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## OAQPS Measurement and Monitoring Projects

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

- **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). Additional technical corrections were needed, and we published a direct final rulemaking package on September 7, 2007 (72 FR 51365). This package was withdrawn in order to respond to numerous public comments. We published a revised final rulemaking package of technical corrections on May 22, 2008 (73 FR 29691). We are currently working on a Federal Register correction notice to correct printing errors. Contact: Foston Curtis, MTG, [curtis.foston@epa.gov](mailto:curtis.foston@epa.gov), 919-541-1063.
- **Method 2H Revision** – Method 2H describes the procedures to determine velocity decay near the wall in circular stacks. The revisions to Method 2H will incorporate the improvements from CTM-041. CTM-041 was posted to the EMC website in 2004 and has been used frequently through the petition process of the Clean Air Markets Division for assessment of wall effects for rectangular stacks. The improvements from CTM-041 will 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. The proposal is currently slated for 2009. Contact: Jason DeWees, MTG, [deweese.jason@epa.gov](mailto:deweese.jason@epa.gov), 919-541-9724.
- **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 secured 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 2010. 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 2010. 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 was working to get it accepted as an ASTM standard; however, this ASTM workgroup dissolved and the ASTM process for the standard stopped. 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)** – Method 30A is an instrumental test method designed to measure vapor phase mercury and is performed based. It is applicable to emission testing and relative accuracy testing of mercury monitoring systems. Method 30A was published in the Federal Register (72 FR 51494, 9/7/07) and became effective November 6, 2007. 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 measures total vapor phase mercury and is applicable to mercury emissions measurement and relative accuracy testing of mercury monitoring systems. Method 30B relies integrated sampling using carbon sorbent traps and analysis using an extractive or thermal sample preparation 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. Method 30B was published in the Federal

Register (72 FR 51494, 9/7/07) and became effective November 6, 2007. 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 the 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 (CAMR) on May 18, 2005 (70 FR 28606). When the court ordered vacatur of CAMR on March 14, 2008, most parties assumed that PS-12A was also vacated. EMC will be looking into options for promulgating performance specifications for mercury CEMS once EPA determines its new course of action with regards to mercury regulations. 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<sub>x</sub> 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 in March or April 2009. Contact: Foston Curtis, MTG, curtis.foston@epa.gov, 919-541-1063.
- **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. There are also requirements for the operator to stay within site-specific or rule-specific operating ranges. We recognized the need for more-detailed performance specifications

for installing, operating, and maintaining these parametric monitoring systems (e.g. temperature, pressure, pH, liquid flow, conductivity) and prepared a proposed rule, which was published on October 9, 2008 (73 FR 59956).

That proposal also included minor amendments to Quality Assurance Procedure 1 for CEMS used to monitor multiple pollutants, minor changes to the general provisions of parts 60, 61, and 63 to ensure consistency, and changes to the current national emissions standards for closed vent systems, control devices and recovery systems to ensure consistency. The comment period closed February 5, 2009, and we are beginning to prepare responses to comments. We plan to promulgate the requirements in late 2009. 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 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 2009. 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<sub>10</sub> emissions using a cyclone or cascade impactor. Planned revisions will specify a PM<sub>2.5</sub> cyclone from a conventional five-stage cascade cyclone train to allow measurement of PM<sub>2.5</sub>. The PM<sub>2.5</sub> cyclone would be inserted between the PM<sub>10</sub> 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. Proposal of the Method 201A revisions (which will ultimately replace CTM-040) is planned for early 2009. The method that is expected to

be proposed is posted to the Other Test Methods web page as OTM-27. Contact: Jason DeWees, MTG, dewees.jason@epa.gov, 919-541-9724 and/or Ron Myers, MPG, myers.ron@epa.gov, 919-541-5407.

- **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 existing Method 202 describes a variety of required and optional sampling and analysis procedures to determine the organic and inorganic components of CPM. We intend that the proposed method specify one prescriptive sampling and analysis procedure. The new revised procedures derive extensively from specified or optional procedures in the existing promulgated Method 202 but also include a few new sampling and analysis techniques. We have demonstrated that the revised test method results in a reduction of sulfate artifact formation and an increase in the data precision. We plan to propose method revisions (which will ultimately replace CTM-039) early in 2009. The basis for the proposed method is posted to the Other Test Methods web page as OTM-28. Contact: Jason DeWees, MTG, dewees.jason@epa.gov, 919-541-9724 and Ron Myers, MPG, myers.ron@epa.gov, 919-541-5407.
- **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 was published as a direct final rule for addition to Appendix M on May 29, 2008 (73 FR 30775). No adverse comments were received and the rule became effective on June 30, 2008. 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 (available on the EMC website) to the Corn Refiner's Association, who represent the corn wet-millers, explaining how EPA 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 dryers 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 late 2009 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](http://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** - 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 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. An update announcement of the broadly applicable approval decisions for 2008 was published in a Federal Register on February 26, 2009 (74 FR 8791). Contact: Robin Segall, MTG, segall.robin@epa.gov, 919-541-0893 and Jason DeWees, MTG, dewees.jason@epa.gov, 919-541-9724.

