in EPA's estimated requirements for PAMS. Note that applicability of these enhanced O_3 and O_3 precursor monitoring rules is determined by the classification of the O_3 nonattainment area and not by the fact that an area is listed specifically in or omitted from this notice.

One commenter observed that Ventura County, California, was created as a separate O_3 nonattainment area from the Los Angeles Consolidated Metropolitan Statistical Area (CMSA) and requested clarification as to this area's status with regard to the enhanced O_3 and O_3 precursor monitoring requirements. EPA notes that since Ventura County was classified as a severe O_3 nonattainment area, the county is subject to these rules.

One commenter agreed with the basic concepts proposed on March 4, but suggested that the final promulgation not add additional requirements. A second commenter expressed a similar opinion that EPA not kill the effort with additional mandates unless the Agency is willing to proceed slowly and absorb the costs. EPA evaluated the substantive comments on their individual and collective merits and has incorporated a number of modifications to the original proposal. Only those additional activities addressed, in the March 4 proposal, were added. Regarding resources, EPA has demonstrated its willingness to participate in the funding process; a further discussion of resource needs and funding follows under Resources and Costs.

One commenter indicated that although the regulation is reasonably specific concerning network design, it lacks specificity for the submittal of SIP revisions. Given the complexity of the rules, EPA believed that it was necessary to provide extensive detail concerning the design of the new PAMS networks. The wide variability, inherent in SIPs, precludes such specificity when requiring SIP revisions. Each currently-approved SIP contains appropriate provisions for establishing and operating the network of State and Local Air Monitoring Stations (SLAMS) including those stations identified as National Air Monitoring Stations (NAMS). The SIPs generally provide that SLAMS and NAMS will measure ambient concentrations of those criteria pollutants for which standards have been established in 40 CFR part 50. The SIP revisions submitted to comply with these revisions to 40 CFR part 58.20 will additionally provide for the monitoring of ambient concentrations of non-criteria pollutants such as speciated VOC including carbonyls, NO and NO_X, as well as meteorological parameters in the same manner that the criteria pollutants were addressed. Note that the reference to aldehydes has been changed to carbonyls to more accurately reflect the requirements of the technical assistance document (Reference 2 of Appendix C). The guidance currently stipulates sampling and analysis for the following carbonyls: Formaldehyde, acetaldehyde, and acetone.

The same commenter contends that the rules indicate virtually no need for new O_3 sites and a modest expansion of the NO_2 monitoring effort and believes that these conclusions are based in great part on the assumption that PAMS monitors could be located at existing O_3 and/or NO_2 monitoring sites. The commenter was concerned that if this assumption is in error, the expansion needs of the networks may be underestimated. In fact, EPA did assume that some of the PAMS stations could be located at existing SLAMS or NAMS sites. For example, the PAMS type (3) site is located at the downwind site where maximum O_3 concentrations are expected to occur. This description corresponds to the category (a) NAMS O_3 site specified in appendix D of 40 CFR part 58. Such a site is required for all urban areas having a population of greater than 200,000. Because most of the nonattainment areas classified as severe, serious, or extreme for O_3 are located in urbanized areas which exceed this population threshold, each area would currently be expected to be operating a category (a) NAMS O_3 site. Assuming that these sites are properly located, it would therefore be common to find the PAMS type (3) site and the NAMS category (a) site coincident. In siting NAMS NO_2 sites in urban areas with populations greater than 1,000,000, the monitoring sites could potentially be collocated with one of the two PAMS type (2) sites. Generally, EPA believes that some collocation of PAMS and SLAMS/NAMS sites is highly likely. In addition, in areas where a substantial number of SLAMS O_3 and NO_2 sites currently exist, it is not unreasonable, for purposes of estimating costs, to assume that the State air pollution control agency will relocate ambient monitors and appurtenances rather than purchase only new monitors to develop the PAMS network. For example, in one nonattainment area, 26 O_3 monitors and 15 NO_2 monitors were in operation during the 1991 fiscal year compared to a PAMS requirement of only 5 sites, some of which could obviously be located coincident with existing sites. In response to the concerns expressed by the commenters, however, EPA has adjusted its cost estimates to reflect the collocation of PAMS with existing monitors at only two sites in a five-site network.

One commenter was doubtful that the potential benefits to be received from the program would be justified given the estimated implementation costs and the unaddressed technical questions. A slower, more cautious schedule was recommended. In designing the requirements for the PAMS network, EPA considered the potential benefits of the data and weighed those against the projected costs and uncertainties. In light of the Agency's estimate for future O_3 control costs of $8 to 12 billion per year (Ozone Nonattainment Analysis—Clean Air Amendments of 1990. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. DRAFT. September 1991), the potential return in benefits for a cost of $5 to 12 million per year provides an exceptionally prudent investment. Nevertheless, the Agency made every effort to craft a minimum requirement which would in great part satisfy a number of important objectives, yet not become a financial burden either upon the air pollution control agencies or the States (note further discussions of financial burden in this preamble under Resources and Costs). Modifications to the proposed five-year transitional period address the commenter's concern and should provide ample flexibility.

This commenter also indicated that computer model sensitivity analyses should be conducted for all parameters to be measured and that the rule should acknowledge the need for measuring pollutant concentrations aloft. EPA notes that although the PAMS network design is not the direct result of sensitivity analyses for each affected area, it nevertheless reflects the current expectations of the photochemical models. Heretofore, the national program has not had the benefit of the

availability of comprehensive O_3 precursor data as a tool to evaluate, calibrate, or otherwise adjust and conduct reality checks on the operation of the Urban Airshed Model (UAM). EPA views the PAMS networks as a vital step forward in complementing grid model applications and control strategy assessments and refinements.

Although the sampling of pollutant concentrations aloft may also be a highly valuable activity, EPA does not agree that such activities should be included in the specifications for minimum routine measurements. These rules, however, do not preclude a State agency from proposing such pollutant measurements (made either on a routine basis or at periodic intervals during more intensive sampling efforts), including them in their EPA-approved comprehensive network description, and subsequently utilizing Clean Air Act Section 105 Grant monies, in part, to support these monitoring efforts. In fact, EPA has encouraged affected air pollution control agencies to view these rules as a base upon which to tailor and expand the precursor monitoring program to meet the States' individual needs. Monitoring pollutant concentrations aloft has therefore been assigned to the category of desirable, yet optional activities.

Two commenters suggested that EPA adjust its program to reflect information from previous field studies (i.e., base the rules on actual field-verified techniques rather than on good technical assumptions alone). EPA recognizes the value of quality measurements and field-proven techniques. In fact, the fundamental tenets of the proposal were based on the demonstration of emerging measurement technology and data obtained during a number of field studies, particularly the Atlanta O_3 Precursor Study conducted during the summer of 1990 (Reference 32 of Appendix D). Although technical assumptions were necessary to some extent due to the emerging nature and complexity of the measurement technology, EPA believes that these assumptions were warranted considering the need for more definitive O_3 precursor data to develop improved O_3 control strategies. States are encouraged to take full advantage of experience and data obtained in past studies and routine monitoring efforts, and use that experience to refine and focus their individual PAMS network designs.

One commenter noted that the requirements for intensive daily sampling will engender major database management activities. EPA agrees that the measurement of numerous compounds during multiple hours of the day will create a very large database. Consequently, the Agency is proceeding to revise the capabilities of its computer-based Aerometric Information and Retrieval System (AIRS) to allow these data to be securely stored, retrieved, and adequately analyzed via the existing national system. The AIRS is currently utilized by all States for the storage and/or retrieval of NAMS and SLAMS data. The data required to be submitted by § 58.45 will be deposited in this same data bank. Further information on AIRS and its capabilities may be obtained by contacting any of the 10 EPA Regional Offices or the National Air Data Branch, Technical Support Division (MD–14), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711. The Agency is also revising its technical assistance document (Reference 2 of Appendix C) to include additional guidance regarding the processing of data at the State and local agency level, i.e., generic procedures for data processing and validation.

In a related topic, another commenter estimated that the proposed rules will result in a workload increase of 60 percent, predominantly in data reporting burden. This commenter advocates the development by EPA of expert software for use with the VOC analyzers. The Agency notes this concern and has therefore undertaken the aforesaid modifications to the AIRS system and to its technical assistance document.

One commenter was concerned that a bias in O_3 measurements often occurs on design-value days, in part due to differences in measurement techniques. While the Agency cannot substantiate a particular problem occurring on O_3 design value days, the Agency notes that data which is gathered in accordance with 40 CFR part 58 and the quality assurance procedures of appendix A, are acceptable for use in computing design values and for conducting attainment/nonattainment determinations.

The same commenter believes that EPA should examine the following four areas more carefully before finalizing the rule: (1) The linking of monitoring specifications with monitoring objectives, (2) the consequences for an urban area adhering to the minimum stipulated monitoring requirements, (3) the rationale for recommended averaging times and frequencies for sampling of VOC, and (4) the rationale for air quality and meteorological siting requirements. The Agency considered these suggestions, recognized their value, and subsequently incorporated these considerations into the final rules. Specific recommendations made by this commenter are addressed elsewhere in this preamble.

Two commenters expressed concern that EPA had not adequately addressed critical issues relating to the role of NO_x in the photochemical process. These commenters assert that EPA must ensure that the data gathered will be appropriate for NO_x sensitivity modeling and will facilitate discrimination and impact of various sources of NO_x. EPA is concerned about the function of nitrogenous compounds in O_3 formation, particularly in the southeastern United States. Special studies are being initiated as joint projects with EPA in the Southeast employing research monitoring concepts to derive the most effective strategies for NO_x monitoring and control. These integrated projects are expected to have a significant impact on future O_3 control actions. Modeling predictions of various nitrogen species [e.g., total reactive oxides of nitrogen (NO_y), NO_x, NO, NO_2, peroxyacetyl nitrate (PAN), and nitric acid (HNO_3), etc.] can then be examined by the research community to determine the performance of chemical mechanisms in predicting non-O_3 oxidants. This will help ensure that chemistry, leading to O_3 formation in urban and rural areas, is properly characterized and may lead to further modeling improvements. Note that the measurement of more highly oxidized forms of nitrogen requires a high degree of skill/training using nonstandard techniques to measure pollutants at very low concentrations. EPA has determined that it is premature to require such efforts in a routinely operated network, but encourages and recommends that States consider the option of deploying more sensitive NO_x instruments when establishing future PAMS sites. For the near term, the current NO_x monitoring methodology (Federal Reference Method for NO_2) will be acceptable. The Agency will develop future guidance for more sensitive and definitive NO_x methods and measurements.

One commenter expressed concern that many technical, logistical, and fiscal issues remain to be resolved to ensure the success of the PAMS monitoring program. This respondent asserted that its comments, analyses and suggestions were, for the most part, ignored. On the contrary, however, the Agency has considered all comments and suggestions received by the Agency. This commenter's suggestions, being rather comprehensive, complicated, and unique, received careful scrutiny by EPA. In a number of cases, these

suggestions were incorporated both in the previous draft proposals as well as in this final promulgation. In fact, the final regulation has been revised to allow alternative monitoring schemes and intermittent sampling frequencies in section 4 of appendix D, in part in direct response to this commenter. The fact that EPA did not radically change its approach to identically match the suggestions of this particular respondent in no way diminishes the importance of the suggestions, nor does it equate to ignoring the recommendations. Each specific recommendation has been addressed elsewhere in this preamble.

B. Public Comments—Resources and Costs

Several commenters were concerned with the statement in the proposal which says that the primary responsibility for implementing the program with its associated costs rests with the States. The commenters feel strongly that EPA needs to make a much larger financial commitment to the program to ensure its success. EPA understands that this unique program will require a strong federal presence both as a partner in system management and in providing appropriate technical and financial assistance. EPA has provided funds during FY–92 to initiate monitoring for air toxics in 10 areas. These sites, which are generally located consistent with the requirements for PAMS type (2) sites, will be continued as part of the PAMS program in 1993. Additionally, the Agency has earmarked approximately $4,000,000 in § 105 Grant monies for distribution to the States in FY–93 and has provided technical support via contract and direct EPA involvement and participation. Overall, EPA will have borne the burden of financing a significant portion of the costs of initiating sampling during FY–92 and FY–93. The Agency has plans for subsequent years which will ensure a major financial role in this partnership for EPA.

Eighteen commenters submitted other observations related to funding and resource needs to properly implement the PAMS program. Ten of those commenters believed that the proposed levels of federal funding (discussed above) are generally inadequate to support the PAMS program. Three commenters noted that the potential benefits of the program outweigh the projected costs, that serious consideration should be given to utilizing permit fees collected under title V of the Clean Air Act Amendments for this program, and/or that the monitoring costs are only a fraction of the costs incurred by society in attaining the air quality standards. Two commenters expressed strong objections to the use of reprogramming of existing funds to support the PAMS program. As previously discussed, EPA has provided substantial section 105 Grant funds to support both FY–92 and FY–93 monitoring activities. The Agency expects to continue to provide significant support through section 105 grants in subsequent years. Reprogramming of existing monies is an action which historically has been used by the Agency to designate certain portions of section 105 Grant funds, provided annually to the States for support of air pollution planning and control programs. EPA believes that this mechanism is a legitimate tool to focus its limited grant funds in part on particular air pollution problems having high national priorities. Rarely does the Agency suggest using this mechanism unless the priority of a competing program or project is significantly greater than the currently-funded activity. EPA has determined that the potential benefits of the PAMS program are significant enough to justify taking this unilateral action.

One commenter suggested that the distribution of section 105 Grant funds be based on the number of sites and monitors operated regardless of the location of the nonattainment areas. Perennially, it has been EPA's practice to develop reasonable allocation schemes for the available grant dollars based on defensible parameters such as activity levels, numbers of sources, etc. In the case of the monies set aside for the photochemical assessment monitoring program, EPA concluded that an appropriate mechanism for the distribution of funds was to consider the number of required PAMS sites. Each affected Regional Office receives an allocation of funds based on a national prorata scheme; the final allocation to State or local grantees is computed by the Region. During FY–93, the primary allocation criteria was essentially the minimum number of PAMS sites that would be required in each area by the regulation. By FY–94, the Agency will have received more information on individual network designs from each affected State and will therefore be able to consider the actual number of sites to be operated during the year as one of the criteria for the distribution of grant funds.

Another commenter suggested that if States are unable to hire additional personnel, they could return grant monies in exchange for EPA contracted services or perhaps pool analytical support among a group of States. Given the continuing nature of much of the federal funding for photochemical assessment monitoring, EPA asserts that it would not be inappropriate for a State agency to utilize the monies to hire new personnel. Further, due to economies of scale and within permissible limitations, States may take advantage of EPA contracts which are designed to provide support to State agencies. Additionally, the EPA Regions may at the urging of a group of States, reserve certain monies for a particular State who would agree to, in turn, provide services to the others.

One commenter was concerned that the design of the enhanced O_3 and O_3 precursor monitoring program was influenced more by financial constraints than by scientific constraints. EPA disagrees with this contention, and instead has attempted to provide a sensible balance between the costs of the program and degree to which the program objectives are satisfied. In any case, EPA has only provided the framework for a minimum required monitoring strategy. States are encouraged to implement larger, more comprehensive networks if those networks will provide a superior database for the fulfillment of the data objectives.

