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Highlights of the Emissions Measurement Center's Activities for 2003

Environmental Protection Agency
Office of Air Quality Planning and Standards
Emissions, Monitoring, and Analysis Division
(www.epa.gov/ttn/emc)

Below are highlight items involving emission test method publication, evaluation, validation, and other **Emissions Measurement Center (EMC)** activities during the past twelve months. The information is organized basically by publication category or organizational activities.

A. General Emissions Measurement Projects

1. ASTM Activity - Together with ASTM, we have developed and approved (June 2002) a new standard for characterizing the pressure drop and filtration performance of cleanable filter media. We were instrumental in getting an ETV protocol developed and approved by ASTM for better monitoring of baghouses. This protocol will be available for use by State permitting authorities. **(Mike Ciolek 919/541-4921, John Bosch 919/541-5583)**

B. New and Revised 40 CFR Part 51, Appendix M, Test Methods

1. Method 203 - As a result of the comments received after re-opening the comment period for Method 203, we decided to form a stakeholders' group to undertake the task of re-writing the method. The stakeholders' group was comprised of opacity monitor manufacturers, State/local agencies, EPA region personnel, as well as representatives from owners/operators. Method 203, which includes procedures for ongoing quality assurance and quality control evaluations of COMS used as continuous compliance monitoring systems, has been re-written and will be re-proposed as an addition to 40 CFR part 60, appendix F as opposed to an addition to part 51, appendix M. The "method" will, instead, be entitled "Procedure 3, Quality Assurance Requirements for Continuous Opacity Monitoring Systems at Stationary Sources." The proposal is expected to be published in the Federal Register by the Spring of 2003. **(Solomon Ricks 919/541-5242)**

2. Stack flow rate method to account for wall and corner flow rate effects in

rectangular ducts - We have a current method review project in support of the Clean Air Markets Division (CAMD). The objective is to identify a method suitable for inclusion in alternative method requests by the Part 75 regulated community for flow measurements in rectangular ducts. EPA's current Method 2H, while addressing wall effects in circular ducts, does not address wall and corner equal area flow measurement problems in rectangular ducts. The technical method evaluation field work on this project is being performed by an industry contractor, and we have reviewed this work as it has progressed. The contractor's final evaluation report was submitted to us in February 2003; we are coordinating with CAMD to perform a final review of all relevant materials for completeness. If deemed adequate, the method will be placed on our website as a conditional test method (CTM), so it can be used as a common basis for making requests for approval of such an alternative method. **(Bill Grimley 919/541-1065, or Tom Logan 919/541-2580)**

C. New and Revised 40 CFR Part 60, Appendix A, Test Methods

1. Method 24 - Method 24 describes procedures for determining the volatile matter content, water content, density, volume solids, and weight solids of surface coatings. The method references several ASTM procedures for conducting these analyses. In an EPA-sponsored study, we completed a round-robin sampling and analysis evaluation of methods for determining the volatile organic content of water-based coatings. We have drafted a procedure based on these results. We are currently working with the Adhesive Industry to fine tune the draft procedure so that it will benefit a larger group of coatings. We expect to propose the new procedures as an addition to Method 24 or as a separate method in 2003. **(Candace Sorrell 919/541-1064)**

2. Method 25 - The South Coast Air Quality Management District (SCAQMD) has proposed their Method 25.3 as an alternative to Method 25 for measuring nonmethane organic compounds in municipal solid waste landfill gases. The SCAQMD Method 25.3 is a GC/oxidation/reduction FID-based procedure using tank and condensation trap sampling. The SCAQMD has validated the method for measuring emissions from landfill gas incinerators down to levels of 1 ppm. During 2002, we approved the method (on a site-specific basis) as an alternative to Method 25 and will propose it for 40 CFR Part 60 in FY 2003. **(Foston Curtis 919/541-1063)**

3. Instrumental Test Methods Update - Methods 3A, 6C, 7E, 10, and 20 of 40 CFR Part 60, Appendix A are instrumental methods that we are updating to harmonize equipment and performance criteria. Inconsistent acceptance criteria for performance tests and calibration gas quality are being made uniform. Other improvements will address low-concentration measurements and alternative performance evaluating techniques. We expect to publish this update as a proposal during April of 2003.

