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OAQPS Measurement and Monitoring Projects – 2016/2017

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/emc)

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 Rulemakings –** We continually collect and catalogue errors and other needed revisions to our test methods, performance specifications, and associated regulations in 40 CFR parts 51, 60, 61, and 63. Many of these needed revisions are brought to our attention by affected parties and end-users. Our most recent Test Method Update Package was proposed on September 8, 2015 (80 FR 54146) and finalized on August 30, 2016 (81 FR 59800). This rulemaking includes updates to Methods 1, 2, 2G, 3C, 4, 5, 5H, 5I, 6C, 7E, 10, 10A, 10B, 15, 16C, 18, 25C, 26, 26A, 29, 30A, 30B, 107, 201A, 202, and 320; Performance Specifications 1, 2, 3, 4A, 11, 15, and 16; and Procedure 2 of Appendix F. The package consists primarily of corrections to technical errors in equations and diagrams and typographical errors and the addition of alternative equipment, procedures or methods the Agency has found acceptable to use. In addition, we have also amended the General Provisions to 40 CFR Parts 60, 61, and 63 to be more specific regarding the reporting of emissions test data and supporting information in test reports and amended 40 CFR 60, Subpart JJJJ to require reporting of all quality assurance/quality control (QA/QC) data for total VOC testing of engines. We are currently compiling revisions in preparation for our next proposal of test method updates which is planned for this spring/summer. Contact: Lula Melton, MTG, melton.lula@epa.gov.

- **Planned Test Method Updates** – In proposing and finalizing our most recent Test Methods Update rulemaking, the Agency identified a need for a list of volatile organic compounds (VOC) emitted by the affected engines to optimize the using of speciating VOC test methods (e.g., Methods 18, 320 and ASDT D 6348-03) in demonstrating compliance with the VOC limits in 40 CFR 60, Subpart JJJJ. To this end, we have formed a stakeholder group to address compiling such a list. Once a list is compiled, we will consider amending Subpart JJJJ to include the list as part of the testing provisions in the rule.
  Contact: Dave Nash, MTG, nash.dave@epa.gov.

- **Method 23 Revisions** – We are currently working on extensive revisions to Method 23 for measurement of dioxins and furans. These revisions are designed to make the analytical portion of Method 23 as performance-based as possible. This will, in turn, provide additional flexibility in performing the method as well as allow for advances in technology without the need for changes to the method. If possible, Method 23 will also be expanded to accommodate measurement of PCB and PAH compounds. MTG has formed a stakeholder group to discuss possible revisions and provide their input and expertise. Proposal of revisions is planned for late 2017/early 2018.
  Contact: Ray Merrill, MTG Merrill.raymond@epa.gov

New and Revised 40 CFR Part 60, Appendix B and Appendix F, Performance Specifications and Procedures for On-going Quality Assurance for Continuous Monitoring Systems

- **Revisions to Performance Specification 11 and Procedure 2** – We are working to revise Performance Specification 11 - Specifications and Test Procedures for Particulate Matter Continuous Emission

Monitoring Systems at Stationary Sources (PS 11, 40 CFR 60, Appendix A) and Procedure 2 – Quality Assurance Requirements for Particulate Matter Continuous Emissions Monitoring Systems (PM CEMS) at Stationary Sources. In mid-2016, we began collecting PM CEMS data and, with the help of a contractor, began mining that data for information regarding possible changes to PS 11 and Procedure 2. In the fall of 2016, we conducted a series of phone calls with stakeholders and to discuss possible changes. Our contractor is currently working on a white paper detailing possible changes along with supporting data. In early 2017, we will hold more stakeholder calls to discuss these possible changes and hopefully begin moving forward with a proposed revision package later in 2017. On November 1, 2016, we issued a direct final rule setting forth a procedure that will alleviate the problems that occur when the relative response audit (RRA) or relative correlation audit (RCA) test results are lower than the test results used to develop the initial correlation curve. This change would allow the correlation curve to be extended to the lowest PM CEMS response value obtained during the RRA or RCA. During the comment period we received comment on this change, so the direct final package was withdrawn and a new final rule will be issued as soon as possible.
Contact: Kim Garnett, MTG, garnett.kim@epa.gov.