Five commenters expressed concern that EPA's estimates for the costs of implementing this monitoring program were too low. EPA's costs estimates were prepared from data gathered during 1990 and 1991, and therefore are generally expressed as 1990 and 1991 dollars. It is not surprising that estimates prepared in 1992 should be somewhat higher. In many cases it was difficult to compare estimates prepared by the commenters, since they often utilized different wage scales, different quoted equipment costs, and different operating scenarios. In most cases, recognizing that these figures are only estimates of the true implementation costs, the Agency believes that its original estimates reflected a reasonable appraisal of the resources needed to implement a minimally-acceptable program at that time. EPA has, however, incorporated many of the suggestions of the commenters for computing costs and has compiled an updated version of its cost estimates. These estimates reflect the changes in the boundaries of several nonattainment areas, changes in classification of others, higher equipment and labor costs, revised sampling frequencies, additional allocations for data processing, upper air measurements, O_3 and NO_X monitors, security concerns, and larger monitoring shelters. For information, the Agency's updated cost estimates for each affected area may be found in Table 1.

TABLE 1.—ESTIMATED REQUIREMENTS FOR PAMS

Area name	Population range	Classification of nonattainment area	Number of required sites	Estimated five-year cumulative cost[1]
Beaumont-Port Arthur, TX	Less Than 500,000.	Serious	2	$2,323,820
Portsmouth-Dover-Rochester, NH-ME	...do	Serious	2	2,227,130
Southeast Desert Modified AQMA, CA	...do	Severe	2	2,280,860
Baton Rouge, LA	500,000 to 1,000,000.	Serious	3	3,199,135
El Paso, TX	...do	Serious	3	3,199,135
Springfield, MA	...do	Serious	3	3,127,495
Ventura County, CA	...do	Severe	3	3,199,135
Milwaukee-Racine, WI	1,000,000 to 2,000,000.	Severe	4	3,789,490
Providence-Pawtucket-Fall River, RI-MA	...do	Serious	4	3,789,490
Sacramento, CA	...do	Serious	4	3,873,070
Atlanta, GA	More than 2,000,000.	Serious	5	4,031,150
Baltimore, MD	...do	Severe	5	3,995,300
Boston-Lawrence-Worcester, MA-NH	...do	Serious	5	3,995,300
Chicago-Gary-Lake County (IL), IL-IN-WI	...do	Severe	5	3,995,300
Greater Connecticut, CT	...do	Serious	5	3,995,300
Houston-Galveston-Brazoria, TX	...do	Severe	5	4,084,850
Los Angeles-South Coast Air Basin, CA	...do	Extreme	5	4,084,850
New York-New Jersey-Long Island, NY-NJ-CT	...do	Severe	5	3,995,300
Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD	...do	Severe	5	3,995,300
San Diego, CA	...do	Severe	5	4,084,850
San Joaquin Valley, CA	...do	Serious	5	4,084,850
Washington, DC-MD-VA	...do	Serious	5	3,995,300
Totals			90	79,346,410

[1] 1992 Dollars.

Additionally, several commenters were concerned that EPA only computed costs for the three-month period of June, July, and August, while the draft rule implies that monitoring should be conducted during the entire O_3 season, which can be much longer. EPA indeed states that monitoring for precursors should be conducted during the entire O_3 season, but recognizes that monitoring for only 3 months is an acceptable minimum. The preamble from the March 4, 1992 proposal clearly stated that because of the relatively large resource requirements to conduct PAMS monitoring, 3 months was proposed as the minimum annual precursor monitoring period for the PAMS. EPA did encourage, however, the establishment of a monitoring period for the entire O_3 season in order to provide a more comprehensive air quality database and increase the possibility of actually conducting monitoring during most of the worst O_3 episodes. EPA goes further, however, in the revised section 4.3 of appendix D, stating that alternate precursor monitoring periods may be submitted for approval as a part of the PAMS network description. This action, therefore, allows a State to propose a monitoring season which will best meet its particular needs as long as the proposal will capture those worst O_3 events. The length of any particular PAMS monitoring season may therefore vary from area to area.

Two commenters asserted that the data collection requirements of the rule were excessive for some of the stated purposes and inadequate for others. EPA has continually maintained that in formulating the data requirements for the PAMS program, it was necessary to achieve some compromises, (i.e., some more crucial objectives would be better satisfied than other less important objectives). Regardless, the Agency has reconsidered the requirements for data collection, and has modified the specifications to better reflect a balance of the needs of the data users.

One commenter alleged that EPA committed to provide full funding for all efforts required under the Photochemical Assessment Monitoring Program and further alleged that EPA committed that it would not require state or local agencies to perform the specified monitoring if full funding of all materials, equipment and labor is not provided by EPA. That commenter also requested that EPA clearly articulate this assertion in the rules promulgated today. Another commenter asserts that EPA indicated this intent in the proposed regulation. It is common practice for State agencies to share substantially in the costs of implementing and operating all air pollution monitoring and control programs. In fact, the Clean Air Act Amendments of 1990, section 802, revise section 105 of the Act to require that States provide an overall minimum of 40 percent of the costs of implementing programs for the prevention and control of air pollution or implementation of national primary and secondary ambient air quality standards. EPA is therefore unable to commit that it would provide 100 percent of the funding for such a substantial program. Evidently, some confusion has resulted from EPA's attempts to provide maximum monetary support for the implementation of the enhanced O_3 and O_3 precursor monitoring regulations.

One commenter believed that although the proposed funding for this program may be adequate to encompass capital expenses, provisions for skilled labor costs will be a problem. EPA notes that provisions for the hiring of highly skilled chemists and statisticians were included in its cost estimates and planning for PAMS. Further, these estimates were reviewed by the Agency and revised upward to reflect changes in the national labor burden and the expressed needs of the State and local air pollution control agencies.

One commenter believed that the comprehensive sampling and analysis schedule stipulated by the proposed rules is the primary contributor to the high costs of the program. As previously stated, EPA is committed to only requiring a minimum program which will comprise the best technical-fiscal balance to satisfy a variety of data objectives. Since the proposal was

published, EPA has refined its sampling and analysis requirements to better reflect the data needs.

In an effort to focus resources and reduce the costs of implementation, several commenters have recommended totally different strategies that they believe will also achieve the data objectives of the PAMS program. The Agency has reviewed these different proposals and believes that they do not constitute appropriate national minimum requirements, but may be considered as alternative networks for particular nonattainment areas if they are submitted pursuant to the requirements of § 58.40 and appendix D as promulgated. EPA has determined that the suggestions were too closely tailored to particular geographic areas to be applied nationally.

One commenter was concerned that the costs of measuring air toxics was a substantial addition to the price of the PAMS program. EPA has noted that the PAMS stations would be available as platforms for the additional monitoring of air toxics compounds if necessary. Specifically, it is noted by the Agency that by measuring the VOC targeted in reference 2 appendix C, a number of toxic air pollutants will also be measured. Although compliance with title I, section 182 of the Clean Air Act Amendments does not require the measurement and analysis of additional toxic air pollutants, the Agency believes that the PAMS stations can serve as cost-effective platforms for an enhanced air toxics monitoring program. The adjunct use of PAMS for air toxics monitoring will allow the consideration of air toxics impacts in the development of future O_3 control strategies. The establishment of a second PAMS type (2) site will provide an even better data base for such uses. The Agency, however, takes note of the concerns of several respondents that the PAMS network is not ideal as a source of primary air toxics data and further, regards the collection of air toxics data as an incidental and secondary, though important, objective of the PAMS system.

In overall response to concerns over the estimates of costs previously provided by the Agency, EPA has recomputed its estimates including such additions noted previously as inflation factors, additional capital equipment, etc.; the new computations are summarized in Table 1.

C. Public Comments—Regulations

The following discussions address the comments received on specific provisions of the enhanced O_3 and O_3 precursor monitoring regulations:

1. Public Comments—Section 58.1—Definitions

Four commenters suggested adding definitions for the term NO_y, a relatively new term for total reactive oxides of nitrogen including NO, NO_2, PAN, HNO_3, and organic nitrite compounds which all participate in the photochemical process. Current research has revealed that these other compounds may indeed play a significant role in O_3 formation. EPA does not disagree with the commenters. Since no readily-available monitoring method has been designated for these species, however, and most information on the role of NO_y, or other such compounds, still lies within the research community, EPA has determined that inclusion of any definition and/or regulatory requirements for monitoring for NO_y is premature. Future revisions to 40 CFR part 58 will reexamine the state of the research and reconsider this issue. Nevertheless, EPA encourages the deployment of this emerging technology at PAMS sites to further augment the value of the O_3 and O_3 precursor measurements.

Additionally, two commenters recommended that the definition of VOC be clarified and perhaps focused to indicate a reference to reactive organic gases. Further, one commenter suggested that an acronym be included for toxic air pollutants. Inasmuch as EPA has specifically named the compounds (VOC) targeted for monitoring and analysis by this program, see reference 2 appendix C, and expects that list to evolve as the monitoring program matures, the Agency believes that a more focused regulatory definition is not needed at this time. Such a move, made prematurely, might unnecessarily constrain development of the program in future years and inadvertently limit the data available to the States to craft the most effective O_3 control strategies. Since the foci of this monitoring program are clearly O_3 precursors and O_3, these rules are not the most appropriate vehicle to define or name air toxics compounds. Such actions will be subsequently considered by the Agency's air toxics control programs.

2. Public Comments—Section 58.2—Purpose

One commenter felt that it is an oversight not to consider application of this regulation to moderate O_3 nonattainment areas. EPA notes that enhanced information on O_3, O_3 precursors, and meteorology would be beneficial to any State government wrestling with the enigma of any level of O_3 nonattainment. Section 182(c)(1) of the Clean Air Act Amendments of 1990, however, authorized the Agency to develop rules only for those areas classified as serious or above for O_3 nonattainment. The fact that States with moderate areas will not be required to institute these specifications, should not impede those State agencies from configuring monitoring strategies which are similar to the photochemical assessment monitoring program.

3. Public Comments—Section 58.13—Operating Schedule

One commenter recommended that this section be amended to restate the monitoring period requirements of section 4.3 of appendix D. EPA notes that it would be beneficial to include a reference to section 4.3 in § 58.13, and has amended the final rule accordingly.

4. Public Comments—Section 58.20—Air Quality Surveillance Plan Content

Four commenters expressed concern that the requirements for VOC and/or meteorological parameters were too comprehensive and constituted excessive collection of data. Additionally, several commenters believed that the substitution of measurements for total VOC, non-methane organic compounds (NMOC), or total non-methane hydrocarbons (NMHC) (note that these acronyms essentially represent the same group of species) would be adequate to fulfill the PAMS data objectives, at least at some of the designated sites. EPA has reexamined its position regarding requirements for the speciation of VOC analyses and has concluded that continuation of the speciated requirement is both appropriate and necessary. This conclusion is based on the need for more definitive information regarding VOC at the specific geographic locations where O_3 exceeds the National Ambient Air Quality Standard (NAAQS), in order to address the multi-faceted PAMS objectives. The sampling for speciated VOC data allows the verification of NMOC measurements and provides a better understanding of the biogenic contribution to the O_3 problem. The corroboration of progress in the reduction of O_3 precursor emissions inventories would necessitate the quantification of the biogenic and anthropogenic fractions for those areas where biogenics represent a significant component of the ambient air. Additionally, the Agency has modified the sampling and analysis requirements to reflect the acceptance of event sampling at 3 of the 5 minimally-required sites. Such a modification has

the potential to reduce the data handling requirements, costs, and level of technology needed. The amended sampling and analysis requirements are specified in section 4.4 of appendix D. Alterations to the requirements for the measurement of meteorological parameters are discussed in section 4.6 of appendix D. Note, however, that the promulgated sampling requirements for speciated VOC do not preclude the submittal of alternative sampling schemes as a part of the network design required by § 58.40.

Three commenters felt that 6 months is too short a time frame for SIP development, processing, and approval. Note the brief discussion of SIPs under General Comments, EPA believes that the required SIP revision to empower States to implement the enhanced O_3 and O_3 precursor monitoring regulations will be a relatively uncomplicated procedure. Given the intrinsic need for the data required in this promulgation, the Agency recommends that all States, including those which are not affected by these rules, develop such SIP revisions. Based on a review of common SIP procedures, EPA has subsequently modified § 58.20 to allow 9 months for the submittal of a revision to the SIP for the establishment and maintenance of PAMS.

5. Public Comments—Section 58.40—PAMS Network Establishment

Seven commenters asserted that 6 months is insufficient time for a State to develop and submit a PAMS network description. Inter- and intra-State cooperation, data needs, and complexity issues were cited as reasons for the demand for more time. EPA Headquarters and the EPA Regional Offices have been working with affected State and local air pollution control agencies as well as cooperative bodies such as the Northeast States for Coordinated Air Use Management (NESCAUM) and the Mid-Atlantic Regional Air Management Association (MARAMA), to develop the basics of individual and regional PAMS network descriptions. Additionally, EPA has provided funding during FY–92 to begin the establishment of monitoring sites, many of which will eventually constitute the first PAMS type (2) sites. Given the extensive preparatory work conducted since 1990 by both the Agency and the States, EPA believes that a 6-month requirement for the submittal of a network design is both achievable and appropriate. In response to the concerns of the commenters, however, EPA has clarified, in § 58.41, its need for detail in the initial network design submittal and has indicated that specific details on the first PAMS type (2) site plus general information on other sites, would constitute a complete submittal for fulfillment of the requirements of § 58.40. Note, however, that since the network design must receive the approval of the Administrator as stipulated by § 58.42, EPA will require the submittal of subsequent phases of detailed network design by January 1 of each year of implementation. In this way, a State may focus its resources on an annual basis toward the establishment of one site per area. For groups of States planning to submit coordinated network designs, the process will also be simplified somewhat. Sections 58.40, 58.41, and 58.42 have been amended accordingly.

Four commenters felt that the language of § 58.40, which allows the joint submittal of network descriptions and implementation schedules by disparate States (and further discussed in section 4.2 of appendix D), should be strengthened to make such inter/intra-State cooperation mandatory to ensure consistency and coordination, especially in O_3 transport regions. In general, EPA believes that cooperation among State and local air pollution control agencies should be encouraged, but not required. The Agency has demonstrated its preference for cooperation by its technical, administrative, and financial support of such multi-State cooperative agencies as the State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials (STAPPA/ALAPCO), NESCAUM and permanent Federal-State-local work groups such as the Standing Air Monitoring Work Group (SAMWG), the Standing Air Emissions Work Group (SAEWG), and the Standing Air Simulation Work Group (SASWG), affiliated with STAPPA/ALAPCO. This particular provision of the rule is designed to enable the exercise of cooperative efforts, but does not serve as the tool to require States to plan and implement programs jointly. Note, however, that section 182(j) of the Clean Air Act Amendments of 1990 does stipulate that each State in which there is located a portion of a single O_3 nonattainment area which covers more than one State should take all reasonable steps to coordinate, substantially and procedurally, the revisions and implementation of State implementation plans applicable to the nonattainment area concerned. Also, interstate transport regions established pursuant to section 176A of the Clean Air Act Amendments should be guided in multi-State coordination and consistency via the establishment of transport commissions. Further, section 184 of the Act indicates that such procedures are requisite for those northeastern States included in an O_3 transport region. These premises have been articulated in an advance notice of how EPA generally intends to take action on SIP submissions and to interpret various title I provisions in the **Federal Register** on April 16, 1992, as amendments to 40 CFR part 52. It is therefore inappropriate for EPA to separately require such cooperation as a part of these enhanced O_3 and O_3 precursor monitoring rules. The Agency has, however, modified the rules to indicate this preference for cooperation and joint network design submittal, where appropriate.

