ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[FRL-xxxx-x]

RIN

Appendix A – Test Methods: Three New Methods for Velocity and Volumetric Flow Rate Determination in Stacks or Ducts

AGENCY: Environmental Protection Agency (EPA).

ACTION: Direct final rule.

SUMMARY: EPA is taking direct final action to approve three new optional test methods for measuring velocity and volumetric flow rate of flue gas from fossil fuel-fired boilers and turbines. These new methods allow the tester to account for velocity drop-off near the stack or duct wall and the yaw and pitch angles of flow. The primary users of the new methods will be owners and operators of utility units subject to the Acid Rain Program under title IV of the Clean Air Act, and certain large electric generating units and large non-electric generating units that may become subject to the nitrogen oxides (NO_x) state implementation plan (SIP) call under Title I of the Clean Air Act, who must use an approved test method to periodically calibrate the flow rate monitors at these units. Flow rate data is used to determine the units' sulfur dioxide (SO_2) and NO_x mass emissions and heat inputs. The purpose of the Acid Rain Program and the NO_x SIP call is to significantly reduce emissions from electric generating plants and other affected units in order to reduce the adverse health and environmental effects of acid deposition or ground level ozone resulting from these emissions.

The sources affected by this action are primarily in the sector Fossil Fuel Electric Power Generation, North American Industrial Classification System (NAICS) code 221112, or are

industrial boilers. The affected sources include U.S. industry establishments primarily engaged in operating fossil fuel powered electric power generation facilities. These facilities use fossil fuels, such as coal, oil, or gas, in boilers and combustion turbines to produce electric energy or steam. The electric energy produced in these establishments are provided to electric power transmission systems or to electric power distribution systems.

DATES: This rule is effective on [Insert date 60 days from date of publication in the Federal Register] without further notice, unless EPA receives adverse comment by [Insert date 30 days from date of publication in the Federal Register] or (if a public hearing is requested) by July 1, 1999. If we receive such comment, we will publish a timely withdrawal in the Federal Register informing the public that this rule will not take effect.

ADDRESSES: Any written comments must be identified with Docket No. A-99-14, must be identified as comments on the direct final rule and companion proposal and must be submitted in duplicate to: EPA Air Docket (6102), Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460. The docket is available for public inspection and copying between 8:30 a.m. and 3:30 p.m., Monday through Friday, at the address given above. A reasonable fee may be charged for copying. A detailed rationale for today's action is set forth in the Findings Report, which can be obtained by writing to the Air Docket at the address given above.

FOR FURTHER INFORMATION CONTACT: John Schakenbach, Acid Rain Division (6204J), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, (202) 564-9158; or Elliot Lieberman, Acid Rain Division (6204J), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, (202) 564-9136.

SUPPLEMENTARY INFORMATION: EPA is publishing this rule without prior proposal because we view these new test methods as noncontroversial and anticipate no adverse comment.

We believe the rule is not controversial for the following reasons: (1) the rule is primarily technical in nature, (2) the rule is generally accepted by the scientific community, and (3) use of the new test methods will be optional. However, in the "Proposed Rules" section of today's Federal Register, we are publishing a separate document that will serve as the proposal to approve the test methods if adverse comments are filed. This rule will be effective on [Insert date 60 days from date of publication in the Federal Register] without further notice unless we receive adverse comment by [Insert date 30 days from date of publication in the Federal Register] or (if a public hearing is requested) by July 1, 1999. If EPA receives timely adverse comment, we will publish a withdrawal in the Federal Register informing the public that the rule will not take effect. We will address all public comments in a subsequent final rule based on the proposed rule. We will not institute a second comment period on this action. Any parties interested in commenting must do so at this time.