## Other Test Methods

These methods (see EPA website at [www.epa.gov/ttn/emc/tmethods.html](http://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 recently augmented our posting of Other Test Methods by including a table summarizing the supporting information available for each new method posted.*

- **OTM-10 - Optical Remote Sensing for Emission Characterization from Non-Point Sources** – From 2002 to 2005, EMC participated in a Department of Defense 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 2006 and has been used in a number of recent projects involving measurement of pollutants from the landfills, agricultural sources, and a chlor-alkali plant. In coordination with EPA's Office of Research and Development, we initiated a project to optimize application of the OTM-10 to very large area sources such as landfills. We expect the outcome of this project to be an appendix to OTM-10, which we plan to publish in 2009, describing additional calculations to be used in determination of emission flux. Contact: Robin Segall, MTG, [segall.robin@epa.gov](mailto:segall.robin@epa.gov), 919-541-0893, Jason DeWees, MTG, [deweese.jason@epa.gov](mailto:deweese.jason@epa.gov), 919-541-9724 and Eben Thoma, ORD NMRML, 919-541-7969.
- **OTM-11** – This method was promulgated as Method 207 (see prior discussion concerning Method 207 on page 5).
- **OTM-12** – This method will be proposed as Method 208 (see prior discussion concerning Method 208 on page 5).

- **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, MTD, [toney.mike@epa.gov](mailto:toney.mike@epa.gov), 919-541-5247.
- **CTM-039 - Measurement of PM<sub>2.5</sub> and PM<sub>10</sub> Emissions by Dilution Sampling (Constant Sampling Rate Procedures)** - This method uses the in stack cyclone separation described in CTM-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<sub>2.5</sub> 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. Contact: Ron Myers, MPG, [myer.ron@epa.gov](mailto:myer.ron@epa.gov), 919-541-5407 and Jason DeWees, MTG, [dewees.jason@epa.gov](mailto:dewees.jason@epa.gov), 919-541-9724.
- **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: Jason DeWees, MTG, [dewees.jason@epa.gov](mailto:dewees.jason@epa.gov), 919-541-9724.

### **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 for both statutory monitoring requirements and operating permits issued under title V of the Act. We also requested comment on ways to update and/or 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 to update emissions monitoring and testing provisions in parts 60, 61, and 63. We expect to target those regulations where

monitoring would improve assurance of significant emissions reductions. Currently, we are evaluating the parts 60 and 63 regulations as required by the Clean Air Act to determine whether updates/revisions (including emissions monitoring and performance testing) are needed. Contact: Tom Driscoll, MPG, driscoll.tom@epa.gov, 919-541-5135.

- **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 and apply 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 new monitoring, as needed, to provide a reasonable assurance of compliance with applicable requirements. The draft rule revisions documents are currently undergoing internal review and proposal may be this spring or early summer. Public review and comment will follow rule proposal. Contact: Peter Westlin, MPG, westlin.peter@epa.gov, 919-541-1058.

## **Emissions Factors Improvement**

- **Revisions to WebFIRE, ERT, and the emissions factors development process in general**

We are implementing a multi-part process to improve the emissions factors program. The first part involves further development of the existing electronic reporting tool (ERT) to make it easier for S/L/Ts, industry, and other stakeholders to accept, assess the quality of, and transmit emissions test data. The second part involves upgrading the AP-42 factors information compilation and retrieval system, to an interactive internet application named WebFIRE that is easy to use and expand. Additionally, we are rewriting the emissions factors development procedures document to reflect the new redesigned emissions factor program.

In order to acquire data adequate for the development or improvement of the emissions factors, we are proposing to require the submission of certain performance testing information by industry via electronic reporting. This latter element of the process of improving the emissions factors program will require formal rulemaking and will encompass that testing required by Federal rules codified in 40 CFR Parts 60, 61, and 63. Implementing this multi-part effort will result in a self-sustaining emissions factors program receiving ongoing data submittals to improve emissions factors for regulatory authorities and others to use in: (1) developing emissions inventories, (2) updating emissions standards, (3) identifying and evaluating control strategies, (4) determining applicability of permit and regulatory requirements, (5) assessing risks, and (6) other air pollution control activities. We are preparing an advanced notice of proposed

rulemaking requesting comment on all aspects of our redesigned emissions factor program including the concept of requiring performance tests required in parts 60, 61, and 63 to be submitted to OAQPS to update emissions factors and provide data for regulation development. Contact: Tom Driscoll, driscoll.tom@epa.gov, 919-541-5135.