(Foston Curtis 919/541-1063)

D. New and Revised 40 CFR Part 60, Appendix B, Performance Specifications for Continuous Opacity and Gaseous Monitoring Systems

1. **QA/QC for HAP Continuous Emissions Monitoring Systems** - Appendix F, Procedure 1 applies specifically to assuring the quality of data from gaseous CEMS that are subject to relative accuracy testing. The Appendix F, Procedure 1 criteria do not apply readily to CEMS for measuring VOC and compound-specific organic HAPs, particularly those subject to PS-8 or 9, because there is no relative accuracy test involved. We determined a need for another approach to assuring ongoing data quality for these and other HAPs CEMS and have begun a rulemaking effort. We hope to have a draft proposal available by November 2003. **(Barrett Parker 919/541-5635)**

2. **Performance Specifications and QA/QC for Parametric Operating Limit Monitoring Systems** - Our new emissions standards (e.g., MACT and NSPS) frequently include requirements for monitoring of process or control device operational parameters and for having the operator to stay within site-specific or rule-specific operating ranges. We recognized the need for performance specifications for installing, operating and maintaining these parametric monitoring systems (e.g. temperature, pressure, pH, liquid flow, conductivity) and have begun work on drafting performance specifications and quality assurance requirements. We expect to have documents ready for proposal and public review by November 2003. **(Barrett Parker 919/541-5635)**

3. **Mercury CEMS Evaluation** - The EMC has a field effort underway to demonstrate the effectiveness of two commercially available Mercury CEMS at a coal-fired utility boiler. The first phase of the activity was completed in March of 2002. The second phase was completed in December 2002. A third phase is scheduled to begin in May 2003. **(Bill Grimley 919/541-1065, Barrett Parker 919/541-5635)**

E. New and Revised 40 CFR Part 63, Appendix A, Test Methods

1. **Method 301** - Method 301 is the field data validation protocol promulgated on December 29, 1992. The purpose of the method is to provide a framework and performance criteria for validating emissions test data (and methods) when no EPA method is available or when proposing an alternative to an existing test method. Comments and questions from the user community have prompted preparation of technical revisions and clarification to the method. We have drafted revisions to Method 301 to address limiting the use of correction factors to data when testing other

sources, as well as procedures for evaluating alternatives to existing reference methods including allowing use of spiking procedures in lieu of comparison testing. We have also added discussion of detection limits, deleted the practical quantitation discussion, tightened acceptable precision limits, and corrected deficient equations and other technical errors. The promulgation package for the revisions is scheduled to go to the Administrator in June 2003. **(Gary McAlister 919/541-1062)**

2. **Method 323** - We proposed the industry-developed acetyl acetone colorimetric method for formaldehyde as part of the gas turbine and internal-combustion engines MACT in November 2002. There is considerable question whether this colorimetric method has sufficient sensitivity for application at the low levels expected from gas turbines. We asked for comments as part of the proposal package; we will respond to those comments as part of the final package. **(Terry Harrison 919/541-5233)**

F. Other Test Method Development Activities

1. **Conditional Test Method for NOx Periodic Monitoring (CTM-034)** - The Institute of Clean Air Companies (ICAC), a consortium of equipment manufacturers, proposed to EMC a method for periodic checking of NOx controls using portable electrochemical cell technology. The procedure specifically applies to periodic monitoring situations required by operating permits generated under part 70. The ICAC subjected the procedure and the equipment to testing under the Environmental Technology Verification program the result of which indicated an acceptable level of performance for the purpose intended. We have reviewed the draft method, available on the EMC Internet website, and have asked for improvements in several areas: response time, sampling integrity, and applicability. We have posted it as a draft method and plan to finalize the procedure in 2003. **(Barrett Parker 919/541-5635)**

2. **Filterable and Condensable Particulate Speciation** - The National Academy of Sciences recommended that the EPA develop a source method for use by States that uses air dilution to condense the PM. We have identified the need to develop a test method that will characterize the source emissions for both mass (total, PM10 and PM2.5) and the same species analyzed for in the ambient air monitoring network. The state-of-the-art collection device that we have developed includes combination cyclone separators, a modular denuder filter pack assembly to remove gases that may create artifacts, as well as several in-series filters (quartz, Teflon, nylon, etc.). During FY 2002, testing on this method was conducted at three sites. It is estimated that this method will be available on the EMC web site as a Preliminary Method in mid-2003. **(Ron Myers 919/541-5407)**