One commenter suggested that EPA support joint submittals, but not joint implementation schedules. In § 58.40, EPA indicates a preference for coordination, but does not necessarily require identical designs and implementation schedules for cooperating States. Differences in designs and schedules would be evaluated on a case-by-case basis.

One commenter recommended that regional plans be given favorable if not at least equal attention as is given to State-by-State plans within the same regional area. EPA has previously expressed its preference for regionally coordinated network designs, but must provide equal consideration to both types of descriptions allowed by these rules.

Two commenters suggested that the approval of the PAMS program be relegated to the Regional Offices in lieu of requiring approval by the Administrator. In considering this comment, EPA agrees with the contention of the commenter that the Regions are more familiar with the idiosyncrasies of each O_3 nonattainment area and, as a result, Regional Office concurrence on each network design is required. In several cases, however, the areas subject to these rules, cross both State and EPA Regional boundaries. The Agency is convinced that a program of this magnitude requires intensive national oversight and a high degree of consistency and coordination; final approval must therefore rest with a central reviewing authority.

Two commenters suggested that flexibility be included to allow each network to be designed on a case-by-case basis because each area has unique features such as irregular terrain or distinct meteorology, such as sea/lake breezes, which should be addressed separately. EPA also believes that each

area's network design should be specifically tailored to fit that particular area or region. The network design parameters promulgated today are those considered by the Agency as a minimum and/or a default network for those State agencies wishing to omit comprehensive, area-specific planning exercises. Although EPA does not recommend minimizing planning, the Agency recognizes that State resources and technical expertise often demand a fallback position in lieu of extensive investments in the planning process. Note that the Agency is revising the siting criteria guidance document (Reference 19 of Appendix D) to provide guidance on siting and network design for areas with complex terrain or unique meteorology.

One commenter recommended that a working group be established to deal with the coordination of monitoring strategies and network designs in the Northeast Ozone Transport Region. The commenter recommended two specific groups associated with electric utilities, as technical resources for such a working group. EPA maintains that the responsibility for the implementation, and therefore the coordination, of SIP strategies lies with the States. The Agency is therefore cooperating with NESCAUM, MARAMA, and the Regional Ozone Modeling for Northeast Transport (ROMNET) committees to form a working group of State, local, and EPA officials to provide guidance in the development of a coordinated monitoring network for the Northeast.

Another commenter encouraged EPA to perform quantitative statistical analyses to ensure that the minimum-required network is sufficient to corroborate emission inventories and determine precursor trends. Due to the emerging nature of the technology for corroborating emission inventories and procedures for determining precursor trends, it is not feasible at this time to perform quantitative statistical analyses for this purpose. EPA believes, however, that these analyses can be performed effectively once the PAMS networks are in place and producing data. Adjustments based on these analyses will be appropriate when the procedures are more mature and the data bases are more complete. To shed light on these comments, EPA has prepared a Data Quality Objectives (DQO) document which was used to evaluate the original network proposal of March 4, 1992, and this modified final rule. That document is identified as reference 24 of appendix D. Additionally, EPA supported and/or noted other analyses concerning data for emissions inventory applications and trends. Those studies are noted as references 26, 27, 28, 29, and 30 of appendix D.

Several commenters pointed out the need for EPA to better articulate guidance on the submittal of information for network approval and any criteria EPA would utilize for approval of these and any alternative network submittals. Further information concerning network design is included in section 4 of appendix D. EPA has also incorporated additional information and criteria regarding the approval of alternative networks in section 4 of appendix D as a part of this promulgation.

During the comment period, several agencies submitted proposals for their areas which are considered to be alternative network descriptions. EPA will review those designs individually and respond directly to the particular agency. Those designs are not considered germane to the requirements of the regulation and so are not specifically reviewed in this notice of rulemaking.

One commenter urged EPA to eliminate the public notice requirements of alternative plans and subject them to the same process as other network designs. EPA realizes that although it is today promulgating minimum criteria for PAMS networks, many designs will have peculiarities which may qualify them as alternative networks and subject them to the proposed public notice requirements of § 58.40 and further, sections 4.3 of appendix C and 4.2 of appendix D. To facilitate the submittal of network descriptions and to expedite their processing by the Agency, EPA is today removing the proposed requirements for public notice for alternative network descriptions and will instead focus resources on improving the quality of the negotiation, review and approval process.

One commenter noted that it may be necessary to site PAMS monitoring stations near major roadways and certain large stationary sources because of the possibility of their direct influence on local concentrations of O_3. The regulations promulgated today require the siting of certain monitors at the location of the maximum impact of emissions from sources of O_3 precursors. EPA recognizes that in some instances this site may be substantially affected by one or more very large major stationary sources which constitute a principal source of O_3 precursors for the nonattainment area. Additionally, if the major impact on O_3 in a particular area originates from mobile sources, it would be logical to place a PAMS site downwind of a major roadway. In any case, it is crucial to consider and account for local NO_x sources including roadways which may act as local depressors for O_3 when designing a network as described in section 10 of appendix E.

6. Public Comments—Section 58.42—PAMS Approval

Note that comments submitted recommending approval of network designs at the EPA Regional Office level were previously addressed under § 58.40.

One commenter in voicing support of the flexibility of allowing alternative plans noted that their agency does not feel that national consistency and uniformity of methods are essential, given that different areas are at different levels of learning with respect to their area's O_3 precursor composition and concentrations. EPA notes that each air pollution control agency program is subjected to its own particular set of problems, strategies, limitations, and coverage; in many cases some of these factors are quite unique. EPA, on the other hand, must deal with national databases and national problems under an entirely dissimilar set of limitations than any particular air pollution control agency. To that end, EPA is charged with ensuring some reasonable degree of national consistency so that national trends, comparisons, and strategies can be devised. Further, the Agency is convinced that during the phase-in period specified in section 4.5 of appendix D, most agencies will be capable of rising to the challenge of developing the necessary expertise to operate PAMS.

Concerning the approval of network designs, one commenter recommended that this section (and specifically section 4.2 of appendix D) be revised to require an EPA approval or disapproval within 60 days of the receipt of an alternative plan. Although EPA notes this commenter's sense of urgency with regard to the approval and implementation of the PAMS monitoring program, the Agency has determined that instituting artificial approval deadlines would not prove beneficial to improving the quality of alternatives, nor would the public be served by imposing restrictions which could result in lowering the quality of the review and approval process. EPA has therefore not incorporated this 60-day deadline.

7. Public Comments—Section 58.43—PAMS Methodology

One commenter suggested that additional language be added to the

rules to establish a process by which EPA could streamline the review and approval of innovative monitoring and analytical techniques. Further, this commenter recommended the use at PAMS of a particular new type of monitor which continuously tracks key photochemical oxidant components. The Agency believes that the new requirements provide sufficient flexibility for the incorporation of innovative monitoring and analytical techniques. The Atmospheric Research and Exposure Assessment Laboratory (AREAL) is currently responsible for the development, evolution, review and testing of new methodology to ensure its applicability and appropriateness for emerging national air monitoring needs. Regarding the use of this new measurement technology for photochemical oxidant tracking, AREAL, in conjunction with other interested parties, is engaged in an evaluation study of the proposed instrumentation to determine its utility in depicting the photochemical process. Additionally, research is underway to ascertain the usefulness of the data gathered by this instrument and others in meeting necessary O_3 control objectives such as those described in this rule. The results of these investigations will likely have a significant bearing on the future uses of the proposed instrumentation. In any case, neither the current research status of the procedures nor the innovative nature of the methods preclude their use at PAMS stations. A State air pollution control agency may, at its own initiative, implement this monitoring strategy as an adjunct to the minimum PAMS requirements; or, may submit a sampling scheme utilizing this technology exclusively, for consideration by EPA as an alternative pursuant to § 58.40 of this regulation.

8. Public Comments—Section 58.44—PAMS Network Completion

Ten commenters provided observations regarding the 5-year transition (phase-in) period further delineated in section 4.5 of appendix D. Four of those respondents indicated that total implementation of the program was not only possible, but also desirable in a 2- to 3-year period. One commenter, however, in supporting a 3-year transition, indicated that the reporting of VOC data should be deferred for 5 years due in great part to the technical, financial, and technology issues associated with VOC monitoring. Four of the ten commenters also characterized the urgency of expediting the implementation of PAMS to provide data support to the 1994 SIP photochemical grid modeling process. Five commenters indicated that the 5-year schedule is reasonable or at least ambitious, although two of these respondents suggested that the initial phases of the transition be either deferred or prolonged, essentially to allow for testing and evaluation of the new monitoring technologies and for training of professional staff. One commenter suggested that due to technology issues, the implementation simply be delayed one year. Five of the ten commenters reiterated their concerns with funding and urged EPA to provide substantial, adequate resources to complete the PAMS transition. One additional commenter urged EPA to allow sufficient flexibility for States to phase-in the program over time in a manner consistent with the level of available resources.

Due to expected near-term changes to the atmospheric mix of O_3 precursors and the need to begin monitoring as soon as practicable to provide a measure of support to SIP strategy development and emission inventory corroboration efforts, EPA believes that deferral of implementation is not a preferred option. Accordingly, the Agency is continuing efforts to support FY–92 and FY–93 PAMS-type monitoring initiatives via the Section 105 Grant process. Noting, however, the real concerns of State and local air pollution control agencies regarding the phase-in details, EPA is, in this promulgation, reconfirming the transition requirements, previously proposed, of one station per year and modifying the requirements to include provisions for flexibility.

9. Public Comments—Section 58.45—PAMS Data Submittal

Seven respondents expressed the opinion that the 6-month time period allowed by § 58.45 is reasonable and adequate for the submittal of VOC data. Three of these commenters indicated that allowing a reporting deadline of 9 months to a year for the first 2 years or so of the program would be preferable. This data phase-in would then allow added time for training in the implementation and interpretation of data and the data acquisition system. The final rules stipulate that the VOC data must be reported within 6 months following the end of each quarterly reporting period. Since the PAMS minimum monitoring season runs from June through August and encompasses two quarterly reporting periods, the June data would not be due until January 1 of the following year, and the remainder of July and August data would not be due until the following April 1. The Agency believes that when the systems of data analysis, handling, and reporting are routinized, these time periods will be more than adequate for VOC data reporting. The Agency understands, however, as States begin to wrestle with new personnel and technology, that even such a reasonable reporting deadline may be difficult to meet during the initial years of implementation.

One commenter questioned the need to delay submittal of the meteorological data past the time period required for submittal of the NO_X and O_3 data. EPA agrees that the measurement and data handling technology for meteorological parameters is currently sufficient for States to be capable of submitting such information on a more expedited schedule. The Agency recognizes, however, that the uses for such data in photochemical modeling, receptor analysis, and emissions inventory functions, generally requires integration with the VOC data. Since the utility of expediting this data submittal would be only marginal, EPA has required that the meteorological measurements be submitted on the same time schedule as the VOC data.

Concurrent with the development of the photochemical assessment monitoring proposal of March 4, 1992, EPA was considering a modification to the data reporting requirements for SLAMS and NAMS monitoring as iterated in §§ 58.26 and 58.35. The stipulation for 60-day reporting for O_3, NO, NO_2, and NO_X, outlined in § 58.45(c), was patterned after the changes to the draft requirements for NAMS, since at that time it was expected that these other revisions would be complete. Since the revisions to NAMS and SLAMS requirements have not yet been proposed and subjected to public comment, EPA today is promulgating a modification to § 58.45(c) which would cause these pollutants to be reported on an identical schedule to that stipulated in § 58.35 for NAMS. Changes to the reporting schedule for all monitors will thus be considered in a separate **Federal Register** notice at a later date. This modification would also be consistent with the comments from two of the respondents.

Two commenters expressed the belief that EPA should make a greater commitment to assist the States in developing and implementing VOC data acquisition and processing systems to ensure timely compliance with the 6-month requirement for VOC data submittal. An additional commenter expressed a similar concern, that given the large data handling requirements,

the 6-month limitation would be difficult to meet. EPA has sponsored parallel projects involving the acquisition, processing, analysis, and interpretation of VOC data which may provide needed assistance to States in the handling of the massive VOC data base. Further, the Agency has revised its PAMS cost estimates upwards to consider the necessary costs of VOC data acquisition and processing and is considering the inclusion of additional guidance in the technical assistance document (Reference 2 of Appendix C).

One respondent suggested that a target list of VOC species should be developed and augmented with a shorter priority list for reporting. EPA notes that such a target list has been published by the Agency in reference 2 of appendix C, but believes that placing limits on reporting via a priority list is premature and would in no case be universally applicable.

Two commenters pointed out the immediate need to make appropriate changes to the Aerometric Information Retrieval System (AIRS), the national ambient air monitoring database, to accommodate the new PAMS data elements. EPA has incorporated such changes to AIRS.

One commenter suggested that § 58.45(d) be reworded to allow the monitoring and reporting of NMHC (non-methane hydrocarbons) in lieu of VOC. Note that this issue has been previously addressed in comments pertaining to § 58.20.

10. Public Comments—Section 58.46—System Modification

One commenter stated that they believe that changes in attainment status should not reduce the requirements of the PAMS and that monitoring should continue to be funded by EPA. A second commenter suggested that once an area demonstrates attainment of the O_3 NAAQS, EPA should either reduce the PAMS monitoring requirements or assume responsibility for the PAMS funding in that area. EPA believes that continued PAMS monitoring, even after a demonstration of attainment is performed, will be crucial to maintaining the O_3 NAAQS over time. Nevertheless, if a State can demonstrate that it can properly track unexpected changes in the ambient VOC mix and emission inventories, while maintaining the NAAQS, it may propose changes, even reductions, in its PAMS monitoring network as stipulated by § 58.46(b). EPA is not authorized to accept a cessation of PAMS monitoring, however, until an area is redesignated to attainment.

EPA has demonstrated its willingness to provide substantial funding to States for ambient air monitoring activities via the section 105 Grant process. Although the Agency is predisposed to continue to contribute to ambient air monitoring programs such as PAMS, it is of course subject to the limitations of section 105, in part described in the Resources and Costs section of this Preamble.

One commenter felt that the annual network review should be conducted and approved by the Regional Administrator. EPA notes that the network review for ambient air monitoring systems described in § 58.20 is currently conducted and approved annually by the appropriate EPA Regional Office. Section 58.46 articulates a national approval process for changes to PAMS networks similar to that required for NAMS and referenced in §§ 58.32 and 58.36. National data needs and consistency dictate Headquarters EPA approval for changes in both cases.

