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OAQPS Measurement and Monitoring Projects – 2010/2011

Environmental Protection Agency
Office of Air Quality Planning and Standards
Air Quality Assessment Division, Measurement Technology Group (MTG)
Sector Policies and Programs Division, Measurement Policy Group (MPG)
(<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

- **Test Methods Update Rulemaking** – EMC has been cataloging errors and needed corrections to test methods, performance specifications, and associated regulations in 40 CFR parts 60, 61, and 63. Many of these needed revisions have been brought to our attention by affected parties and end-users. The corrections and revisions consist primarily of technical errors in equations and diagrams, the addition of alternative equipment or methods the Agency has found acceptable to use, removal of requirements to use mercury-in-glass thermometers, and typographical errors. Revisions are being made to Methods 2, 2A, 2D, 2E, 4, 5, 5E, 5H, 6, 6C, 7, 7A, 7E, 8, 10, 10A, 10B, 11, 12, 14A, 16A, 18, 23, 24, 25, 25C, 25D, 26, 29, 30B, 101A, 104, 108A, 306, 306A, 308, 315, and 316; Performance Specifications 1, 3, 4, 7, 11, and 16; and Procedure 2 of Appendix F. Proposal of these method revisions is planned for May 2011. Contact: Foston Curtis, MTG, curtis.foston@epa.gov.
- **Method 2H Revisions** – Method 2H describes the procedures to determine the decay of stack gas velocity near the wall of circular stacks. On August 25, 2009 (74 FR 42819), we proposed revisions to Method 2H to incorporate the improvements from CTM-041 for assessment of wall effects for rectangular stacks which have been frequently requested for use through the petition process of the Acid Rain Program. These revisions would allow Method 2H to address wall effects in rectangular stacks, allow multiple runs at a single load, decouple the wall effects testing from the RATA, and provide a mathematic formula for determination of a stack specific default wall effect adjustment factor. Comments were received on the proposal and promulgation is currently slated for late 2011. Contact: Jason DeWees, MTG, deweese.jason@epa.gov.
- **Method 16C - Determination of Total Reduced Sulfur Emissions from Stationary Sources** - Method 16C uses the sampling procedures of Method 16A and the analytical procedures of Method 6C to measure total reduced sulfur (TRS). TRS is defined as hydrogen sulfide, methyl mercaptan, dimethyl sulfide, and dimethyl disulfide. The sample is collected from the source through a heated probe and immediately conditioned in a citrate buffer scrubber. The conditioned sample is oxidized in a tube furnace to convert TRS to sulfur dioxide (SO₂). The oxidized sample is then analyzed for SO₂. Any analyzer that measures SO₂ and can meet the performance requirements in Method 6C may be used. Method 16C will allow testers to use analyzers and procedures for measuring TRS that they already have available and use in measuring criteria pollutants. Promulgation of this method is planned for late 2011. Contact: Foston Curtis, MTG, curtis.foston@epa.gov.
- **Method 23 Revisions** – Method 23 is used to measure emissions of polychlorinated dibenzo-dioxins and dibenzofurans from stationary sources. A number of years back, EPA's Office of Solid Waste and Emergency Response (OSWER) was began working with Yves Tondeur on revisions to SW-846 Method 8290A (analysis of samples including emissions samples for dioxins and furans) to make the method performance-based; at the same time, MTG was planning to revise Method 23 to take advantage of these analytical method advances. Following publication of their Methods Innovation Rule (70 FR 34538, 6/14/05) OSWER decided not to take this step. We now plan to codify a performance-based approach to

dioxin/furan analysis in 40 CFR Part 60. This will make it available for use with our Method 23 sampling procedures as well as for other sample analyses. We hope to have a draft of this method by late 2011/early 2012. Contacts: Ray Merrill, MTG, merrill.raymond@epa.gov, Jason DeWees, dewees.jason@epa.gov, and Robin Segall, segall.robin@epa.gov.

