

Avogadro Advisor

Continuous Emission Monitoring and Part 75; a target on the move...again

Editor:

Kristine Gilbert

INSIDE THIS ISSUE:

Preparing for Boiler MACT 2

Employee of the Quarter 5

It is time to upgrade your CEMS? 6

Avogadro Answer Corner: NJDEP and NOx RACT 7

EPA GHG Reporting Deadline 8

Avogadro Gives Back 9

Tom Mattei

The March 28, 2011 Federal Register contained several changes to 40 CFR Parts 72 and 75, but one change in particular will affect how a source owner/operator chooses a stack-emission testing contractor. Affected will be units which report stack emissions using a continuous emission monitoring system (CEMS) *and* low-mass emission (LME) units which calculate NOx emissions using an emission-rate in lieu of using a CEMS.

To determine the accuracy of a continuous emission monitoring system (CEMS), emissions measured by the CEMS are compared to emissions measured with reference methods (RMs) employed by the testing contractor. Emissions are also measured with RMs to determine emission-rates for LME units.

Starting March 27, 2012, RATAs performed on CEMS and emission testing performed on LME units affected by Part 75 must be performed by an Air Emission Testing Body (AETB). In order to be an AETB, conformance with ASTM D7036-04, *Standard Practice for Competence of Air Emission Testing Bodies*, is required.

D7036 provides criteria for a quality system, which when applied by the AETB will help ensure emission data of a consistent and acceptable quality is produced by the AETB. This rule also applies to units whose owner/operator employs in-house testing services for RATAs and LME tests. This rule does not apply to CEMS audits, such as daily calibrations and linearity checks.

By establishing this rule, the EPA is attempting to not only improve data quality overall, but to also improve the consistency of data quality. It's like getting the same Big Mac, no matter the date, location or burger chain you buy it from. By improving emission data quality produced by testers, emission data quality produced by CEMS and calculated for LME units should also be improved.

To conform with D7036, an AETB must maintain and implement a Quality Manual (QM) which addresses the specific quality criteria contained in D7036. If the AETB properly implements its QM, then it is in conformance with D7036.

It is up to the source owner/operator to ensure that whoever is performing CEMS RATAs or LME emission rate testing is an AETB. (continued on page 5)



Two of Avogadro's QSTI Certified professionals hard at work.

Preparing for the Boiler MACT Area and Major Source Rules

Bill Barnes

On March 20, 2011 the USEPA published the Area Source and Major Source Boiler MACT Rules. The rules apply to industrial, commercial, and institutional boiler and process heaters (> 10 MMBtu/hr rated heat capacity) located at area or major sources. The rules both have EPA notification, recordkeeping and reporting requirements that will be new to many boiler owner/operators. There are now boiler tuning and other work practice requirements you should be implementing immediately. Finally, many affected owner/operators will need to conduct energy assessments to demonstrate the need to have existing boilers or new boilers in place.

WHO IS AFFECTED?

The area source rule affects all non-major source owner/operators of liquid or solid fuel-fired boilers and process heaters which are sized > 10 MMBtu/Hr rated heat capacity

excluding water heaters. These can be found at medical centers, school campuses, and commercial complexes. The major source rule affects boilers and process heaters that are located at facilities that emit greater than 10 tons of a single HAP or 25 tons of a combination of HAPs each year. These can be found at paper mills, refineries, chemical complexes where there are typically other sources of HAPs. Natural gas-fired boilers at area sources are exempt from the rule requirements.

NOTIFICATIONS

With a federal MACT rule, there are federal notification and reporting requirements to consider. Initial notification of applicability to USEPA is required by **September 2011** or within 120 days after the source becomes subject to the standard. There will be annual (semi-annual at major sources) compliance certification reports to be filed to USEPA by March 1 of each year. On top of the many state reporting requirements already faced by many area and major sources, this will create another initial and periodic reporting requirement to

The “What do I have to do?” Matrix

Requirement	New & Existing Small Boilers - Oil, Biomass and	New Large Boilers - Oil and Biomass	Existing Large Boilers - Coal	New Large Boilers - Coal
Notification	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Bi-Annual Tune Ups	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Emission Limits and Performance		<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Manufacturer’s Guidelines for			<i>Yes</i>	<i>Yes</i>
Energy Assess-			<i>Yes</i>	



(continued from previous page)

add to your calendar. Do not forget to notify your regional EPA office. We found many of our RICE engine clients in trouble with local EPA for not notifying on new federal requirements that came out over the past several years.

