September 2007

OAQPS Measurement and Monitoring Projects
Combined MTG and MPG Status Reports

Environmental Protection Agency
Office of Air Quality Planning and Standards
Air Quality Assessment Division, Measurement Technology Group
Sector Policies and Programs Division, Measurement Policy Group
(http://www.epa.gov/ttn/)

Below is a status report of projects and other current activities involving air emissions methods and monitoring and other emissions quantification tools, databases, and protocols.

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

- **Instrumental Test Methods Revisions** - Methods 3A, 6C, 7E, 10, and 20 are instrumental test methods that were revised to harmonize equipment, calibration gas quality specifications, and performance criteria. Other improvements address low-concentration measurements and alternative performance evaluation techniques. The revisions were proposed in 2003 (68 FR 58838) and promulgated on May 15, 2006 (71 FR 28082). A Direct Final rulemaking package containing technical amendments to the instrumental methods to address special circumstances as well as corrections was signed by the EPA Administrator in August and should be published in the Federal Register in September 2007. Contact: Foston Curtis, MTG, curtis.foston@epa.gov, 919-541-1063

- **Method 18 Revisions** - Method 18 utilizes gas chromatography coupled with various sampling procedures to measure gaseous organic emissions from stationary sources. In 2004 we met with interested stakeholders to discuss their concerns with real-life application of Method 18 and recommendations for improvements in the method and shared our perspective on the recommendations at the 2004 Stationary Source Sampling and Analysis of Air Pollutants Conference. We have finally obtained contract resources to work on a regulatory proposal for revisions to Method 18. Planned revisions include clarification of calibration specifications and addition of sampling options such as collection of water soluble organics in water. Proposal is slated for late 2007/early 2008. Contacts: Gary McAlister, MTG, mcalister.gary@epa.gov, 919-541-1062 and Rima Howell, MTG, howell.rima@epa.gov, 919-541-0443

- **Method 23 Revisions** – EPA's Office of Solid Waste (OSW) is in the process of revising SW-846 Method 8290 for analyzing samples for dioxins and furans. As a part of this process we had planned to revise Method 23 to take advantage of the more advanced analytical approach of 8290. The revised Method 23 would only describe the sampling procedures for collecting the dioxin/furan sample and then rely on the revised Method 8290 for the appropriate analytical procedures. In addition, OSW had planned to remove Method 0023A from their SW-846 manual and specify the revised Method 23 as their

sampling procedure. These plans have been delayed due to differences in how OSW and OAQPS specify analytical methods in their rules; we now plan to propose these revisions in 2008. Contact: Gary McAlister, MTG, mcalister.gary@epa.gov, 919-541-1062

- **Method 24 Revisions** - Method 24 describes procedures for determining the volatile matter content, water content, density, volume solids, and weight solids of surface coatings, typically referencing ASTM procedures for conducting these analyses. In an EPA-sponsored study, we completed a round-robin sampling and analysis evaluation of a new procedure for determining the volatile organic content of water-based coatings and drafted a method revision based on the results. The Adhesive Council then developed and drafted an improved headspace method for water-based coatings and has been working to get it accepted as an ASTM standard. The initial draft did not pass the ASTM balloting process in 2005 and ASTM is now working with the Adhesives Council and Cal Polytech on revisions. Following successful balloting of the revised version, we plan to propose it as an addition to Method 24. Contact: Candace Sorrell, MTG, Sorrell.candace@epa.gov, 919-541-1064

- **Method 30A - Determination of Total Vapor Phase Mercury Emissions from Stationary Sources (Instrumental Analyzer Procedure)** - The Clean Air Mercury Rule (70 FR 28606, 5/15/05) establishes mercury emissions standards for coal-fired utility boilers and relies heavily on mercury monitoring which in turn requires yearly certification of the mercury monitoring systems using a reference method. The current reference method (known as the Ontario Hydro method), which utilizes a wet chemical approach, typically requires several weeks until results are available. To provide a more practical and timely alternative, we have just issued a Direct Final rulemaking for a performance-based test method using an instrumental analyzer to measure mercury much like Methods 6C and 7E. The rule package was signed by the EPA Administrator on August 17, 2007 and should be published in the Federal Register is by the first week in September. Contacts: Robin Segall, MTG, segall.robin@epa.gov, 919-541-0893, Bill Grimley, MTG, grimley.william@epa.gov, 919-541-1065, and Jeff Ryan, ORD, NRML, ryan.jeff@epa.gov, 919-541-1437