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

- **Performance Specification 11 Revisions and Guidance** – Specifications and Test Procedures for Particulate Matter Continuous Emission Monitoring Systems at Stationary Sources (PS-11) were promulgated on January 12, 2004 (69 FR 1786). Corrections and clarifications to the equations and confidence and tolerance interval calculations finalized on March 25, 2009 (74 FR 12575). The preamble to the 2009 revisions signaled forthcoming guidance on precision and bias, handling of paired train data, example calculations, spreadsheets, stratification, and auditing. As part of this commitment, we have recently posted a set of files on the EMC web page associated with PS-11 that includes a spreadsheet and instructions for evaluating correlation test data to demonstrate compliance with PS-11 as well as information on evaluation of response correlation audit (RCA) data and evaluation of particulate matter stratification in ducts and stacks, summary sheets on audit and routine system checks required by Procedure 2 for PM CEMS, and question and answer documents. In addition, the upcoming Test methods Update Rulemaking will include a number of clarifications and corrections to correlation equations in PS-11. Contact: Dan Bivins, MTG, bivins.dan@epa.gov.
- **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 (CAMR) on May 18, 2005 (70 FR 28606). When the court ordered vacatur of CAMR on March 14, 2008, most parties concluded that PS-12A was also vacated. In 2009, we re-proposed PS-12A in conjunction with amendments to the Portland Cement NESHAP requiring mercury emissions monitoring (74 FR 21136, 5/6/2009). PS-12A was finalized with the Portland Cement NESHAP on September 9, 2010 (75 FR 54970). Contacts: Bill Grimley, MTG, grimley.william@epa.gov and Robin Segall, MTG, segall.robin@epa.gov.
- **Performance Specification 12B** - Specifications and Test Procedures for Monitoring Total Vapor Phase Mercury from Stationary Sources Using a Sorbent Trap Monitoring System – Appendix K of 40 CFR Part 75 was promulgated as a sorbent trap monitoring alternative to continuous emissions monitoring in conjunction with the Clean Air Mercury Rule (CAMR) on May 18, 2005 (70 FR 28606). When the court ordered vacatur of CAMR on March 14, 2008, most parties concluded that Appendix K was also vacated. In 2009, we proposed a new Performance Specification 12B or PS-12B in conjunction with amendments to the Portland Cement NESHAP requiring mercury emissions monitoring, as a sorbent trap alternative to continuous emissions monitoring (74 FR 21136, 5/6/2009). PS-12B was finalized with the Portland Cement NESHAP on September 9, 2010 (75 FR 54970). Contacts: Bill Grimley, MTG, grimley.william@epa.gov and Robin Segall, MTG, segall.robin@epa.gov.
- **HCl CEMS Performance Specification** – EPA is in the beginning stages of developing an HCl CEMS performance specification. We are currently collecting information on what types of HCl CEMS are currently available, where they are installed, RATA testing methods and data, and any other helpful information available. We hope to propose an HCl performance specification by the end of 2012. If you have any helpful information or ideas that you can share, please send them to Candace Sorrell. Contacts: Candace Sorrell, MTG, sorrell.candace@epa.gov and Ray Merrill, MTG, merrill.raymond@epa.gov.

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

- **Procedure 5 - Quality Assurance Requirements for Vapor Phase Mercury Continuous Emission Monitoring Systems Used for Compliance Determination at Stationary Sources** – In 2009, Procedure 5 (69 FR 1786, 1/12/04) was proposed for on-going QA for PS-12A and PS-12B in conjunction with amendments to the Portland Cement NESHAP requiring mercury emissions monitoring. Like PS-12A and PS-12B, Procedure 5 was finalized with the Portland Cement NESHAP on September 9, 2010 (75 FR 54970). Contacts: Bill Grimley, MTG, grimley.william@epa.gov, 919-541-1065 and Robin Segall, MTG, segall.robin@epa.gov, 919-541-0893.

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 (69 FR 76642). We received comments from about fifteen parties, several of which were extensive. The final rule package is complete, is now moving through agency approval process, and we expect to promulgate the amendments this summer. Contact: Lula Melton, MTG, melton.lula@epa.gov.