- **Performance Specification 18 and Procedure 6 for HCl CEMS** – On July 15, 2015 (80 CFR 38628), we finalized a flexible performance-based Performance Specification (PS 18) and accompanying quality assurance procedure (Procedure 6) for HCl CEMSs to support the Mercury and Air Toxics (MATS) rule and the Portland Cement MACT rule. The promulgation of PS 18 was a result of working with instrument vendors and other stakeholders who provided information on current HCl CEMS technologies, availability, and performance. Like Performance Specification 15 for FTIR-based continuous emissions monitoring, PS 18 is appropriate for measuring HCl emissions in the range of 0 to 5 ppm -- the levels expected to be seen under MATS and the Portland Cement MACT, but unlike PS 15 it is technology neutral. A Direct Final rulemaking to make several revisions to PS 18 and Procedure 6 was issued on May 19, 2016. The revisions included clarifications and allowance to include or exclude the measurement path when zeroing integrated path CEMS. We received one comment so the Direct Final was withdrawn on August 8, 2016 for Procedure 6 only. The final rule is expected by this summer. Due to a delay in availability of NIST-traceable 'protocol' gases for HCl required by PS 18 and Procedure 6, we have recently issued a broadly applicable alternative test method approval (ALT-114) to allow gas vendors to certify gas values using a rigorous approach to yield uncertainties close to those that would be obtained using NIST reference gas materials. This alternative is designed for use in the interim until the NIST reference gases are routinely available.
Contacts: Candace Sorrell, MTG, sorrell.candace@epa.gov and Ray Merrill, MTG, merrill.raymond@epa.gov.

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

- **Method 301 Revisions** – Method 301 describes the procedures needed to conduct field validation of pollutant measurement methods for various waste media. On December 2, 2016 EPA proposed revisions to Method 301 (81 FR 87003). Method 301 was originally published on December 29, 1992 (57 FR 61970) as a field validation protocol method for the Early Reductions Rule; on March 16, 1994, Method 301 was brought into 40 CFR Part 63.7 (59 FR 12430) to validate methods or method modifications as justification for alternative test method requests. To date, Method 301 has not addressed distinguishing between validation requirements for source-specific applications of a candidate method versus validation for application to multiple sources. The proposed revisions are intended to clarify when sections of the method are required depending on application of the method.
Contact: Kristen Benedict, MTG, benedict.kristen@epa.gov.

- **Methods 325A and 325B for Passive Fenceline Monitoring for Fugitive and Area Sources –** On December 1, 2015 (80 FR 75178), we finalized two methods for use in assessing fugitive/area source emissions of volatile organic compounds (VOC). These methods rely on sorbent tubes coupled with thermal desorption and gas chromatographic (GC)-based analysis. The methods address field placement of

sorbent tubes that passively accumulate VOC from air at or near area of fugitive emission sources (Method 325A) and GC analysis of the tubes (Method 325B). Method 325A allows sampling site placement using equal linear distance between samplers or equal degrees of separation around the geometric center of a facility. The passive monitoring procedures will be used as one of a combination of tools to identify and quantify emissions from fugitive and area 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 measurement needs for VOCs around fugitive and area emission sources. Methods 325A and B were promulgated with the Petroleum Refinery Sector Risk and Technology Review and are being used to monitor benzene at the fenceline under this rule. In 2017, we are planning to assess this methodology for additional compounds.
Contacts: Ray Merrill, MTG, merrill.raymond@epa.gov and Jason DeWees, MTG, dewees.jason@epa.gov.

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

- **Methods 201A and 202 Revisions -** In 2015, we conducted stakeholder meetings to provide us with feedback and information on the best practices to minimize sampling train blank bias. We posted a best practices handbook for Method 202 on the EMC website at www.epa.gov/emc/method-202-condensable-particulate-matter in March 2016. We plan to propose revisions to codify these best practices in Method 202 during 2017.
  Contacts: Ned Shappley, Shappley.ned@epa.gov, Ray Merrill, MTG, merrill.raymond@epa.gov and Jason DeWees, MTG, dewees.jason@epa.gov.

Source Category Approved Alternative Test Methods

These alternative method approvals, published on the EPA/EMC website at https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods, are broadly applicable alternatives to the methods required under 40 CFR Parts 59, 60, 61, 63 and 65 as set forth in the General Provisions and/or subparts therein. As such, they may be used by sources for determining compliance with the requirements of these Parts as per the applicability provisions specified in the approval without further EPA approval; however, the approval letter or memo should be included in the test plan and test report. The Administrator's delegated authority (presently the 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 all these method alternatives.