- **Method 30B - Determination of Mercury Emissions from Stationary Sources from Coal-Fired Combustion Sources Using Carbon Sorbent Traps** - Method 30B is another option for relative accuracy testing of mercury monitoring systems included in the rulemaking package with Method 30A as described above. Method 30B relies integrated sampling using carbon sorbent traps and analysis using an extractive or thermal sample prep technique coupled with instrumental analysis. Like Method 30A, Method 30B is performance-based relying on achievement of specified performance criteria to assure the quality of measured data. Contacts: Bill Grimley, MTG, grimley.william@epa.gov, 919-541-1065, Robin Segall, MTG, segall.robin@epa.gov, 919-541-0893, and Jeff Ryan, ORD, NRML, ryan.jeff@epa.gov, 919-541-1437

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

- **Performance Specification 11** – The Specifications and Test Procedures for Particulate Matter Continuous Emission Monitoring Systems at Stationary Sources (PS-11) were promulgated on Monday, January 12, 2004 (69 FR 1786). We have been working on development of a guidance document for PM CEMS which will be finalized and posted on the EMC website following promulgation of revisions to PS-11 in the PS-16 rulemaking package later this year. Contact: Dan Bivins, MTG, bivins.dan@epa.gov, 919-541-5244

- **Performance Specification 12A** - Specifications and Test Procedures for Total Vapor Phase Mercury Continuous Emission Monitoring Systems in Stationary Sources (PS-12A) were promulgated in conjunction with the Clean Air Mercury Rule on May 18, 2005 (70 FR 28606). In 2005, the EMC completed a long-term field test program to evaluate the performance and reliability of six commercially available mercury CEMS at a coal-fired utility boiler controlled by selective catalytic reduction technology, an electrostatic precipitator, and a wet scrubber; the full report on this demonstration is posted on the EMC website on the Continuous Emissions Monitoring page. The Methods 30A/30B rulemaking slated for publication in April will revise PS-12A to allow Methods 30A/30B to be used as reference methods for relative accuracy testing. Contacts: Bill Grimley, MTG, grimley.william@epa.gov, 919-541-1065 and Robin Segall, MTG, segall.robin@epa.gov, 919-541-0893

- **Performance Specification for Predictive Emissions Monitoring Systems (PEMS) (PS-16)** - Performance Specification 16 provides performance criteria for evaluating and accepting PEMS. PEMS are typically used to predict emissions from combustion processes (e.g., NO_x from gas boilers, turbines, and internal combustion engines) through the monitoring of process parameters. Predictive systems have been allowed for a number of years at the State level and the EPA has allowed their use in recently-promulgated federal rules. We proposed PS-16 on August 8, 2005 (70 FR 45608), have compiled the comments received, and expect to promulgate it by the end of 2007. Contact: Foston Curtis, MTG, curtis.foston@epa.gov, 919-541-1063

- **Draft Performance Specifications and QA/QC for Continuous Parameter Monitoring Systems (PS-17)** - Our newer 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. In 2007, we plan to have documents ready for internal review and approval prior to proposal and public review. Contact: Barrett Parker, MPG, parker.barrett@epa.gov, 919-541-5635

New and Revised 40 CFR Part 60, Appendix F, Quality Assurance Procedures for Continuous Monitoring Systems

- **Procedure 3 - Quality Assurance Requirements for Continuous Opacity Monitoring Systems at Stationary Sources** - As a result of the comments received after re-opening the comment period for the rulemaking formerly known as "Method 203," which includes requirements for ongoing quality assurance and quality control evaluations of COMS used as continuous compliance monitoring systems, we formed a stakeholders' group (opacity monitor manufacturers, State/local agencies, EPA Regional personnel, and representatives from owners/operators) to assist in re-writing this rule package. Method 203 has been rewritten as Procedure 3, and was re-proposed as an addition to 40 CFR part 60, appendix F on May 8, 2003 (68 FR 24692). MTG is planning to finalize Procedure 3 in 2008. Contact; Tom Logan, MTG, logan.thomas@epa.gov, 919-541-2580

- **Procedure 2 - Quality Assurance Requirements for Particulate Matter Continuous Emission Monitoring Systems at Stationary Sources** - Procedure 2 (69 FR 1786, 1/12/04) was promulgated as a QA accompaniment to PS-11. The guidance being developed for PS-11 will also address Procedure 2 and should be available this summer. Contact: Dan Bivins, MTG, bivins.dan@epa.gov, 919-541-5244

