PART 201—GENERAL PROVISIONS

1. The authority citation for Part 201 continues to read as follows:

Authority: 17 U.S.C. 702.

§ 201.5 [Amended]

2. Section 201.5(c)(1)(viii) is amended by removing ''A certification.''.

§ 201.28 [Amended]

3. Section 201.28(c)(4) is amended by adding a ''-'' (hyphen) between ''two'' and ''month''.

PART 202—REGISTRATION OF CLAIMS TO COPYRIGHT

4. The authority citation for Part 202 continues to read as follows:

Authority: 17 U.S.C. 408, 702.

§ 202.22 [Amended]

5. Section 202.22(c)(1) is amended by removing ''title;'' and adding ''title'' in its place.

PART 204—PRIVACY ACT: POLICIES AND PROCEDURES

6. The authority citation for Part 204 continues to read as follows:

Authority: 17 U.S.C. 702; 5 U.S.C. 552(a).

7. Section 204.8(a) is amended by revising the first sentence to read as follows:

§ 204.8 Appeal of refusal to correct or amend an individual's record.

(a) An individual who disagrees with a refusal of the Copyright Office to amend his or her record may request a review of the denial. * * *

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Dated: August 2, 2000.

Marilyn J. Kretsinger,

Assistant General Counsel.

[FR Doc. 00–20082 Filed 8–9–00; 8:45 am]

BILLING CODE 1410–30–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[AD–FRL–6846–6]

RIN 2060–AG22

Amendments to Standards of Performance for New Stationary Sources; Monitoring Requirements

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The EPA is issuing revisions to the monitoring requirements to Performance Specification 1 (PS–1) of appendix B to part 60. The revisions clarify and update requirements for source owners and operators who must install and use continuous stack or duct opacity monitoring equipment. The revisions also update design and performance validation requirements for continuous opacity monitoring system (COMS) equipment in appendix B, PS–1. These revisions do not change an affected facility's applicable emission standards or requirements to monitor opacity. However, the revisions do the following: clarify the obligations of owners, operators, and opacity monitor vendors; reaffirm and update COMS design and performance requirements by incorporating by reference American Society for Testing and Materials (ASTM) D 6216–98 (approved February 10, 1998); provide EPA and affected facilities with equipment assurances for carrying out effective monitoring.

DATES: This rule is effective February 6, 2001. The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of February 6, 2001.

ADDRESSES: Air Docket Section (MC–6102), Attention: Docket No. A–91–07, U.S. Environmental Protection Agency, Room M–1500, First Floor, Waterside Mall, 401 M Street, SW, Washington, DC 20460. Mr. Solomon Ricks, Source Characterization Group A, Emissions, Monitoring, and Analysis Division (MD–19), U. S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

FOR FURTHER INFORMATION CONTACT: Mr. Solomon Ricks, (919) 541–5242; Air Docket, (202) 260–7548.

SUPPLEMENTARY INFORMATION:

Docket, No. A–91–07, containing information relevant to this rulemaking, is available for public inspection between 8:00 a.m. and noon and 1:30 p.m. and 4:00 p.m., Monday through Friday, except for Federal holidays, at EPA's Air Docket Section. A reasonable fee may be charged for copying.

Overview. The preamble summarizes the legal authority for these revisions, background information, technical and economic methodology used by the Agency to develop these revisions, impacts of these revisions, regulatory implementation, responses to public comments, and the availability of supporting documents.

Regulated Entities. These revisions apply to certain facilities, and they may apply to others.

(a) The revisions apply to any facility that is:

(1) Required to install a new COMS, relocate an existing COMS, replace an existing COMS.

(2) Required to recertify an existing COMS that has undergone substantial refurbishing (in the opinion of the enforcing agency).

(3) Specifically required to recertify the COMS, as required in the Code of Federal Regulations (CFR).

(b) These requirements may also apply to stationary sources located in a State, District, Reservation, or Territory that has adopted these revisions into its implementation plan.

Background Documentation. The following is a list of background documents pertaining to this rulemaking:

(1) Summary of Comments and Responses to the Proposed Revisions to PS–1. July 1998. Docket item No. IV–A–01.

(2) Summary of Performance Specification 1 (PS–1) Stakeholder Meeting. June 1996. Docket item No. IV–E–01.

(3) Summary of Comments and Responses to the PS–1 Supplemental Proposal. April 1999. Docket item No. IV–A–02.

(4) The EPA Public Comment Meeting: Measurement Methods for Opacity Stack Monitoring. October 1998. Docket item No. IV–E–02.

The two Summary of Comments and Responses documents (items 1 and 3) for this final rule contain a summary of all public comments made on the rule and our response to the comments. The Summary of Performance Specification 1 (PS–1) Stakeholder Meeting (item 2) contains a brief summary of the meeting taken from a poor quality audio recording of the meeting. The EPA Public Comment Meeting: Measurement Methods for Opacity Stack Monitoring (item 4) contains a transcript of the public hearing on the Supplemental Proposal.

Technology Transfer Network. The Technology Transfer Network (TTN) is one of EPA's electronic bulletin boards. The TTN provides information and technology exchange in various areas of air pollution control. New air regulations are posted on the TTN through the world wide web at ''http://www.epa.gov/ttn''.

The information presented in this preamble is organized as follows:

I. Background

We published the Specifications and Test Procedures for Opacity Continuous Emission Monitoring Systems in Stationary Sources, PS–1 (40 CFR Part 60 Appendix B) in the **Federal Register** on October 6, 1975 (40 FR 64250). We published an amendment to PS–1 on March 30, 1983 (48 FR 13322). Since the 1983 amendment, we gained more experience and understanding of COMS performance and operation. Also, manufacturers continued to improve the design of opacity monitors. In 1989 and 1990, we conducted opacity monitor manufacturer evaluations and found varying levels of sophistication in how manufacturers tested the performance of their monitors. For example, the detection limits of some testing equipment used by the manufacturers, were found to be limiting factors in evaluating COMS. In other cases, the evaluation showed that the COMS manufacturers had identified incorrect calculation procedures as well as inclusion of a component that caused an unacceptable COMS response. Other evaluations done in 1992 identified a continuing problem of clearly depicting misalignment of the transceiver and retroreflector. In 1992, we observed COMS responses over different distances for the COMS alignment test and concluded that the alignment check needed to be done at the installation pathlength. Moreover, from 1989 to 1992, we observed the angle of view (AOV) and angle of projection (AOP) testing, conducted by 10 major manufacturers of COMS, and concluded that the AOV and AOP should be reduced from the current 5 degrees to 4 degrees. This change reflects manufacturers' improvement in the monitors' capabilities. Lastly, the primary concern of COMS data users was the capability of the monitor to measure opacity accurately at or near the applicable standard. Once the opacity level exceeds the standard, the magnitude of the emissions is of lesser concern than the duration of the exceedance. Therefore, the levels at which the opacity monitor is evaluated needed to be revised. Based on the findings of our evaluations, we decided to update PS–1 to meet current industry practices and to ensure a continued improvement in the quality of opacity data.

II. Regulatory History of This Rulemaking

We proposed revisions to PS–1 in the **Federal Register** (59 FR 60585) on November 25, 1994. Public comments were accepted for 60 days, until January 24, 1995. We received a total of 89 individual comments from 14 separate commenters. Comments on the November 1994 proposal revealed some concern and confusion with the design specifications and with the test procedures to verify compliance with the design specifications. A summary of the public comments and EPA's response to those comments is in the docket (IV–A–01). To ensure adequate understanding of the technical issues uncovered in the comments, we held a public stakeholder meeting on June 12, 1996. Attendees included opacity monitor manufacturers, State and local agencies, EPA regional offices, and COMS owners and operators. A few of the monitor manufacturers were also members of ASTM. A summary of the stakeholder meeting is in the docket (IV–E–01). As an outcome of the stakeholder meeting, in September 1996, ASTM D22.03, a Subcommittee on Ambient Atmospheres and Source Emissions, volunteered to undertake development of a Standard Practice for opacity monitor manufacturers. The Standard Practice that they developed (1) offered additional design and performance specifications and test procedures to eliminate many of the performance problems that EPA encountered with existing COMS and (2) contributed to ensuring the quality of opacity monitoring results without restricting future technological development.

On September 23, 1998, we published a supplemental proposal in the **Federal Register** (63 FR 50824) to incorporate ASTM D 6216–98 by reference into the proposed revisions to PS–1. Public comments were accepted for 60 days. A total of 12 commenters responded to the supplemental proposal. A summary of the public comments and EPA's response to those comments is in the docket (IV–A–02). On October 23, 1998, by request, we held a public hearing on the supplemental proposal. A summary of the public hearing is in the docket (IV–E–02).