EMISSION LIMITS

The Boiler MACT rules create emission limits for mercury, particulate matter (PM) and carbon monoxide (CO) for all new coal-fired boilers with heat input greater than 10 MMBtu/HR and PM limits for new biomass and oil-fired boilers. For existing boilers, the new rules create emission limits for mercury and CO only for coal-fired boilers greater than 10 MMBtu/HR. Take a look at Table 1 in the Area Source Rule and Tables 1 and 2 in the Major Source Rule for more details.

STACK TESTING

It used to be that permitted boilers may have an initial PM, NOx and CO test or even once every five years with permit renewal. Not anymore. New boilers must complete initial performance testing within 180 days of startup . Existing boilers have until 2014 to get the testing completed.

Again, as a federal requirement, notification to EPA at least 60 days in advance of testing is required,

National Emission Standards for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial and Institutional Boilers at Area Sources: 40 CFR Subpart JJJJJJ

National Emission Standards for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial and Institutional Boilers at Major Sources: 40 CFR Subpart DDDDD

USEPA weblink: <http://www.epa.gov/airquality/combustion/actions.html#feb11>

in addition to your past experience notifying state agencies.

These rules now contain initial and triennial testing for all boilers > 10 MMBtu/HR:

- HCl (Method 26 or 26A)
- PM (Method 5 or 17)
- CO (Method 10)
- Concentration (Method 19)
- Hg (Method 29 or Ontario Hydro ASTM-D6784-2)
- Dioxin/Furans (Method 23)

TUNE UPS AND WORK PRACTICES

Effective March 2012, new and existing boilers under 10 MMBtu/HR at major sources are required to conduct boiler tuning every other year. Many owner/operators already have tuning arranged as a periodic maintenance item, especially with the rising costs of fuels. Maintain those records as compliance records going forward.

Other work practices include conducting start up and shut down in accordance with manufacturer’s guidelines or other documented procedures. Many owner/operators have copies of manufacturer’s O&M manuals, but haven’t looked at them in years. Get it out, dust it off, or download another copy of the Internet. (continued on page 4)

Area Source Rule Emission Limit Summary

Source	Subcategory (MMBtu/HR)	PM Limit (lb/MMBtu)	Mercury Limit (lb/MMBtu)	CO Limit (ppm)
New Boiler (Area Source)	Coal > 30	0.03	4.8 x 10 ⁻⁶	400 (@ 3% O ₂)
	Coal 10 – 30	0.42	4.8 x 10 ⁻⁶	400 (@ 3% O ₂)
	Biomass > 30	0.03	Not Applicable	Not Applicable
	Biomass 10-30	0.07	Not Applicable	Not Applicable
Existing Boiler (Area Source)	Oil (all)	0.03	Not Applicable	Not Applicable
	Coal	Not Applicable	4.8 x 10 ⁻⁶	400 (@ 3% O ₂)



QSTI Certified

AVOGADRO ENVIRONMENTAL provides QSTI certified stack testing to combustions source clients including boilers small and large.

Visit www.avogadro.net to

(Boiler MACT continued from page 3)

Review it with your operational staff and document any regular deviations. These will become an inspect item in the future should you get visited by USEPA and/or state agencies implementing this rule.

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ENERGY AUDITS

Owners/Operators of large boilers, that burn oil, coal, or biomass fuels will be required to conduct a one-time energy assessment using a qualified energy assessor. It includes visual inspections of the boiler system components, evaluation of operating constraints, and an inventory of systems consuming energy from the affected boiler(s). With this baseline understood, a review of facility engineering plans, operations and maintenance procedures and logs, and fuel usage data must be conducted.

The intent is to identify energy conservation measures to be evaluated and implemented. You'll want to use a Certified Energy Auditor (CEA) or other qualified professional to conduct this exercise because you're rationalizing the need to keep your sources in place in many cases. In others, it may be the driver to replace old, inefficient equipment. If you're going to take the time and effort, do this part right.