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

- **Method 301 Revisions** - Method 301 is the field data validation protocol promulgated on December 29, 1992. The method provides 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. Proposed amendments to Method 301 appeared in the Federal Register on December 22, 2004. We received comments from about fifteen parties several of which were extensive. In late 2006, we obtained contract resources to assist in preparing the final rule package and we now expect to promulgate the amendments in late 2007. Contact: Gary McAlister, MTG, mcalister.gary@epa.gov, 919-541-1062

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

- **Method 201A Revisions –** Method 201A is used to determine in-stack PM_{10} emissions using a cyclone or cascade impactor. Planned revisions will specify a $PM_{2.5}$ cyclone from a conventional five-stage cascade cyclone train to allow measurement of $PM_{2.5}$. The $PM_{2.5}$ cyclone would be inserted between the PM_{10} cyclone and the filter of the Method 201A train and stack gas is sampled at a predetermined constant flow rate through the in-stack cyclones and filter. Proposal is of the revisions is planned for January of 2008 and will ultimately replace CTM-040. Contact: Tom Logan, MTG, logan.thomas@epa.gov, 919-541-2580 and Ron Myers, MPG, myers.ron@epa.gov, 919-541-5407

- **Improving Method 202 for Measuring Condensable $PM_{2.5}$** - This project is designed to develop technical information for future improvement of the method to reduce artifact formation. We have conducted in-house laboratory evaluations of the effects of a range of SO_2 and moisture concentrations on artifact formation. We have also evaluated the applicability of modifications to the sampling train to reduce artifact formation. We are now working with interested stakeholders undertaking field studies of various source types using the method with improvements. The purposes of these studies are to 1) verify the characteristics of the improved Method 202 and any modifications and 2) to collect new data more representative of condensable PM emissions than those currently published in emissions factors compilations. Results of these studies will be used to inform proposal of revisions to Method 202 planned for January of 2008. Contacts: Ron Myers, MPG, myers.ron@epa.gov, 919-541-5407, Tom Logan, MTG, logan.thomas@epa.gov, 919-541-2580

- **Methods 203A, 203B, and 203C -** Visual Determination of Opacity of Emissions from Stationary Sources for Time-Averaged, Time-Exception, and Instantaneous Limitation Regulations -These methods provide State and Local agencies with an expanded array of data reduction procedures to determine compliance with various types of State Implementation Plan (SIP) opacity regulations. The data reduction procedures in Methods 203A, 203B, and 203C of Appendix M of Part 51 (Preparation, Adoption, and Submittal of Implementation Plans) constitute the primary difference between these methods and Method 9 of Appendix A of 40 CFR Part 60. These methods were proposed in 1994 and were promulgated on September 21, 2006 (71 FR 55119). Contact: Robin Segall, MTG, segall.robin@epa.gov, 919-541-0893

- **Method 207** - Pre-Survey Procedure for Corn Wet-Milling Facility Emission Sources - This pre-survey procedure was developed by the corn wet-milling industry specifically to measure VOC mass emissions from processes within their facilities. It provides a systematic approach to develop a specific list of target organic compounds and the appropriate sampling approach to collect those target compounds during subsequent VOC emissions testing. After using the new pre-survey procedure, the tester will have sufficient information to design a comprehensive testing program using Method 18 and other appropriate methods to measure the mass of VOC emissions during the actual emissions testing. For the purposes of measuring VOC emissions from corn wet-milling facilities, all of the sampling procedures in Method 18 may be used as well as an additional sampling procedure using water filled impingers to collect water soluble VOC. This sampling procedure is described in detail in Method 308 (40 CFR Part 63) and NCASI Method CI/SG/PULP-94.03. The resulting water samples should also be analyzed using the procedures in Method 308 or NCASI Method CI/SG/PULP-94.03. If formaldehyde is a target compound, it may be collected with the water filled impinger collection system, but the sample must be analyzed by procedures other than those in EPA Method 18. Examples of acceptable analytical procedures are those in Method 316 (40 CFR Part 63) or NCASI Method CI/SG/PULP-94.02. Method 207 will be proposed for addition to Appendix M late this year and is currently posted on the EMC website as OTM-11. Using new procedures such as Method 207 to measure VOC emissions will

create issues for the EPA programs that require that sources report these emissions. EPA has written a letter to the Corn Refiner's Association (available on the EMC website), who represent the corn wet-millers, explaining how it believes these issues might be resolved. Contact: Gary McAlister, MTG, mcalister.gary@epa.gov, 919-541-1062