III. Major Public Comments and EPA Responses and Changes to the Proposed Revisions

A. Comments and Responses on the Proposed PS–1

We received a total of 89 individual comments from 14 separate commenters on the November 24, 1994, proposed revisions. The significant comments on the 1994 proposal came from manufacturers and focused primarily on the design specification and the verification test procedures. Specifically, one manufacturer stated PS–1 should include specifications for: (1) limiting the analyzer's sensitivity to ambient light, (2) limiting the analyzer's sensitivity to AC line voltage variations, (3) limiting the analyzer's potential opacity error over the entire range of expected operating temperatures, and (4) describing the analyzer's ability to meet some normal shock and vibration criteria. Another manufacturer stated a specification and verification test should be added to determine the homogeneity of the light beam. Several manufacturers suggested terminology was needed in PS–1 to distinguish between zero drift and dust accumulation on exposed optical surfaces. Another manufacturer described in detail the shortcomings of the angle of view and angle of projection verification procedures. Specifically, the manufacturer stated that the equipment being tested should incorporate whatever field restricting devices that will be installed with the transmissometer. He felt since most light sources are chopped to differentiate between ambient light and measurement light, it needs to be specified that the nondirectional light source may be chopped if required to be compatible with the light detection scheme. Also, since some chopping rates are so high as to only be feasible with light emitting diodes, it should be allowable to use the actual source, if necessary. If the actual source is used without projection optics, and it does not provide sufficient light at 3 meters to be detectable, a shorter distance should be allowed or use the normal projection optics, if required. Each of these issues is already addressed by the ASTM D 6216–98 Standard Practice. Therefore we adopted ASTM's Standard Practice by reference into PS–1.

Several commenters requested that existing COMS that are moved or refurbished should not have to meet the requirements of this new PS–1. They argued that existing COMS would be required to have new span filters (in the PS–1 revisions, the term ''span'' is no longer used; it has been replaced with upscale calibration value) installed and certified if relocated or refurbished. This issue was also raised in the comments on the supplemental proposal. The relocation of a COMS is likely to have an impact on the pathlength correction factor, which will impact the upscale calibration value. A change in the upscale calibration value could necessitate a change in the upscale calibration filter. The revisions to PS–1 ensure continued improvement in the quality of opacity data being collected, primarily due to the clarification of the design specification verification procedures and the performance specifications. The procedures are written in a manner to eliminate diverse interpretations. Therefore, we are requiring relocated or refurbished COMS to meet the new PS–1.

Many commenters suggested that the 20 percent dirty window compensation should not be allowed for any COMS. The commenters believed opacity monitor manufacturers are capable of utilizing improved purge systems to prevent dirt buildup. Also, it was suggested that errors of deliberate misadjustment or neglect of maintenance of monitors could result. We agreed with the suggestion that deliberate misadjustment could occur, as well as neglect of maintenance of monitors, and the dirty window compensation is now 4 percent.

Several manufacturers commented that the calibration error test, instrument response time test, and optical alignment sight test should also be done by the manufacturer and not solely at the source by the owner or operator. Because the manufacturers have the special equipment to do these tests, we agreed that the calibration error, instrument response time, and optical alignment sight tests should be done by the manufacturer. In the supplemental proposal, we only required the manufacturers to perform the aforementioned tests. We received comments on the supplemental proposal from state regulatory agencies stating that facilities should continue to also be responsible for conducting these tests. One commenter argued that the burden on facilities would be minimal, because manufacturers' representatives typically are directly involved with initial onsite installation and testing. The final rule requires both the manufacturers and facilities to perform the calibration error, instrument response time, and optical alignment sight tests. The final rule also requires the manufacturer to conduct performance verification tests on each monitor at installation-specific conditions or at clearly defined default conditions if installation conditions are not known.

B. Comments and Responses on the Supplemental Proposal

A total of 12 commenters submitted written comments about the September 23, 1998 supplemental proposal. Three people that spoke at the public hearing did not submit written comments. The most frequent comment concerned the manner in which we incorporated ASTM D 6216–98 by reference into PS–1. Representatives from ASTM believed incorporating D 6216–98 by citing the various paragraphs disrupted the flow of the Standard Practice. They felt it would be more advantageous if we incorporated the Standard Practice in its entirety. We agreed with this assessment; therefore, in this final rule, we have incorporated D 6216–98 in its entirety.

Both manufacturers and State agency representatives commented about the lack of field audit procedures to confirm the performance of the COMS after it was installed. They suggested we include the procedures that were in the 1994 PS–1 proposal (59 FR 60585) for the calibration error test, instrument response time test, and optical alignment sight test. Also, other commenters suggested that the field audit procedures should include a check of the entire monitoring system to verify that the combined opacity monitor and data recording system correctly average and record averaging period values. We agreed that field audit procedures were necessary at the source, therefore we included field performance audit procedures and made them consistent with ASTM D 6216 in terms of both terminology and technology.

Many commenters expressed concern with the amount of time allowed for opacity monitor manufacturers to comply with the new specifications. They felt 30 days was not enough time. Several manufacturers suggested they could be in compliance within 180 days. We agreed with the suggested time for compliance and moved the effective date from 30 days to 180 days after publication in the **Federal Register**.

Some commenters questioned our replacing the old 168-hour Conditioning Period and 168-hour Operational Test Period with an extended 336-hour Operational Test Period. Commenters suggested making the Operational Test Period, during which the zero and upscale drift tests are conducted, consistent with the 7-day drift test period for a gaseous monitoring system. Also, a few commenters asked that normal source downtime be included in the Operational Test Period. Recognizing that source owners and operators would run informal conditioning period prior to beginning the operational test period, we eliminated the 168-hour Conditioning Period and reduced the Operational Test Period from 336 hours to 168 hours. We also clarified the language in the final rule and included minimum source operating times required during the Operational Test Period for batch operations and continuous operating processes.

Other commenters questioned our retaining the calibration stability test in PS–1 when tests were included in the ASTM Standard Practice to detect opacity monitors that have short-term drift problems. They believed including the test in PS–1 was redundant and unnecessary. We agreed with the suggestion that the test was redundant, and deleted the calibration stability test from the final rule.

One commenter stated that, as proposed, the requirements relating to daily zero and upscale calibration check levels would impose manufacturing problems which would significantly increase the cost to manufacture opacity monitors. This comment was given due to the manner in which ASTM D 6216–98 was incorporated in the supplemental proposal. The commenter stated that incorporating only certain sections of the standard created unnecessary confusion regarding the applicable requirements, allowed for mis-application of the ASTM standard, and created unnecessary complexity and significantly increased costs for regulatory agencies, instrument manufacturers, and the regulated facilities. Specifically, it was stated that to meet the values in the supplemental proposal given for the zero and upscale calibration, a manufacturer would have to maintain 900 calibration filters. Although we did not agree with this interpretation of the rule, after reviewing the comments submitted on the supplemental proposal, we agreed that misunderstandings could occur with the rule as proposed. With the incorporation of the ASTM standard in its entirety, we have eliminated any confusion which may occur, and we have eliminated any unnecessary complexity in the rule. The final rule will not significantly increase the cost for regulatory agencies, instrument manufacturers, or the regulated facilities.

C. Applicability

The ASTM D22.03 Task Group chairperson indicated in his comments on the supplemental proposal that the calibration error specification of ±3 percent opacity, the zero and upscale drift specifications of ±2 percent opacity, and the PS–1 requirements to adjust monitors when drift exceeds two times the specification (i.e., ±4 percent opacity) are inappropriate for monitoring an opacity standard below 10 percent. Special calibration attenuators and calibration techniques, not yet available on a broad basis, are needed for cases where the opacity standard is below 10 percent. He noted that imprecision allowances of this magnitude create excessive uncertainty for establishing compliance with a low opacity limit. The ASTM representative noted that ASTM D 6216–98 specifications ensure accurate COMS measurements at sources with opacity standards of 10 percent opacity or greater.

The ASTM representative also indicated that the design specification for full scale to be set at 80 percent opacity or above is inappropriate for sources where the compliance level is below 10 percent opacity. The commenter also indicated other technical issues related to continuous monitoring of opacity from sources subject to opacity standards less than 10 percent which PS–1 does not adequately address. Therefore, the ASTM opacity Task Group elected to defer consideration of these special issues in ASTM D 6216–98 and instead specified that ASTM D 6216–98 will ensure that COMS ''meet minimum design and calibration requirements, necessary in part, for accurate opacity monitoring measurements in regulatory environmental monitoring applications subject to 10 percent or higher opacity standards.''

We recognize there are potential measurement errors associated with monitoring opacity in stacks especially for emission units subject to opacity limits less than 10 percent. The uncertainties in measurement accuracy result from several factors. One is the current unavailability of calibration attenuators for opacity levels below 6 percent (3 percent for single-pass instruments). There are experimental techniques under review that would allow preparation and validation of calibration attenuators at levels down to 1 or 2 percent; however, the process for manufacturing and validating such devices is not yet in place. We intend to work with the ASTM Task Group to further this development work.