- **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. Announcements of the broadly applicable approval decisions for 2007 through 2016 are published in the Federal Register on a yearly basis; the most recent was published on December 21, 2016 (81 FR 93682). All the broadly approved alternative test methods are published on our EMC website as noted above. Two broad approvals are of particular note for 2016:
  - ALT-114 allows for an alternative procedure to prepare HCl cylinder gas standards that can then be used in lieu of the NIST-traceable HCl gas standards required for use under the MATS Rule and the Portland Cement MACT. Instead of relying completely on an unbroken chain of

comparisons from a reference gas cylinder 'named' by NIST, the alternative procedure utilizes gravimetrically-prepared cylinders that are independently verified using a wet chemical analysis. The uncertainty budget of each cylinder sold for use must be thoroughly documented and a certificate of analysis must be provided to the user.

- ALT-118 allows for an alternative procedure to prepare elemental mercury cylinder gas standards. In lieu of use of reference gas cylinder 'named' by NIST for gas vendors use in producing cylinders for sale, the alternative procedure relies on the output from a certified elemental mercury gas generator as the reference gas. As for ALT-114 above, the uncertainty budget of each cylinder sold for use must be thoroughly documented and a certificate of analysis must be provided to the user.
- ALT-119 allows an alternative procedure for low-level mercury quantification for analysis of PS 12B sorbent traps.
- ALT-120 allows several additional options for 'above span' calibration of mercury CEMS under the Portland Cement MACT rule until January 1, 2018.

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

Other test methods or OTM, published on the EPA EMC website at www.epa.gov/emc/emc-other-test-methods , are test 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 40 CFR 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. The latest OTM posted are:

- **OTM 33: Geospatial Measurement of Air Pollution, Remote Emissions Quantification -** This test method relates to the general practice of using instrumented, ground-based vehicles to acquire information on air pollutant sources located in proximity to the driving route. Through specific sub-methods of OTM 33, source emissions assessments ranging from near-field inspection of small fugitive releases to whole facility mass emission rate measurements can be executed. Geospatial measurement of air pollution (GMAP) is a general term referring to the use of fast response instruments and precise global positioning systems (GPS) in mobile formats to spatiotemporally resolve air pollution patterns in a variety of use scenarios. General "mobile measurement" or GMAP applications can utilize many different instrumentation and mobility schemes to investigate numerous air quality questions on a range of spatial scales.

- **OTM 33A: Geospatial Measurement of Air Pollution, Remote Emissions Quantification, Direct Assessment** - This test method relates to use of instrumented, ground-based vehicles to acquire information on air pollutant sources located near the driving route and to estimate emissions in using a "direct assessment" approach (GMAP-REQ-DA). This method is used for one or more of the following three source assessment modes(SAMs): (1) concentration mapping (CM) used to find the location of unknown sources and/or to assess the relative contributions of source emissions to local air shed concentrations, (2) source characterization (SC) used to improve understanding of known or discovered source emissions

through direct GMAP observation or through GMAP-facilitated acquisition of secondary measures (e.g. whole air canister grab samples), (3) emissions quantification (EQ) used to measure(or estimate) source emission strength. OTM 33A is applicable to characterization of non-extended (small in spatial extent) sources located in close proximity (generally between 20 m and 200 m) of the driving route.

- **OTM – 34: Method to Quantify Road Dust Particulate Matter Emissions (PM10 and/or PM2.5) from Vehicular Travel on Paved and Unpaved Roads** - This test method is designed to quantify road dust particulate matter (PM) emissions from vehicles traveling on paved and unpaved roads. The method relies on the measurement of the increase in PM concentrations over ambient background levels at one or more locations that are directly influenced by road dust that is emitted from the interaction of vehicle tires with the road surface.

- **OTM - 35: Measurement of Particulate Matter and Other Heavy Metal Emissions from Electric Arc Welding Processes -** This method was developed to quantify emissions of particulate matter (PM) and heavy metals from electric arc welding processes in order to create emissions factors. Welding fumes from different process/electrode combinations are captured inside a conical weld fume chamber and collected on an appropriate analytical fiber filter installed at the exit to this chamber. The filters are submitted to a laboratory for analysis of Cr (VI), total Cr, Mn, Pb, Ni and mass of total fume.