AVOGADRO ENVIRONMENTAL - YOUR BOILER MACT COMPLIANCE PARTNER

The compliance consulting and stack testing professionals at Avogadro Environmental Corporation have been monitoring numerous rules affecting boilers and process heaters over the past several years as we have provided compliance services to many owner/operators. Let us bring our environmental compliance experience and knowledge about boilers to your operators today.

SPRING!

It's spring fever. That is what the name of it is. And when you've got it, you want - oh, you don't quite know what it is you do want, but it just fairly makes your heart ache, you want it so! ~Mark Twain

No matter how long the winter, spring is sure to follow. ~Proverb

If we had no winter, the spring would not be so pleasant: if we did not sometimes taste of adversity, prosperity would not be so welcome. ~Anne Bradstreet



(Part 75:continued from front page)

The source owner/operator must obtain certification from the AETB that they were in conformance with D7036 at the time the applicable test work was performed. This can either be a certificate of accreditation or interim accreditation from a nationally-recognized accrediting body or a letter of certification signed by the AETB’s senior management staff. The later is often called “self-certification.”

At the time this article was written, the Stack Testing Accreditation Council (STAC) was the only body accrediting AETBs to conformance with D7036. STAC has only issued interim accreditations since STAC itself has not yet been accredited as an accrediting body.

A QM is the cornerstone of the AETB’s quality system. Without one, an AETB is not conforming with D7036. An AETB which has received interim accreditation from STAC has a QM, because STAC reviews them as part of their accreditation process. An AETB that self-certifies conformance with D7036 must also have a QM.

However, since a self-certifying AETB has not been third-party accredited to have a QM, it may be wise to ask a self-certifying AETB to provide the table of contents

(TOC) of their QM. QM’s are generally considered to be confidential, so asking for the TOC of their QM only should not be an unreasonable request.

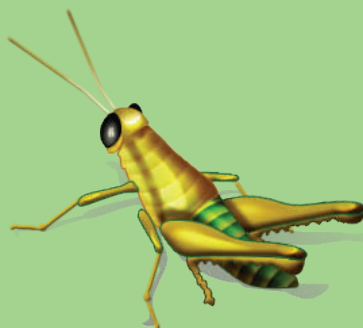
What should you take away from all of this?

If you will be doing any RATAs or LME emission-rate testing on or after March 27, 2012, be sure an AETB is doing the work, whether it is an in-house testing group or a hired contractor. **The simplest way to know you are using an AETB is to choose one that has been accredited by STAC.** However if you choose a self-certifying AETB, be sure to ask for the Table of Contents for their Quality Manual along with their letter of self-certification.



That's A Fact!

To estimate the temperature in degrees Fahrenheit, count the number of cricket chirps in 15 seconds then add 37.



EMPLOYEE OF THE QUARTER



**Doug Earls
Air Emission Test
Team Leader**

Doug Earls has been selected as our Employee of the Quarter for the first quarter of 2011. Over the past few months, Doug has stepped in to support the CEMS group with respect to maintaining the existing client base and keeping up with current projects. Doug traveled to various sites at last moment, to solve the pass/fail issue of a customer’s audits.

He completed all of this work over and beyond his normal tasks of AMT support.

Doug, your team work, dedication and excellent customer service are greatly appreciated!!



Is It Time to Upgrade your CEMS??

Tom Brown

Continuous Emission Monitoring System (CEMS) or Continuous Opacity Monitoring System (COMS) were being written into air permits starting in the mid 80's. Since then the technology has changed significantly and vastly improved. As companies consider replacement of first, second or third generation equipment, Avogadro is often asked what considerations should be made in evaluating the replacement of a CEMS or COMS. The answer most certainly is as varied as there are air permits and needs to be handled on a case-by-case basis.

There are some basic questions to be answered about your investment that center around issues like the physical placement of the CEMS/COMS equipment and data acquisition system (DAS), determining a budget and how to maintain the equipment.

There are also regulatory considerations. Many customers are apprehensive about replacing their equipment out of concern of opening up their air permit for regulatory review. It has been our experience that if you're monitoring the same pollutant using the same methodology to demonstrate compliance to the same condition, this would not trigger a permitting modification

We've had several clients in recent years where we changed analyzer brand, other system components and/or the DAS without having to revisit the permit. To comply with QA/QC requirements an equipment protocol outlining the changes is required and an email or note to your local enforcement coordinator would be good practice also.