11. Public Comments—Appendix A—Quality Assurance

All five commenters on this section pointed out the explicit need for a specific, uniform, improved system of quality assurance (QA) for the VOC sampling and analysis requirements (especially) mandated by PAMS. One respondent added the following three recommendations for a national QA program: (1) The establishment of uniform QA criteria including calibration schedules, duplicates schedules, blanks schedules, (2) the establishment of standardized audit procedures, and (3) the establishment of laboratory audit samples and an interlaboratory exchange program between States and EPA laboratories.

EPA is aware that the PAMS sites will require a QA program similar to the one now used for SLAMS criteria pollutants. EPA is currently developing the audit materials and QA guidance required to establish such a system for the pollutant monitoring systems that will be located at the PAMS sites. These materials for the VOC measurement systems are being developed in conjunction with the evaluation study EPA is now conducting on the candidate VOC instrumentation for use at PAMS sites. This study is briefly described in the public comments on § 58.43—PAMS Methodology. Additionally, EPA plans to provide VOC samples to the State and local agencies operating PAMS sites to assist them in validating their VOC monitoring systems and the performance of the personnel operating these systems.

12. Public Comments—Appendix C—Monitoring Methodology

Five commenters recommended that equivalency of methodology must be established at least on a regional level and perhaps even nationally. Several commenters went so far as to recommend that EPA develop federal reference and equivalent methods for VOC. Further, several commenters reiterated their perception of the need for routine inter-State, inter-area quality assurance procedures. Given that the complexity of the technology for VOC sampling and analysis and its rapid rate of development and change, EPA has chosen to publish specific guidance for monitoring methodology in lieu of publishing federal reference or equivalent methods. Such guidance has been published and is available as reference 2 of appendix C. The Agency will track the progress of the development of new methods and will reconsider the specificity of methods in the future. EPA agrees that common and continuing, or at least comparable, methodologies are desirable on a region-wide basis. Comparability of data will be one factor used by the Agency in approving coordinated, region-wide network designs.

One commenter pointed out that the rules should not preclude the expansion of the monitoring period to longer than 3 months, noting also that the length of the monitoring season is not necessarily proportional to the total network operational costs. EPA notes that provisions for changing the monitoring period are promulgated today in section 4.3 of appendix D. EPA agrees with this respondent that monitoring periods should be consistent across a regional network. This factor would also be scrutinized when approving joint networks. EPA recognizes the role that the length of the monitoring period plays in the computations of total costs and has weighted that role accordingly.

One commenter felt that EPA should specify a particular chromatographic column for use on gas chromatographs (GCs) analyzing for the various VOC. Reference 2 of appendix C specifies those column characteristics which AREAL believes are necessary to produce meaningful data on the target VOC compounds. The laboratory even goes so far as to provide specifications on several acceptable columns, but falls short of requiring a chromatographer to choose any one particular design. EPA reiterates its position that the technology for VOC sampling is simply evolving too quickly to allow such specificity at this time.

One commenter believed that the VOC monitoring technology is not yet advanced enough for State and local agencies to economically operate a speciated VOC monitoring program. As previously stated, the Agency believes that States are capable of competency in utilizing new monitoring methods, and in fact a number of State agencies are currently employing such emerging techniques with success. Per this commenter's suggestion, EPA is providing significant financial and technical assistance for implementation of this technology.

In a related issue, a commenter suggested that the rules should tighten the equipment design and performance standards for VOC in order to drive the technology. Noting the progress made to date by the researchers, designers, and fabricators of VOC sampling equipment, EPA believes that the existing technical specificity and market pressures are sufficient to spark development in new and emerging sampling and analysis methods. One other respondent encourages the development of less labor-intensive methodologies to counter the specter of future resource constraints. AREAL has continued to articulate its support for such efforts and will continue to exercise flexibility in investigating new, more economical, and uncomplicated procedures as recommended by yet another commenter.

One commenter felt that EPA should append the provisions of the rules (and particularly appendix C) to facilitate and encourage the use of innovative analytical technologies which are useful for O_3 control strategies. Although EPA is investigating the use of such innovative monitoring technology, and specifically the technology recommended by this commenter, the Agency has not yet determined how the use of these sampling methods will fit into the current SIP process. Nevertheless, EPA does not wish to preclude the use nor discourage the development of new monitoring technologies and so has amended the language of appendix C accordingly. In a related issue, a second commenter was concerned that the stipulations of section 4.2 of appendix C required the use of reference or equivalent methods for the monitoring of NO and NO_X at PAMS. This respondent recommends the use of more advanced and sensitive methods for such monitoring. EPA notes that in great part, the use of the NO_X data measured at PAMS is dictated by the need for precursor information rather than for comparison with the NO_2 NAAQS. Since the Agency does not wish to preclude the use of potential innovations or more sensitive monitoring devices for either VOC or NO_X, it has therefore added additional language to sections 4.2 and 4.3 of appendix C to indicate that such other methodology may be proposed by the State as alternatives. Further, although the Agency has determined that such new technologies may be proposed and even encourages and recommends their use, it is premature to make their use a requirement.

One commenter specifically raised a number of technical questions for consideration by EPA. In response, EPA has determined that pressurized and nonpressurized canister samples are equivalent and that drying of samples prior to analysis to reduce water content is an acceptable procedure. Additionally, the Agency notes that an O_3 scrubber is required on the carbonyl samplers, and C–18 cartridges are equivalent to silica gel cartridges for such analyses. Guidance on standardization protocols (what gas, how many points, what concentrations?) will be addressed in future revisions to the Technical Assistance Document for Sampling and Analysis of O_3 Precursors (EPA 600/8–91–215). Further detail concerning such information may be found in reference 2 of appendix C.

13. Public Comments—Appendix D—Network Design for SLAMS, NAMS, and PAMS

The following discussions address the comments received on specific provisions to appendix D:

14. Public Comments—Section 4.1 of Appendix D—PAMS Data Uses

Five commenters expressed concern that the PAMS program might be insufficient for the purpose of verifying emissions inventories. One suggested that further flexibility be built into the regulation since techniques for inventory verification are still in the developmental stages. Further, two commenters expressed conflicting views in the use of air quality data and/or emissions inventory data for the tracking of emissions reductions over time. The use of air quality data, and especially that of photochemically reactive species, is admittedly an evolving science. EPA does believe, however, that such data have been demonstrated to be a constructive adjunct tool to emissions inventories in qualitatively verifying their accuracy and serving as a corroborative instrument to calculations of reasonable further progress (RFP) in reductions of emissions (See References 26–30 of Appendix D). Note that the Clean Air Act clearly stipulates that RFP is defined via reductions of emissions rather than progress in air quality measurements for precursors or for O_3. Emissions inventory reduction calculations must therefore persist as the primary tool for evaluating both progress and reductions. These facts do not lessen the importance, however, of ensuring that those calculated values are corroborated by actual air quality measurements. EPA would be remiss if it allowed the disregard of air quality information in judging the adequacy of State Implementation Plan performance. The Agency notes that since the inventory corroboration techniques are not specified or limited by this section, adequate flexibility is incorporated in the rule.

In a related matter, one commenter suggested that EPA has not shown the correlation of target list compounds to actual emissions inventories and proposes that continuous NMOC monitoring in conjunction with integrated canister samples would be a better indicator of emissions inventories. As previously iterated, EPA is promulgating rules which can be applied nationally as a minimum requirement. The Agency recognizes and clearly articulates that the PAMS network requirements are designed to provide information which can be used in maximizing the utility of a number of data objectives. Were a commenter to demonstrate that their particular method of monitoring is superior to PAMS for one data use, it is possible that further scrutiny would reveal that it is not ideal for the remainder. Air pollution agencies are not precluded by the rule from instituting monitoring strategies additional to the PAMS minimums or proposing alternatives more tailored to their particular geographic area. Similarly, one commenter was concerned that the program may not fulfill the needs for SIP control strategy evaluation and suggests that modeling is the preferable tool for this purpose. The Agency agrees that modeling is the more appropriate tool to determine the potential for the success of a proposed SIP strategy; however, the Agency asserts that knowing what changes actually occurred in the ambient air is an extremely useful measure of the true effectiveness of any control program.

Two commenters indicated the need for the Agency to publish a data uses guidance document. They imply that such a document should expound on the details of how the data generated by PAMS can be used to meet the data objectives. One respondent complained that it currently does not have a program that can use the data provided

by the PAMS. EPA has prepared documents dealing with the data quality objectives (DQOs) for the PAMS program. Additionally, other demonstrations of the continuing use of such data are noted as references 26–31 of appendix D. Further, in response to these comments, minor revisions have been made to clarify section 4.1 of appendix D. Those State agencies which have recognized their lack of ability to use these important data may employ the additional section 105 Grant monies made available for PAMS toward enhancing their data processing and analysis capabilities.

Four respondents noted that although some of the stated objectives for PAMS support application of photochemical grid modeling techniques, the network design does not seem to effectively accomplish this feat. Further, three commenters protest that the network specifically does not meet the data requirements of their State's photochemical modeling protocol. EPA has reexamined the overall data needs of the photochemical modeling community and has modified the network to be more responsive. Since the Agency is attempting to ensure that PAMS is compatible with national needs, particular States may find that the requirements provide better data than needed to execute a minimal modeling run or that their particular model application demands other information not measured by PAMS. In the latter case or as one commenter noted, when more intensive data is needed, the State is free to measure those additional parameters which they feel are necessary to drive and/or evaluate future model applications.

One commenter questioned why the methodology to determine air quality trends is not specified in the rules. This respondent joined with another to point out the need to address and eliminate the variability of air quality data due to meteorology. EPA maintains that a rule which specifies monitoring requirements and network design, is not an appropriate vehicle to promulgate particular statistical techniques for calculating or presenting trends analyses. Given the variety of such techniques available to the State and local air pollution agencies today, it would be nearly presumptuous for EPA to attempt to limit their ability to analyze their own data via rulemaking. The absence of specific trends requirements allows the States to retain the maximum flexibility and employ the most appropriate state-of-the-art analysis techniques. Clearly, there are two basic concepts which may be employed in preparing trends analyses: (1) Displaying unadjusted measurements which portray the quality of the air actually breathed by the public, or (2) calculating adjusted trends to infer progress towards attainment of standards due to the influences of pollutant control programs. In either case, the cornerstone of the analyses are the actual air quality and meteorological measurements such as those required by PAMS. Particularly, for evaluating the effectiveness of control programs, it may be appropriate to integrate such factors as meteorology and emissions inventory data. EPA simply disagrees that this rule is the correct forum to expound on specific procedures for the analysis of pollutant trends. Trends techniques utilized by EPA for criteria pollutants have appeared perennially in the Agency's National Air Quality and Emissions Trends Report. Further, EPA is currently evaluating techniques for improving the effectiveness of O_3 control strategies including indicators for assessing progress. This work will address techniques for integrating meteorology, emissions, and ambient data.

The second commenter concerning trends went further to question whether or not the 5-site PAMS network is sufficient to conduct O_3 and O_3 precursor trends analyses. Since PAMS sites are located to detect particular characteristics of the air quality, such as maximum O_3 or upwind transport, the 5 sites have been determined by EPA to be the minimum network necessary for larger areas to encompass specific situations of interest. Experience with the NAMS network requirements has shown that some areas may choose to supplement this minimum network to meet their own objectives. EPA has decided that the 5-site network represents a minimum core requirement which will provide a consistent and stable database to be used for trends. Additionally, the Agency notes that for areas which submit coordinated, joint network designs, it is expected that more than 5 sites will be established and become available for trends analyses.

One commenter noted that sampling sites located to measure either VOC or air toxics impacts may not be an optimal location for the other. EPA has previously articulated its view on this matter in this preamble's discussion of Resources and Costs.

One commenter vociferously criticized the basic tenets of the PAMS program and professes that a successful PAMS program can be cultivated via a program of less-frequent focused sampling for generalized precursor data (e.g., NMOC) with a minimum of speciation information. They believe that their experience with this type of program has been largely ignored in designing the PAMS program. EPA again observes that a program which has been simplified or merely focused to meet the specific data needs of a particular locale, may not be appropriate to fulfill the data uses for a national program which is generally routine O_3 precursor data-poor. Nevertheless, the opportunity is provided by section 4 of appendix C and section 4 of appendix D for the approval of such focused alternative networks in accordance with § 58.40, especially where significant historical precursor monitoring data are available. The adoption of different or more comprehensive requirements, as discussed further in the Agency's response to comments on § 58.42, does not imply deficiencies in an existing monitoring program. EPA's program simply highlights that national needs are often different and more inclusive than local needs.

15. Public Comments—Section 4.2 of Appendix D—PAMS Monitoring Objectives

Four respondents revived the issue that the sites chosen for PAMS would not necessarily constitute appropriate locations for the monitoring of air toxics. Further, these commenters seem to support a separate and expanded air toxics monitoring effort. As noted by EPA in the discussion of resources and costs in this preamble, the Clean Air Act Amendments call for a network which is geared toward the monitoring of photochemical parameters. The Agency agrees that PAMS may not be the ideal platform for monitoring air toxics, but feels that the establishment of additional air toxics monitoring at these sites is a valuable adjunct to the PAMS program. Separate national air toxics monitoring networks are not currently a highly-ranked, nationally mandated priority.

Two additional commenters requested that the Agency continue its efforts to define and monitor NO_y. EPA previously expressed, in addressing comments to § 58.1, its reluctance to rush the regulatory and monitoring program for NO_y. EPA will continue its investigations of this concept and will propose future revisions to 40 CFR part 58 if appropriate.

One commenter espoused the importance of measuring VOC aloft. EPA has previously indicated its reluctance to require this monitoring in the discussions of the general comments.

The same commenter felt that rural sites for the collection of boundary condition carbon monoxide (CO) and NO_x data should be added to the PAMS program. EPA also has recognized the importance of including sites that will better define boundary conditions. Consequently, section 4.2 of appendix D and its associated Figures have been modified to better reflect the measurement of boundary conditions. Note that since CO was not addressed in section 182 of the Clean Air Act Amendments as a required pollutant for PAMS, no monitoring requirements for CO were included. This omission does not preclude a State from adding CO monitoring to its network design.

One commenter believes that due to the effects of complex meteorology, the placement of PAMS sites should be based more on studies of past O_3 episodes rather than the generic model proposed by EPA. The Agency agrees in principal with this comment and has altered the location of the PAMS sites to correspond more closely with the wind conditions associated with O_3 events.

One commenter requested that EPA provide more specificity for locating PAMS type (2) sites, the sites where maximum emissions are expected to impact. In response, EPA has clarified and added additional detail for this site's location.

One commenter was concerned that many of their current NAMS and SLAMS monitors are not located at potential PAMS sites. EPA notes this concern and considered that some, but not all PAMS sites might be coincident with SLAMS or NAMS in its recomputation of cost estimates. Reference is made to a similar discussion under General Comments and Resources and Costs in this preamble.

One commenter also requested that existing data be allowed to be used as a part of alternative PAMS monitoring schemes. Note as discussed in § 58.40 that EPA has amended section 4.2 of appendix D to include broad criteria for the approval of alternative networks. The use of existing information and existing monitoring networks is not precluded by these changes to the rule.