- **OTM – 36: Method for the Determination of Filterable $PM_{2.5}$ Emissions from Moisture Saturated and/or Droplet-laden Stationary Source Gas Streams (Constant Sampling Rate Procedure) -** This test method is designed to measure filterable particulate matter emissions equal to or less than a nominal aerodynamic diameter of 2.5 micrometers ($PM_{2.5}$) in moisture saturated (wet) and/or droplet-laden gas streams from stationary sources. This method addresses the equipment, preparation, and analysis necessary to measure filterable $PM_{2.5}$ emissions in droplet-laden and/or moisture-saturated gas streams. **You must use this method in combination with Method 202 of 40 CFR Part 51, Appendix M (Method 202) for measuring condensable particulate matter regardless of the temperature of the gas stream.** As you know, OTMs are test methods which have not yet been subject to the Federal rulemaking process. For this particular OTM, we have the specific concerns explained in the introductory information which accompanies the method. Additionally, the EPA is conducting further testing on this OTM, that work is discussed in more detail in the section below titled **PM 2.5 Method Development for Wet Stacks**.

Tools for Improved Monitoring and Testing

- **Technical Foundation for Optical Gas Imaging (OGI) –** MTG and MPG have conducted studies to assess the technical underpinnings necessary to support a possible future rulemaking to govern the use of OGI for leak detection and repair or other work practice standards. We studied the detection capabilities for these instruments and parameter envelopes for their use. Some of the parameters of interest included background versus gas temperatures, homogeneity of the thermal background, effects of wind speed, relative humidity, and gas composition, and concentration-depth of the gas versus the performance of OGI instruments. A draft technical support document entitled "Optical Gas Imaging Protocol (40 CFR Part 60, Appendix K)" includes the results of these studies along with summaries of related studies from the scientific literature and can be found in the docket for the Oil and Gas NSPS at: www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2010-0505-4949 . Provisions for the use of OGI in the fugitive emissions monitoring program were finalized in 40 CFR 60, Subpart OOOOa, "Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced after September 18, 2015."
Contacts: Jason DeWees, MTG, dewees.jason@epa.gov, Robin Segall, MTG, segall.robin@epa.gov and Gerri Garwood, MPG, garwood.gerri@epa.gov.

- **PM 2.5 Method Development for Wet Stacks –** There are three different projects attempting to address development of one or more test methods for fine particulate capable of performing under wet stack conditions. One project has been focused on development of an instrumental method, one on a method that would use a manual sampling train based on Method 201A, and one which uses a camera to photograph droplets in a wet stack. The development of these methods and technology is important for the state implementation plans (SIP) PM fine implementation program and for emission factor development.
    - The instrumental method developed so far utilizes an in-stack droplet separator, followed by a dilution chamber with an ambient air Federal Reference Method or FRM at the end to measure the PM 2.5. A prototype CEMS has been successfully evaluated under dry stack conditions and has been tested under wet stack conditions. We have performed modeling to optimize the design of the inertial droplet separator (IDS) and then performed monodisperse testing on the resulting IDS at the University of Minnesota. These results showed promise, but more work is needed. As resources permit, we plan to continue with more modeling and possibly some additional field work.
    - The manual method was initially funded by API and NCASI and the results are posted on the MTG website as OTM-36 (see details above). As mentioned above, we have concerns about the validity of this method as written and are planning additional testing on this method. In early 2017, we plan to have the University of Minnesota perform monodisperse testing on the pre-cutter nozzle and, then we plan to perform additional field testing at another facility with entrained water droplets.
    - The camera method is currently going through feasibility testing. With the help of a contractor, EPA is assessing the ability of current technology to measure water droplet size distribution. We are also attempting to understand the potential precision of the method, to identify data quality indicators to be used in the future refinement of this methodology and develop an SOP for use of measurement device.

  Contacts: Kim Garnett, MTG, garnett.kim@epa.gov and Jason DeWees, MTG, dewees.jason@epa.gov.