According to Bill Barnes, Manager of Consulting Engineering "We've run across two such instances in the past year with clients in NJ. Notification to NJDEP should be accomplished through the scheduled quarterly Excess Emissions Monitoring Performance Reports (EEMPR) process, where you are required to identify the specific monitor equipment details such as manufacturer, model and serial number. As long as the parameter, operating range, and standard don't change, the EEMPR process accomplishes notification requirements."



If you would like Avogadro to evaluate your options, please contact Tom Brown directly at 908-872-6134 or tbrown@avogadro.net





Avogadro Environmental is getting a face lift...

...or rather, our website is getting a new look! Stay tuned in the weeks to come as we unveil our updated website providing you with easy to find information about our services, the latest industry news and our new blog!

<http://www.avogadro.net>



Going GREEN In The Office

- Use REAL coffee mugs, glasses, plates and cutlery. It takes just minutes to wash them!
- Print only one copy of inter-office documents and memos and circulate it. Better yet: Send an email.
- Use rechargeable batteries. It will save money over time and help reduce the amount of toxic materials sent to landfills.
- Make sure the office is being cleaned using only green products that don't damage the environment.
- Get a plant...it cleans the air.



AVOGADRO ANSWER CORNER

Q&A With NJDEP Regarding NOx RACT

Tom Weber

Questions have been swirling around NOx RACT Compliance for affected sources in New Jersey. By what date do facilities need to be compliant? What is considered to be emergency fuel? I was recently able to interview a representative from NJDEP who was able to help clarify just these types of questions.

Q: What officially constitutes an emergency fuel? Is it hours of operation? If a fuel is truly "emergency", the NOx RACT testing need not be done for that fuel....is this true?

A: Sub 19.25 defines the use of an emergency fuel. No demonstration of compliance is required for the emergency use of fuel oil. For the purposes of the Stack Test requirement for the NOx RACT, in general we are not requiring a stack test for back up fuels, used less than 500 Hr/yr. This matches Sub 19.25(c)4. The facility should discuss this with their Regional Office to ensure their use of a back up fuel does not require a stack test.

Q: There is a lot of buzz surrounding the correct compliance date. Is it May 1, 2011 or Nov 1, 2011?

A: According to 19.7, they must be in compliance by 5/1/11. However, to allow time for performing the stack test, the letter specified 11/1/11 as the deadline for demonstrating compliance with 19.7. If they plan to make modifications, which would result in a compliance date of 5/1/12 in accordance with 19.7(i)1.ii., they should submit their permit application for those modification as soon as possible, then demonstrate compliance in accordance with that permit.

Q: what happens if the boiler to be tested cannot physically reach the name plate capacity as written? For example a Boiler > 25 MMBTU/hr if operates < 25 MMBTU/hr then enforceable derating needs to be requested from NJDEP.

A:The Department will use the manufacturers rated capacity for determining the applicability of Sub 19. If a facility wishes to derate a boiler below the manufacturers specifications, it must be done in an enforceable manner, with an approved air pollution permit with the de-rated requirements included.



EPA Greenhouse Gas Reporting Deadline Extended



Heidi Fleming

On March 17, 2011, USEPA issued a final rule that extends the deadline for reporting 2010 data under the Greenhouse Gas (GHG) Reporting Program to September 30, 2011 from the original deadline of March 31, 2011. This deadline extension is only valid for 2010 data reporting, it does not change what data must be reported or change the reporting deadline for future years.

According to EPA, the deadline has been extended to allow adequate time for the testing and refinement of EPA's new online GHG reporting tool (e-GGRT) that facilities will use to submit data. This extension will give industry the opportunity to test the tool, provide feedback, and have sufficient time to become familiar with it prior to reporting.

The deadline to register with the EPA's electronic greenhouse gas reporting tool, e-GGRT (pronounced "egret") which was set for 60 days prior to the reporting deadline has therefore been extended to August 1, 2011.

The Greenhouse Gas Reporting Rule (40 CFR part 98) was published in October 2009, and calls for mandatory annual reporting of greenhouse gases from large GHG emissions sources in the United States.

This rule applies to direct greenhouse gas emitters, fossil fuel suppliers, and industrial gas suppliers. In general, the threshold for reporting is 25,000 metric tons or more of carbon dioxide (CO₂) equivalent per year. Reporting is at the facility level, except for certain suppliers of fossil fuels and industrial greenhouse gases. An estimated 85-90 percent of the total U.S. GHG emissions

from approximately 10,000 facilities are covered by this final rule. Most small businesses would fall below the 25,000 metric ton threshold and are not required to report GHG emissions to EPA.