16. Public Comments—Section 4.3 of Appendix D—Monitoring Period

Ten commenters expressed opinions regarding the length and specificity of the monitoring period for the PAMS. Three of those respondents supported the proposed requirement of 3 months, especially June, July, and August, although they indicated that more sampling would obviously be better, that consistency across regions is crucial, and that more specificity would be useful. Three others indicated that they felt that the 3-month period was too short and would create staffing problems for affected State governments with a minimal cost savings over sampling for longer periods such as the entire O_3 season. One of these commenters asserted that 5 months would be a better choice, especially in the State of California. Five commenters believed that employing O_3 level forecasting and episode monitoring would be a more efficient use of resources and provide a more intensive database for the critical periods and could make better use of manual sampling methods. One commenter felt that the length of the sampling period should best be specified on a regional basis and that while a 3-month period would likely capture the majority of episodes in the Northeast, such a period would be insufficient for the South and West.

EPA agrees that more than 3-months would be preferable and has articulated this opinion in section 4.3. The Agency has recognized, however, that other particular months rather than June, July, and August may, on a case-by-case basis be more appropriate. Accordingly, EPA has expressed its intent to allow other monitoring periods if submitted and approved as a part of the network description required by § 58.40. In the discussion concerning comments to § 58.40 in this preamble, EPA has clearly espoused its support for coordination and consistency among States and across regions and noted that other requirements of the Clean Air Act Amendments may require such coordination, in this case in establishing the monitoring period for PAMS. The Agency's goal in choosing the 3-month period was to attempt to capture the highest O_3 events for the year. The Agency has established only a minimum sampling period; any affected State or region may expand this period to a longer time to meet its particular needs. Flexibility has been included in the rule to allow the use of either manual or continuous sampling technologies. Given that the Agency recognizes the utility and efficiency of focussing its efforts on O_3 events, section 4.4 sampling requirements have been amended in this promulgation to allow the sampling for such events and as an option make the use of manual methods more feasible. A discussion of those changes follow under section 4.4. EPA has included a stipulation in section 4.3 that intermittent sampling must follow the previously-established national schedule for intermittent sampling such as the one-in-six-day schedule used for particulate matter.

17. Public Comments—Section 4.4 of Appendix D—Minimum Network Requirements

Twenty-four commenters responded to this section of the proposed rule concerning the details of PAMS network sampling and design. Eleven of those respondents specifically indicated their concern that the proposed requirements for VOC sampling were excessive and the rule should be amended to allow less intensive sampling. Many suggested that such a less-intensive sampling program would save funds which could be better allocated for other purposes, upper atmospheric monitoring for example. Several commenters included suggested sampling plans for implementation in lieu of the proposed schedule. Six commenters believed that a better use of limited resources would be to focus VOC monitoring on days when high O_3 levels would be expected or forecast. EPA has examined the proposed optional sampling schedules, considered the economic impact of the schedule, revisited the current state of the monitoring technology and has concluded that it is appropriate to make a number of changes to the minimum sampling schedule for VOC. To respond to the data needs of the Agency and the State and local air pollution control agencies, EPA has decided the following: Sampling schedules for NO, NO_2, NO_x, O_3 and surface meteorological parameters remain unchanged. EPA has determined that the minimum requirements for pollutant sampling will continue to mirror those for gaseous criteria pollutants, (i.e., continuous measurements). The minimum sampling period for precursors is designated as three months, specifically June, July, and August unless a different 3-month period is proposed by the State and approved by EPA. The minimum sampling period for ozone remains for the entire ozone season. The Agency has added an option for VOC monitoring at sites other than PAMS type (2) sites. In lieu of one in 3-day sampling (as stipulated by Frequency A in section 4.4 of appendix D), a State may substitute monitoring before and during O_3 events as specified by section 4.4 of appendix D plus one in 6-day sampling. Since the Agency is not promulgating a preferred event forecasting method, each State choosing this option (identified as sampling Frequency C by section 4.4 of appendix D), must submit an O_3 event forecasting scheme as a part of the PAMS network description as delineated in § 58.41. States or areas

proposing the joint submittal of network descriptions and choosing this option should include a strategy for ensuring a coordinated, network-wide response to O_3 event monitoring. Such a change in focus to event monitoring will also increase the feasibility of utilizing manual sampling methods as requested by several commenters.

Also in response to these concerns and in order to ensure the collection of data sufficient to conduct emission inventory verification and reconciliation exercises, establish source-receptor relationships, corroborate reasonable further progress (RFP) calculations, and produce meaningful precursor trends analyses, the proposed PAMS type (3) site has been changed to an additional PAMS type (2) site. To respond to other photochemical modeling concerns, the proposed PAMS type (5) site has been moved downwind of the new type (3) site and renumbered PAMS type (4). Responding to observations by six commenters that sampling schedules should be standardized to promote data comparability among parameters, carbonyl sampling requirements have been amended to more closely coincide with the required frequencies for VOC.

Eleven respondents suggested alternative locations or numbers of PAMS sampling stations. There was considerable variation among the suggested options, with several commenting that more sites were needed, others noting that specific local terrain and meteorological effects require different station placement. Five respondents in particular recommended that the collected data should be more responsive to the needs of the photochemical grid modeling process. EPA has closely surveyed the specific data needs engendered by the program objectives, especially the necessity to provide a measure of support for photochemical grid modeling, and has concluded that further clarification on the location of the PAMS sites is requisite. Accordingly, EPA has provided detail regarding the use of particular high O_3 day wind data, rather than general seasonally-predominant winds, for the location of potential PAMS monitoring sites. Further the Agency has provided guidance in reference 19 of appendix D to aid in specifying the location of sites, particularly sites type (2), when there are no predominant high O_3 day winds which can be accurately identified. Also, the Agency has relocated the upwind and downwind sites to correspond more appropriately to the data needs for photochemical grid models and has added guidance on the location of monitors, especially site types (3) or (4), in areas of complex terrain, e.g., mountain-valley, coastal, etc., to reference 19.

One commenter inquired why there is no requirement for a site in the area of greatest O_3 concentration given that the rule's objectives include making attainment/nonattainment decisions and characterizing the nature and extent of the O_3 problem. EPA notes that the siting requirements for PAMS type (3) sites and its monitoring objectives as articulated in section 4.2 and section 4.4 of appendix D clearly require its location to be the maximum O_3 monitoring site for the area.

Several respondents suggested that the requirement for each PAMS site to monitor all parameters was not necessary, i.e., that some PAMS sites should be allowed to operate with monitoring conducted for only some of the specified pollutants. EPA has revisited its PAMS data objectives and has determined this monitoring requirement should remain unchanged. Elimination of parameters at individual sites would weaken an otherwise comprehensive database and decrease its utility for fulfillment of the PAMS data objectives and future undiscovered data needs.

One commenter, while recommending alternate monitoring technologies for the PAMS, stated that in lieu of monitoring 1-hour averages for VOC monitoring, the sampling of 10-minute average for VOC equivalents or surrogates should be allowed. The technology recommended by this commenter is currently being scrutinized by the AREAL laboratory to determine its utility in the SIP process as noted in the discussion of § 58.43. EPA has otherwise determined that VOC monitoring at increments of 10 minutes is not practical at this time.

Several other commenters suggested the use of 24-hour and/or continuous NMOC monitoring (with periodic speciation) as an adjunct to or even as a replacement for the PAMS speciated VOC monitoring. They assert that the technology for NMOC monitoring is proven and that the subsequent data are sufficient for the development and tracking of control strategies. EPA has considered these arguments and has determined that although some of the PAMS objectives may be fulfilled via total NMOC data, the remainder require the gathering of speciated VOC measurements. The Agency has therefore not adopted the use of NMOC instead of speciated VOC as a national requirement as discussed previously under the public comments to § 58.20. The PAMS requirements, however, do not preclude the collection of additional NMOC data as an adjunct or for the submittal of alternative networks which propose elements of NMOC monitoring.

Two commenters questioned the utility of gathering a 24-hour integrated and speciated VOC sample to supplement the 1-hour speciated VOC samples. EPA notes that given the variations inherent in continuous/1-hour VOC measurement technology, the addition of a periodic 24-hour sample for purposes of quality assurance is a prudent and necessary reality check. Additionally, the year-round 24-hour periodic sample will provide information on emissions inventories, RFP, and long-term VOC trends and data for exposure assessments.

One State commenter felt that the guidance for regional network design, provided by figure 2 of appendix D, is too generic. This respondent suggests specifically that EPA should develop the PAMS monitoring network description for the Northeast O_3 Transport Region. EPA recognizes the unique nature of the O_3 problem occurring in the northeastern United States. Further, the Agency agrees with the principle that a strong federal contribution to the development of a region-wide monitoring network is critical to develop the needed consistency, cohesiveness, and comparability of the PAMS in the Northeast. Accordingly, the Agency has offered and is supplying both technical and financial assistance to coordinated region-wide State and local efforts. EPA does not agree, however, that the Agency should, by rule, usurp the State Implementation Plan process established by section 110 of the Clean Air Act, nor shortcut the requirements for the submittal of a network description for PAMS. Failure of a State to comply with the requirements for submittal of a SIP could, however, ultimately require EPA to promulgate and implement a Federal Implementation Plan for that State pursuant to section 110.

Several agencies submitted a PAMS monitoring plan which was fundamentally different from the proposed rule and requested that EPA substitute those requirements as the national requirements for PAMS monitoring. EPA observes that these agencies, being proximate to one another, would benefit greatly by submitting and implementing similar monitoring strategies. In this respect, EPA applauds those agencies' efforts toward consistency across a geographical region. On the contrary, however, for the same reasons that the requirements are specifically tailored to the characteristics of that particular

region, the Agency does not believe that it would suffice as a national minimum program.

18. Public Comments—Section 4.5 of Appendix D—Transition Period

Six commenters responded to this section, with varying points of view, although most were discussed as part of the debate outlined in § 58.44. Additionally, however, two commenters suggested that the early years of the program requirements should not be overly prescriptive and that areas be allowed to build up their programs over time, intimating that technology changes and resource needs could be phased in along with the monitoring program. In response, EPA has incorporated additional transition period flexibility as iterated in the discussion of § 58.44.

19. Public Comments—Section 4.6 of Appendix D—Meteorological Monitoring

Sixteen commenters provided observations regarding the meteorological monitoring requirements proposed by section 4.6 of appendix D and further stipulated by reference 2 of appendix C. Eleven of these respondents indicated support for the collection of upper air meteorological data in each area, especially if high quality upper air data are not currently available. Several supported this suggestion with notations that the photochemical grid models demand such data. One commenter, although recognizing the need for upper air monitoring, advised caution and deferral of such requirements due to the current state of atmospheric sounding technology. EPA has investigated the merits and projected costs of upper air meteorological monitoring and has concluded that the benefits of incorporating a requirement for upper air measurements are substantial. In response, therefore, the Agency has amended section 4.6 to reflect these requirements and has further indicated its predisposition to allow adequate time for securing data from this network. EPA also believes that States should take advantage of existing upper air monitoring programs and where possible, substitute these data for the PAMS requirements. EPA will provide guidance for the collection of these data.

Several respondents provided specific recommendations concerning the particular meteorological parameters which should be monitored and those for which they believed monitoring should be limited. EPA notes that with the exception of dew point measurements, the recommendations for particular parameters are incorporated into reference 2 of appendix C. Concerning dew point, one commenter stated that their meteorological staff find dew point temperature measurements to be much more useful than relative humidity to the study and forecasting of O_3 episodes. The measurement technique for dewpoint is straightforward; States are encouraged to include such measurements at PAMS, if they find them useful. The Agency has not required the measurement of this parameter since it may not be essential for all locations and may be derived from temperature and relative humidity measurements. As observed by one commenter, barometric pressure generally does not vary widely within a large area, except in areas with complex terrain features. EPA therefore indicates its predisposition to allow approved network designs which offer limited measurements of barometric pressure (or other parameters) if the State can demonstrate that the area's topography is not conducive to significant pressure (or other) variations.

One respondent indicated that the rule should allow measurements at a minimum height, or a range, above ground rather than specify 10 meters. For consistency, EPA has retained the 10-meter requirement. The Agency has determined that the lack of flexibility in this requirement should not constitute any hardship inasmuch as measurements at 10 meters are traditional as well as practical. States may institute additional monitoring at other heights, at their own volition.

In the preamble to the March 4, 1992 proposal, EPA recognized the potential difficulty in siting a 10-meter meteorological monitoring tower at a particular PAMS site. The Agency therefore requested comments on criteria to determine how such data collected at a nearby site could be used to represent the meteorology at a PAMS site where the tower and air monitoring equipment could not be collocated. One respondent agreed with the premise that nearby data (such as collected at airports or National Weather Service stations) should be accepted, but provided no suggestions for criteria to judge the representativeness of those data. EPA has consequently decided to consider requests to use nearby existing meteorological data, both surface and upper air, on a case-by-case basis.

20. Public Comments—Appendix E—Probe Siting Criteria for Ambient Air Quality Monitoring

Four respondents provided specific comments regarding the placement of the probe and siting criteria for PAMS. One was particularly concerned over the description for the PAMS site to be located downwind in the second-most prevalent wind direction noting that the probe siting criteria were based on the primary wind direction. EPA recognizes this deficiency, and notes that the rules have been amended to eliminate this PAMS type (5) site. Additional language has been added to sections 10.2 and 12 of appendix E to correct this anomaly for the other sites.

One commenter, based on experience, recommends that VOC samplers should be located further from sources than criteria pollutant monitors if they are to measure area-emitted and regionally-transported VOC. EPA notes that the minimum network detailed in section 4 of appendix D, stipulates 3 site types which are located to adequately measure incoming transported emissions [type (1)], maximum O_3 measurements [type (3)], and downwind outgoing conditions [type (4)], all sited as urban scale monitors.

Two agencies recommend the use of a vertical manifold for the measurement of ambient O_3 precursor data rather than a horizontal manifold. They further recommend that a heated line from the manifold to the GC be employed to ensure the transmission of heavy hydrocarbons through the line. EPA notes no compelling reason to specify the orientation of the sampling manifold. The requirements published in the technical assistance document (Reference 2 of Appendix C) do not preclude the use of a vertical sampling manifold. Likewise, the Agency has not specified nor prohibited the heating of the manifold which may be necessary in high humidity areas.

One commenter believes that the specifications for separation distance between PAMS and roadways, trees and obstacles appear to be lenient and should be more stringent. EPA believes that the specifications are adequate based on current best judgement. As more information becomes available, the Agency will revisit this issue.

D. Public Comments Concerning Impact on Small Entities

The U.S. Small Business Administration (SBA) requested further detail regarding the impact of these regulations on small entities which are defined to include small businesses, small organizations, and small governmental jurisdictions (5 U.S.C. 601 et seq.). Since EPA is utilizing the State Implementation Plan process as outlined in section 110 of the Clean Air Act, the provisions of these regulations promulgated today, apply directly only to State Governments, and particularly,

to the State air pollution control agencies having jurisdiction over O_3 nonattainment areas classified as severe, serious, or extreme. EPA therefore has concluded that no small entities would be affected by the proposal. At the request of the SBA's Chief Counsel for Advocacy, this certification has been clarified. Therefore, pursuant to 5 U.S.C. 605(b), the Administrator certifies that these amendments would not have a significant economic impact on a substantial number of small entities.

Classification

Since this revision is classified as minor, no additional reviews are required. The rules were submitted to the Office of Management and Budget (OMB) for review (under Executive Order 12291). This is not a major rule under E.O. 12291 because it does not meet any of the criteria defined in the Executive Order.