3. **Development of Optical Remote Sensing Method to Determine Emission Flux**

from Fugitive Emission Sources - No standard protocol exists for making measurements of air emission flux from fugitive or nonpoint sources. Current estimation techniques based on emission factors are imprecise and often overestimate. Multiple point measurements are locally accurate, but are often not be representative of the whole plume, are expensive, and rely on reverse dispersion modeling that may introduce significant errors. Earlier remote sensing approaches that also rely on reverse dispersion modeling are also prone to modeling errors. This project, which began in 2002, seeks to demonstrate a path-integrated optical remote sensing (PI-ORS) technique utilizing multiple beam paths and optimizing algorithms to yield a time-averaged, mass-equivalent concentration field across a contaminant plume from which, in conjunction with wind data, the emission rate can be determined. For this project, we are serving as a regulatory advisor to the Air Force and its contractor, Arcadis. The project is being funded by DoD's Environmental Security Technology Certification Program. **(Robin Segall 919/541-0893)**

4. **Voluntary Superior Monitoring -** An EPA cross-divisional team headed by the EMC is exploring a regulatory option called Voluntary Superior Monitoring (VSM), designed to promote the use of improved and more direct emissions monitoring technologies. Under this option, owners/operators of industrial air pollution sources could volunteer to conduct monitoring superior to their current requirements. Such monitoring could range from more frequent or better correlated measurement of emissions using existing monitoring tools, to replacement of existing monitoring with more advanced technology. In return for conducting superior monitoring, EPA would offer incentives such as less record keeping and reporting, more flexibility in control device or process operation, reducing or eliminating other required monitoring, and flexibility in averaging times for determining compliance with the standard. We are also considering pursuing tax credits as an incentive recognizing that developing this inducement will present some higher than normal hurdles and will result in EPA negotiating with agencies and groups beyond our normal purview. Our tentative schedule is to continue the data gathering phase for several more months during which we will meet with our stakeholders. We plan to draft the guidance first in late Spring of 2003, and draft the regulatory package by the end of Summer 2003. **(Dan Bivins 919/541-5244, Tom Driscoll 919/541-5135)**

5. **Stationary Source Audit Program (SSAP)** - EMC has implemented an electronic Stationary Source Audit Program (SSAP) database. Federal, State, Local, and Tribal Agency personnel can now use this database to electronically order audit samples. The database compiles the audit results in several report formats that allow the QA Team and Agency staff to review the results of a particular audit. The audit sample results are input into the database by the person who initially requested the audit sample and a pass/fail notice is automatically issued . For security, access to the database is limited

to registered Federal, State, Local & Tribal Agency users. **All registration requests should be submitted to Candace Sorrell at sorrell.candace@epa.gov or (919)541-1064.** The request needs to provide your name, non-P.O. Box address, Agency affiliation, phone number and e-mail address. You will receive further instructions via return E-mail. Currently, there are audit materials for Methods 6, 7, 12, 13A and 13B, 18, 23, 24 (inks and solvents), 25, 26, 26A, 29, 101, 101A, and 315. The SSAP is developing new audit materials for a number of current performance audits. Starting March 3, 2003 we expect to have Method 8 audit materials that consist of performance audits for both the sulfur dioxide and sulfuric acid fractions. As resources permit, new instructions with new reporting units and forms will be placed on the EPA web site for review and comment. Monthly teleconference calls are usually scheduled the first Tuesday in every month from 1:30-3:30 P.M. (EST) to discuss technical problems. Agendas and minutes for these conference calls can be obtained by contacting Candace Sorrell at sorrell.candace@epa.gov or (919)541-1064. EPA has compiled a quality assurance (QA) guidance document entitled, "**The Quality Assurance Handbook for Air Pollution Measurement Systems**." The agency developed the document to provide comprehensive guidance in the concepts of environmental quality assurance. The guidance document was originally comprised of five volumes, however, Volumes IV and V are no longer available:

Volume I - A Field Guide to Environmental Quality Assurance; 600R-94/038a.
Volume II - Ambient Air Specific Methods (Interim Edition); 600R-94/038b.
Volume III - Stationary Source Specific Methods; 600R-94/038c.

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