II. Regulated Entities

Entities potentially regulated by this action are utility and industrial fossil fuel-fired boilers and turbines that serve generators producing electricity, generate steam, or cogenerate electricity and steam and that are subject to EPA's monitoring regulations, 40 CFR part 75. While part 75 primarily regulates the electric utility industry, today's action could potentially affect other industries, including those subject to the NO_x SIP call. Regulated categories and entities include:

Category	Examples of Regulated Entities
NAICS Code: 221112, Fossil Fuel Electric Power Generation	Electric service providers, boilers and turbines from a wide range of industries

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities which EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your facility, company, business, organization, etc., is regulated by this action, you should carefully examine the applicability criteria in §§ 72.6, 72.7, 72.8, 75.70, and Appendix A of part 60 of title 40 of the Code of Federal Regulations. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding "For Further Information Contact" section of this preamble.

II. Background

In 1971, EPA promulgated Method 2 "Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)". At the time of its development, Method 2 was principally used with EPA Method 5 "Determination of Particulate Emissions from Stationary Sources" to help ensure appropriate sampling rates throughout a particulate sampling run.

Many EPA air quality regulations use Method 2, including part 75 of EPA's Acid Rain Program regulations, implementing title IV of the Clean Air Act (the Act), and part 51 of EPA's NO_x SIP call, which may result in states or EPA requiring certain large electric generating units and large non-electric generating units to comply with subpart H of part 75. See 40 CFR parts 51 and 75; and 63 FR 57356, 57495, October 27, 1998. Part 75 requires affected electric utility units to install and operate continuous emission monitoring systems that provide EPA with continuous hourly measurements of sulfur dioxide (SO_2) concentration, NO_x concentration, carbon dioxide concentration, and volumetric flow rate of flue gas in a stack or duct. Under the Acid Rain Program, volumetric flow rate and SO_2 concentration are used to calculate sulfur dioxide mass emissions at each affected unit. At the end of each year, these emissions are compared to the unit's sulfur dioxide allowances to determine whether the unit held enough allowances to cover its emissions. Volumetric flow rate is also used to calculate a unit's heat input. In order to ensure the accuracy of compliance determinations, part 75 requires owners and operators of a unit to conduct periodic performance testing of volumetric flow rate monitors by comparing flow rate data from the monitors with data reported using EPA's Method 2. Similarly, subpart H of part 75 uses Method 2 as the reference method for flow rate measurements used to calculate NO_x mass emissions. See also 40 CFR part 96.

In the first three years of the Acid Rain Program, the electric utility industry raised concerns that under some flow conditions EPA's approved test method for volumetric flow rate (Method 2) could be less than optimal for measuring flow rate and thus for determining sulfur dioxide emissions and heat input. These concerns focused on situations where flue gas flowed at an angle (i.e., with yaw or pitch), not straight out of a stack or duct. Method 2 does not include procedures for measuring the yaw or pitch angles of flow or wall effects in calculating stack or duct gas velocity or volumetric flow rate.

Volumetric flow rate is calculated by multiplying the average flue gas velocity by the stack or duct cross-sectional area. Yaw and pitch characterize the extent to which flue gas is not flowing straight out of a stack or duct. From the standpoint of a tester facing a vertical stack, a yaw angle is represented by flow movement to the left or right of the stack centerline. The pitch angle is represented by flow movement toward or away from the tester. The term "wall effects" refers to the drop-off of flue gas velocity near the inside wall of a stack or duct. This velocity drop-off is caused by friction from the stack wall.

Some amount of yaw and pitch angle and wall effects are almost always present in utility stacks or ducts. Yaw and pitch angles produce flue gas flow that swirls and/or bounces off stack or duct walls (total velocity). Only the straight-up (axial velocity) component of total velocity actually exits the stack. Moreover, determining axial velocity without accounting for the drop-off near the stack or duct wall can result in overstating the actual axial velocity. Thus, when enough yaw, pitch or wall effects are present, Method 2 can overstate the measured flue gas velocities (and thus volumetric flow) because it only allows the total velocity to be measured and does not account for yaw angles, pitch angles, or wall effects. If the test method overstates flow rate, a flow rate monitor calibrated using the test method may also overstate flow rate and result in overstated sulfur dioxide emissions and heat input.