- **Evaluation of New Test Method for HCN** – We have initiated the evaluation of a new manual isokinetic impinger-based method for measurement of hydrogen cyanide (HCN) in stationary source emissions. The current manual isokinetic impinger-based method, OTM-29, uses a concentrated sodium hydroxide solution in the impingers to collect HCN. This approach suffers from interference from SO_2 and CO_2, making it difficult to maintain the proper impinger solution alkalinity to effectively capture HCN. MTG has identified an alternative extractive wet chemistry sampling and analytical method for HCN that is not affected by the common interferences in stack gas matrices and that should be effective in ducted emission streams that contain water droplets. MTG has recently completed the first round of laboratory and field testing to evaluate this potential alternative.
  Contact: Ned Shappley, MTG, shappley.ned@epa.gov.

- **Handbook for Measurement of Greenhouse Gases –** Last year we completed a first draft of a Handbook which describes the methodologies and technologies used to measure emissions of the following greenhouse gases (GHGs) from point and non-point emissions sources: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), fluorocarbons (FC), sulfur hexafluoride (SF_6), and nitrogen trifluouride (NF_3). This handbook is intended to be a resource for regulatory agencies, industrial entities, and interested parties that are involved in GHG measurements. At this time the handbook is under EPA policy review and is expected to be finalized in 2017. Once finalized, the handbook will be posted on the EMC website and possibly several other websites which have yet to be determined.
  Contact: Dennis Mikel, MTG, mikel.dennisk@epa.gov.

- **Nanoparticle/Ultrafine Particles (UFP) Handbook –** MTG, in conjunction with EPA's Office of Radiation and Indoor Air (ORIA) has created a draft Handbook that describes current capabilities for measuring or sensing nanoparticles (NP) and nanomaterials (NM). This Handbook is meant to raise awareness and build a knowledge base regarding nanoscale sensing technologies, especially those emerging nano-enabled NP and gas sensors. It will serve as a resource for federal, state, and local agencies to aid in their appreciation and application of emerging technologies with the goal of furthering the technological

outreach of the overall EPA's air program. Once the handbook is finalized, it will be posted on the EMC website, possibly in 2017.
Contact: Dennis Mikel, MTG, mikel.dennisk@epa.gov.

- **Stationary Source Audit Program (SSAP) and EMC Testing/QA Conference Call** –In 2010, we promulgated amendments (75 FR 28 55636; 8/13/2010) to the general provisions of 40 CFR Parts 60, 61, 63, and 51 to (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 compliance testing programs. A listing of the accredited audit samples providers and the methods for which audit samples are available is provided on the EMC website at www.epa.gov/emc/emc-technical-support#audit. The availability of new audit samples is announced 60 days before they are required. The EMC QA team conducts monthly teleconference calls for state/local agency and EPA Regional staff on the first Monday of every month from 1:30-3:00 pm (EST) to discuss emission testing issues. Agendas and invites for these conference calls can be obtained by contacting Candace Sorrell.
Contact: Candace Sorrell, MTG, sorrell.candace@epa.gov.

- **ASTM Activities** - EMC staff continue to participate as committee members on ASTM Subcommittees primarily to encourage development of new stack test methods especially 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 are currently participating in or following ASTM standard development efforts for: (1) methods for low mass fireplaces, masonry heaters, hydronic heaters, wood heater (cordwood), and pellet stoves (Committee E06); (2) an opacity measurement method based on digital camera technology which was published as an ASTM method and has recently been updated (Committee D22); and (3) the standard practice for competence of air emission testing bodies, which is now being updated (Committee D22). We continue to follow workgroup activities in Subcommittee D22.03 to develop and revise standards.
Contacts: Ray Merrill, MTG merrill.raymond@epa.gov, Mike Toney, MTG, toney.mike@epa.gov and Jason DeWees, MTG, dewees.jason@epa.gov.

- **Policy on Overlapping or Staggered Stack Test Runs** – On November 8, 2016, EPA issued a memo which discusses the use of overlapping or staggered stack test runs. The memo states that the use of staggered or overlapping test runs is contrary to sound statistical principles and inconsistent with several EPA regulations, and, for that reason, prospectively the use of overlapping or staggered test runs is not appropriate for source emission measurements conducted pursuant to any Federal requirement. The memo is posted on the EMC website at: www.epa.gov/sites/production/files/2016-11/documents/gd-053.pdf
Contact: Kim Garnett, MTG, garnett.kim@epa.gov

Electronic Reporting

- **Electronic Reporting and Recordkeeping Requirements for New Source Performance Standards (NSPS) Rule** - This rule revises most of the subparts under 40 CFR Part 60 to require the submittal of stack test reports, CEMS performance evaluations (RATAs), summary and excess emission reports and subpart specific reports similar to these types of reports (e.g., annual reports, semiannual reports) to the EPA electronically. The acquisition of these reports electronically will aid in regulation development, improvement of emissions factors and other air pollution control activities. This rule was proposed on March 20, 2015. The final rule is under review.
Contact: Gerri Garwood, MPG, garwood.gerri@epa.gov, 919-541-2406.