- **WebFIRE** – The Factors Information Retrieval system (WebFIRE)  
(<http://cfpub.epa.gov/oarweb/index.cfm?action=fire.main>)

EPA operates and maintains WebFIRE, an internet-based ColdFusion application that combines AP-42, the *Compilation of Air Pollutant Emission Factors*, and FIRE, the Factor Information Retrieval Data System, as a means to distribute factors. WebFIRE is used by local, state, and federal agencies, environmental consultants and others who require emissions factor information for estimating emissions from stationary sources. WebFIRE currently exists as a database containing EPA's emission estimation factors for criteria and hazardous air pollutants and greenhouse gases. Users can browse through records in the database or select specific emission factors by source category, source classification code (SCC), pollutant name, CAS number, or control device. Consolidation to a web application using ColdFusion allows the database to be updated more frequently, keeping pace with updates to AP-42 as well as allowing for the addition of new SCCs and emissions factors for use in the EPA's National Emission Inventories.

As part of an overall EPA strategic plan for addressing shortcomings of the current emission factor program and to improve overall program quality and usefulness, EPA is planning to enhance the functionality of the WebFIRE tool and the associated emissions factors Procedures Document that guides the user community on how to develop and supply factors to EPA. This project addresses both of these objectives, as the two activities go hand in hand. Tasks pertaining to each primary objective are described below.

Currently, the WebFIRE database system acts as a web-based repository for all of EPA's emissions factors information. It contains all of the factors from AP-42, and numerous other factors derived from various sources including *Locating & Estimating Documents*, state test reports, and journal articles. Currently, users can only enter search terms and retrieve emission factors from the system. In this project, several activities will be performed to increase the functionality of WebFIRE beyond just being a data repository. Specifically, we are considering the addition of the following functions:

- Automatically calculating the arithmetic means of retrieved data and specifying the minimum and maximum of the data range. Users will also be able to retrieve a record of the data used to compile averages for future documentation purposes.
- Easy retrieval through the user interface of background reports and other documentation for AP-42 emission factors.
- Increasing the size of the equation field so that larger images for more complex equations can be used.

- Automatically assigning emission factor quality ratings based on the number of emission source tests of a given assigned quality that are used to derive a factor.

Contact: Michael Ciolek, MPG, ciolek.michael@epa.gov, 919-541-4921.

- **WebFIRE Emissions Factors Updates**

We updated and added several sections to AP-42. 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 and/or activities planned for 2009 include:

- Iron and steel minimills – We finalized emissions factors in December 2008. (Mike Ciolek)
- Ordnance detonation – We continue to develop final and new draft sections describing the weapons and the emissions produced by detonation including criteria pollutants, CO<sub>2</sub>, and hazardous and toxic pollutants. (Mike Ciolek)
- Fugitive Dust Emissions from Paved and Unpaved Roads – The Corn Refiners Association has submitted data for developing emissions factors for paved roads at low speeds. (Ron Myers)
- Refineries – We are working with industry representatives to develop formaldehyde emissions factors for catalytic cracking units at petroleum refineries. (Mike Ciolek)
- Rubber Manufacturing – We posted revised emissions factors for comment in December 2008. Comments are due by February 5, 2009. We recently met with the Rubber Manufacturing Association to discuss the proposed section. (Barrett Parker)
- Landfills – We collected and compiled data for new and revised emissions factors that are posted for comment. The comment period was recently extended until May 1, 2009. (Tom Driscoll)
- Taconite Ore industry – We are developing emissions information for larger weight vehicles for unpaved roads. (Ron Myers)
- Coke Ovens – We finalized emissions factors for all emissions points in May 2008. (Mike Ciolek)

Contacts: Michael Ciolek, MPG, ciolek.michael@epa.gov, 919-541-4921; Ron Myers, MPG, myers.ron@epa.gov, 919-541-5407; Tom Driscoll, MPG, driscoll.tom@epa.gov, 919-541-5135; and Barrett Parker, MPG, parker.barrett@epa.gov, 919-541-5635.

## **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 and Local Air Pollution Control 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 will 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](http://www.epa.gov/ttn/chief/ert/ert_tool.html).

In 2008, we expanded the capabilities of the tool to address EPA emissions testing methods for SO<sub>2</sub>, NO<sub>x</sub>, THC (Method 25A), metals, and halides. In 2009, we plan to evaluate expanding the capabilities of the tool to address EPA emissions testing methods for dioxin and furans (Method 23) with potential for performing PAH compounds. In addition, we plan to evaluate automatic importing of several calibration and QA components, expanded file export capabilities and transmission of the ERT data through EPA's Central Data Exchange. Contact: Ron Myers, MPG, [myers.ron@epa.gov](mailto: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 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 opened the RBLC to Canada and Mexico so they could enter their permitting data. The Spanish language version of the RBLC is now available to all. In addition, country specific versions of the RBLC standalone data entry program are also available thus allowing both Mexico and Canada the ability to input data.