To address these concerns, and to provide a technical basis for potential new test methods, EPA initiated a flow study consisting of wind tunnel tests and field tests. Wind tunnel tests were performed to ensure accurate probe calibrations, to determine probe performance under different temperature conditions (Reynolds number testing), and to determine probe performance under different flow angle conditions (swirl tunnel testing). Probe calibrations were performed at three wind tunnel facilities: the North Carolina State University (NCSU), the National Institute of Standards and Technology, and the Massachusetts Institute of Technology (MIT). The Reynolds number testing was conducted at MIT. The swirl tunnel testing was performed by the Fossil Energy Research Corporation at a special wind tunnel installation developed for the Electric Power Research Institute.

In addition, field tests were performed to evaluate new techniques that could improve the ability to measure flow rate under a wide range of conditions and to provide a technical basis for potential, new test methods. Field tests were performed at two natural gas-fired 750 MWe electric utility boilers and at a 640 MWe bituminous coal-fired utility boiler. These three sites were selected to provide three different flow swirl conditions. Four test teams were used at each site to perform simultaneous testing of various probes. In this manner, probes could be tested under essentially the same conditions. Seven different probes types were tested: Type S, United Sciences Testing Incorporated Autoprobe Type S, Prandtl (Standard Pitot), French, modified Kiel, DAT, and spherical. A Codel flow monitor was also tested.

A special series of tests were also performed to investigate velocity drop-off near stack walls. These wall effects tests were performed at five sites. The sites were selected to provide different inside stack wall material (steel and brick and mortar) and stack gas flow conditions in order to test how these parameters affect stack gas velocity drop-off near the stack wall.

As a result of the wind tunnel tests and field tests, a report describing results of the wind tunnel testing, three Site Data Reports, describing test activities and results at each site, and the Findings Report, describing overall conclusions, were written. These reports are included in the docket. Significant findings from the wind tunnel and field tests are:

- Probes that could determine the yaw and pitch angles of flow produced results closer to those predicted by scientific theory;
- Overall, the Type S, Autoprobe Type S, DAT, and spherical probes produced the best results: they tended to be less variable, did not consistently under-measure velocity, and were closer to theoretically derived results and the central tendency of the data than the other probes tested;
- Automated probes were less variable than manually operated probes;
- Several probes (modified Kiel, and the French) and the Codel flow monitor produced highly variable test results and should not be included in new test methods;
- Measuring wall effects produced a 1/2% to 3% improvement in volumetric flow rate measurements;

- The amount of wall effect is lower for stacks with smooth interiors (steel) than for stacks with rougher interiors (brick and mortar);
- To produce reliable probe calibrations, wind tunnels should meet certain specifications related to tunnel size and flow conditions;
- Calibration curves for three-dimensional (3-D) probes, i.e., DAT and the spherical probes, are less reliable for velocities below 20 feet per second; and
- Contrary to expectations, scratches on the surface of spherical probes did not significantly effect their calibrations.

We used these data and findings to develop the three new test methods described in today's rulemaking.

Review by independent experts, industry experts, and EPA experts was used in the three major phases of the flow study: the field test plan, the draft Findings Report, and the three draft test methods. One significant comment by the reviewers was that we should keep the new test methods as effective and practical as possible, but still provide flexibility and a wide range of options for stack testers. Based on reviewer feedback on subsequent versions of the test methods, we believe we have accommodated all major concerns.