  Implementation of Electronic Reporting – We have already incorporated electronic reporting into over 50 subparts in 40 CFR parts 60, 62, and 63. A complete list of these rules can be found at: http://www3.epa.gov/ttn/chief/ert/ert_rules.pdf. Most of these subparts limit electronic reporting to stack test reports and performance evaluation reports. However, we have promulgated other electronic reporting requirements in specific rules. For example, the Industrial, Commercial, and Institutional Boilers and

Process Heaters Rule (Boiler MACT) for major sources contains electronic reporting of compliance reports, which includes CEMS summary data, parametric monitoring summary data and malfunction summaries. Boiler MACT for area sources contains electronic reporting of notification of compliance status reports. Portland Cement MACT requires electronic reporting of semiannual summary reports. The Petroleum Refining rule requires electronic reporting of fenceline monitoring data. And the engine rules (40 CFR part 60 subparts IIII and JJJJ and 40 CFR part 63 subpart ZZZZ) require electronic reporting for annual reports for emergency engines.

In the last year, we finalized requirements to electronically submit stack test reports and other specified reports into rules for the following sectors:

- Municipal Solid Waste Landfills (40 CFR part 60 subparts Cf and XXX)
- Oil and Gas (40 CFR part 60 subpart OOOOa)
- Sewage Sludge Incinerators (Federal Plan) (40 CFR part 62 subpart LLL)
- Commercial and Industrial Solid Waste Incinerators (40 CFR part 60 subparts CCCC and DDDD)

Contact: Gerri Garwood, MPG, garwood.gerri@epa.gov, 919-541-2406.

- **Electronic Reporting for Utilities –** The MATS interim rule allows pdf uploads for electronic reporting until April 16, 2017. In order to consolidate the electronic reporting for utilities through one system, the MATS interim rule requires these uploads to be submitted through the Emissions Collection and Monitoring Plan System (ECMPS), run by the EPA's Clean Air Markets Division (CAMD). This interim rule temporarily replaced the requirement to submit these reports via CEDRI and in the format generated through the use of the ERT and with CEDRI fillable forms. A final rule concerning these requirements was published on April 6, 2017.
  Contact: Barrett Parker, MPG, parker.barrett@epa.gov, 919-541-5635.

Data Systems

- **The Compliance and Emissions Data Reporting Interface (CEDRI)** – CEDRI is located on EPA's CDX. CDX is the EPA's node on the Exchange Network, a web-based platform for data sharing between EPA and state, local, and tribal agencies. CDX is the application used by EPA programs and various stakeholders to manage environmental data transmitted to EPA in order to meet EPA's reporting requirements. CEDRI is an application within the CDX that supports the electronic submittal of reports required by 40 CFR parts 60 (NSPS), 62 (Federal Plans), and 63 (NESHAP or MACT), i.e., performance test reports (ERT file upload), performance evaluation reports (ERT file upload), notification of compliance status reports (generally PDF upload), and excess emission reports (CEDRI fillable form). CEDRI supports aggregation of multiple reports into a single package for submission. Reports submitted via CEDRI are Cross-Media Electronic Reporting Regulation (CROMERR) compliant, meaning that the electronic signature is equal to a wet ink signature. Additional information can be found on the CEDRI website at https://www.epa.gov/electronic-reporting-air-emissions/compliance-and-emissions-data-reporting-interface-cedri. Questions can be sent to CEDRI@epa.gov.

  In the last year, some of the major enhancements to CEDRI include:
  - Implemented bulk uploads of reports.
  - Added LiveChat feature.
  - Added regulatory citations to reports.
  - Added Job Aids to CEDRI.
  - Enhanced state reviewer notification filters.
  - Added allowance for multi-file upload within reports.
  - Updated report headers.
  - Added part 62 dropdown.
  - Began development of fenceline monitoring report for Petroleum Refineries.
  - Began development of ICR module.