In 2007, the RBLC initiated the RBLC Efficiency Upgrade and Security Enhancements (REUSE) project. The goal of this two year effort is to upgrade the RBLC internal

programming replacing antiquated code, to improve some of the system features like data formatting and various search functions, and to allow the RBLC to start collecting test method data from State and local permits. This project is currently scheduled to be completed in late 2009. 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 (IR) camera technology to image leaks from valves, flanges, compressors, and other similar equipment. The final rule was published and became effective on December 22, 2008 (73 FR 78199). In addition, the Environmental Technology Verification (ETV) Program sponsored by EPA's Office of Research and Development has recently completed an evaluation of two of these commercially available camera technologies. When the report becomes available, it can be found at <http://www.epa.gov/etv/este.html>. Contact: Bill Grimley, MTG, grimley.william@epa.gov, 919-541-2580.
- **Fugitive VOC and Dust Emissions Measurement** – We continue to focus on more complete and accurate characterizations of fugitive VOC and fugitive dust emissions. We also continue to examine policy implications of using such technology. We are holding numerous stakeholder workshops on the availability and capabilities of various testing and monitoring technologies using open path optical remote sensing tools. Contact: Tom Driscoll, MPG, driscoll.tom@epa.gov, (919) 541-5135.
- **Stationary Source Audit Program (SSAP)** - 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, at the e-mail address or telephone number below.

In the past, there were no private entities supplying 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 feels it is inappropriate for it to compete with private entities 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. This will not only take EPA out of ‘competition’ with private providers, but will actually increase the number, types, and concentration ranges of audit samples available. To accomplish this shift in the stationary source audit program, EPA plans to add language 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.

The EMC QA team also conducts teleconference calls on the first Monday of every month from 1:30-3:30 pm (EST) to discuss audit and other emission testing issues. Agendas 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 guideline 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: Mike Toney, MTG, 919-541-5247, Dan Bivins, MTG, bivins.dan@epa.gov, 919-541-5244, and Jason DeWees, MTG, dewees.jason@epa.gov, 919-541-9724.
- **Fence Line Monitoring of Metals** – EMC has a project underway 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 PM<sub>2.5</sub> inlet and will be tested in several scenarios for various point and area sources. These scenarios include source apportionment using modeling, use of the monitor in a mobile platform to determine ruggedness, and evaluate its use as a “hot spot” monitor, and combined with a MET station as a fence line monitor. We tested this source apportionment scenario in 2008 near an electric melting source in Portland, OR and plan to run another project in the Indianapolis area during 2009-2010 timeframe. Contact: Dan Bivins, MTG, bivins.dan@epa.gov, 919-541-5244.
- **Greenhouse Gas (GHG) Mandatory Emissions Reporting Rule** - The FY2008 Consolidated Appropriations Amendment, signed by the President on December 26, 2007, “... authorizes EPA to develop and publish a draft rule (no later than 9 months after the date of enactment of the amendment, September 2008) and a final rule (no later than 18 months after the date of enactment of the amendment, September 2009) to require mandatory reporting of GHG emissions above appropriate thresholds in all sectors of the economy. EPA was further directed to (1.) include in the rule reporting of

emissions resulting from upstream production and downstream sources, to the extent appropriate, and (2.) determine appropriate thresholds of emissions above which reporting is required, and how frequently reports shall be submitted to EPA. A GHG Mandatory Reporting Rule has been drafted and is moving through the regulatory process. MPG's role in this project will be to evaluate and work with stakeholders to develop better emissions factors and to review data submissions as needed. Contact: Tom Driscoll, MPG, driscoll.tom@epa.gov, (919) 541-5135.

- **Upstream Oil and Gas Emissions Measurement Project** – An MTG and Office of Research and Development team has begun a project to quantify VOC and GHG emissions from upstream oil and gas production to help fill the knowledge gaps that currently exist. These knowledge gaps in VOC and GHG emissions from upstream oil and gas production have become of interest due to ozone exceedances in areas with significant increases in oil and gas production, possible risk implications, and future GHG regulations. In 2008, the first phase of this project was conducted to measure emissions from two produced water treatment facilities. We expect to continue this project in 2009-2010. Contact: Jason DeWees, dewees.jason@epa.gov, (919) 541-9724 and/or Robin Segall, segall.robin@epa.gov, (919) 541-0893.
- **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 such as OTM-10 that are applicable to stationary sources. This handbook will comprise of a summary of technologies and approaches available, example DQO/MQOs and QAPPs, applicability of the approaches, and summarize the verification and validation data available. Contact: Dennis Mikel (919) 541-5511.