III. Approval of Three New Test Methods

Today's direct final rule approves three new test methods that provide probes and procedures to account for yaw angles, pitch angles and wall effects. Method 2G allows Type S probes and 3-D probes (DAT and spherical) to be rotated into the flow to measure total velocity pressure and yaw angle. The yaw angle is used to calculate "near-axial" velocity from total velocity. Method 2F allows 3-D probes to be used to measure total velocity, yaw angles, and pitch angle pressure. Pitch angle pressure is used with a calibration curve to determine pitch angle. Yaw and pitch angles are used to calculate axial velocity from total velocity. Method 2H provides a procedure for accounting for wall effects by using either a default wall effects adjustment factor or one derived from near wall measurements. The wall effects adjustment factor is used with the Method 2-, 2G- or 2F-calculated velocity to derive a wall effects adjusted velocity.

In the Acid Rain Program, and in other programs which require reporting of mass emission rates (e.g., lbs NO_x/ hour), a capability to measure these parameters in the calculation of volumetric flow rate can improve the reporting of pollutant emissions in some situations (described earlier). In addition, the new test methods in today's rulemaking address the disparity that has sometimes been reported between heat rate calculated using a flow monitor and heat rate calculated using fuel sampling and analysis to the extent that the disparity results from the difficulty of measuring flue gas flow rate under certain flow conditions. This rule does not address the procedures used in fuel sampling or in the calculation of heat rate.

EPA is voluntarily undertaking this regulatory action in response to requests from the regulated community. This regulatory action provides additional accepted scientific and analytical methods for measuring volumetric flow rate in stacks and ducts The additional test methods are the result of extensive field studies that were subjected to review by a panel of independent experts, utility company representatives, and internal EPA staff. These new test methods may be used instead of Method 2 in programs that use part 75 or part 96 procedures to quantify emissions. These new test methods are discussed below in detail.

A. Methods 2F and 2G

Method 2F, "Determination of Stack Gas Velocity and Volumetric Flow Rate With Three-Dimensional Probes", is a method for measuring the yaw and pitch angle-adjusted (or axial) velocity with 3-dimensional probes like the prism-shaped, five-hole probe (commonly called a DA or DAT probe) and the five-hole spherical probe. Method 2G, “Determination of Stack Gas Velocity and Volumetric Flow Rate With Two-Dimensional Probes”, is a variant of existing Method 2 that describes the use of yaw angle determination procedures with Type S or 3-dimensional probes to determine the yaw angle-adjusted flue gas velocity in a stack or duct.

The methods include step-by-step procedures specifically designed to provide quality assured measurements and address a number of key problems uncovered in the course of the wind tunnel and field testing of the new methods. The following summarizes the major steps for performing Method 2F or 2G.

(1) Qualify Wind Tunnel

The wind tunnel tests revealed that some wind tunnels used by vendors or source testers to calibrate probes were inadequate, because they were either too small or did not have uniform flow. To avoid such problems, any wind tunnel used to calibrate probes for Methods 2F or 2G must satisfy certain design and performance specifications to ensure that the flow is axial (straight) and uniform in the wind tunnel calibration location. The wind tunnel must meet two design criteria: (1) the diameter must be at least 12 inches; and (2) the projected area of the tested probe and reference calibration pitot tube must not exceed 4% of the cross-sectional area of the wind tunnel. The wind tunnel must also meet two performance specifications: (1) a velocity pressure cross-check to ensure that the velocity is the same at all locations where the tested and reference probes will be positioned during calibration; and (2) an axial flow verification to ensure that there are no significant yaw or pitch components of flow at these locations. These two tests are performed before the initial use of the wind tunnel and are repeated after any alterations are made to the tunnel.

2) Prepare to Calibrate Probe

The wind tunnel and field tests also showed that pre-calibration probe inspection and procedures for placing a scribe line on a probe were important prerequisites for accurate yaw angle measurements. Therefore, the methods include the following five general activities to be performed prior to calibrating a probe (1) Put a straight permanent line (scribe line) on the probe. This activity only needs to be performed once, not every time a probe is calibrated. The scribe line must meet certain straightness and width criteria so that a yaw angle measuring device can be accurately placed on the probe. (2) Check that the probe is not bent and does not have significant sag. (3) Pressure devices must be zeroed and calibrated. (4) The yaw angle measurement device must be calibrated and aligned relative to the reference scribe line. (5) The probe system must be leak checked.