A second source of potential measurement error is that associated with the calibration error allowances, the zero and upscale drift specifications, the mandatory drift adjustment levels, and the imprecision associated with the allowed compensation for dirt accumulation. The imprecision associated with these tolerances may be adequate for assuring the quality of higher opacity measurements, but may be inadequate for assuring the quality of measurements of opacity less than 10 percent. In cooperation with the ASTM Task Group, we will continue to evaluate the capabilities of COMS relative to these performance specifications. The purpose of these evaluations is to determine whether tighter specifications are achievable and whether such tighter specifications would assure data of sufficient quality at opacity levels less than 10 percent. Possible outcomes include another revision to PS–1 addressing the on-site performance requirements or a second performance specification directed at COMS used at facilities with opacity limits less than 10 percent.

A third factor is the minimum full scale range of 80 percent opacity required of COMS in PS–1. This range is necessary in many cases to ensure that short term (i.e., less than 6 minutes) excursions at high opacity levels are captured in the 6-minute average. On the other hand, the specified full scale range may be inappropriately high for accurate measurements of opacity less than 10 percent for some instruments. We, again in cooperation with the ASTM Task Group, will evaluate a number of options to address this concern. Among potential options is the reduction of the required measurement range for low opacity applications; another is a requirement for dual range output with separate calibration and drift allowances. The revised PS–1 includes an option to establish a site-specific full scale range of no less than 50 percent opacity at facilities with opacity limits less than 10 percent.

We can estimate the upper range of potential measurement error that may be associated with COMS data by using a propagation of errors statistical analysis of the calibration error, zero and upscale drift, and alignment tolerances as specified in PS–1. This very conservative approach produces a potential measurement error of about 4 percent opacity. A properly operating and aligned COMS should experience measurement error significantly less than this magnitude.

While we recognize the potential for measurement error associated with monitoring opacity where the opacity limit is less than 10 percent, we believe it is inappropriate to limit the applicability of PS–1 based on the applicable emission limit. The final PS–1 is applicable to all COMS required to be certified or recertified. Instead of limiting the applicability, the final PS–1 will take into account (through statistical procedures or otherwise) the measurement uncertainty associated with COMS measurements below 10 percent opacity. Regardless of the potential for error in low level COMS readings, you, the owner or operator, are expected to respond to and correct as soon as possible any indication of excess emissions for an opacity limit consistent with good air pollution control practices for minimizing emissions as required by Part 60 and other regulations.

D. Definitions

All of the definitions from ASTM D 6216–98 are incorporated by reference. Comments received concerning the definitions suggested that they were subject to a variety of interpretations as written. As a result of incorporating ASTM D 6216–98 in its entirety in the final rule, we deleted redundant definitions present in the proposal and we defined terminology exclusive to PS–1 to be consistent with ASTM D 6216–98.

E. Changes in Design Specifications

There were specific changes in the design specifications detailed in the 1994 proposal (59 FR 60585). These changes were a result of the opacity monitor manufacturer evaluations conducted in 1989 and 1990. Also, the specifications for voltage, temperature, and light fluctuations were introduced in the supplemental proposal (63 FR 50824). There were no comments on the specifications, only on the verification procedures for the specifications. The design specifications changes are as follows:

(1) Angle of View and Angle of Projection. The AOV and AOP are reduced from 5 degrees to 4 degrees.

(2) Calibration Drift Checking System. The COMS must provide a means to simulate a zero and an upscale calibration drift check value in order to check the COMS transmitter/receiver calibration drift. The calibration drift checking system must include, at the same time, all active analyzer internal optics with power or curvature, all active electronic circuitry including the light source, photodetector assembly, electronic or electro-mechanical systems, and hardware and/or software used during normal measurement operation. The upscale calibration check response may not be altered by electronic hardware or software modification during the calibration cycle; the response is representative of

the gains and offsets applied to normal effluent opacity measurements.

(3) Alarms and Warnings. The COMS must provide operators visual or audible alarms or fault condition warnings to facilitate proper operation and maintenance of the COMS.

(4) Zero Compensations. The COMS must provide an automated means to assess and record accumulated automatic zero compensations on a 24-hour basis in order to achieve the correct response to the simulated zero device.

(5) Compensation for Dirt Accumulation. The automatic compensation for dirt accumulation on the exposed optical surfaces of the COMS must now include the compensation allowance in the 4 percent opacity tolerance for zero drift adjustment. Only those optical surfaces directly in the light beam path under normal operation to measure opacity may be measured and compensated for dust accumulation. The COMS must now provide a means to display the level of dust compensation.

(6) Opacity Monitor and External Audit Filters. The opacity monitor must now accommodate independent audits of the measurement system response to external audit filters. The external audit filter access design must ensure (a) the filters are used in conjunction with a zero condition based on the same energy level, or within 5 percent of the energy reaching the detector under actual clear path conditions, (b) the entire beam received by the detector will pass through the attenuator, and (c) the attenuator is inserted in a manner that minimizes interference from reflected light.

(7) Opacity Emissions and the Pathlength Correction Factor. The COMS must now automatically correct opacity emissions that are measured at the COMS installation location to the emission outlet pathlength. The COMS must be designed to ensure the pathlength correction factor (PLCF) cannot be changed by the end user, or the PLCF is recorded during each calibration drift check cycle, or an alarm sounds when the PLCF value is changed.

(8) Voltage, Temperature, and Light Fluctuations. As a result of incorporating ASTM D 6216–98 in its entirety, we incorporated three new design specifications to ensure that the accuracy of opacity monitor data is not affected by fluctuations in supply voltage, ambient temperature, and ambient light over the range specified by the manufacturer.

F. Other Revisions

This final rule also contains some revisions to 40 CFR part 60 § 60.13(d)(1) and (d)(2) and several revisions or corrections to PS–1. These revisions and corrections were given in detail in the 1994 proposal (59 FR 60585) and the supplemental proposal (63 FR 50824). There were no comments on the revisions and corrections, which are summarized below.

We revised 60.13(d)(1) to distinguish between gaseous continuous emissions monitoring systems (CEMS) and continuous opacity monitoring systems (COMS).

We revised 60.13(d)(2) to clarify and update which parts of the COMS must be checked by the daily simulated zero and upscale calibration drift checks and to be consistent with ASTM D 6216–98.

Because the new design specifications now require that the opacity monitor exhibit no interference from ambient light, we modified the installation guidelines. The modification removes the limitation of locating the opacity monitor at a place free of interference from ambient light.

III. Administrative Requirements

A. Docket

The docket is an organized and complete file of all information submitted or otherwise considered by EPA in the development of this rulemaking. The principal purposes of the docket are: (1) to allow interested parties to identify and locate documents so that they can effectively participate in the rulemaking process, and (2) to serve as the record in case of judicial review (except for interagency review materials) [Clean Air Act Section 307(d)(7)(A)].

B. Executive Order 12866

Under Executive Order 12866 (58 FR 51735 October 4, 1993), EPA must determine whether the regulatory action is ''significant'' and therefore subject to Office of Management and Budget (OMB) review and the requirements of the Executive Order. The Order defines ''significant regulatory action'' as one that is likely to result in a rule that may: (1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or Tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs, or the rights and obligation of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

It has been determined that this rule is not a ''significant regulatory action'' under the terms of Executive Order 12866 and is, therefore, not subject to OMB review.

C. Executive Order 13132

Executive Order 13132, entitled ''Federalism'' (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' is defined in the Executive Order to include regulations that have ''substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.'' Under Section 6 of Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by the State and local governments, or EPA consults with State and local officials early in the process of developing the proposed regulation. The EPA also may not issue a regulation that has federalism implications and that preempts State law unless the Agency consults with State and local officials early in the process of developing the proposed regulation.

This final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This final rule is a revision to an existing rule already being used by State and local governments. The revisions have no impact on how State and local governments apply the rule. Thus, the requirements of section 6 of the Executive Order do not apply to this rule.

D. Paperwork Reduction Act

This final rule does not contain any information collection requirements subject to the Office of Management and

Budget review under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*

E. Regulatory Flexibility

EPA has determined that it is not necessary to prepare a regulatory flexibility analysis in connection with this final rule. EPA has also determined that this rule will not have a significant economic impact on a substantial number of small entities.

This final rule does not have a significant impact on a substantial number of small entities because no additional cost will be incurred by such entities because of the changes specified by the rule. The requirements of the final rule reaffirm the existing design specifications for a COMS to demonstrate conformance with PS–1. The final rule clarifies the verification procedures for the design specifications, as well as clarifies the responsibilities of manufacturers of opacity monitors and the owners/operators without placing additional burden on either parties.

F. Unfunded Mandates Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under Section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local, and tribal governments in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has determined that this rule does not include a Federal mandate that may result in expenditures of $100 million or more for State, local, or tribal governments in the aggregate, or the private sector in any one year. This rule does not include additional requirements for the performance specifications of opacity monitors; the rule only clarifies the language in the specification. Thus, today's rule is not subject to the requirements of sections 202 and 205 of the UMRA. EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments. Again, the rule does not add any new requirements; it only clarifies the existing requirements.