- Continued development of new user interface.
- Continued work on form development, e.g. NSPS General Provisions excess emission reports, Oil and Gas sector processing plants semiannual reports., etc
- Updated major source Boiler MACT form, Portland Cement form, and emergency engine annual report form.
- Updated the User Guide and FAQs.

State, local, tribal and EPA regional office personnel can sign up to review reports submitted to CEDRI by sending an email to CEDRI@epa.gov. The email should include the reviewer's name, phone number, organization information (name, address, phone number) and email address.
Contact: Ketan Patel, MPG, patel.ketan@epa.gov, 919-541-9736.

- **The Electronic Reporting Tool (ERT)** – In early 2006, we made available a Microsoft Access© desktop application, called the ERT (https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert), which creates an electronic alternative to paper reports for source emissions tests.

  We posted Version 5 of the ERT online for use on August 1, 2014. We continually review comments we receive on the ERT and update the ERT to address these comments. We most recently updated Version 5 on January 12, 2017. A complete list of updates to the ERT, as well as an historical update history, can be found on the ERT website. Some of the major updates that we developed for the ERT this past year include:
  - Added Conditional Test Method 027, Other Test Method 029, Method 5A, SW-846 Method 0023A, Method 25B, Method 308, and Performance Specification 8.
  - Updated upstream and downstream definitions to match Method 1.
  - Added emissions units of mg/hr, ug/hr, ng/hr, lb/day, kg/day, tons/year, and tons/day.
  - Updated conversion for standard temperature water density and ideal gas constant to match CFR value.
  - Updated XML file from a summary file to a full test report file
  - Added attachment field for full test report.
  - Updated Method 25A to require identification of the basis for Total Organic Compounds (e.g., as propane)
  - Updated Method 3A to allow O_2 to be displayed in order to allow CO_2 to be corrected.
  - Added unit labels to isokinetic header data and point data.
  - Added citation and reporting requirements to completeness check and attachment tab.
  - Began development of Wood Stoves module.
  - Updated SCC list and User Manual.

  To download the ERT, access the user's manual, or learn about training opportunities, please visit the ERT website. Make sure to visit the "Tips, Tricks and Frequently Asked Questions" link on the website.

  This past year, we also began development of a web-based platform for the ERT. We believe that a web-based platform for the ERT will allow for greater flexibility in programming and provide a user-friendly interface. We are planning to design the web-based ERT to allow multiple groups to work on inputting data into a file, via MS Excel® spreadsheet templates if the user so chooses. This platform should make sharing, reviewing and analysis of information more user-friendly.
  Contact: Theresa Lowe, MPG, lowe.theresa@epa.gov, 919-541-4786.

- **WebFIRE -** We continue to implement our multi-part process to improve the air pollutant emissions factors program and to make the program self-sustaining. We posted The Draft Final Guidance on the Recommended Procedures for Development of Emissions Factors and Use of the WebFIRE Emissions Factor Database (https://www.epa.gov/air-emissions-factors-and-quantification/procedures-development-emissions-factors-stationary-sources) in August 2013. We have completed the process of programming WebFIRE with these procedures and have incorporated existing AP-42 supporting documentation into our WebFIRE database such that test reports that are electronically submitted to EPA can be easily and readily evaluated to determine if new or revised emissions factors should be proposed.

Since 2012, we've enhanced WebFIRE so that it stores and retrieves reports (performance test reports, Notice of Compliance (NOCs), air emission reports (AERs)) received from CEDRI. We've added a notification feature to allow users to receive email notifications once the report(s) are publicly available in WebFIRE. As of March 2017, WebFIRE contains nearly 23,000 reports, including over 5300 ERT stack test reports. Users can search for both reports and emissions factors on the WebFIRE website: https://cfpub.epa.gov/webfire/.

This past year we developed a report bulk download feature, which allows users to download data for multiple reports at once instead of having to download files individually. To provide flexibility in generating the bulk files, there is a results table containing separate columns to allow the user to create: (1) bulk files of reports and related attachments and/or (2) a bulk CSV file of ERT XML data. The second option is only available for "true" ERT files. It is not available for stack test reports being submitted as pdf files through ECMPS.
Contact: Michael Ciolek, MPG, ciolek.michael@epa.gov, 919-541-4921.