(3) Perform Yaw Angle Calibration

Yaw angle errors were observed in the wind tunnel tests when the offset of the scribe line from the probe's zero yaw position was not accurately determined in the wind tunnel. The methods, therefore, include a yaw angle calibration procedure, which must be performed on the complete probe assembly in a wind tunnel to determine the "reference scribe line rotational offset" angle (R_{SLO}). The R_{SLO} indicates the rotational position of a probe's reference scribe line relative to the probe's yaw-null position and is used in determining the yaw angle of flow in a stack or duct.

(4) Perform Velocity and Pitch Calibrations

The field and wind tunnel tests showed that robust velocity and pitch calibration procedures were required if errors in velocity and volumetric flow determinations are to be avoided. For Method 2G, this consists of a wind tunnel procedure to determine a velocity calibration coefficient for the tested probe. This calibration coefficient is used to calculate stack gas velocity from pressure measurements taken in the field. The velocity calibration procedure involves taking three pairs of pressure measurements with the tested probe and a reference calibration pitot tube at two wind tunnel velocity settings. Calibration coefficients obtained at wind tunnel velocity settings of 60 and 90 feet per second (fps) are usable in all field applications where the velocities are 30 fps or greater. Calibration coefficients derived at other velocity settings are usable in field applications where the measured velocity does not fall outside the limits defined by those velocity settings.

Method 2F includes wind tunnel procedures to determine both velocity and pitch angle calibration curves. These curves are used to determine both the pitch angle and velocity of flue gas flow when using a 3-dimensional probe. The pitch and velocity calibration procedure involves positioning the tested probe at a series of pitch angles settings relative to the flow in the wind tunnel and then taking pressure measurements with the tested probe and a reference probe. The measurements are repeated at two wind tunnel velocity settings. Calibration curves obtained at wind tunnel velocity settings of 60 and 90 fps are usable in all field applications over the entire velocity range allowed by the method. Calibration curves derived at other velocity settings are usable in all field applications allowed by the method as long as the measured velocity does not exceed both of the wind tunnel velocity settings used to the derive the curves.

(5) Prepare for Field Test

The field tests showed that the inspection of probes and the set-up procedures described above under step 2 were not only a critical prerequisite for wind tunnel testing, but were equally important in field testing. For example, during one of the field tests, an inspection detected damage to the probe head which resulted in spurious readings from a probe. Thus, prior to beginning a field test, each method requires performance of all the checks described in item 2 ("Prepare to Calibrate Probe") above, except for putting a scribe line on the probe. Additionally, the tester must inspect the probe for damage, mark traverse point distances on the probe, and determine a system response time.

(6) Perform Field Test

The field tests also showed that the quality of measurements was affected by procedures followed by testers when performing the field tests. For example, allowing sufficient response time and checking for probe plugging were shown to be important considerations during the field test. Thus, the methods give specific instructions on how to perform a field test. In particular, the methods instruct testers to perform the following steps. Insert the probe into a test port in the stack or duct, and move the probe to the first traverse point. After the system response time has elapsed, measure the yaw angle, impact pressure, and pitch angle pressure (Method 2F only). Take these measurements at each traverse point of the run. In addition, measure barometric pressure, flue gas molecular weight, moisture and static pressure. Check the probe periodically for plugging to prevent erratic results or sluggish responses.

(7) Perform Calculations

To account for pitch and yaw components of flow, the methods had to include new calculation procedures that were not needed in Method 2. These procedures were employed in the field tests and shown to be workable. They include calculating the pitch angle (Method 2F only) and impact velocity at each traverse point using the pressure measurements taken in the field and the calibration coefficient (Method 2G) or curves (Method 2F) derived in the wind tunnel. Using these values and the yaw angles measured in the field, the axial velocity (Method 2F) or yaw-adjusted velocity (Method 2G) is calculated at each traverse point. Stack or duct average velocity is then calculated by averaging over all the traverse point velocities. Checks are performed to see that the calibration coefficients or curves are appropriate for the velocity encountered in the field. Finally, the volumetric flow rate is derived by multiplying the stack or duct cross-sectional area and the average velocity.