- **Method 208** - Method for Measuring VOC Mass Emissions from Hot Mix Asphalt (HMA) Plant Dryers - This method is a protocol for collecting, analyzing, and reporting of VOC emissions from HMA plant dryers. It is designed specifically to measure VOC mass emissions from hot mix asphalt plant dyers and was developed by the asphalt paving industry. The method is applicable for the determination of total gaseous concentrations of VOC that consist primarily of alkanes, alkenes, and/or arenes (aromatic hydrocarbons) which comprise the organic emissions from hot mix asphalt dryers. The mass emission rate of VOC from the HMA plant dryers is expressed in terms of pounds per hour of propane which is appropriate for these kinds of VOC. This procedure will be proposed for addition to Appendix M in early 2008 and is currently posted on the EMC website as OTM-12. Contact: Gary McAlister, MTG, mcalister.gary@epa.gov, 919-541-1062

Source Category Approved Alternative Test Methods

These methods, which are published on the EPA website at www.epa.gov/ttn/emc/tmethods.html, are approved alternatives to the methods required by 40 CFR Parts 60, 61 and 63 as described by the General Provisions of the corresponding Parts. As such, they may be used by sources for determining compliance with the requirements of these Parts per their specified applicability provisions without further EPA approval. The Administrator's delegated authority (currently Conniesue Oldham, Group Leader of the Measurement Technology Group), has approved these methods for the specified applications; this approval has been documented through an official EPA letter. These methods include quality control and quality assurance procedures that must be met. The EPA staff may not necessarily be the technical experts on these methods.

- **Federal Register Notice on Broadly Applicable Alternative Test Method Approvals** - This notice published January 30, 2007 (72 FR 4257) announces broadly applicable alternative test method approval decisions that EPA has made under and in support of the New Source Performance Standards and the National Emission Standards for Hazardous Air Pollutants. Although we have made both site-specific and broadly applicable alternative test method approvals in the past, most recently we have issued only site- or facility-specific approvals. This notice announces our plan to issue broadly applicable alternative test method approvals in the future and that we will post these broadly applicable approvals on the EMC website as well as announce them in the Federal Register. The publication of these broadly applicable alternative test method approvals on our website will provide information about options and flexibility for the regulated community. In addition, this information may reduce the burden on source owners and operators in making site-specific alternative test method requests and the permitting authorities and the EPA Administrator in processing those requests. Contact: Robin

Segall, MTG, segall.robin@epa.gov, 919-541-0893

Other Test Methods

These methods, which are published on the EPA website at www.epa.gov/ttn/emc/tmethods.html, are those methods which have not yet been subject to the Federal rulemaking process. Each of these methods, as well as the available technical documentation supporting them, have been reviewed by the Emission Measurement Center staff and have been found to be potentially useful to the emission measurement community. The types of technical information reviewed include field and laboratory validation studies; results of collaborative testing; articles from peer-reviewed journals; peer-review comments; and quality assurance (QA) and quality control (QC) procedures in the method itself. These methods may be considered for use in federally enforceable State and local programs (e.g., Title V permits, State Implementation Plans (SIP)) provided they are subject to an EPA Regional SIP approval process or permit veto opportunity and public notice with the opportunity for comment. The methods may also be considered as candidates to be alternative methods to meet Federal requirements under 40 CFR Parts 60, 61, and 63; however, they must be approved as alternatives under 60.8, 61.13, or 63.7(f) before a source may use them for this purpose. The methods are available for application without EPA oversight for other non-EPA program uses including state permitting programs and scientific and engineering applications. The EPA strongly encourages the submission of additional supporting field and laboratory data as well as comments in regard to these methods. *We have recently augmented our posting of Other Test Methods by including a table summarizing the supporting information available for each new method posted.*

- **CTM-039 - Measurement of $PM_{2.5}$ and PM_{10} Emissions by Dilution Sampling (Constant Sampling Rate Procedures)** - This method uses the in stack cyclone separation described in TM-040, however, procedures for characterizing the condensable particulate matter are improved and expanded with the removal of the in-stack 47-mm filter, the addition of a system to dilute and cool the sample gas, and the addition of a 142-mm filter to collect the filterable $PM_{2.5}$ and the particulate matter condensed through the dilution and cooling of the sample gas. Because the sample gas is cooled and diluted to near ambient conditions, aliquots of the diluted sample gas can be extracted prior to the 142-mm filter for collection and analysis by ambient air methodologies. These procedures have been evaluated at coal fired utilities. We are planning to conduct additional evaluation of this approach and then propose and promulgate it as part of Appendix M to 40 CFR Part 51. Contact: Tom Logan, MTG, logan.thomas@epa.gov, 919-541-2580 and Ron Myers, MPG, myer.ron@epa.gov, 919-541-5407