G. National Technology Transfer and Advancement Act

The National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104–113, section 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.,* materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards. This rulemaking involves technical standards. EPA decided to use a voluntary consensus standard developed and adopted by the American Society for Testing and Materials (ASTM), ASTM D 6216–98, Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications. This standard was chosen because it was developed by ASTM with EPA involvement. The standard used the requirements outlined in PS–1 and developed clear and concise verification procedures for the requirements. Copies of the ASTM standard can be obtained by contacting the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428.

H. Executive Order 13045

Executive Order 13045: ''Protection of Children from Environmental Health Risks and Safety Risks'' (62 FR 19885, April 23, 1997) applies to any rule that (1) is determined to be ''economically significant'' as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

EPA interprets Executive Order 13045 as applying only to those regulatory actions that are based on health or safety risks, such that the analysis required under section 5–501 of the Order has the potential to influence the regulation. This rule is not subject to Executive Order 13045 because it does not establish an environmental standard intended to mitigate health or safety risks.

I. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804 (2). This rule will be effective February 6, 2001.

J. Executive Order 13084: Consultation and Coordination with Indian Tribal Governments

Under Executive Order 13084, EPA may not issue a regulation that is not required by statute, that significantly or uniquely affects the communities of Indian tribal governments, and that imposes substantial direct compliance costs on those communities, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by the tribal governments, or EPA consults with those governments. If EPA complies by consulting, Executive Order 13084 requires EPA to provide to the Office of Management and Budget, in a separately identified section of the preamble to the rule, a description of the extent of EPA's prior consultation with representatives of affected tribal governments, a summary of the nature of their concerns, and a statement supporting the need to issue the regulation. In addition, Executive Order 13084 requires EPA to develop an effective process permitting elected officials and other representatives of Indian tribal governments "to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities." Today's rule does not significantly or uniquely affect the communities of Indian tribal governments. This rule revises an existing regulation which details the performance and design specifications for continuous opacity monitoring systems. Accordingly, the requirements of section 3(b) of Executive Order 13084 do not apply to this rule.

List of Subjects in 40 CFR Part 60

Environmental protection, Air pollution control; Continuous emission monitoring; Incorporation by reference; Opacity; Particulate matter; Performance specification; Preparation, submittal, and adoption of State implementation plans; Transmissometers; Visible emissions.

Dated: July 31, 2000.

Carol M. Browner,

Administrator.

For the reasons stated in the preamble, title 40, chapter I of the Code of Federal Regulations is amended as follows:

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

1. The authority citation for part 60 continues to read as follows:

Authority: 42 U.S.C. 7401, 7411, 7413, 7414, 7416, 7601, and 7602.

Subpart A—General Provisions

2. Amend § 60.13 by revising paragraphs (d)(1) and (d)(2) as follows:

§ 60.13 Monitoring requirements.

* * * * *

(d)(1) Owners and operators of a CEMS installed in accordance with the provisions of this part, must automatically check the zero (or low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily in accordance with a written procedure. The zero and span must, as a minimum, be adjusted whenever either the 24-hour zero drift or the 24-hour span drift exceeds two times the limit of the applicable performance specification in appendix B of this part. The system must allow the amount of the excess zero and span drift to be recorded and quantified whenever specified. Owners and operators of a COMS installed in accordance with the provisions of this part, must automatically, intrinsic to the opacity monitor, check the zero and upscale (span) calibration drifts at least once daily. For a particular COMS, the acceptable range of zero and upscale calibration materials is as defined in the applicable version of PS–1 in appendix B of this part. For a COMS, the optical surfaces, exposed to the effluent gases, must be cleaned before performing the zero and upscale drift adjustments, except for systems using automatic zero adjustments. The optical surfaces must be cleaned when the cumulative automatic zero compensation exceeds 4 percent opacity.

(2) Unless otherwise approved by the Administrator, the following procedures must be followed for a COMS. Minimum procedures must include an automated method for producing a simulated zero opacity condition and an upscale opacity condition using a certified neutral density filter or other related technique to produce a known obstruction of the light beam. Such procedures must provide a system check of all active analyzer internal optics with power or curvature, all active electronic circuitry including the light source and photodetector assembly, and electronic or electro-mechanical systems and hardware and or software used during normal measurement operation.

* * * * *

3. Amend § 60.17 by adding paragraph (a)(64) as follows:

§ 60.17 Incorporation by reference.

* * * * *

(a) * * *

(64) ASTM D 6216–98 Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications, IBR approved February 6, 2001 for appendix B, PS–1.

* * * * *

4. Appendix B, Performance Specification 1 is revised to read as follows:

Appendix B to Part 60—Performance Specifications

* * * * *

Performance Specification 1—Specifications and Test Procedures for Continuous Opacity Monitoring Systems in Stationary Sources

1.0 What Is the Purpose and Applicability of Performance Specification 1?

Performance Specification 1 (PS–1) provides (1) requirements for the design, performance, and installation of a continuous opacity monitoring system (COMS) and (2) data computation procedures for evaluating the acceptability of a COMS. It specifies activities for two groups (1) the owner or operator and (2) the opacity monitor manufacturer.

1.1 Measurement Parameter. PS–1 covers the instrumental measurement of opacity caused by attenuation of projected light due to absorption and scatter of the light by particulate matter in the effluent gas stream.

1.2 What COMS must comply with PS–1? If you are an owner or operator of a facility with a COMS as a result of this Part, then PS–1 applies to your COMS if one of the following is true:

(1) Your facility has a new COMS installed after February 6, 2001; or

(2) Your COMS is replaced, relocated, or substantially refurbished (in the opinion of the regulatory authority) after February 6, 2001; or

(3) Your COMS was installed before February 6, 2001 and is specifically required by regulatory action other than the promulgation of PS–1 to be recertified.

If you are an opacity monitor manufacturer, then paragraph 8.2 applies to you.

1.3 Does PS–1 apply to a facility with an applicable opacity limit less than 10 percent? If you are an owner or operator of a facility with a COMS as a result of this Part and the applicable opacity limit is less than 10 percent, then PS–1 applies to your COMS as described in section 1.2; taking into account (through statistical procedures or otherwise) the uncertainties associated with opacity measurements, and following the conditions for attenuators selection for low opacity applications as outlined in Section 8.1(3)(ii). At your option, you, the source owner or operator, may select to establish a reduced full scale range of no less than 50 percent opacity instead of the 80 percent as prescribed in section 3.5, if the applicable opacity limit for your facility is less than 10 percent. The EPA recognizes that reducing the range of the analyzer to 50 percent does not necessarily result in any measurable improvement in measurement accuracy at opacity levels less than 10 percent; however, it may allow improved chart recorder interpretation.

1.4 What data uncertainty issues apply to COMS data? The measurement uncertainties associated with COMS data result from several design and performance factors including limitations on the availability of calibration attenuators for opacities less than about 6 percent (3 percent for single-pass instruments), calibration error tolerances, zero and upscale drift tolerances, and allowance for dust compensation that are significant relative to low opacity levels. The full scale requirements of this PS may also contribute to measurement uncertainty for opacity measurements where the applicable limits are below 10 percent opacity.

2.0 What Are the Basic Requirements of PS–1?

PS–1 requires (1) opacity monitor manufacturers comply with a comprehensive series of design and performance specifications and test procedures to certify opacity monitoring equipment before shipment to the end user, (2) the owner or operator to follow installation guidelines, and (3) the owner or operator to conduct a set of field performance tests that confirm the acceptability of the COMS after it is installed.

2.1 ASTM D 6216–98 is the reference for design specifications, manufacturer's performance specifications, and test procedures. The opacity monitor manufacturer must periodically select and test an opacity monitor, that is representative of a group of monitors produced during a specified period or lot, for conformance with the design specifications in ASTM D 6216–98. The opacity monitor manufacturer must test each opacity monitor for conformance with the manufacturer's performance specifications in ASTM D 6216–98.

2.2 Section 8.1(2) provides guidance for locating an opacity monitor in vertical and horizontal ducts. You are encouraged to seek approval for the opacity monitor location from the appropriate regulatory authority prior to installation.

2.3 After the COMS is installed and calibrated, the owner or operator must test the COMS for conformance with the field performance specifications in PS–1.

3.0 What Special Definitions Apply to PS–1?

3.1 All definitions and discussions from section 3 of ASTM D 6216–98 are applicable to PS–1.

3.2 *Centroid Area.* A concentric area that is geometrically similar to the stack or duct cross-section and is no greater than 1 percent of the stack or duct cross-sectional area.

3.3 *Data Recorder.* That portion of the installed COMS that provides a permanent record of the opacity monitor output in terms of opacity. The data recorder may include automatic data reduction capabilities.

3.4 *External Audit Device.* The inherent design, equipment, or accommodation of the opacity monitor allowing the independent assessment of the COMS's calibration and operation.

3.5 *Full Scale.* The maximum data display output of the COMS. For purposes of recordkeeping and reporting, full scale will be greater than 80 percent opacity.

3.6 *Operational Test Period.* A period of time (168 hours) during which the COMS is expected to operate within the established performance specifications without any unscheduled maintenance, repair, or adjustment.

3.7 *Primary Attenuators.* Those devices (glass or grid filter that reduce the transmission of light) calibrated according to procedures in section 7.1.