List of Subjects in 40 CFR Part 58

Air pollution control, air quality surveillance and data reporting, ambient air quality monitoring network design and siting, intergovernmental relations, pollutant standard index, quality assurance program.

Effective Date of Regulation

These revisions to 40 CFR Part 58 incorporate a flexible, reasonable, transition schedule for efficient phase-in of the rules in lieu of a waiting period for a rule effective date. This schedule accounts for the anticipated delays encountered by States in hiring qualified personnel, obtaining equipment, and providing training. Given that States will need to begin as soon as possible to prepare for O_3 season sampling, a 30-day waiting period is not appropriate and an effective date of immediately upon promulgation is deemed necessary. This explanation is provided pursuant to the requirements of 5 U.S.C. 553.

Dated: January 19, 1993.

William K. Reilly,

Administrator.

For the reasons set forth in the preamble, part 58 of chapter I of title 40 of the Code of Federal Regulations is amended as follows:

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

1. The authority citation for part 58 is revised to read as follows:

Authority: 42 U.S.C. 7410, 7601(a), 7613, and 7619.

2. Section 58.1 is amended by revising paragraph (f) and by adding paragraphs (w), (x), and (y) to read as follows:

§ 58.1 Definitions.

* * * * *

(f) NO_2 means nitrogen dioxide. *NO* means nitrogen oxide. NO_X means oxides of nitrogen and is defined as the sum of the concentrations of NO_2 and NO.

* * * * *

(w) *PAMS* means Photochemical Assessment Monitoring Stations.

(x) *VOC* means volatile organic compounds.

(y) *Meteorological measurements* means measurements of wind speed, wind direction, barometric pressure, temperature, relative humidity, and solar radiation.

3. Section 58.2 is amended by redesignating paragraph (d) as paragraph (e) and by adding a new paragraph (d) to read as follows:

§ 58.2 Purpose.

* * * * *

(d) This section also acts to establish a Photochemical Assessment Monitoring Stations (PAMS) network as a subset of the State's SLAMS network for the purpose of enhanced monitoring in O_3 nonattainment areas listed as serious, severe, or extreme. The PAMS network will be subject to the data reporting and monitoring methodology requirements as contained in subpart E of this part.

* * * * *

4. Section 58.13 is amended by revising paragraph (b), redesignating paragraph (c) as paragraph (d), and adding a new paragraph (c) to read as follows:

§ 58.13 Operating schedule.

* * * * *

(b) For manual methods (excluding PM10 samplers and PAMS VOC samplers), at least one 24-hour sample must be obtained every sixth day except during periods or seasons exempted by the Regional Administrator.

(c) For PAMS VOC samplers, samples must be obtained as specified in sections 4.3 and 4.4 of appendix D to this part. Area-specific PAMS operating schedules must be included as part of the network description required by § 58.40 and must be approved by the Administrator.

* * * * *

5. Section 58.20 is amended by revising paragraphs (a) and (c) and adding paragraph (f) to read as follows:

§ 58.20 Air quality surveillance: Plan content.

* * * * *

(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. SLAMS (including NAMS) designated as PAMS will also obtain ambient concentrations of speciated VOC and NO_X, and meteorological measurements. PAMS may therefore be located at existing SLAMS or NAMS sites when appropriate.

* * * * *

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

* * * * *

(f) Within 9 months after;

(1) February 12, 1993; or

(2) Date of redesignation or reclassification of any existing O_3 nonattainment area to serious, severe, or extreme; or

(3) The designation of a new area and classification to serious, severe, or extreme, affected States shall adopt and submit a plan revision to the Administrator.

The plan revision will provide for the establishment and maintenance of PAMS. Each PAMS site will provide for the monitoring of ambient concentrations of criteria pollutants (O_3, NO_2), and non-criteria pollutants (NO_X, NO, and speciated VOC) as stipulated in section 4.2 of appendix D, and meteorological measurements. The PAMS network is part of the SLAMS network, and the plan provisions in paragraphs (a) through (f) of this section will apply to the revision. Since NAMS sites are also part of the SLAMS network, some PAMS sites may be coincident with NAMS sites and may be designated as both PAMS and NAMS.

Subparts E and F—[Redesignated as Subparts F and G]

6. Subparts E (§ 58.40) and F (§§ 58.50 and 58.51) are redesignated as subparts F (§ 58.50) and G (§§ 58.60 and 58.61), respectively. Subpart E is added to read as follows:

Subpart E—Photochemical Assessment Monitoring Stations (PAMS)

Sec.

Sec.
58.44 PAMS network completion.
58.45 PAMS data submittal.
58.46 System modification.

Subpart E—Photochemical Assessment Monitoring Stations (PAMS)

§ 58.40 PAMS network establishment.

(a) In addition to the plan revision, the State shall submit a photochemical assessment monitoring network description including a schedule for implementation to the Administrator within 6 months after;

(1) February 12, 1993; or

(2) Date of redesignation or reclassification of any existing O_3 nonattainment area to serious, severe, or extreme; or

(3) The designation of a new area and classification to serious, severe, or extreme O_3 nonattainment.

The network description will apply to all serious, severe, and extreme O_3 nonattainment areas within the State. Some O_3 nonattainment areas may extend beyond State or Regional boundaries. In instances where PAMS network design criteria as defined in appendix D to this part require monitoring stations located in different States and/or Regions, the network description and implementation schedule should be submitted jointly by the States involved. When appropriate, such cooperation and joint network design submittals are preferred. Network descriptions shall be submitted through the appropriate Regional Office(s). Alternative networks, including different monitoring schedules, periods, or methods, may be submitted, but they must include a demonstration that they satisfy the monitoring data uses and fulfill the PAMS monitoring objectives described in sections 4.1 and 4.2 of appendix D to this part.

(b) For purposes of plan development and approval, the stations established or designated as PAMS must be stations from the SLAMS network or become part of the SLAMS network required by § 58.20.

(c) The requirements of appendix D to this part applicable to PAMS must be met when designing the PAMS network.

§ 58.41 PAMS network description.

The PAMS network description required by § 58.40 must contain the following:

(a) Identification of the monitoring area represented.

(b) The AIRS site identification form for existing stations.

(c) The proposed location for scheduled stations.

(d) Identification of the site type and location within the PAMS network design for each station as defined in appendix D to this part except that during any year, a State may choose to submit detailed information for the site scheduled to begin operation during that year's PAMS monitoring season, and defer submittal of detailed information on the remaining sites until succeeding years. Such deferred network design phases should be submitted to EPA for approval no later than January 1 of the first year of scheduled operation. As a minimum, general information on each deferred site should be submitted each year until final approval of the complete network is obtained from the Administrator.

(e) The sampling and analysis method for each of the measurements.

(f) The operating schedule for each of the measurements.

(g) An O_3 event forecasting scheme, if appropriate.

(h) A schedule for implementation. This schedule should include the following:

(1) A timetable for locating and submitting the AIRS site identification form for each scheduled PAMS that is not located at the time of submittal of the network description;

(2) A timetable for phasing-in operation of the required number and type of sites as defined in appendix D to this part; and

(3) A schedule for implementing the quality assurance procedures of appendix A to this part for each PAMS.

§ 58.42 PAMS approval.

The PAMS network required by § 58.40 is subject to the approval of the Administrator. Such approval will be contingent upon completion of each phase of the network description as outlined in § 58.41 and upon conformance to the PAMS network design criteria contained in appendix D to this part.

§ 58.43 PAMS methodology.

PAMS monitors must meet the monitoring methodology requirements of appendix C to this part applicable to PAMS.

§ 58.44 PAMS network completion.

(a) The complete, operational PAMS network will be phased in as described in appendix D to this part over a period of 5 years after;

(1) February 12, 1993; or

(2) Date of redesignation or reclassification of any existing O_3 nonattainment area to serious, severe, or extreme; or

(3) The designation of a new area and classification to serious, severe, or extreme O_3 nonattainment.

(b) The quality assurance criteria of appendix A to this part must be implemented for all PAMS.

§ 58.45 PAMS data submittal.

(a) The requirements of this section apply only to those stations designated as PAMS by the network description required by § 58.40.

(b) All data shall be submitted to the Administrator in accordance with the format, reporting periods, reporting deadlines, and other requirements as specified for NAMS in § 58.35.

(c) The State shall report NO and NO_X data consistent with the requirements of § 58.35 for criteria pollutants.

(d) The State shall report VOC data and meteorological data within 6 months following the end of each quarterly reporting period.

§ 58.46 System modification.

(a) Any proposed changes to the PAMS network description will be evaluated during the annual SLAMS Network Review specified in § 58.20. Changes proposed by the State must be approved by the Administrator. The State will be allowed 1 year (until the next annual evaluation) to implement the appropriate changes to the PAMS network.

(b) PAMS network requirements are mandatory only for serious, severe, and extreme O_3 nonattainment areas. When any such area is redesignated to attainment, the State may revise its PAMS monitoring program subject to approval by the Administrator.

7. Two new sentences are added before the last sentence in the first paragraph of section 2.2 of appendix A to read as follows:

Appendix A to Part 58—Quality Assurance Requirements for State and Local Air Monitoring Stations (SLAMS)

* * * * *

2.2 * * * Quality assurance guidance for meteorological systems at PAMS is contained in reference 3. Quality assurance procedures for VOC, NO_X (including NO and NO_2), O_3, and carbonyl measurements at PAMS must be consistent with EPA guidance. * * *

* * * * *

8. In the *References* section of appendix A redesignate references 5, 6, and 7 as references 6, 7, and 8, respectively, and a new reference 5 is added to read as follows:

References

* * * * *

5. Technical Assistance Document for Sampling and Analysis of Ozone Precursors

Atmospheric Research and Exposure Assessment Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. EPA 600/8–91–215. October 1991.

* * * * *

9. Sections 4.0, 5.0 and 5.1 of appendix C are redesignated as sections 5.0, 6.0, and 6.1, respectively (reference 5.1 will become reference 6.1 of section 6.0), sections 4.0, 4.2, and 4.3 are added, and newly redesignated section 6.0 is revised to read as follows:

Appendix C—Ambient Air Quality Methodology

* * * * *

4.0 Photochemical Assessment Monitoring Stations (PAMS)

4.1 Methods used for O_3 monitoring at PAMS must be automated reference or equivalent methods as defined in § 50.1 of this chapter.

4.2 Methods used for NO, NO_2 and NO_X monitoring at PAMS should be automated reference or equivalent methods as defined for NO_2 in § 50.1 of this chapter. If alternative NO, NO_2 or NO_X monitoring methodologies are proposed, such techniques must be detailed in the network description required by § 58.40 and subsequently approved by the Administrator.

4.3 Methods for meteorological measurements and speciated VOC monitoring are included in the guidance provided in references 2 and 3. If alternative VOC monitoring methodology (including the use of new or innovative technologies), which is not included in the guidance, is proposed, it must be detailed in the network description required by § 58.40 and subsequently approved by the Administrator.

* * * * *

6.0 References

* * * * *

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.

2. Technical Assistance Document For Sampling and Analysis of Ozone Precursors. Atmospheric Research and Exposure Assessment Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. EPA 600/8–91–215. October 1991.

3. Quality Assurance Handbook for Air Pollution Measurement Systems: Volume IV. Meteorological Measurements. Atmospheric Research and Exposure Assessment Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. EPA 600/4–90–0003. August 1989.

10. The heading of appendix D is revised to read as follows:

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

11. The second sentence of the first paragraph of section 1 of appendix D is revised to read as follows:

1. * * * It also describes criteria for determining the number and location of National Air Monitoring Stations (NAMS) and Photochemical Assessment Monitoring Stations (PAMS). These criteria will also be used by EPA in evaluating the adequacy of the SLAMS/NAMS/PAMS networks. * * *

* * * * *

Sections 4 and 5 of Appendix D [Redesignated as Sections 5 and 6]

12. Section 4 and section 5 of appendix D are redesignated as section 5 and section 6, respectively, and a new section 4 is added to read as follows:

* * * * *

4. Network Design for Photochemical Assessment Monitoring Stations (PAMS)

In order to obtain more comprehensive and representative data on O_3 air pollution, the 1990 Clean Air Act Amendments require enhanced monitoring for ozone (O_3), oxides of nitrogen (NO, NO_2, and NO_X), and monitoring for VOC in O_3 nonattainment areas classified as serious, severe, or extreme. This will be accomplished through the establishment of a network of Photochemical Assessment Monitoring Stations (PAMS).

4.1 *PAMS Data Uses.* Data from the PAMS are intended to satisfy several coincident needs related to attainment of the National Ambient Air Quality Standards (NAAQS), SIP control strategy development and evaluation, corroboration of emissions tracking, preparation of trends appraisals, and exposure assessment.

(a) *NAAQS attainment and control strategy development.* Like SLAMS and NAMS data, PAMS data will be used for monitoring O_3 exceedances and providing input for attainment/nonattainment decisions. In addition, PAMS data will help resolve the roles of transported and locally emitted O_3 precursors in producing an observed exceedance and may be utilized to identify specific sources emitting excessive concentrations of O_3 precursors and potentially contributing to observed exceedances of the O_3 NAAQS. The PAMS data will enhance the characterization of O_3 concentrations and provide critical information on the precursors which cause O_3, therefore extending the database available for future attainment demonstrations. These demonstrations will be based on photochemical grid modeling and other approved analytical methods and will provide a basis for prospective mid-course control strategy corrections. PAMS data will provide information concerning (1) which areas and episodes to model to develop appropriate control strategies; (2) boundary conditions required by the models to produce quantifiable estimates of needed emissions reductions; and (3) the evaluation of the predictive capability of the models used.

(b) *SIP control strategy evaluation.* The PAMS will provide data for SIP control strategy evaluation. Long-term PAMS data will be used to evaluate the effectiveness of these control strategies. Data may be used to evaluate the impact of VOC and NO_X emission reductions on air quality levels for O_3 if data is reviewed following the time period during which control measures were implemented. Speciation of measured VOC data will allow determination of which organic species are most affected by the emissions reductions and assist in developing cost-effective, selective VOC reductions and control strategies. A State or local air pollution control agency can therefore ensure that strategies which are implemented in their particular nonattainment area are those which are best suited for that area and achieve the most effective emissions reductions (and therefore largest impact) at the least cost.

(c) *Emissions tracking.* PAMS data will be used to corroborate the quality of VOC and NO_X emission inventories. Although a perfect mathematical relationship between emission inventories and ambient measurements does not yet exist, a qualitative assessment of the relative contributions of various compounds to the ambient air can be roughly compared to current emission inventory estimates to evaluate the accuracy of the emission inventories. In addition, PAMS data which are gathered year round will allow tracking of VOC and NO_X emission reductions, provide additional information necessary to support Reasonable Further Progress (RFP) calculations, and corroborate emissions trends analyses. While the regulatory assessments of progress will be made in terms of emission inventory estimates, the ambient data can provide independent trends analyses and corroboration of these assessments which either verify or highlight possible errors in emissions trends indicated by inventories. The ambient assessments, using speciated data, can gauge the accuracy of estimated changes in emissions. The speciated data can also be used to assess the quality of the VOC speciated and NO_X emission inventories for input during photochemical grid modeling exercises and identify potential urban air toxic pollutant problems which deserve closer scrutiny.