- **PRE-008 - Determination of Visible Emission Opacity from Stationary Sources Using Computer-Based Photographic Analysis Systems** - This preliminary method describes an approach for determining the opacity of visible emissions through the use of digital photographs taken of the emission source plume. The photographs are processed using computer software that determines percent opacity using information available from the digital or digitized images. The positioning of the camera is similar to the observer requirements of Method 9 (40 CFR 60, Appendix A) as are the reporting

requirements. A descendant of this method is currently moving through the ASTM process. Contact: Tom Logan, MTG, logan.thomas@epa.gov, 919-541-2580

- **OTM-10 - Optical Remote Sensing for Emission Characterization from Non-Point Sources** – Prior to development of this method, there was no standard protocol for making measurements of emissions flux from fugitive or non-point sources. From 2002 to 2005, EMC participated in a DoD sponsored project conducted by ARCADIS to validate a path-integrated optical remote sensing (PI-ORS) based approach to locate and quantify fugitive emissions using controlled releases of various gases. This approach utilizes multiple beam paths and optimizing algorithms to yield a time-averaged, mass-equivalent concentration field across a contaminant plume from which, using wind data, the emission rate can be determined. This validated peer-reviewed protocol for making these measurements was posted on the EMC website in July of 2006. Contact: Robin Segall, MTG, segall.robin@epa.gov, 919-541-0893

- **OTM-11 –** This method will be proposed as Method 207 (see prior discussion on Method 207).

- **OTM-12 –** This method will be proposed as Method 208 (see prior discussion on Method 208).

- **OTM-13 - Periodic Monitoring Test Method For Measuring Oxygen, Carbon Monoxide and Oxides of Nitrogen From Stationary Sources (Multi-gas Portable Optical Bench Instruments** – This method can be used for determining nitrogen oxides (NOx, NO and NO_2), carbon monoxide (CO), and oxygen (O2) using portable instruments. Typical sources include controlled and uncontrolled combustion facilities firing fuels such as coal, natural gas, propane, butane and distillate fuel oils. This method provides guidance for using portable instrument for periodic monitoring and assuring that test results are correct. This method was provided by ICAC and recently posted on the EMC website. Contact: Foston Curtis, MTG, curtis.foston@epa.gov, 919-541-1063

- **OTM-14 – Method for Measuring Isocyanates in Stationary Source Emissions** -This method is applicable to the collection and analysis of 2,4-Toluene Diisocyanate, 1,6-Hexamethylene Diisocyanate, Methylene Diphenyl Diisocyanate, and Methyl Isocyanate in emissions from manufacturing processes. The gaseous and/or aerosol isocyanates are withdrawn from an emissions source at an isokinetic sampling rate and collected in a multi-impinger sampling train with derivatizing reagent in toluene and charcoal. The impinger contents are concentrated to dryness under vacuum, brought to volume in acetonitrile and analyzed by high pressure liquid chromatography. This method was proposed as Method 207 on December 8, 1997; however, the decision has been made not to promulgate it at the current time so it has been posted on the website as OTM-14 for use by industry and State and local agencies. Contact: Gary McAlister, MTG, mcalister.gary@epa.gov, 919-541-1062

Improving Emissions Monitoring through Rulemaking

- **Inadequate Monitoring (Advanced Notice of Proposed Rulemaking)** - On February 16, 2005 (Volume 70, Number 31)], we published an ANPR asking for public comment to help us identify monitoring in applicable requirements under the Clean Air Act (Act) that is potentially inadequate with respect to the statutory monitoring requirements for operating permits issued under title V of the Act. We also requested comment on ways to improve such monitoring. We have reviewed those comments and prepared responses with a view towards identifying opportunities for and criteria to use in prioritizing potential future regulatory activities. Of particular interest would be regulatory actions with the potential for which monitoring would improve assurance of significant emissions reductions. Contact: Tom Driscoll, MPG, driscoll.tom@epa.gov, 919-541-5135