3.8 *Secondary Attenuators.* Those devices (glass or grid filter that reduce the transmission of light) calibrated against primary attenuators according to procedures in section 7.2.

3.9 *System Response Time.* The amount of time the COMS takes to display 95 percent of a step change in opacity on the COMS data recorder.

4.0 Interferences. Water Droplets

5.0 What Do I Need To Know To Ensure the Safety of Persons Using PS–1?

The procedures required under PS–1 may involve hazardous materials, operations, and equipment. PS–1 does not purport to address all of the safety problems associated with these procedures. Before performing these procedures, you must establish appropriate safety and health practices, and you must determine the applicable regulatory limitations. You should consult the COMS user's manual for specific precautions to take.

6.0 What Equipment and Supplies Do I Need?

6.1 *Continuous Opacity Monitoring System.* You, as owner or operator, are responsible for purchasing an opacity monitor that meets the specifications of ASTM D 6216–98, including a suitable data recorder or automated data acquisition handling system. Example data recorders include an analog strip chart recorder or more appropriately an electronic data acquisition and reporting system with an input signal range compatible with the analyzer output.

6.2 *Calibration Attenuators.* You, as owner or operator, are responsible for purchasing a minimum of three calibration attenuators that meet the requirements of PS–1. Calibration attenuators are optical filters with neutral spectral characteristics. Calibration attenuators must meet the requirements in section 7 and must be of sufficient size to attenuate the entire light beam received by the detector of the COMS. For transmissometers operating over a narrow bandwidth (*e.g.,* laser), a calibration attenuator's value is determined for the actual operating wavelengths of the transmissometer. Some filters may not be uniform across the face. If errors result in the daily calibration drift or calibration error test, you may want to examine the across-face uniformity of the filter.

6.3 *Calibration Spectrophotometer.* Whoever calibrates the attenuators must have a spectrophotometer that meets the following minimum design specifications:

Parameter	Specification
Wavelength range.	300–800 nm.
Detector angle of view.	<10°.
Accuracy	<0.5% transmittance, NIST traceable calibration.

7.0 What Reagents and Standards Do I Need?

You will need to use attenuators (*i.e.,* neutral density filters) to check the daily calibration drift and calibration error of a COMS. Attenuators are designated as either primary or secondary based on how they are calibrated.

7.1 Attenuators are designated primary in one of two ways:

(1) They are calibrated by NIST; or

(2) They are calibrated on a 6-month frequency through the assignment of a luminous transmittance value in the following manner:

(i) Use a spectrophotometer meeting the specifications of section 6.3 to calibrate the required filters. Verify the spectrophotometer calibration through use of a NIST 930D Standard Reference Material (SRM). A SRM 930D consists of three neutral density glass filters and a blank, each mounted in a cuvette. The wavelengths and temperature to be used in the calibration are listed on the NIST certificate that accompanies the reported values. Determine and record a transmittance of the SRM values at the NIST wavelengths (three filters at five wavelengths each for a total of 15 determinations). Calculate a percent difference between the NIST certified values and the spectrophotometer response. At least 12 of the 15 differences (in percent) must be within ±0.5 percent of the NIST SRM values. No difference can be greater than ±1.0 percent. Recalibrate the SRM or service the spectrophotometer if the calibration results fail the criteria.

(ii) Scan the filter to be tested and the NIST blank from wavelength 380 to 780 nm, and record the spectrophotometer percent transmittance responses at 10 nm intervals. Test in this sequence: blank filter, tested filter, tested filter rotated 90 degrees in the plane of the filter, blank filter. Calculate the average transmittance at each 10 nm interval. If any pair of the tested filter transmittance values (for the same filter and wavelength) differ by more than ±0.25 percent, rescan the tested filter. If the filter fails to achieve this tolerance, do not use the filter in the calibration tests of the COMS.

(iii) Correct the tested filter transmittance values by dividing the average tested filter transmittance by the average blank filter transmittance at each 10 nm interval.

(iv) Calculate the weighted (to the response of the human eye), tested filter transmittance by multiplying the transmittance value by the corresponding response factor shown in table 1–1, to obtain the Source C Human Eye Response.

(v) Recalibrate the primary attenuators semi-annually if they are used for the required calibration error test. Recalibrate the primary attenuators annually if they are used only for calibration of secondary attenuators.

7.2 Attenuators are designated secondary if the filter calibration is done using a laboratory-based transmissometer. Conduct the secondary attenuator calibration using a laboratory-based transmissometer calibrated as follows:

(i) Use at least three primary filters of nominal luminous transmittance 50, 70 and 90 percent, calibrated as specified in section

7.1(2)(i), to calibrate the laboratory-based transmissometer. Determine and record the slope of the calibration line using linear regression through zero opacity. The slope of the calibration line must be between 0.99 and 1.01, and the laboratory-based transmissometer reading for each primary filter must not deviate by more than ±2 percent from the linear regression line. If the calibration of the laboratory-based transmissometer yields a slope or individual readings outside the specified ranges, secondary filter calibrations cannot be performed. Determine the source of the variations (either transmissometer performance or changes in the primary filters) and repeat the transmissometer calibration before proceeding with the attenuator calibration.

(ii) Immediately following the laboratory-based transmissometer calibration, insert the secondary attenuators and determine and record the percent effective opacity value per secondary attenuator from the calibration curve (linear regression line).

(iii) Recalibrate the secondary attenuators semi-annually if they are used for the required calibration error test.

8.0 What Performance Procedures Are Required To Comply With PS–1?

Procedures to verify the performance of the COMS are divided into those completed by the owner or operator and those completed by the opacity monitor manufacturer.

8.1 What procedures must I follow as the Owner or Operator?

(1) You must purchase an opacity monitor that complies with ASTM D 6216–98 and obtain a certificate of conformance from the opacity monitor manufacturer.

(2) You must install the opacity monitor at a location where the opacity measurements are representative of the total emissions from the affected facility. You must meet this requirement by choosing a measurement location and a light beam path as follows:

(i) Measurement Location. Select a measurement location that is (1) at least 4 duct diameters downstream from all particulate control equipment or flow disturbance, (2) at least 2 duct diameters upstream of a flow disturbance, (3) where condensed water vapor is not present, and (4) accessible in order to permit maintenance.

(ii) Light Beam Path. Select a light beam path that passes through the centroidal area of the stack or duct. Also, you must follow these additional requirements or modifications for these measurement locations:

If your measurement location is in a:	And is:	Then use a light beam path that is:
1. Straight vertical section of stack or duct.	Less than 4 equivalent diameters downstream from a bend.	In the plane defined by the upstream bend (see figure 1–1).
2. Straight vertical section of stack or duct.	Less than 4 equivalent diameters upstream from a bend.	In the plane defined by the downstream bend (see figure 1–2).
3. Straight vertical section of stack or duct.	Less than 4 equivalent diameters downstream and is also less than 1 diameter upstream from a bend.	In the plane defined by the upstream bend (see figure 1–3).
4. Horizontal section of stack or duct.	At least 4 equivalent diameters downstream from a vertical bend.	In the horizontal plane that is between ⅓ and ½ the distance up the vertical axis from the bottom of the duct (see figure 1–4).
5. Horizontal section of duct	Less than 4 equivalent diameters downstream from a vertical bend.	In the horizontal plane that is between ½ and ⅔ the distance up the vertical axis from the bottom of the duct for upward flow in the vertical section, and is between ⅓ and ½ the distance up the vertical axis from the bottom of the duct for downward flow (figure 1–5).

(iii) Alternative Locations and Light Beam Paths. You may select locations and light beam paths, other than those cited above, if you demonstrate, to the satisfaction of the Administrator or delegated agent, that the average opacity measured at the alternative location or path is equivalent to the opacity as measured at a location meeting the criteria of sections 8.1(2)(i) and 8.1(2)(ii). The opacity at the alternative location is considered equivalent if (1) the average opacity value measured at the alternative location is within ±10 percent of the average opacity value measured at the location meeting the installation criteria, and (2) the difference between any two average opacity values is less than 2 percent opacity (absolute). You use the following procedure to conduct this demonstration: simultaneously measure the opacities at the two locations or paths for a minimum period of time (*e.g.,* 180-minutes) covering the range of normal operating conditions and compare the results. The opacities of the two locations or paths may be measured at different times, but must represent the same process operating conditions. You may use alternative procedures for determining acceptable locations if those procedures are approved by the Administrator.

(3) Field Audit Performance Tests. After you install the COMS, you must perform the following procedures and tests on the COMS.

(i) Optical Alignment Assessment. Verify and record that all alignment indicator devices show proper alignment. A clear indication of alignment is one that is objectively apparent relative to reference marks or conditions.