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

- **Method 201A Revisions**, - Method 201A is used to determine in-stack PM₁₀ emissions using a cyclone or cascade impactor. On December 21, 2010 (74 FR 12970), we promulgated revisions to Method 201A specifying use of 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 PM₁₀ cyclone and the filter of the Method 201A train and stack gas would be sampled at a predetermined constant flow rate through the in-stack cyclones and filter. Contacts: Ron Myers, MPG, myers.ron@epa.gov, Jason DeWees, MTG, dewees.jason@epa.gov, and Ray Merrill, MTG, merrill.raymond@epa.gov.
- **Method 202 Revisions** – Method 202 is used to determine condensable particulate matter (CPM) emissions using the material collected in the impinger portion of the typical stack sampling train. The previous version of Method 202 described a variety of required and optional sampling and analysis procedures to determine the organic and inorganic components of CPM. On December 21, 2010 (74 FR 12970), we promulgated revisions to Method 202 intended to specify one prescriptive sampling and analysis procedure. The revised procedures are derived extensively from procedures in the previous version of Method 202, but also include a few new sampling and analysis techniques. We have demonstrated that use of the revised test method procedures results in a reduction of sulfate artifact formation and an increase in the data precision. Contacts: Ron Myers, MPG, myers.ron@epa.gov, Jason DeWees, MTG, dewees.jason@epa.gov, and Ray Merrill, MTG, merrill.raymond@epa.gov.

Source Category Approved Alternative Test Methods

These methods, published on the EPA/EMC 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, 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. Note that EPA staff may not necessarily be the technical experts on these methods.

- **Federal Register Notice on Broadly Applicable Alternative Test Method Approvals** -The first of these notices, published January 30, 2007 (72 FR 4257), announced broadly applicable alternative test method approval decisions that EPA had made prior to 2007 under and in support of the New Source Performance Standards and the National Emission Standards for Hazardous Air Pollutants. This notice announced our plans to issue broadly applicable alternative test method approvals in the future and to 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 provides information about options and flexibility for the regulated community that 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. Update announcements of the broadly applicable approval decisions for 2007, 2008, 2009, and 2010 were published in the Federal Register on April 7, 2008 (73 FR 18794), February 26, 2009 (74 FR 8791), February 22, 2010 (75 FR 7593), and February 22, 2010 (76 FR 9777). Contacts: Lula Melton, MTG, melton.lula@epa.gov, Jason DeWees, MTG, dewees.jason@epa.gov, and Robin Segall, MTG, segall.robin@epa.gov.

Other Test Methods

These methods, published on the EPA/EMC 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 EMC 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 in 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 now augmented our posting of Other Test Methods by including a table summarizing the supporting information available for each new method posted.*

- **OTM-15 - Measurement of Particulate Emissions and Heating Efficiency of Outdoor Wood-Fired Hydronic Heating (OWHH) Appliances** – This voluntary method was developed at the request of manufacturers, regulators, and laboratories for a consistent way to compare particulate matter results for those manufacturers who choose to have their units undergo testing. The method is based on Method 28, which is the Agency required procedure for wood heaters. The method has been revised from its original January 2007 format to specify dry wood use, to correct an equation, and to clarify stack requirements. Contact: Mike Toney, MTG, toney.mike@epa.gov, 919-541-5247.
- **OTM -029 - Sampling and Analysis for Cyanide from Stationary Sources** - CTM-033 has been significantly revised and is now OTM-29. OTM-29 is applicable to the collection and analysis of gaseous cyanide (as HCN) in the gas phase and in suspended water droplets. In this method, hydrogen cyanide (HCN) present in the stack gas stream reacts with sodium hydroxide (NaOH) to form a cyanide ion which is retained in the alkaline solution until analyzed by ion chromatography (IC). The method was revised to address issues related to maintaining a pH of ≥ 12 in the NaOH impingers during the test. Major modifications to the method include:
 - Increase the normality of the caustic solution used in the impingers to 6.0N.

- Increase the number of caustic impingers from two to three.
 - Measure the pH of each impinger solution at the end of the test. If the pH of the final NaOH impinger is < 12, the test is invalid.
 - Recover and determine the cyanide concentration of the final NaOH impinger separately. If the final impinger contains more than 5% of the total mass of cyanide captured, the test is invalid.
 - If the concentration of CO₂ in the gas stream is higher than 5%, measure the CO₂ concentration in the stack gas and at the outlet of the impinger train. Since the NaOH solution will remove some of the CO₂, the gas sampling rate must be adjusted to account for the CO₂ removed from the sample gas.
- Contact: Rachel Agnew, agnew.rachel@epa.gov.