B. Method 2H

Method 2H, “Determination of Stack Gas Velocity Taking into Account Velocity Decay Near the Stack Wall”, can be used in conjunction with existing Method 2 or new Methods 2F or 2G to account for velocity drop-off near stack (or duct) walls in circular stacks (or ducts) no less than 3.3 feet in diameter. Method 2H is not suitable for use in rectangular stacks or ducts because the procedures in this method are not applicable to the complex and varying flow dynamics characteristic of such configurations.

There are two main approaches for determining wall effects adjusted velocity in Method 2H. Either a default wall effects adjustment factor (WAF) (i.e., 0.9900 (for brick and mortar stacks), or 0.9950 (for all other stacks or ducts)) may be used with Method 2, 2F, or 2G without taking any wall effects measurements or a WAF may be calculated from velocity measurements taken at 16 or more Method 1 traverse points and at 8 or more wall effects points. EPA’s Method 1, “Sample and Velocity Traverses for Stationary Sources”, is the test method for determining the number and location of traverse points in a stack or duct. Method 1 alone is generally not suitable for determining wall effects.

During the course of wall effects field testing, several potential problems were uncovered. Procedures were incorporated into Method 2H to prevent these problems. These are described below.

(1) Locate Traverse Points

The field test revealed that care needs to be exercised when locating wall effects traverse points; otherwise, the full wall effect may not be measured. Thus, Method 2H instructs testers to take measurements at 1-inch intervals starting at 1 inch from the wall or at the next closest 1-inch interval from the wall possible. Testers may perform either a partial or complete wall effects traverse. For a partial traverse, measurements are taken at two wall effects traverse points per test port, at a minimum. For a complete traverse, a series of 1-inch incremented measurements are taken beginning no further than 4 inches from the wall and extending in 1-inch intervals as far as 12 inches from the wall. The method presents procedures for determining the location of the wall effects points.

(2) Determine Sampling Order

Field tests also showed that an incorrect WAF may be calculated if the wall effects sampling is decoupled from the Method 1 sampling. Therefore, the method includes instructions on how sampling is to be performed. The sampling order may be from the wall to the center or from the center to the wall. Although the Method 1 and wall effects points need not be interspersed at each port, there should be no interruption between sampling at the wall effects and Method 1 points. The intent of this sampling sequence is to keep the Method 1 and the wall effects measurements as close together in time as possible to reduce the possibility of different velocity conditions occurring during the Method 1 and wall effects measurements.

(3) Take and Record Measurements

As in Methods 2F and 2G, field tests showed that the procedures followed by testers were critical to the quality of the measurements obtained. Wall effects testing not only required the procedures found in Method 2F and 2G, but also additional procedures for taking measurements close to a stack or duct wall. For example, the method had to include instructions for testing in situations where it may not be possible to obtain measurements within a certain proximity (e.g., 1 inch) of the stack or duct wall. Method 2H instructs testers to perform the following steps. After inserting the probe into the gas stream, wait for the pressure and temperature readings to stabilize to stack or duct conditions before taking measurements at the first traverse point. (This time period is called the “system response time” and is defined in Methods 2F and 2G.) At all other traverse points, testers must allow enough time to obtain representative pressure measurements. If no velocity is detected at the wall effects point closest to the wall, move to the next 1-inch incremented wall effects point. Complete the integrated traverse as quickly as possible, consistent with adequate sampling time, so that the measurements are all taken under the same stack or duct conditions. In addition, take other measurements required by Method 2, 2F, or 2G (e.g., moisture, barometric pressure). Record all measurements.