- **Interpretive Rule for Parts 70/71 Monitoring** - On June 2, 2006, we proposed and on December 15, 2006, we finalized an Interpretive Rulemaking to Clarify the Scope of Certain Monitoring Requirements for State and Federal Operating Permits Programs. This action addressed an interpretation of certain existing regulatory language relative to the need to address the sufficiency of existing monitoring requirements included in State and federal operating permits programs developed under title V of the Clean Air Act (Act). Specifically, the final interpretation is that §§ 70.6(c)(1) and 71.6(c)(1) of 40 CFR parts 70 and 71 (previously referred to as the Umbrella Monitoring Rule) do not authorize an independent assessment of the adequacy of or adding monitoring requirements to operating permits. This interpretation has no effect on implementing the other monitoring provisions required under existing federal air pollution control rules and State implementation plan (SIP) rules (i.e., monitoring required under applicable requirements), including monitoring required under part 64 (the compliance assurance monitoring, or CAM, rule) where it applies, and such monitoring as may be required to fill gaps under the separate periodic monitoring requirements of the operating permits rules in §§ 70.6(a)(3) and 71.6(a)(3). Contact: Peter Westlin, MPG, westlin.peter@epa.gov, 919-541-1058

- **Revisions to Part 64, Compliance Assurance Monitoring** - We have drafted rulemaking entitled "Proposal of Revisions to Part 64 - Compliance Assurance Monitoring Rule," that would govern how states implement monitoring in the title V operating permit program. The revised rules would expand the applicability of part 64 applying the same monitoring design principles to nearly every type of pollutant-specific emissions unit at title V sources. The rule would define more specifically when monitoring may be needed on a pollutant-specific emissions unit basis and set forth a process by which sources and permitting authorities would assess existing monitoring and create periodic monitoring, as needed, to provide a reasonable assurance of compliance with applicable requirements. This proposal is part of the Agency's four-step approach to addressing monitoring in title V permits as explained in the January 22, 2004 Federal Register notice (69 FR 3202). In early 2007, we expect to have the rule revisions documents ready for internal review and approval prior to proposal and public review.

Contact: Peter Westlin, MPG, westlin.peter@epa.gov, 919-541-1058

- **Fine Particulate Matter Implementation Rule -** The Agency proposed a rule to implement the fine particles ($PM_{2.5}$) national ambient air quality standards on November 1, 2005. During 2006, MPG contributed significantly to the development of the final rule language in responding to public comments and helping to define national policies for improved monitoring and testing of $PM_{2.5}$ emissions including condensable PM. The current plans are for MPG to lead development of guidance and tools for improved monitoring for use in the development of State rules implementing the standards once the final rule is published. Contact: Tom Driscoll, MPG, driscoll.tom@epa.gov, 919-541-5135

Emissions Factors Improvement

- **Emissions Factors Development Procedures** – In June of 2006, we made available for review and comment Detailed Procedures for Preparing Emissions Factors on the CHIEF website of the TTN (http://www.epa.gov/ttn/chief/efpac/procedures/procedure_draft.pdf). The purpose of this document is to describe the specific tasks involved in the development of air pollution emissions factors and their subsequent incorporation into EPA's web-based Factor Information and REtrieval (*WebFIRE*) system (see below). The major changes to the historic emissions factor development process are to
    - provide more extensive detail on the emissions factor development procedural and technical steps,
    - clarify roles for emissions test data and report review and approval, and
    - incorporate data assessment tools particularly the uncertainty assessment available through the electronic reporting tool (ERT, see below).

  Publishing the detailed EF development procedures is a significant step towards a self-sustaining EF development process. Contact: Ron Myers, MPG, myers.ron@epa.gov, 919-541-5407

- **Emissions Factors Data Uncertainty** - In 2006, we completed a statistical study of the uncertainty associated with published emissions factors that are based on emissions testing data, such as those contained in AP-42. We presented the study's approach and the results to internal EPA reviewers and a panel of expert peer reviewers and have addressed comments and suggestions received as a result. In February 2007, we will submit a report describing the technical approach and the results to Congress and the Office of Management and Budget. The report will be also available on the MPG website (www.epa.gov/ttn/chief/). Contact: Barrett Parker, MPG, parker.barrett@epa.gov, 919-541-5635

- **WebFIRE** – In December 2005, we made available on the TTN an Internet application of the Factors Information REtrieval system (WebFIRE) (http://cfpub.epa.gov/oarweb/index.cfm?action=fire.main). This interactive tool provides fast and complete access to the Agency's air emissions factors information. In time WebFIRE will replace the software application, FIRE version 6.25, and the Microsoft

Access version of the database. An Internet version of FIRE will allow more frequent updates and easier access. We have also provided a list of frequently asked questions that describe in more detail the functions of the WebFIRE program and how the emissions factors are derived. Plans in 2007 include incorporating information on emissions factor data uncertainty including the results from the electronic reporting tool (see below). Contact: Michael Ciolek, MPG, ciolek.micheal@epa.gov, 919-541-4921