- **Other Test Method for Passive Fenceline Monitoring for Fugitive and Area Sources** - We are in the process of developing an “Other Test Method or OTM” standard procedure to assess fugitive/area source emissions that uses sorbent tubes coupled with thermal desorption and gas chromatographic-based analysis. The method will address placement of sorbent tubes that passively accumulate volatile organic compound (VOC) from air at or near area or fugitive emission sources as well as the gas chromatographic analysis of the tubes. The first phase of the project includes standardizing the sampling and analysis method based on method performance seen in a study conducted at a refinery in 2009 and other relevant studies. The second phase of the project involves a three tiered cost effective implementation of the passive OTM to monitor fugitive and area source emissions at or near the fenceline of subject facilities. The portability and small size of typical sampling packages for passive sorbent-based sampling and the wide range of sorbent choices make this monitoring approach appealing for special monitoring studies of human exposure to toxic gases and the measurement of VOC from area or fugitive emission sources. In the future, the passive sorbent tube measurement approach may be combined with active sorbent tubes, canister-based monitoring methods, on-site auto GC systems, open path instrumentation, and other specialized point monitoring instruments to address most measurement evaluation needs for volatile organic gases. We’re targeting publication of the OTM on the EMC website for fall of 2011. Contacts: Ray Merrill, MTG, merrill.raymond@epa.gov and Jason DeWees, deweese.jason@epa.gov.
- **CTM-039 - Measurement of PM_{2.5} and PM₁₀ Emissions by Dilution Sampling (Constant Sampling Rate Procedures)** – This method uses the in stack cyclone separation described in OTM-027, 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. Working with stakeholders, we have collaborated on the use of paired train testing at a combined cycle turbine for precision testing using the method. Also, we have conducted paired train sampling for the purpose of assessing the precision of this method. We are analyzing test results, and we will prepare a report with our findings. Due to lack of resources, this project is on hold. Contacts: Ron Myers, MPG, myers.ron@epa.gov and Jason DeWees, MTG, deweese.jason@epa.gov.

Improving Emissions Monitoring through Rulemaking

- **Information Collection Requests (ICRs)** – ICRs are a means by which the Agency uses its authority under section 114 of the Clean Air Act to collect source emissions and operational data in order to assist rule development. Since the Agency lost a number of court cases due, in part, to a lack of data, OAQPS has issued multiple ICRs that included emissions testing for lead and aluminum plants, electric arc furnaces, ferroalloy facilities, brick and clay manufacturing, iron and steel plants, and others. We expect to issue possibly as many as 80 in the course of the next four years and about a third of those will require new emissions testing and require the use of the ERT to submit the data. In support of rule writers and their ICRs, MPG and MTG staff maintains FAQ and responses websites, hold webinars, expedite alternative monitoring requests, respond to telephone and email questions, and update the electronic reporting tool (ERT). Contact: Peter Westlin, MPG, westlin.peter@epa.gov.

- **Improving Compliance Monitoring through Rulemaking** – The Agency has recommitted to including monitoring to provide continuous compliance with emissions limitations and standards in all new and revised rules. Where feasible and practical, we have and will apply continuous emissions monitoring systems to measure the pollutant of interest and relevant surrogates. Some examples were recently published in the Portland cement MACT including: the use of sorbent trap monitoring for Mercury using Performance Specification 12A, continuous total hydrocarbon emissions monitoring using Performance Specification 8, particulate matter CEMS using Performance Specification 11, and HCl CEMS using Performance Specification 15 when the devices become available. The Portland cement MACT and others also rely on parametric monitoring with enforceable operating limits tied to the results of emissions testing. Recent rules include provisions for conducting quality assurance, quality control, and data availability determinations and for calculating average values for parametric monitoring systems. Combined with periodic performance testing and these operating provisions, these rules have established enforceable conditions of monitoring as well as enforceable operating limits separate and complementary to emissions limits. We also expect to apply new monitoring technology including fence-line continuous and periodic sampling and analyses in rules to come. Contact: Peter Westlin, MPG, westlin.peter@epa.gov.