(4) Perform Wall Effects Calculations

The field tests confirmed that a series of measurements near a stack wall could capture the impact of wall effects on flue gas flow in a stack or duct. To capture this effect, a new calculation procedure was developed which was tested in the field. This procedure was incorporated in Method 2H. It involves calculating the velocity at each wall effects traverse point and entering the resulting values in a table. The entered values are then used to find

the wall effects-adjusted replacement velocities for the four Method 1 traverse points closest to the wall. These four values and the unadjusted velocity at the Method 1 traverse points are used to calculate a WAF. The WAF is a multiplier which can then be applied to the velocity derived using Methods 2, 2F, and 2G to account for velocity decay near the stack or duct wall. The WAF may be no less than 0.9800 for a partial traverse and no less than 0.9700 for a complete traverse. We derived these limits from analysis of wall effects tests performed on a variety of utility stacks (different stack lining material, velocities, and stack dimensions). If actual field testing indicates that the WAF for a particular stack or duct may be less than 0.970, the tester should increase the number of traverse points in the Method 1 traverse (e.g., to 20 or 24 points if a 16-point traverse was initially performed) and re-calculate the WAF to capture the full extent of the wall effect.

(5) Obtain Wall Effects Adjusted Velocity and Volumetric Flow Rate

While the field test showed the calculation procedures to be effective, the new test method also needed to clarify how WAFs were to be applied to calculate the wall effects adjusted volumetric flow rate for the stack or duct. Thus, the final steps in Method 2H include instructions on how to calculate the wall effects adjusted velocity for the stack or duct by multiplying the unadjusted velocity from Method 2, 2F, or 2G by the WAF (either calculated or default). The calculated WAF from one run may be applied to all runs of the same relative accuracy test audit (RATA). If calculated WAFs are obtained for several runs, the tester must average the WAFs and apply the resulting value to all runs of the same RATA. The stack or duct volumetric flow rate is then obtained by multiplying the wall effects adjusted velocity by the stack or duct cross-sectional area.

IV. Administrative Requirements

A. Executive Order 12866

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the Administrator 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 obligations 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.

This action is not expected to have an annual effect on the economy of $100 million or more. Pursuant to the terms of Executive Order 12866, it has been determined that this direct final rule is not a significant action. As such, the direct final rule has not been submitted for OMB review.

Today’s action provides options for applying scientific and analytical methods generally accepted by the scientific community. The options provided by this action are not precedential, but typical of the periodic improvements the Agency routinely makes to test methods based on advances in technology, science, and field experience. In keeping with past practice, we are retaining existing methods while offering new methods to provide the regulated community with additional choices and to lower the cost of compliance.

Since use of the new methods is voluntary, we anticipate that the new methods will be used only if they result in overall cost savings. While the cost of performing the new methods may be somewhat higher than the existing test method (due to higher probe calibration costs, increased stack testing time, and additional test equipment), these costs should be completely offset by compliance cost savings.

B. Executive Order 12875: Enhancing Intergovernmental Partnerships:

Under Executive Order 12875, Enhancing Intergovernmental Partnerships, EPA may not issue a regulation that is not required by statute and that creates a mandate upon a State, local or tribal government, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by those governments, or EPA consults with those governments. If EPA complies by consulting, Executive Order 12875 requires EPA to provide to OMB a description of the extent of EPA's prior consultation with representatives of affected State, local and tribal governments, the nature of their concerns, copies of any written communications from the governments, and a statement supporting the need to issue the regulation. In addition, Executive Order 12875 requires EPA to develop an effective process permitting elected officials and other representatives of State, local and tribal governments "to provide meaningful and timely input in the development of regulatory proposals containing significant unfunded mandates."

As discussed above, today's direct final rule is voluntary and does not create a mandate on State, local or tribal governments. The rule does not impose any enforceable duties on these entities, unless they choose to use the new optional methods. Accordingly, the requirements of section 1(a) of Executive Order 12875 do not apply to this rule.