(ii) Calibration Error Check. Conduct a three-point calibration error test using three calibration attenuators that produce outlet pathlength corrected, single-pass opacity values shown in ASTM D 6216–98, section 7.5. If your applicable limit is less than 10 percent opacity, use attenuators as described in ASTM D 6216–98, section 7.5 for applicable standards of 10 to 19 percent opacity. Confirm the external audit device produces the proper zero value on the COMS data recorder. Separately, insert each calibration attenuators (low, mid, and high-level) into the external audit device. While inserting each attenuator, (1) ensure that the entire light beam passes through the attenuator, (2) minimize interference from reflected light, and (3) leave the attenuator in place for at least two times the shortest recording interval on the COMS data recorder. Make a total of five nonconsecutive readings for each attenuator. At the end of the test, correlate each attenuator insertion to the corresponding value from the data recorder. Subtract the single-pass calibration attenuator values corrected to the stack exit conditions from the COMS responses. Calculate the arithmetic mean difference, standard deviation, and confidence coefficient of the five measurements value using equations 1–3, 1–4, and 1–5. Calculate the calibration error as the sum of the absolute value of the mean difference and the 95 percent confidence coefficient for each of the three test attenuators using equation 1–6. Report the calibration error test results for each of the three attenuators.

(iii) System Response Time Check. Using a high-level calibration attenuator, alternately insert the filter five times and remove it from the external audit device. For each filter insertion and removal, measure the amount of time required for the COMS to display 95 percent of the step change in opacity on the COMS data recorder. For the upscale response time, measure the time from insertion to display of 95 percent of the final, steady upscale reading. For the downscale response time, measure the time from removal to display 5 percent of the initial upscale reading. Calculate the mean of the five upscale response time measurements and the mean of the five downscale response time measurements. Report both the upscale and downscale response times.

(iv) Averaging Period Calculation and Recording Check. After the calibration error check, conduct a check of the averaging period calculation (e.g., 6-minute integrated average). Consecutively insert each of the calibration error check attenuators (low, mid, and high-level) into the external audit device for a period of two times the averaging period plus 1 minute (e.g., 13 minutes for a 6-minute averaging period). Compare the path length corrected opacity value of each attenuator to the valid average value calculated by the COMS data recording device for that attenuator.

(4) Operational Test Period. Before conducting the operational testing, you must have successfully completed the field audit tests described in sections 8.1(3)(i) through 8.1(3)(iv). Then, you operate the COMS for an initial 168-hour test period while the source is operating under normal operating conditions. If normal operations contain routine source shutdowns, include the source's down periods in the 168-hour operational test period. However, you must ensure that the following minimum source operating time is included in the operational test period: (1) For a batch operation, the operational test period must include at least one full cycle of batch operation during the 168-hour period unless the batch operation is longer than 168 hours or (2) for continuous operating processes, the unit must be operating for at least 50 percent of the 168-hour period. Except during times of instrument zero and upscale calibration drift checks, you must analyze the effluent gas for opacity and produce a permanent record of the COMS output. During this period, you may not perform unscheduled maintenance, repair, or adjustment to the COMS. Automatic zero and calibration adjustments (*i.e.,* intrinsic adjustments), made by the COMS without operator intervention or initiation, are allowable at any time. At the end of the operational test period, verify and record that the COMS optical alignment is still correct. If the test period is interrupted because of COMS failure, record the time when the failure occurred. After the failure is corrected, you restart the 168-hour period and tests from the beginning (0-hour). During the operational test period, perform the following test procedures:

(i) Zero Calibration Drift Test. At the outset of the 168-hour operational test period and at each 24-hour interval, the automatic calibration check system must initiate the simulated zero device to allow the zero drift to be determined. Record the COMS response to the simulated zero device. After each 24-hour period, subtract the COMS zero reading from the nominal value of the simulated zero device to calculate the 24-hour zero drift (ZD). At the end of the 168-hour period, calculate the arithmetic mean, standard deviation, and confidence coefficient of the 24-hour ZDs using equations 1–3, 1–4, and 1–5. Calculate the sum of the absolute value of the mean and the absolute value of the confidence coefficient using equation 1–6, and report this value as the 24-hour ZD error.

(ii) Upscale Calibration Drift Test. At each 24-hour interval after the simulated zero device value has been checked, check and record the COMS response to the upscale calibration device. After each 24-hour period, subtract the COMS upscale reading from the nominal value of the upscale calibration device to calculate the 24-hour calibration drift (CD). At the end of the 168-hour period, calculate the arithmetic mean, standard deviation, and confidence coefficient of the 24-hour CD using equations 1–3, 1–4, and 1–5. Calculate the sum of the absolute value of the mean and the absolute value of the confidence coefficient using equation 1–6, and report this value as the 24-hour CD error.

(5) Retesting. If the COMS fails to meet the specifications for the tests conducted under the operational test period, make the necessary corrections and restart the operational test period. Depending on the opinion of the enforcing agency, you may have to repeat some or all of the field audit tests.

8.2 What are the responsibilities of the Opacity Monitor Manufacturer?

You, the manufacturer, must carry out the following activities:

(1) Conduct the verification procedures for design specifications in section 6 of ASTM D 6216–98.

(2) Conduct the verification procedures for performance specifications in section 7 of ASTM D 6216–98.

(3) Provide to the owner or operator, a report of the opacity monitor's conformance to the design and performance specifications required in sections 6 and 7 of ASTM D 6216–98 in accordance with the reporting requirements of section 9 in ASTM D 6216–98.

9.0 What quality control measures are required by PS–1?

Opacity monitor manufacturers must initiate a quality program following the requirements of ASTM D 6216–98, section 8. The quality program must include (1) a quality system and (2) a corrective action program.

10.0 Calibration and Standardization [Reserved]

11.0 Analytical Procedure [Reserved]

12.0 What Calculations Are Needed for PS–1?

12.1 Desired Attenuator Values. Calculate the desired attenuator value corrected to the emission outlet pathlength as follows:

$$OP_2 = 1 - \left(1 - OP_1\right)^{\frac{L_2}{L_1}} \qquad \text{Eq. 1-1}$$

Where:

OP_1 = Nominal opacity value of required low-, mid-, or high-range calibration attenuators.

OP_2 = Desired attenuator opacity value from ASTM D 6216–98, section 7.5 at the opacity limit required by the applicable subpart.

L_1 = Monitoring pathlength.

L_2 = Emission outlet pathlength.

12.2 Luminous Transmittance Value of a Filter. Calculate the luminous transmittance of a filter as follows:

$$LT = \frac{\sum_{i=300_{nm}}^{i=800_{nm}} T_i}{100{,}000} \qquad \text{Eq. 1-2}$$

Where:

LT = Luminous transmittance

T_i = Weighted tested filter transmittance.

12.3 Arithmetic Mean. Calculate the arithmetic mean of a data set as follows:

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i \qquad \text{Eq. 1-3}$$

Where:

$\bar{x}$ = Arithmetic mean

n = Number of data points

$\sum_{i=1}^{n} x_i$ = Algebraic sum of the individual measurements, x_i.

12.4 Standard Deviation. Calculate the standard deviation as follows:

$$S_d = \sqrt{\frac{\sum_{i=1}^{n} x_i^2 - \frac{\left(\sum_{i=1}^{n} x_i\right)^2}{n}}{n-1}} \qquad \text{Eq. 1-4}$$

Where:

S_d = Standard deviation of a data set.

12.5 Confidence Coefficient. Calculate the 2.5 percent error confidence coefficient (one-tailed) as follows:

$$CC = \frac{t_{0.975} S_d}{\sqrt{n}} \qquad \text{Eq. 1-5}$$

Where:

CC = Confidence coefficient

$t_{0.975}$ = t-value (see table 1–2).

12.6 Calibration Error. Calculate the error (calibration error, zero drift error, and calibration drift error) as follows:

$$Er = \left|\bar{x}\right| + \left|CC\right| \qquad \text{Eq. 1-6}$$

Where:

Er = Error.

12.7 Conversion of Opacity Values for Monitor Pathlength to Emission Outlet Pathlength. When the monitor pathlength is different from the emission outlet pathlength, use either of the following equations to convert from one basis to the other (this conversion may be automatically calculated by the monitoring system):

$$\log\left(1-Op_2\right)=\frac{L_2}{L_1}\log\left(1-Op_1\right) \quad \text{Eq. 1-7}$$

$$OD_2=\frac{L_2}{L_1}\times OD_1 \quad \text{Eq. 1-8}$$

Where:

Op_1 = Opacity of the effluent based upon L_1.
Op_2 = Opacity of the effluent based upon L_2.
L_1 = Monitor pathlength.
L_2 = Emission outlet pathlength.
OD_1 = Optical density of the effluent based upon L_1.
OD_2 = Optical density of the effluent based upon L_2.

12.8 Mean Response Wavelength. Calculate the mean of the effective spectral response curve from the individual responses at the specified wavelength values as follows:

$$L=\frac{\sum_{i=1}^{n}L_i g_i}{\sum_{i=1}^{n}g_i} \quad \text{Eq. 1-9}$$

Where:

L = mean of the effective spectral response curve
L_i = The specified wavelength at which the response g_i is calculated at 20 nm intervals.
g_i = The individual response value at L_i.