The speciated VOC data will be used to determine changes in the species profile, resulting from the emission control program, particularly those resulting from the reformulation of fuels.

(d) *Trends.* Long-term PAMS data will be used to establish speciated VOC, NO_X, and limited toxic air pollutant trends, and supplement the O_3 trends database. Multiple statistical indicators will be tracked, including O_3 and its precursors during the events encompassing the days during each year with the highest O_3 concentrations, the seasonal means for these pollutants, and the annual means at representative locations.

The more PAMS that are established in and near nonattainment areas, the more effective the trends data will become. As the spatial

distribution and number of O_3 and O_3 precursor monitors improves, trends analyses will be less influenced by instrument or site location anomalies. The requirement that surface meteorological monitoring be established at each PAMS will help maximize the utility of these trends analyses by comparisons with meteorological trends, and transport influences. The meteorological data can also help interpret the ambient air pollution trends by taking meteorological factors into account.

(a) *Exposure assessment.* PAMS data will be used to better characterize O_3 and toxic air pollutant exposure to populations living in serious, severe, or extreme areas. Annual mean toxic air pollutant concentrations will be calculated to help estimate the average risk to the population associated with individual VOC species, which are considered toxic, in urban environments.

4.2 *PAMS Monitoring Objectives.* Unlike the SLAMS and NAMS design criteria which are pollutant specific, PAMS design criteria are site specific. Concurrent measurements of O_3, NO_X, speciated VOC, and meteorology are obtained at PAMS. Design criteria for the PAMS network are based on selection of an array of site locations relative to O_3 precursor source areas and predominant wind directions associated with high O_3 events. Specific monitoring objectives are associated with each location. The overall design should enable characterization of precursor emission sources within the area, transport of O_3 and its precursors into and out of the area, and the photochemical processes related to O_3 nonattainment, as well as developing an initial, though limited, urban air toxic pollutant database. Specific objectives that must be addressed include assessing ambient trends in O_3, NO, NO_2, NO_X, VOC (including carbonyls), and VOC species, determining spatial and diurnal variability of O_3, NO, NO_2, NO_X, and VOC species and assessing changes in the VOC species profiles that occur over time, particularly those occurring due to the reformulation of fuels. A maximum of five PAMS sites are required in an affected nonattainment area depending on the population of the Metropolitan Statistical Area/Consolidated Metropolitan Statistical Area (MSA/CMSA) or nonattainment area, whichever is larger. Specific monitoring objectives associated with each of these sites result in four distinct site types. Note that detailed guidance for the locating of these sites may be found in reference 19.

Type (1) sites are established to characterize upwind background and transported O_3 and its precursor concentrations entering the area and will identify those areas which are subjected to overwhelming transport. Type (1) sites are located in the predominant morning upwind direction from the local area of maximum precursor emissions during the O_3 season and at a distance sufficient to obtain urban scale measurements as defined in section 1 of this appendix. Typically, type (1) sites will be located near the edge of the photochemical grid model domain in the predominant morning upwind direction from the city limits or fringe of the urbanized area. Depending on the boundaries and size of the nonattainment area and the orientation of the grid, this site may be located outside of the nonattainment area. The appropriate predominant morning wind direction should be determined from historical wind data occurring during the period 7 a.m. to 10 a.m. on high O_3 days or on those days which exhibit the potential for producing high O_3 levels, i.e., O_3-conducive days as described in reference 25. Alternate schemes for specifying this morning wind direction may be submitted as a part of the network description required by §§ 58.40 and 58.41. Data measured at type (1) sites will be used principally for the following purposes:

- Future development and evaluation of control strategies,
- Identification of incoming pollutants,
- Corroboration of NO_X and VOC emission inventories,
- Establishment of boundary conditions for future photochemical grid modeling and mid-course control strategy changes, and
- Development of incoming pollutant trends.

Type (2) sites are established to monitor the magnitude and type of precursor emissions in the area where maximum precursor emissions are expected to impact and are suited for the monitoring of urban air toxic pollutants. Type (2) sites are located immediately downwind of the area of maximum precursor emissions and are typically placed near the downwind boundary of the central business district to obtain neighborhood scale measurements. The appropriate downwind direction should be obtained similarly to that for type (1) sites. Additionally, a second type (2) site may be required depending on the size of the area, and should be placed in the second-most predominant morning wind direction as noted previously. Data measured at type (2) sites will be used principally for the following purposes:

- Development and evaluation of imminent and future control strategies,
- Corroboration of NO_X and VOC emission inventories,
- Augmentation of RFP tracking,
- Verification of photochemical grid model performance,
- Characterization of O_3 and toxic air pollutant exposures (appropriate site for measuring toxic emissions impact),
- Development of pollutant trends, particularly toxic air pollutants and annual ambient speciated VOC trends to compare with trends in annual VOC emission estimates, and
- Determination of attainment with the NAAQS for NO_2 and O_3.

Type (3) sites are intended to monitor maximum O_3 concentrations occurring downwind from the area of maximum precursor emissions. Locations for type (3) sites should be chosen so that urban scale measurements are obtained. Typically, type (3) sites will be located 10 to 30 miles downwind from the fringe of the urban area. The downwind direction should also be determined from historical wind data, but should be identified as those afternoon winds occurring during the period 1 p.m. to 4 p.m. on high O_3 days or on those days which exhibit the potential for producing high O_3 levels. Alternate schemes for specifying this afternoon wind direction may also be submitted as a part of the network description required by §§ 58.40 and 58.41. Data measured at type (3) sites will be used principally for the following purposes:

- Determination of attainment with the NAAQS for O_3 (this site may coincide with an existing maximum concentration O_3 monitoring site),
- Evaluation of future photochemical grid modeling applications,
- Future development and evaluation of control strategies,
- Development of pollutant trends, and
- Characterization of O_3 pollutant exposures.

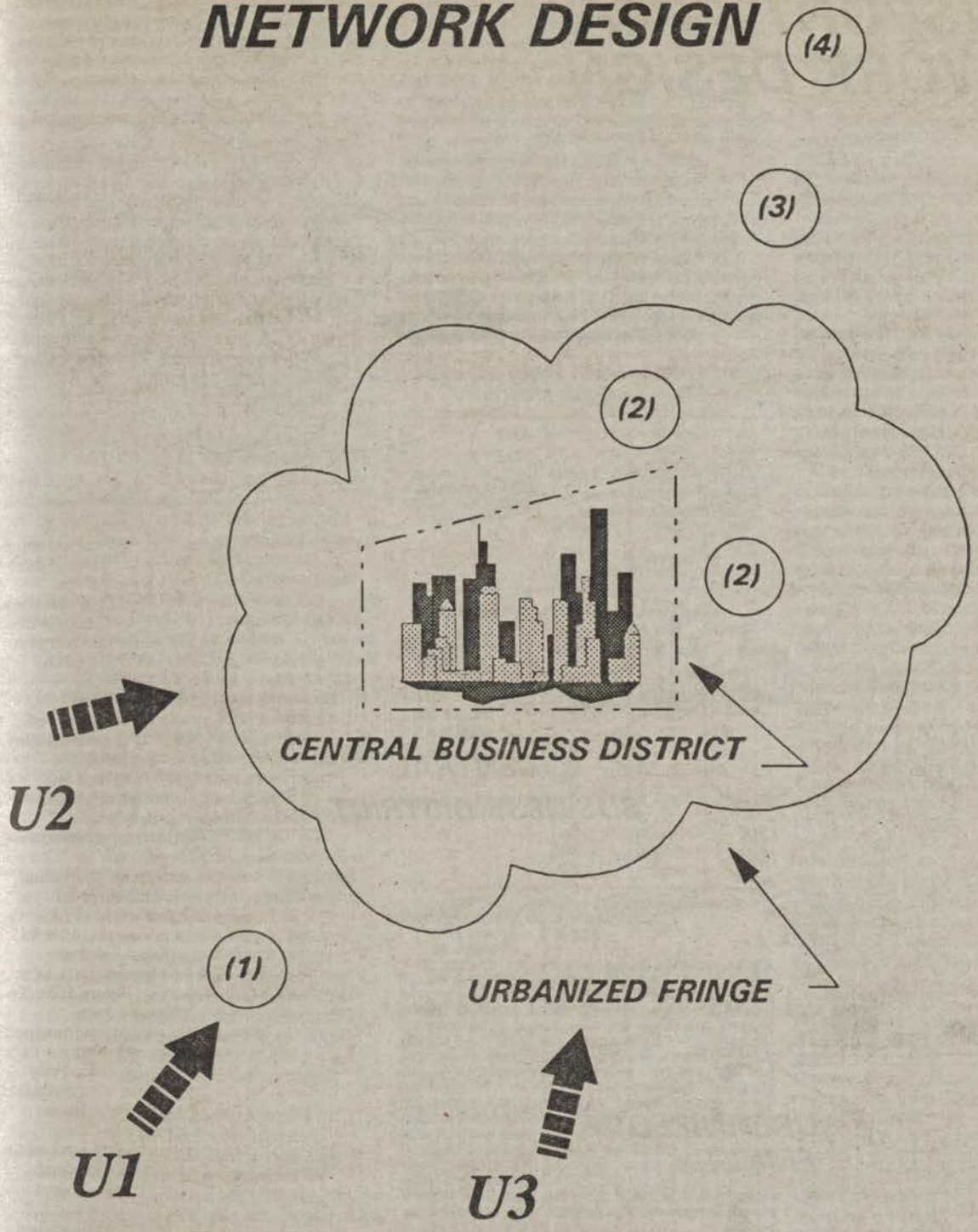
Type (4) sites are established to characterize the extreme downwind transported O_3 and its precursor concentrations exiting the area and will identify those areas which are potentially contributing to overwhelming transport in other areas. Type (4) sites are located in the predominant afternoon downwind direction, as determined for the type (3) site, from the local area of maximum precursor emissions during the O_3 season and at a distance sufficient to obtain urban scale measurements as defined elsewhere in this appendix. Typically, type (4) sites will be located near the downwind edge of the photochemical grid model domain. Alternate schemes for specifying the location of this site may be submitted as a part of the network description required by §§ 58.40 and 58.41. Data measured at type (4) sites will be used principally for the following purposes:

- Development and evaluation of O_3 control strategies,
- Identification of emissions and photochemical products leaving the area,
- Establishment of boundary conditions for photochemical grid modeling,
- Development of pollutant trends,
- Background and upwind information for other downwind areas, and
- Evaluation of photochemical grid model performance.

States choosing to submit an individual network description for each affected nonattainment area, irrespective of its proximity to other affected areas, must fulfill the requirements for isolated areas as described in section 4 of appendix D, as an example, and illustrated by Figure 1. States containing areas which experience significant impact from long-range transport or are proximate to other nonattainment areas (even in other States) should collectively submit a network description which contains alternative sites to those that would be required for an isolated area. Such a submittal should, as a guide, be based on the example provided in Figure 2, but must include a demonstration that the design satisfies the monitoring data uses and fulfills the PAMS monitoring objectives described in sections 4.1 and 4.2 of appendix D. EPA recognizes that specific monitoring sites identified for one area may serve to fulfill the monitoring objectives for a different site in another area; for example, a downwind site for one area may suffice as an upwind site for another. These alternative network designs must also be reviewed and approved by the Administrator.

BILLING CODE 6560-50-P

FIGURE 1 - ISOLATED AREA NETWORK DESIGN



NOTE: U1 AND U2 REPRESENT THE FIRST AND SECOND MOST PREDOMINANT HIGH OZONE DAY MORNING WIND DIRECTION. U3 REPRESENTS THE HIGH OZONE DAY AFTERNOON WIND DIRECTION.

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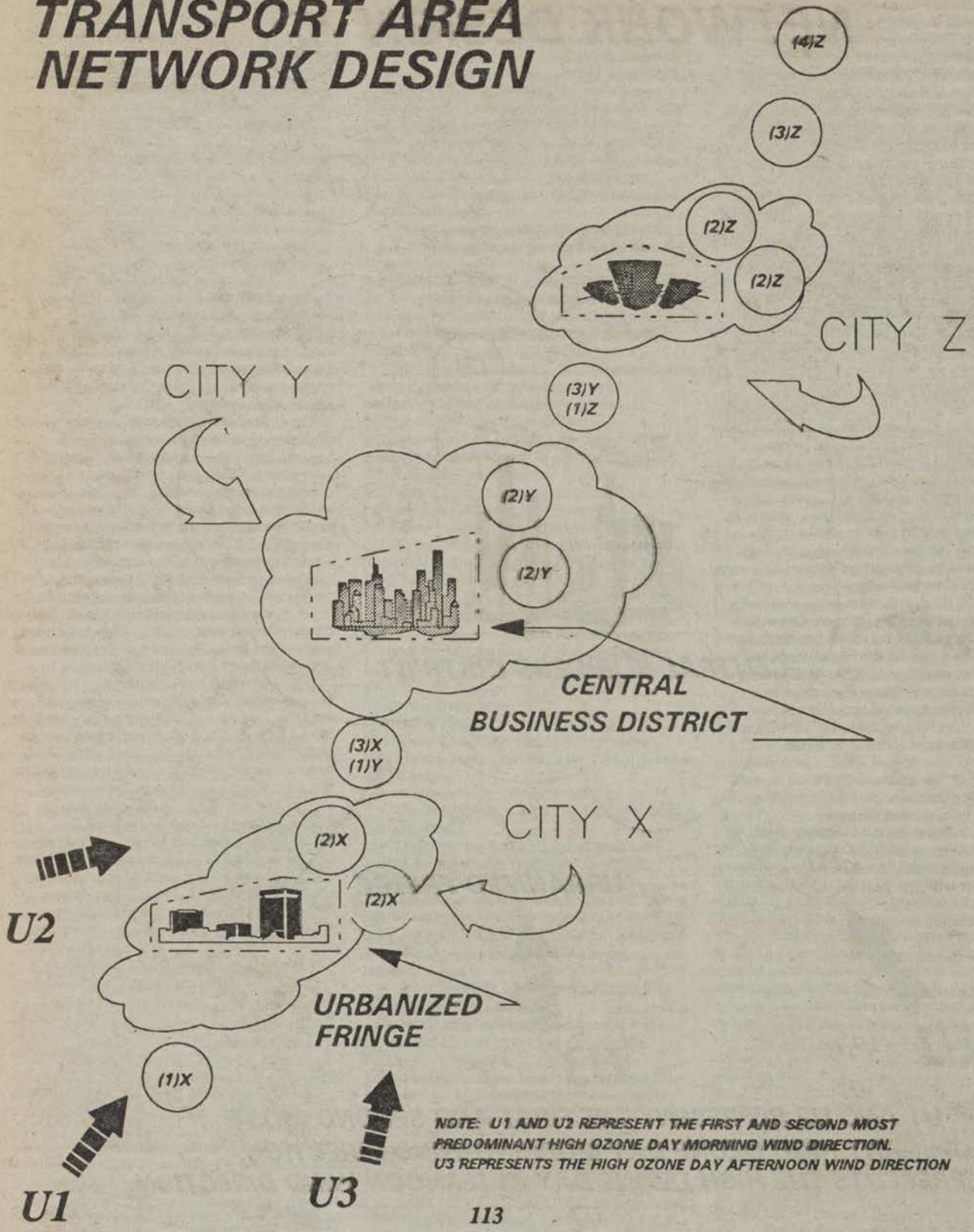
FIGURE 2 - MULTI-AREA AND TRANSPORT AREA NETWORK DESIGN



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Alternative PAMS network designs should, on a site-by-site basis, provide those data necessary to enhance the attainment/nonattainment database for criteria pollutants and explain the origins of overwhelming O_3 transport. The alternative PAMS data should be usable for the corroboration and verification of O_3 precursor emissions inventories and should comprise a qualitative (if not quantitative) measure of the accuracy of RFP calculations. The data should be sufficient to evaluate the effectiveness of the implemented O_3 control strategies and should provide data necessary to establish photochemical grid modeling boundary conditions and necessary inputs including appropriate meteorological parameters, and provide measurements which can serve as model evaluation tools. Further, utilizing its PAMS database (alternative or not), a State should be able to draw conclusions regarding population exposure and conduct trends analyses for both criteria and non-criteria pollutants. Overall, the PAMS network should serve as one of several complementary means, together with modeling and analysis of other data bases (e.g., inventories) and availability of control technology, etc., for States to justify the modification of existing control programs, design new programs, and evaluate future courses of actions for O_3 control.