- **Emissions Factors Update –** In April 2015, we finalized new emissions factors for VOC from flares at refineries and chemical plants, as well as new emissions factors for other refinery operations, including NOx, CO, and THC from sulfur recovery units, THC from catalytic reforming units, NOx from hydrogen plants, and HCN from fluid catalytic cracking units. We also finalized a revised emissions factor for CO from flares at refineries and chemical plants and issued a determination for no changes to the VOC emissions factors for tanks and wastewater treatment systems. The new and revised emissions factors can be found in AP-42 Sections 5.1, 8.13 and 13.5. In December 2016, we subsequently revised the VOC emissions factor for flares at refineries and chemical plants and applied the emissions factors in AP-42 Section 13.5 to additional source classification codes. For more information, including supporting documentation and response to comments received during the comment period, see: https://www.epa.gov/air-emissions-factors-and-quantification/new-and-revised-emissions-factors-flares-and-new-emissions.

  We are currently reviewing the VOC emissions factor for flares at natural gas production sites, and will be proposing either a revised emissions factor or a determination that no revision is necessary later this year. Information on the proposal and final actions will be available on the EPA's website and via the CHIEF listserv.
  Contact: Gerri Garwood, MPG, garwood.gerri@epa.gov, 919-541-2406.

- **Source Classification Code (SCC) Revisions Project –** We are in the process of updating and improving the point source SCCs. EPA uses SCCs to classify different types of anthropogenic emission activities. Each SCC represents a unique process or function that emits an air pollutant. SCCs are used for multiple applications such as NEI/EIS reporting, risk and technology review modeling, EPA's WebFIRE database, and the ERT. The SCCs are also used by many regional, state, local, and tribal agency emissions data systems. The objective of this project is to correct issues such as: remove outdated SCCs, remove duplicate SCCs, identify missing SCCs, and fix inconsistencies in the level of detail the SCCs provide. A comprehensive list of SCCs can be found on the EPA website (https://www.epa.gov/scc). This past year, we created almost 60 SCCs, retired almost 60 SCCs and revised over 270 SCCs affecting the following sectors:
  - Aerospace Manufacturing and Rework Facilities
  - Brick and Structural Clay Products
  - Clay Ceramics Manufacture
  - Phosphate Fertilizers
  - Phosphoric Acid
  - Portland Cement
  - Primary and Secondary Aluminum
  - Primary and Secondary Lead

  Contact: Ketan Patel, patel.ketan@epa.gov, 919-541-9736.

Improving Emissions Monitoring through Rulemaking

- **Information Collection Requests (ICRs)** – ICRs are a means by which we use our authority under section 114 of the Clean Air Act to collect source emissions and operational data in order to assist rule development. These requests generally require the use of the ERT to submit data from source testing. In support of rule writers and their ICRs, MPG and MTG staff maintain websites for responses to FAQ, hold webinars, expedite alternative monitoring requests, respond to telephone and email questions and update the ERT. In the past year, we issued ICRs that include testing for the fiberglass sector, coke ovens, ethylene manufacturing, and electric arc furnaces. We also public noticed an ICR for the plywood sector that includes testing. In March 2017, two court orders were issued for EPA to perform Residual Risk and Technology Reviews (RTRs) for 33 source categories. While we have not yet developed ICRs for most of these reviews, we may develop ICRs for some of these future reviews that require testing.
  Contact: Kevin McGinn, MPG, mcginn.kevin@epa.gov, 919-541-3796.

  Innovative Monitoring – We continue our implementation of new monitoring technologies in current rulemakings. In January 2017, we finalized the reconsideration of the Ferroalloys Production rulemaking and included a requirement to monitor opacity using the digital camera opacity technique (DCOT) in ASTM D7520-13. We previously approved the use of ASTM D7520-09 as an alternative to Method 9 in May 2012 (ALT-082). Additionally, we finalized the use of Optical Gas Imaging (OGI) to monitor fugitive emissions at well sites and compressor stations in the Oil and Gas Sector rule in June 2016. This is the first EPA rulemaking under parts 60 and 63 to allow the use of OGI as a standalone monitoring technique.
  Contact: Gerri Garwood, MPG, garwood.gerri@epa.gov, 919-541-2406.