- **AP-42 Emissions Factors Updates –** We updated and added several sections to AP-42 in 2006. The new and updated materials are largely a result of collaborative efforts between MPG and industry and agency stakeholders. New materials published this past year included
    - Iron and steel minimills - finalized section describing the industry and EFs for PM (filterable and condensable), NO_x, CO, SO_2, lead, fluoride, and VOC,
    - Organic liquid storage tanks - updated the equations and data used in calculating emissions from organic liquid storage vessels and for TANKS, a Windows-based computer software program developed in collaboration with API that estimates volatile organic compound (VOC) and hazardous air pollutant (HAP) emissions from fixed- and floating-roof storage tanks http://www.epa.gov/ttn/chief/software/tanks/index.html.
    - Paved and unpaved roads - finalized sections describing the emissions source and the emissions factors for fugitive dust,
    - Ordnance detonation - 16 final and new draft sections describing the weapons and the emissions produced by detonation including criteria pollutants, CO_2, and hazardous and toxic pollutants,
    - WATER9, version 3 - an updated computer model for determining emissions from wastewater treatment processes, and
    - Concrete batching operations - finalized section describing the industry and updated emissions factors for PM, primarily fugitive emissions.

  We expect in 2007 to add new data for other industry categories including coke ovens, landfills, natural gas production, municipal waste combustors, and rubber manufacturing. Contacts: Michael Ciolek, MPG, ciolek.michael@epa.gov, 919-541-4921 and John Bosch, MPG, bosch.john@epa.gov, 919-541-5583

Tools for Improved Monitoring and Testing

- **Electronic Reporting Tool (ERT)** - In early 2006, we made available a Microsoft Access desktop application, called the ERT that is an electronic alternative for paper reports documenting EPA's emissions measurement Methods 1 through 5 and Method 202 for stationary sources. The ERT replaces the time-intensive manual preparation and transcription of stationary source emissions test plans and reports currently performed by contractors for emissions sources and the time-intensive manual quality assurance evaluations and documentation performed by State agencies. This tool provides a format that 1) highlights the need to document the key information and procedures required by the existing EPA Federal Test Methods; 2) facilitates coordination among the source, the

test contractor, and the regulatory agency in planning and preparing for the emissions test; 3) provides for consistent criteria to characterize quantitatively the quality of the data collected during the emissions test; 4) standardizes the form and content of test reports; and 5) provides for future capabilities to exchange information in the reports electronically with facility, State or Federal data systems. In addition to improving the content and quality of source emissions test reports, the ERT should reduce the workload associated with manual transcription of information and data contained in the report, the resources required to store and access the reports; and redundant efforts in using the data for multiple purposes. The current version of the ERT is available for review and comment at http://www.epa.gov/ttn/chief/ert/ert_tool.html. In 2007, we plan to expand the capabilities of the tool to address EPA emissions testing methods for SO_2, NO_x, THC (Method 25A), metals, and halides. Contact: Ron Myers, MPG, myers.ron@epa.gov, 919-541-5407

- **Monitoring Knowledge Base** - EPA's Monitoring Knowledge Base (MKB) has been available on the CHIEF website for a few years (http://cfpub.epa.gov/mkb/). This interactive Internet tool provides a user-friendly compilation of information about air pollution control technologies and the monitoring techniques applicable for establishing the ongoing compliance operations of a range of air pollution control measures. The MKB presents the monitoring information is by industry type and by control technique. The initial version of the MKB focuses on the surface coating industries, including printing and publishing, and addresses the technologies and monitoring of activated carbon adsorbers, capture systems, catalytic oxidizers, compliant inks and coatings, condensers, cyclones, electrified filter beds, electrostatic precipitators, fabric filters, thermal oxidizers, and wet scrubbers for particulate and gaseous control. We are exploring enhancements to the tool to integrate the information with the RACT/BACT/LAER Clearinghouse and some of the permitting information sources (e.g., NSR, periodic monitoring). Contact: Barrett Parker, MPG, parker.barrett@epa.gov, 919-541-5635

- **Continuous Monitoring of Primary $PM_{2.5}$ -** We have underway a project to review the technologies available for monitoring continuously primary particulate matter from stationary sources including both filterable and condensable materials. Included in the review are continuous dilution sample collection systems used in combination with continuous mass measurements. We expect a report on the study with recommendations for future work in early 2007. Contact: Ron Myers, MPG, myers.ron@epa.gov, 919-541-5407