4.3 *Monitoring Period.* PAMS precursor monitoring will be conducted annually throughout the months of June, July and August (as a minimum) when peak O_3 values are expected in each area; however, precursor monitoring during the entire O_3 season for the area is preferred. Alternate precursor monitoring periods may be submitted for approval as a part of the PAMS network description required by § 58.40. Changes to the PAMS monitoring period must be identified during the annual SLAMS Network Review specified in § 58.20. PAMS O_3 monitors must adhere to the O_3 monitoring season specified in section 2.5 of appendix D. To ensure a degree of national consistency, monitoring for the 1993 season should commence as follows:

One in 3-day sampling—June 3, 1993.

One in 6-day sampling—June 6, 1993.

These monitoring dates will thereby be coincident with the previously-established, intermittent schedule for particulate matter. States initiating sampling earlier (or later) than June 3, 1993 should adjust their schedules to coincide with this national schedule.

4.4 *Minimum Monitoring Network Requirements.* The minimum required number and type of monitoring sites and sampling requirements are based on the population of the affected MSA/CMSA or nonattainment area (whichever is larger). The MSA/CMSA basis for monitoring network requirements was chosen because it typically is the most representative of the area which encompasses the emissions sources contributing to nonattainment. The MSA/CMSA emissions density can also be effectively and conveniently portrayed by the surrogate of population. Additionally, a network which is adequate to characterize the ambient air of an MSA/CMSA often must extend beyond the boundaries of such an area (especially for O_3 and its precursors); therefore, the use of smaller geographical units (such as counties or nonattainment areas which are smaller than the MSA/CMSA) for monitoring network design purposes is inappropriate. Various sampling requirements are imposed according to the size of the area to accommodate the impact of transport on the smaller MSAs/CMSAs, to account for the spatial variations inherent in large areas, to satisfy the differing data needs of large versus small areas due to the intractability of the O_3 nonattainment problem, and to recognize the potential economic impact of implementation on State and local government. Population figures must reflect the most recent decennial U.S. census population report. Specific guidance on determining network requirements is provided in reference 19. Minimum network requirements are outlined in Table 2.

TABLE 2.—PAMS MINIMUM MONITORING NETWORK REQUIREMENTS [1]

Population of MSA/CMSA or nonattainment area [2]	Required site type [3]	Minimum speciated VOC sampling frequency [4]	Minimum carbonyl sampling frequency [4]
Less than 500,000 ..	(1)	A or C	
	(2)	A or C	D or F [5]
500,000 to 1,000,000.	(1)	A or C	
	(2)	B	E
	(3)	A or C	
1,000,000 to 2,000,000.	(1)	A or C	
	(2)	B	E
	(2)	B	E
	(3)	A or C	
More than 2,000,000	(1)	A or C	
	(2)	B	E
	(2)	B	E
	(3)	A or C	
	(4)	A or C	

[1] O_3 and NO_X (including NO and NO_2) monitoring should be continuous measurements.

[2] Whichever area is larger.

[3] See Figure 1.

[4] Frequency Requirements are as follows: A—Eight 3-hour samples every third day and one additional 24-hour sample every sixth day during the monitoring period; B—Eight 3-hour samples, every day during the monitoring period and one additional 24-hour sample every sixth day year-round; C—Eight 3-hour samples on the 5 peak O_3 days plus each previous day, eight 3-hour samples every sixth day, and one additional 24-hour sample every sixth day, during the monitoring period; D—Eight 3-hour samples every third day during the monitoring period; E—Eight 3-hour samples every day during the monitoring period; F—Eight 3-hour samples on the 5 peak O_3 days plus each previous day and eight 3-hour samples every sixth day during the monitoring period. (NOTE: multiple samples taken on a daily basis must begin at midnight and consist of sequential, non-overlapping sampling periods.)

[5] Carbonyl sampling frequency must match the chosen speciated VOC frequency.

Note that the use of Frequencies C or F requires the submittal of an ozone event forecasting scheme.

For purposes of network implementation and transition, EPA recommends the following priority order for the establishment of sites:

- The type (2) site which provides the most comprehensive data concerning O_3 precursor emissions and toxic air pollutants,
- The type (3) site which provides a maximum O_3 measurement and total conversion of O_3 precursors,
- The type (1) site which delineates the effect of incoming precursor emissions and concentrations of O_3 and provides upwind boundary conditions,
- The type (4) site which provides extreme downwind boundary conditions, and
- The second type (2) site which provides comprehensive data concerning O_3 precursor emissions and toxic air pollutants in the second-most predominant morning wind direction on high O_3 days.

Note also that O_3 event (peak day) monitoring will require the development of a scheme for forecasting such high O_3 days or will necessitate the stipulation of what meteorological conditions constitute a potential high O_3 day; monitoring could then be triggered only via meteorological projections. The O_3 event forecasting and monitoring scheme should be submitted as a part of the network description required by §§ 58.40 and 58.41 and should be reviewed during each annual SLAMS Network Review specified in § 58.20.

4.5 *Transition Period.* A variable period of time is proposed for phasing in the operation of all required PAMS. Within 1 year after (1) February 12, 1993, (2) or date of redesignation or reclassification of any existing O_3 nonattainment area to serious, severe, or extreme, or (3) the designation of a new area and classification to serious, severe, or extreme O_3 nonattainment, a minimum of one type (2) site must be operating. Operation of the remaining sites must, at a minimum, be phased in at the rate of one site per year during subsequent years as outlined in the approved PAMS network description provided by the State.

4.6 *Meteorological Monitoring.* In order to support monitoring objectives associated with the need for various air quality analyses, model inputs and performance evaluations, meteorological monitoring including wind measurements at 10 meters above ground is required at each PAMS site. Monitoring should begin with site establishment. In addition, upper air meteorological monitoring is required for each PAMS area. Upper air monitoring should be initiated as soon as possible, but no later than 2 years after (1) February 12, 1993, (2) or date of redesignation or reclassification of any existing O_3 nonattainment area to serious, severe, or extreme, or (3) the designation of a new area and classification to serious, severe, or extreme O_3 nonattainment. The upper air monitoring site may be located separately from the type (1) through (4) sites, but the location should be representative of the upper air data in the nonattainment area. Upper air meteorological data must be collected during those days specified for monitoring by the sampling frequencies in Table 2. of section 4.4 of this appendix D in accordance with current EPA guidance.

* * * * *

Section 6 of Appendix D [Amended]

13. References 19 through 32 are added to section 6 of appendix D to read as follows:

6. References

* * * * *

19. Enhanced Ozone Monitoring Network Design and Siting Criteria Guideline Document. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. EPA 450/4–91–033. November 1991.

20. Technical Assistance Document For Sampling and Analysis of Ozone Precursors. Atmospheric Research and Exposure Assessment Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. EPA 600/8–91–215. October 1991.

21. Quality Assurance Handbook for Air Pollution Measurement Systems: Volume IV. Meteorological Measurements. Atmospheric Research and Exposure Assessment Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. EPA 600/4–90–0003. August 1989.

22. Criteria for Assessing the Role of Transported Ozone/Precursors in Ozone Non-attainment Areas. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. EPA–450/4–91–015. May 1991.

23. Guideline for Regulatory Application of the Urban Airshed Model. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. EPA–450/4–91–013. July 1991.

24. Ambient Air Monitoring Data Quality Objectives (DQOs) for the Photochemical Assessment Monitoring Stations (PAMS) Program. Guideline Document. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. Draft Report. July 1992.

25. Shao-Hung Chu, "Using Windrose Data to Site Monitors of Ozone and Its Precursors", Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. Draft Report. June 1992.

26. Lewis, Charles W., and Teri L. Conner, "Source Reconciliation of Ambient Volatile Organic Compounds Measured in the Atlanta 1990 Summer Study: The Mobile Source Component", Atmospheric Research and Exposure Assessment Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. September 1991.

27. Fujita, Eric M., Bart E. Croes, Charles L. Bennett, Douglas R. Lawson, Frederick W. Lurmann, and Hilary H. Main, "Comparison of Emission Inventory and Ambient Concentration Ratios of CO, NMOG, and NO_x in California's South Coast Air Basin", J. Air and Waste Management Association 42:264–276. March 1992.

28. Nelson, P. F., S. M. Quigley and M. Y. Smith, "Sources of Atmospheric Hydrocarbons in Sydney: A quantitative Determination Using a Source Reconciliation Technique", Atmospheric Environment Vol 17, No. 3. 1983.

29. Mayrsohn, H. and J. H. Crabtree, "Source Reconciliation of Atmospheric Hydrocarbons", Atmospheric Environment Vol 10. 1976.

30. Mayrsohn, Henry, James H. Crabtree, Mutsuo Kuramoto, Ray D. Sothern, and Henry Mano, "Source Reconciliation of Atmospheric Hydrocarbons 1974", Atmospheric Environment Vol 11. 1977.

31. Analysis of the Ambient VOC Data Collected in the Southern California Air Quality Study, State of California Air Resources Board—Research Division, 1800 15th Street, Sacramento, CA 95814, Final Report, Contract No. A832–130. February, 1992.

32. Purdue, Larry J., "Summer 1990 Atlanta Ozone Precursor Study", presented at the 84th Annual Meeting and Exhibition of the Air and Waste Management Association, Vancouver, British Columbia, Canada. June 1991.

14. Appendix E is amended by adding a new paragraph after the first paragraph in section 9, redesignating sections 10, 11, and 12 as sections 11, 12, and 13, and adding a new section 10, redesignating Table 5 as Table 6 in newly redesignated section 12, and adding a new Table 5 in new section 10, amending the last sentence in newly redesignated section 11 to add reference to PAMS, and amending newly redesignated section 12 by adding an entry to the bottom of Table 6 for VOC to read as follows:

Appendix E—Probe Siting Criteria for Ambient Air Quality Monitoring

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9. * * *

For VOC monitoring at those SLAMS designated as PAMS, FEP teflon is unacceptable as the probe material because of VOC adsorption and desorption reactions on the FEP teflon. Borosilicate glass, stainless steel, or its equivalent are the acceptable probe materials for VOC and carbonyl sampling. Care must be taken to ensure that the sample residence time is 20 seconds or less.

* * * * *

10. Photochemical Assessment Monitoring Stations (PAMS)

10.1 *Horizontal and Vertical Probe Placement.* The height of the probe inlet must be located 3 to 15 meters above ground level. This range provides a practical compromise for finding suitable sites for the multipollutant PAMS. The probe inlet must also be located more than 1 meter vertically or horizontally away from any supporting structure.

10.2 *Spacing from Obstructions.* The probe must be located away from obstacles and buildings such that the distance between the obstacles and the probe inlet is at least twice the height that the obstacle protrudes above the sampler. There must be unrestricted airflow in an arc of at least 270° around the probe inlet. Additionally, the predominant wind direction for the period of greatest pollutant concentration (as described for each site in section 4.2 of appendix D) must be included in the 270° arc. If the probe is located on the side of the building, 180° clearance is required.

10.3 *Spacing from Roads.* It is important in the probe siting process to minimize destructive interferences from sources of nitrogen oxide (NO) since NO readily reacts with O_3. Table 5 below provides the required minimum separation distances between roadways and PAMS (excluding upper air measuring stations):

TABLE 5.—SEPARATION DISTANCE BETWEEN PAMS AND ROADWAYS

[Edge of Nearest Traffic Lane]

Roadway average daily traffic vehicles per day	Minimum separation distance between roadways and stations in meters[1]
<10,000	>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.

Type (1), (3) and (4) sites are intended to be regionally representative and should not be unduly influenced by nearby roadways. Similarly, a nearby roadway should not act as a local depressor of O_3 concentrations for type (2) and (3) sites.

10.4 *Spacing from Trees.* Trees can provide surfaces for adsorption and/or reactions to occur and can obstruct normal wind flow patterns. To minimize these effects at PAMS, the probe inlet should be placed at least 20 meters from the drip line of trees. Since the scavenging effect of trees is greater for O_3 than for the other criteria pollutants, strong consideration of this effect must be given in locating the PAMS probe inlet to avoid this problem. Therefore, the samplers 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 appropriate wind direction.

10.5 *Meteorological Measurements.* The 10-meter meteorological tower at each PAMS site should be located so that measurements can be obtained that are not immediately influenced by surrounding structures and trees. It is important that the meteorological data reflect the origins of, and the conditions within, the air mass containing the pollutants collected at the probe. Specific guidance on siting of meteorological towers is provided in references 31 and 32.

11. Waiver Provisions

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For those SLAMS also designated as NAMS or PAMS, the request will be forwarded to the Administrator.

12. Discussion and Summary

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TABLE 6.—SUMMARY OF PROBE SITING CRITERIA

Pollutant scale	Height above ground, meters	Distance from supporting structure, meters		Other spacing criteria
		Vertical	Horizontal[a]	
*	*	*	*	* * * *
VOC	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 probe inlet to obstacle must be at least twice the height the obstacle protrudes above the inlet probe. 3. Must have unrestricted air flow in an arc of at least 270° around the probe inlet and the predominant wind direction for the period of greatest pollutant concentration (as described for each site in section 4.2 of appendix D) must be included in the 270° arc. If probe located on the side of a building unrestricted air flow must be 180°. 4. Spacing from roadways (see Table 5).

[a] When probe is located on rooftop, this separation distance is in reference to walls, parapets, or penthouses located on the roof.

* * * * *

Section 13 of Appendix E [Amended]

15. References 31, 32, and 33 are added to section 13 of appendix E to read as follows:

13. References

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31. Technical Assistance Document For Sampling and Analysis of Ozone Precursors. Atmospheric Research and Exposure Assessment Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. EPA 600/8–91–215. October 1991.

32. Quality Assurance Handbook for Air Pollution Measurement Systems: Volume IV. Meteorological Measurements. Atmospheric Research and Exposure Assessment Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. EPA 600/4–90–0003. August 1989.

33. On-Site Meteorological Program Guidance for Regulatory Modeling Applications. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. EPA 450/4–87–013. June 1987.

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