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

Under Executive Order 13084, Consultation and Coordination with Indian Tribal Governments, 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 OMB, 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 direct final rule does not significantly or uniquely affect the communities of Indian tribal governments. Today's action finalizes test method procedures for determining volumetric flow rate in stacks or ducts. Since use of the new methods is voluntary, we anticipate that the new methods will be used only if they result in overall cost savings. While the cost of performing the new methods may be somewhat higher than the existing test method (due to higher probe calibration costs, increased stack testing time, and additional test equipment), these costs should be completely offset either by compliance cost savings or increased compliance certainty. Accordingly, the requirements of section 3(b) of Executive Order 13084 do not apply to this rule.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), P.L. 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.

Today's direct final rule is not expected to result in expenditures of more than $100 million in any one year and, as such, is not subject to section 202 of the UMRA. The direct final rule is not expected to significantly or uniquely affect small governments.

E. Paperwork Reduction Act

Today's direct final rule will not add any additional information collection requirements to the current information collection requirements in the implementing regulations, e.g., part 75. Therefore an Information Collection Request was not prepared for the direct final rule.

An agency may not conduct or sponsor and a person is not required to respond to a collection of information, unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9 and 48 CFR chapter 15.

F. Regulatory Flexibility

The Regulatory Flexibility Act, 5 U.S.C. 601, et seq., generally requires an agency to conduct a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and governmental jurisdictions. EPA has determined that it is not necessary to prepare a regulatory flexibility analysis in connection with this direct final rule. EPA has also determined that this rule will not have a significant economic impact on a substantial number of small entities.

Since use of the new test methods is voluntary, we anticipate that the new options will be used only if they result in overall cost savings. While the cost of performing the new options may be somewhat higher than the existing test method (due to higher probe calibration costs, increased stack testing time, and additional test equipment), these costs should be completely offset by compliance cost savings.

G. Executive Order 13045: "Protection of Children from Environmental Health Risks and Safety Risks" (62 F.R. 19885, April 23, 1997) applies to any rule that: (1) was initiated after April 21, 1997, or for which a Notice of Proposed Rulemaking was published after April 21, 1998; (2) is determined to be "economically significant" as defined under E.O. 12866, and (3) 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 all three 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 Executive Order has the potential to influence the regulation. This direct final rule is not subject to the Executive Order because the rule does not establish an environmental standard intended to mitigate health or safety risks.

H. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (ANTTAA@), Pub L. No. 104-113 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, business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA requires EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

EPA has not identified any voluntary consensus standards which might be applicable to this rulemaking.

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 on [Insert date 60 days from date of publication in the Federal Register].

List of Subjects in 40 CFR Part 60

Air pollution control, Test method, Volumetric flow rate, Carbon dioxide, Continuous emission monitors, Electric utilities, Environmental protection, Nitrogen oxides, Reporting and recordkeeping requirements, Sulfur dioxide, Particulate.

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Dated	Carol M. Browner, Administrator.

For the reasons set out in the preamble, title 40 chapter 1 of the Code of Federal Regulations is amended as follows:

PART 60 – [AMENDED]

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

Authority: 42 USC 7401, 7411, 7413, 7414, 7416, 7429, 7601 and 7602.

2. Appendix A is amended by adding in alphanumeric order Methods 2F, 2G and 2H and also by adding the Methods to Appendix A table of contents to read as follows:

APPENDIX A TO PART 60 - TEST METHODS

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“Method 2F - Determination of Stack Gas Velocity and Volumetric Flow Rate With Three-Dimensional Probes”

“Method 2G - Determination of Stack Gas Velocity and Volumetric Flow Rate With Two-Dimensional Probes”

“Method 2H - Determination of Stack Gas Velocity Taking into Account Velocity Decay Near the Stack Wall”

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