Emissions Factors Improvement

- **Emissions Factors Program Improvement Projects** - We continue to implement our multi-part process to improve the air pollutant emissions factors (EF) program and to make the program self-sustaining. In order to acquire adequate data for regulation development, improvement of EF, and other air pollution control activities, we sought comment on requiring the electronic submission of certain performance testing information already collected by industry to EPA (Advance notice of proposed rulemaking published on October 14, 2009: 74 FR 52723). We continue to work on developing this rule (now called the Compliance Data Submittal Rule), but have expanded the scope to include electronic submission of excess emission reports, notification of compliance reports, and summary reports (parts 60 and 63). We plan to propose this rule sometime this summer. Contact: Tom Driscoll, MPG, driscoll.tom@epa.gov.
- **Recommended Procedures for Development of Emissions Factors and Use of the WebFIRE Emissions Factor Database** - MPG posted these draft procedures for comment on December 17, 2010 at <http://www.epa.gov/ttn/chief/efpac/procedures/index.html> (Comment period ends March 17, 2011). This guidance document describes the procedures, data evaluation criteria, and associated tools and data management systems that the EPA recommends for developing air pollutant emissions factors for stationary emissions units or processes. When finalized, it will supersede the previous EPA guidance document for emissions factor development (Procedures for Preparing Emission Factor Documents (EPA-454/R-95-015, November 1997)). The document presents an introduction to emissions factors and provides the historical background for how and why the EPA has developed recommended emissions factors for stationary emissions units or processes. It describes the new approach and procedures that EPA will follow when developing new or revising existing emissions factors. It also provides an overview of EPA's interactive emissions factors database, WebFIRE (<http://cfpub.epa.gov/webfire>), and a discussion of the role the Electronic Reporting Tool (ERT) <http://www.epa.gov/ttn/chief/ert/ert_tool.html> plays in submitting emissions test data to EPA. Some details of the new approach are:
 - How to submit data to WebFIRE
 - How emissions factors are retrieved from WebFIRE
 - How WebFIRE is used to develop emissions factors (Determining emission factor values and emission factor quality characterization, evaluating any below detection limit (BDL) data, conducting outlier analysis)
 - When and how to develop a user-defined EF, and
 - How the data review and public participation process works
 Contact: Michael Ciolek, ciolek.michael@epa.gov.

- **Source Classification Code Improvement Project** - EPA is in the process of updating and improving the Source Classification Code (SCC) system. The objective of this project is to correct issues such as: disorganization, duplicate SCCs, “miscellaneous” and “other” categories (which don’t effectively classify the emission process), outdated SCCs, and inconsistencies in the level of detail the SCCs provide. A cross-walk linking retired SCCs to revised SCCs will be developed to help users find the appropriate SCC. The second stage of this project is to develop a structured methodology for creating new SCCs. Contact: Rachel Agnew, agnew.rachel@epa.gov.

Tools for Improved Monitoring and Testing

- **Electronic Reporting Tool (ERT)** – In early 2006, EPA made available a Microsoft Access© desktop application, called the ERT which is an electronic alternative to paper reports documenting EPA's emissions measurement Methods. The goals and benefits of the ERT include:
 - Reduced time and resources used to transcribe the data from paper to electronic format
 - Consistent reporting from all sources
 - Broader and more efficient sharing among EPA, State/Local, and Tribal agencies
 - Automatic internal QA checks
 - Optional completeness review (third party) may be made by regulatory agencies
 - Increased compatibility with source testers and laboratories’ electronic databases

The ERT has been placed into operation via several ICRs, and electronic submission of test reports, as well as excess emissions reports, summary reports, and notification of compliance reports will be proposed in the Compliance Data Submittal Rule (Spring or Summer 2011). Some additional Methods were added in 2010: Method 5B, 5F, 12, 13A and 13B. We are continually reviewing comments we receive and making improvements accordingly to the ERT as well as making modifications to handle the compliance data that we will be proposing to be submitted electronically. Updates to the ERT can be found at <http://www.epa.gov/ttn/chief/ert/updatehistory.pdf>. To download the ERT, access the user’s manual, or learn about training opportunities, please visit http://www.epa.gov/ttn/chief/ert/ert_tool.html. Contacts: Ron Myers MPG, myers.ron@epa.gov and Rachel Agnew, agnew.rachel@epa.gov.