13.0 What Specifications Does a COMS Have To Meet for Certification?

A COMS must meet the following design, manufacturer's performance, and field audit performance specifications:

13.1 Design Specifications. The opacity monitoring equipment must comply with the design specifications of ASTM D 6216–98.

13.2 Manufacturer's Performance Specifications. The opacity monitor must comply with the manufacturer's performance specifications of ASTM D 6216–98.

13.3 Field Audit Performance Specifications. The installed COMS must comply with the following performance specifications:

(1) Optical Alignment. Objectively indicate proper alignment relative to reference marks (*e.g.,* bull's-eye) or conditions.

(2) Calibration Error. The calibration error must be ≤3 percent opacity for each of the three calibration attenuators.

(3) System Response Time. The COMS upscale and downscale response times must be ≤10 seconds as measured at the COMS data recorder.

(4) Averaging Period Calculation and Recording. The COMS data recorder must average and record each calibration attenuator value to within ±2 percent opacity of the certified value of the attenuator.

(5) Operational Test Period. The COMS must be able to measure and record opacity and to perform daily calibration drift assessments for 168 hours without unscheduled maintenance, repair, or adjustment.

(6) Zero and Upscale Calibration Drift Error. The COMS zero and upscale calibration drift error must not exceed 2 percent opacity over a 24 hour period.

14.0 Pollution Prevention. [Reserved]

15.0 Waste Management. [Reserved]

16.0 Which references are relevant to this method?

1. Experimental Statistics. Department of Commerce. National Bureau of Standards Handbook 91. Paragraph 3–3.1.4. 1963. 3–31 p.

2. Performance Specifications for Stationary Source Monitoring Systems for Gases and Visible Emissions, EPA–650/2–74–013, January 1974, U. S. Environmental Protection Agency, Research Triangle Park, NC.

3. Koontz, E.C., Walton, J. Quality Assurance Programs for Visible Emission Evaluations. Tennessee Division of Air Pollution Control. Nashville, TN. 78th Meeting of the Air Pollution Control Association. Detroit, MI. June 16–21, 1985.

4. Evaluation of Opacity CEMS Reliability and Quality Assurance Procedures. Volume 1. U. S. Environmental Protection Agency. Research Triangle Park, NC. EPA–340/1–86–009a.

5. Nimeroff, I. ''Colorimetry Precision Measurement and Calibration.'' NBS Special Publication 300. Volume 9. June 1972.

6. Technical Assistance Document: Performance Audit Procedures for Opacity Monitors. U. S. Environmental Protection Agency. Research Triangle Park, NC. EPA–600/8–87–025. April 1987.

7. Technical Assistance Document: Performance Audit Procedures for Opacity Monitors. U. S. Environmental Protection Agency. Research Triangle Park, NC. EPA–450/4–92–010. April 1992.

8. ASTM D 6216–98: Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications. American Society for Testing and Materials (ASTM). April 1998.

17.0 What tables and diagrams are relevant to this method?

17.1 Reference Tables.

TABLE 1–1.—SOURCE C, HUMAN EYE RESPONSE FACTOR

Wavelength nanometers	Weighting factor [a]	Wavelength nanometers	Weighting factor [a]
380	0	590	6627
390	0	600	5316
400	2	610	4176
410	9	620	3153
420	37	630	2190
430	122	640	1443
440	262	650	886
450	443	660	504
460	694	670	259
470	1058	680	134
480	1618	690	62
490	2358	700	29
500	3401	720	14
510	4833	720	6
520	6462	730	3
530	7934	740	2
540	9194	750	1
550	9832	760	1
560	9841	770	0
570	9147	780	0

TABLE 1–1.—SOURCE C, HUMAN EYE RESPONSE FACTOR—Continued

Wavelength nanometers	Weighting factor [a]	Wavelength nanometers	Weighting factor [a]
580	7992		

[1] Total of weighting factors = 100,000.

TABLE 1–2. [T] VALUES

n [a]	[t] 0.975	n [a]	[t] 0.975	n [a]	[t] 0.975
2	12.706	7	2.447	12	2.201
3	4.303	8	2.365	13	2.179
4	3.182	9	2.306	14	2.160
5	2.776	10	2.262	15	2.145
6	2.571	11	2.228	16	2.131

[a] The values in this table are already corrected for n-1 degrees of freedom. Use n equal to the number of individual values.

17.2 Diagrams.

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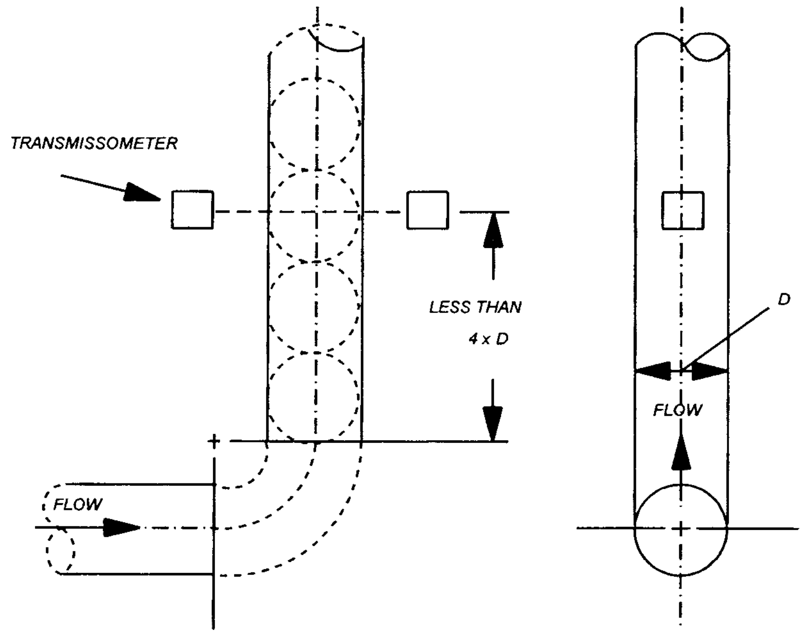

Figure 1-1. Transmissometer location downstream of a bend in a vertical stack.

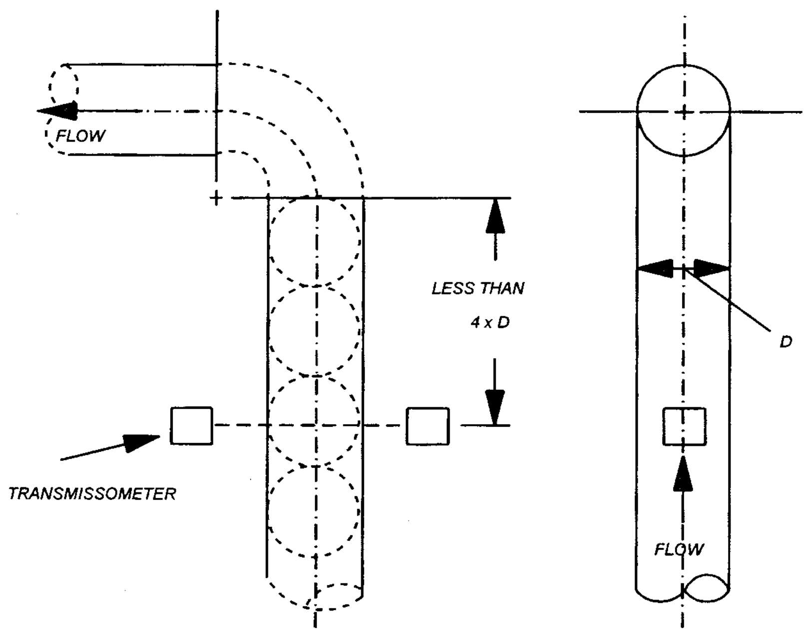

Figure 1-2. Transmissometer location upstream of a bend in a vertical stack.