- **RACT/BACT/LAER Clearinghouse (RBLC)** – The RBLC (http://cfpub.epa.gov/rblc/htm/bl02.cfm) contains case-specific information on the "Best Available" air pollution technologies that have been required to reduce the emissions of air pollutants from stationary sources (e.g., power plants, steel mills, chemical plants, etc.). EPA has provided this vehicle for State and local permitting agencies to use to distribute this information. The Clearinghouse also contains a data base of State and local regulations and summarizes EPA emission limits required in New Source

Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), and Maximum Achievable Control Technology (MACT) standards. The RBLC also includes links to software tools (e.g., emissions modeling tools, databases) that can be used to estimate emissions, evaluate alternative control and prevention technologies, or identify less polluting materials. In 2006, we launched a Spanish language version of the RBLC providing Mexico and other Central and South American agencies, and many European agencies direct access to the databases including the ability to input data. In 2007, we plan to extend access to the data sources to Canadian national and provincial agencies. Contact: Iliam Rosario, MPG, rosario.iliam@epa.gov, 919-541-5308

- **Smart Leak Detection and Repair (Smart LDAR)** - The current work practice standard for assessing process equipment leaks under 40 CFR Parts 60, 61, and 63 requires the use of an instrument meeting the performance specifications of EPA Method 21. This work practice standard is based on 25-year-old techniques. Innovative technology is being developed which we believe can provide at least equal, if not better, environmental protection than that which is being provided by the current work practice. API has provided field tests and laboratory data to assist in demonstrating the performance of infra-red camera technology to image leaks from valves, flanges, compressors, and other similar equipment. On April 6, 2006 EPA published a regulatory proposal taking comment on a voluntary alternative work practice for finding leaking equipment using optical imaging. The comment period ended July 5, 2006 and promulgation is planned for late in 2007. Contact: Tom Logan, MTG, logan.thomas@epa.gov, 919-541-2580 and Bill Grimley, MTG, grimley.william@epa.gov, 919-541-2580

- **Fugitive VOC and Dust Emissions Measurement** – We are supporting efforts to characterize fugitive VOC and fugitive dust emissions more completely and accurately and examining policy implications of using such technology. We have conducted a stakeholder workshop in 2006 on the availability and capabilities of various testing and monitoring technologies including open path tools. We have published the results of the 2006 workshop which identified future work products and are planning a follow-on workshop for October 2007. Contact: John Bosch, MPG, bosch.john@epa.gov, 919-541-5583

- **CEMS Cost Model Update** – This model provides initial costs, annual operating costs, and QA/QC costs for continuous emissions monitoring systems (CEMS). The previous update of the model was done in 1995. A new update to the model was completed in September and includes costs for mercury CEMS and bag leak detection monitoring systems as well as updated cost values to other inputs to the model. The updated model was also converted to an MS Excel spreadsheet and has been recently posted on the EMC website. Contact: Dan Bivins, MTG, bivins.dan@epa.gov, 919-541-5244

- **Stationary Source Audit Program (SSAP) Database** - EMC has an electronic database

for use by Federal, State, Local, and Tribal Agency personnel to electronically order and receive pass/fail notice on audit samples. The database compiles the audit results in several report formats that allow the QA Team and Agency staff to review the results for particular types of audit samples. Currently, there are audit materials for Methods 6, 7, 8, 12, 13A and 13B, 23, 24 (inks and solvents), 25, 26, 26A, 29, 101A, and 315. Registration requests can be submitted to Candace Sorrell, MTG, Sorrell.candace@epa.gov, at the e-mail address or telephone number below. The EMC QA team also conducts teleconference calls on the first Tuesday in every month from 1:30-3:30 pm (EST) to discuss audit and other emission testing issues. Agendas and minutes for these conference calls can be obtained by contacting Candace. Contact: Candace Sorrell, MTG, Sorrell.candace@epa.gov, 919-541-1064

- **ASTM Activities** - EMC contacts participate as committee members on ASTM Subcommittees (e.g., D22-03 and E56-04) primarily to encourage development of new stack test methods where we anticipate a future need that is not met by a current EPA method. In addition, EPA considers all available voluntary consensus methods in the process of rulemaking and offers appropriate methods as regulatory alternatives. We have recently been participating in ASTM standard development efforts for: (1) a dilution sampling train method for measurement of PM fine including condensable PM, (2) an opacity measurement method based on digital camera technology, and (3) a bag leak detector protocol for application to cement plants. Contacts: Tom Logan, MTG, logan.thomas@epa.gov, 919-541-2580, Mike Toney, MTG, 919-541-5247, and Dan Bivins, MTG, bivins.dan@epa.gov, 919-541-5244