- **Emissions Estimation of Biogenic Greenhouse Gas Emissions Document** - In reviewing the general availability of GHG emissions estimation methods for different types of sources that may be potentially affected by Clean Air Act requirements, the EPA identified several gaps in the availability of technical guidance for the estimation of emissions for certain source categories. For example, while EPA’s mandatory reporting rule for GHGs contains estimation methods for methane from landfills, it does not contain methods for carbon dioxide (CO₂) emissions from landfills. This technical guidance document describes emissions estimation techniques for greenhouse gas (GHG) air emissions from solid waste disposal, wastewater treatment, ethanol fermentation, and all anthropogenic source categories that can produce GHG emissions through biological processes involving living organisms (i.e., biogenic emissions). See <http://www.epa.gov/ttn/chief/efpac/ghg/index.html>. Contact: Tom Driscoll, MPG, driscoll.tom@epa.gov.
- **Stationary Source Audit Program (SSAP) and EMC QA Conference Call** – Audit samples have historically been used as one quality assurance element in evaluating the validity of compliance test data. In the past, there were no private entities who supplied stationary source emissions test audit samples, so EPA provided them free of charge to the regulatory agencies responsible for overseeing compliance testing (state and local agencies and EPA Regional Offices). Over the past few years with the emergence of accreditation programs, there has been an increasing need for such samples, and a number of private providers have emerged. EPA believes it is no longer necessary for it to supply audit samples and, therefore, has decided to restructure the audit program to allow private accredited suppliers to provide audit samples to industries for use in compliance testing at stationary source facilities. To accomplish this shift in the stationary source audit program, we have promulgated amendments (75 FR 28 55636; 8/13/2010) to the general provisions of 40 CFR Parts 60, 61, 63, and 51 that will (1) allow accredited providers to supply

stationary source audit samples and (2) require affected sources to obtain these samples from the accredited providers and use them in their compliance testing programs. This program restructuring will likely increase the number, types, and concentration ranges of audit samples available and will clarify how the samples are to be obtained and used. The EMC website will be updated as accredited audit sample providers and new audit samples become available.

The EMC QA team also conducts teleconference calls on the first Monday of every month from 1:30-3:30 pm (EST) to discuss auditing and other emission testing issues. Since the EPA audit program no longer exist, the call will concentrate primarily on testing issues. Agendas for these conference calls can be obtained by contacting Candace Sorrell. Contact: Candace Sorrell, MTG, sorrell.candace@epa.gov.

- **Fenceline Monitoring of Metals** – EMC has completed a project to evaluate X-Ray fluorescence technology as a fence line and mobile “hot spot” ambient monitor. The use of X-Ray fluorescence technology has been proven at the source level as a continuous emissions monitoring system (CEMS). These X-Ray fluorescence CEMS have been redesigned with a PM₁₀ inlet and a more sensitive analyzer (tube and detector) will be tested in several scenarios for various point and area sources. The monitor in a mobile platform was evaluated against two Federal Reference Method (FRM) ambient PM monitors (with subsequent metals analysis of the PM filters) to determine ruggedness, relative accuracy, and precision. It was also assessed for use as a “hot spot” monitor and combined with a MET station as a fence line monitor. We examined its use for source apportionment in 2008 near an electric melting source in Portland, OR and ran the study to assess accuracy and precision against the FRM in the St. Louis and Herculaneum, MO areas during 2009. Contact: Dan Bivins, MTG, bivins.dan@epa.gov.
- **PM 2.5 Method/CEMS Development for Wet Stacks** - The goal of this project is development of an instrumental test method and a PM 2.5 monitor that will perform under wet stack conditions. The development of this method and technology is important for the SIP PM fine implementation program and for emission factor development. The PM 2.5 CEMS utilizes an in-stack droplet separator, followed by a dilution chamber with an ambient air Federal Reference Method or FRM at the end for PM 2.5. The prototype CEMS has been successfully evaluated under dry stack conditions and is now being tested under wet stack conditions. If the wet stack testing proves successful, then test and monitoring protocols will be developed. Contact: Dan Bivins, MTG, bivins.dan@epa.gov and Jason DeWees, deweese.jason@epa.gov.
- **Upstream Oil and Gas Emissions Measurement Project** – Volatile organic compound (VOC), HAP and GHG emissions from upstream oil and gas production have become of interest due to ozone NAAQS exceedences in areas with significant increases in oil and gas production, the possible risk implications, and future GHG regulations. MTG and EPA/ORD staff have been working together to quantify VOC, HAP and GHG emissions from upstream oil and gas production operations to better characterize emissions from this sector. In 2008, the first phase of this project was conducted to measure emissions from two produced water treatment facilities. The report of that work is available on the EPA website at: http://cfpub.epa.gov/si/si_public_record_Report.cfm?dirEntryId=213869 In August of 2009, we conducted preliminary drive-by measurements of multiple production pads in Colorado in EPA Region 8 using a very fast and sensitive methane point monitor coupled with wind and GPS measurements on a mobile platform. We found this combination to be extremely effective in detecting emissions from these sources. In 2010, we conducted field campaigns in Greeley, CO and Fort Worth, TX to further develop this mobile assessment approach that allows for drive-by measurement of potential sources without the necessity of gaining site access. The technique uses a sensitive, very high time resolution methane instrument, advanced wind measurements, and a precise global positioning system all on a mobile platform to map and measure emissions of methane. Other VOC are estimated through SUMMA canister ratio calculations. We hope to have a draft measurement protocol by the end of 2011. Contacts: Jason DeWees, deweese.jason@epa.gov, Robin Segall, segall.robin@epa.gov, and Eben Thoma, ORD NRMRL, thoma.eben@epa.gov.
- **Large Area Source Remote Emissions Measurement** – In work with EPA’s ORD, we have found that large area sources present challenges to our remote measurement approaches. This project is focused on development of methodology for testing large area sources such as landfills that are generally larger than