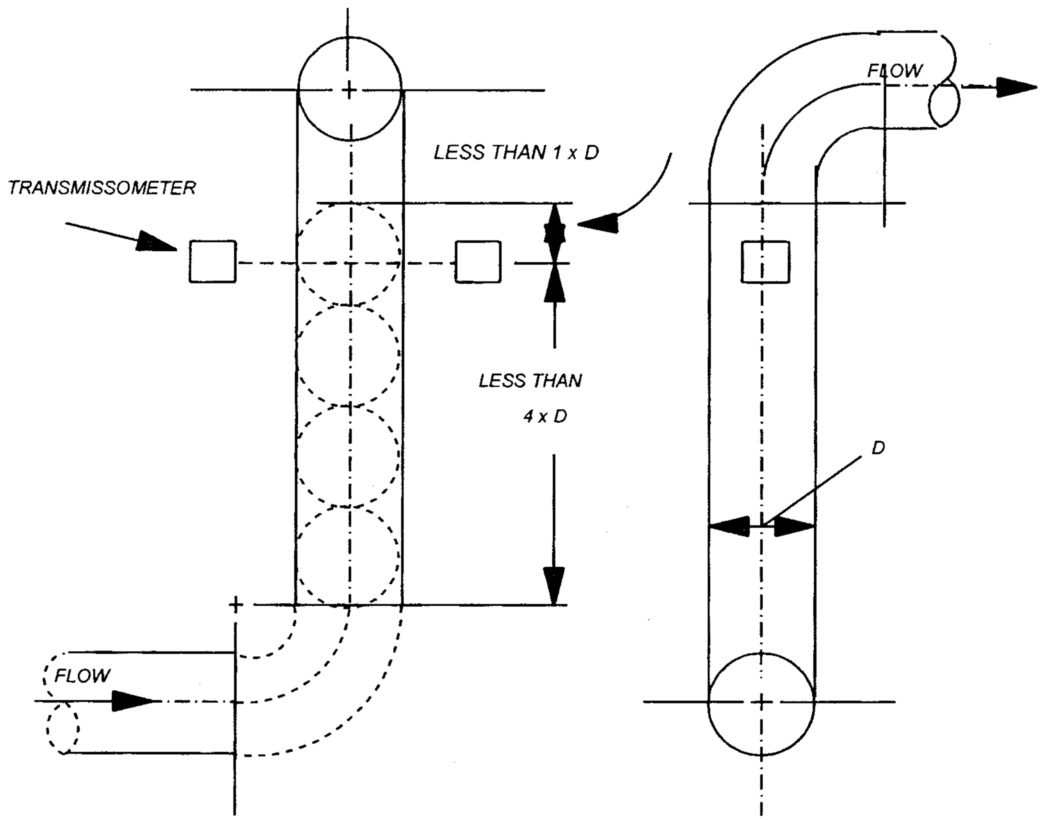

Figure 1-3. Transmissometer location between bends in a vertical stack.

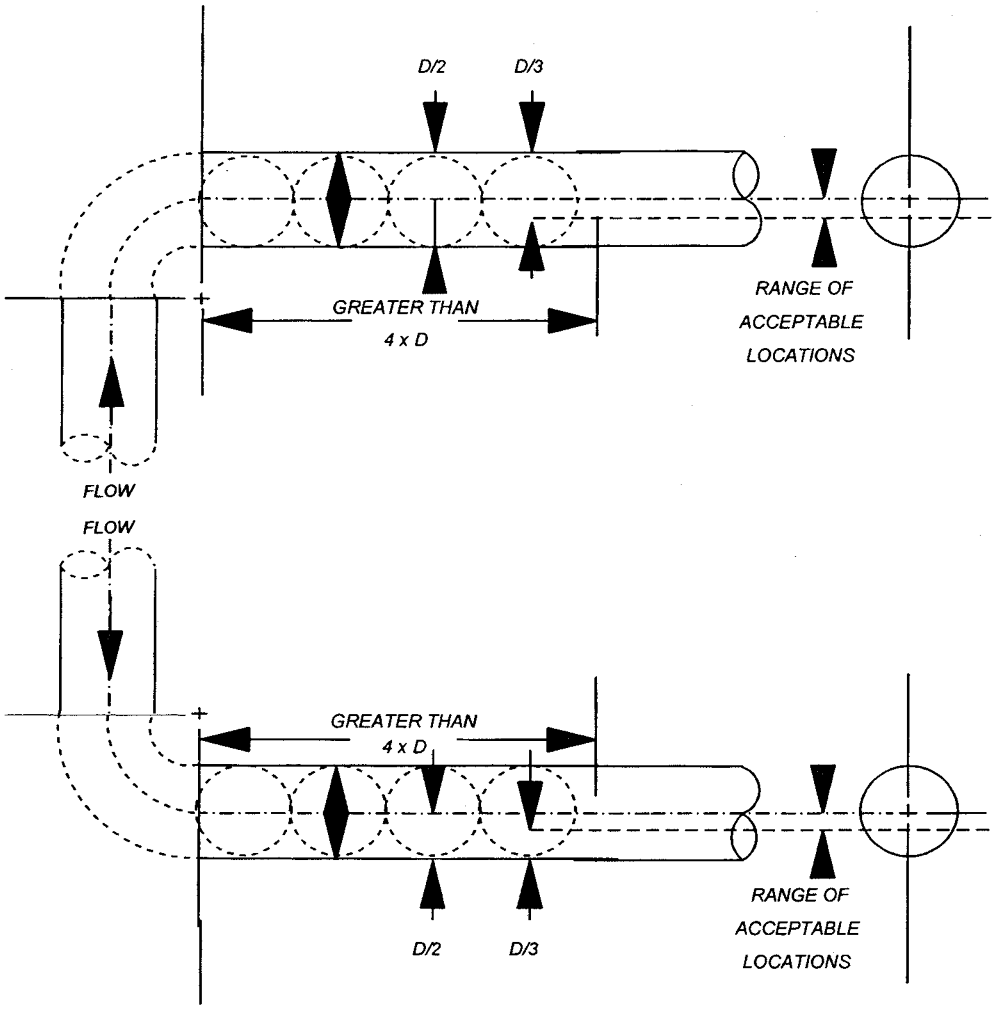

Figure 1-4. Transmissometer location greater than four diameters downstream of a vertical bend in a horizontal stack or duct.

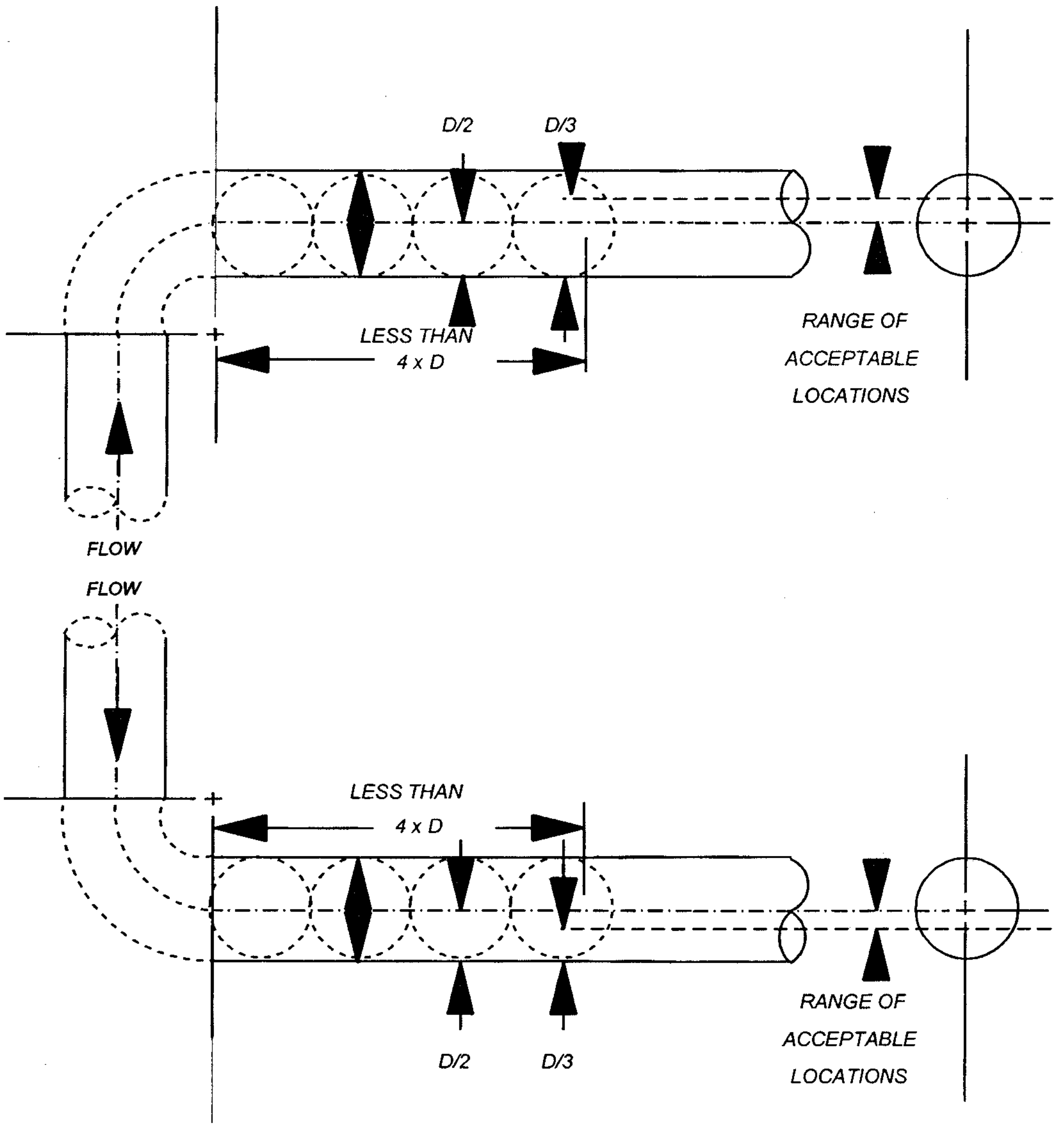

Figure 1-5. Transmissometer location less than four diameters downstream of a vertical bend in a horizontal stack or duct.

* * * * *

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