the optical path lengths provided by current remote sensing technology including open path Fourier transform infrared and tunable diode laser instruments. We are working on two different approaches for measurement of these sources. The first approach is a planned addendum to Other Test Method 010 (OTM-010) for large area sources. This approach uses an estimated “fetch” of the vertical radial plume mapping plane located inside a large area source. The estimated fetch is used to determine how much area would contribute to the flux measured by the OTM-010 measurement plane. This technique works best with an area source with a homogeneous emission profile. The approach has been described in a conference paper and we plan to draft and publish the addendum to OTM-010 later this year. The second approach uses quantified releases of tracer gas within the large area source. The tracer and component of concern are then measured downwind using a sensitive point monitor installed in a mobile platform such as an SUV; measurements are made as transects or at a stationary point within the plume. The total mass emission of the component of concern can then be calculated using the ratio between the tracer and component. We are planning to analyze additional tracer gas data and will likely publish a protocol later this calendar year. Contacts: Jason DeWees, dewees.jason@epa.gov, Eben Thoma, ORD NRMRL, and Robin Segall, segall.robin@epa.gov.

- **QA Handbook for Remote Measurement and Monitoring of Stationary Sources of Emissions** – We have started work on a compendium of remote measurement and monitoring techniques applicable to stationary sources. This handbook will address technologies and measurement approaches utilizing these technologies, including example DQO/MQOs and QAPPs, applicability of the approaches, strengths and limitations, and summarize the verification and validation data available. A first external draft will be available by spring 2011. Contacts: Dennis Mikel, mikel.dennisk@epa.gov, Jason DeWees, dewees.jason@epa.gov, Ray Merrill, merrill.raymond@epa.gov, and Robin Segall, segall.robin@epa.gov.
- **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) methods for low mass fireplaces, masonry heaters, hydronic heaters, and pellet stoves; (2) a dilution sampling guideline for measurement of PM fine including condensable PM; (3) an opacity measurement method based on digital camera technology which has now been published (see below); and (4) a bag leak detector protocol for application to cement plants. Contacts: Mike Toney, MTG, Dan Bivins, MTG, bivins.dan@epa.gov, and Jason DeWees, MTG, dewees.jason@epa.gov.
- **ASTM D7520 - 09 Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere (DCOT) Digital Camera Opacity Technique** - This test method describes the procedures to determine the opacity of a plume caused by particulate matter emitted from a stationary point source using digital imagery and associated software and hardware. The opacity is determined by the application of a Digital Camera Opacity Technique (DCOT) that consists of a Digital Still Camera, Analysis Software, and an Output Function to obtain and interpret digital images to determine and report plume opacity. The positioning of the camera is similar to the observer requirements of Method 9 (40 CFR 60, Appendix A), as are the reporting requirements. MTG has already approved this method as an alternative to Method 9 when required under 40 CFR Parts 60 and 63 for Hill Air Force Base and will be considering broader approval in the near future and also application of the method in future regulations. Contact: Jason DeWees, MTG, dewees.jason@epa.gov.