Facilities with multiple combustions sources such as boilers, backup power generators, turbines and process heaters will need to add up the emissions from these sources to see if the 25,000 ton/year of CO₂e reporting threshold is met. For example, if the combined use of natural gas at a facility in 2010 was greater than 460 million cubic feet, it's very likely the facility is required to report emissions.

EPA has set up a testing period scheduled for June 2011 where those who are interested can register and enter test data into e-GGRT for the various subparts covered by the rule. Registration information is available on the website listed below.

Avogadro's Consulting division is familiar with the e-GGRT reporting tool and has experience with permitting and compiling emission inventories for combustion sources.

For more information, give us a call or go to www.epa.gov/climatechange/emissions/ghgrulemaking.html.

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Amedeo Avogadro

In the year 1811, Amedeo Avogadro hypothesized that two given samples of an ideal gas at the same temperature, pressure and volume contain the same number of molecules. Thus, the number of molecules or atoms in a specific volume of gas is independent of their size or the molar mass of the gas.

This is known as Avogadro's Law.



Avogadro Employees Give Back to the Community

Did you know our employees regularly volunteer their time to local charities and organizations in the Lehigh Valley?

See what we have been doing lately:



Tom Weber
Air Monitoring & Testing Operations Manager

Tom is involved as a volunteer, serving meals to individuals for an organization called **Daybreak**.

The Daybreak program began in 1979 as a response to the release of large numbers of state mental hospital patients into the community without the necessary programmatic supports. Daybreak's purpose is to prevent homelessness by offering self-sufficiency programs with educational, socialization, nutritional, and employability components for men and women who have successfully completed or who are currently being treated for mental illness, drug and alcohol abuse, or HIV/AIDS - the homeless, the impoverished elderly, and transients.

Daybreak has worked closely with its funders to create and implement meaningful, outcome-based goals for its members.

To increase the self-sufficiency of special-needs Daybreak members by developing a person-centered goal plan for each that identifies barriers related to housing, economics, nutrition, life-skills, and/or health status. Plans are reviewed semi-annually, goals reached recorded, and new goals created.



To learn more about any of the volunteer programs mentioned, please visit the following websites:

<http://www.lehighchurches.org/daybreak.html>

<http://www.firststrides.com/>

<http://www.girlsontherun.org>

Kristine is a mentor for a women's walking and running program called **First Strides** and a running buddy for **Girls on the Run, Lehigh County**.



Kristine Gilbert
Marketing Coordinator

First Strides promotes healthy lifestyle change and growth of fitness for women only in a series of weekly workshops include a group walk/run and a brief presentation on various topics: proper walk/run shoes, training principles, injury prevention, nutrition and much more.

Girls on the Run, Lehigh County is part of Girls on the Run International, a program designed to educate and empower girls at an early age to prevent the display of at-risk activities in the future. At-risk activities include substance/alcohol use, eating disorders, early on-set of sexual activity, sedentary lifestyle, depression, suicide attempts, and confrontations with the juvenile justice system. Girls on the Run is a life-changing experiential learning program for girls 8 to 13 years old. The program contains training for a 3.1 mile running event with self-esteem enhancing, uplifting workouts.



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Important dates



April 30	EEMPR for 1st Quarter due
May 15	Annual Air Emission Statements in NJ due
July 1	EPA Form R Report due (RPPR in NJ)
July 30	EEMPR for 2nd Quarter due
July 30	Semi-Annual Title V compliance Certification due in NJ, VA, CT
October 30	EEMPR for 3rd Quarter due

Spring Gardening

Gardening can be an extremely rewarding experience. The time you spend now can lead to a beautiful, lush garden in the summer months. Here are a few spring gardening tips to help get you started:



- Start your weeding now! Pulling weeds now from your planting beds helps cut down on spreading.
- Weeds are in check, now it is time to fertilize and mulch the planting beds.
- Prune...no, I am not talking about dried fruit. Spring is the best time to prune those shrubs that bloom early like forsythia. Trim them back as soon as they bloom has passed.
- Take care of your compost. Yes, many people tend to neglect it over the Winter. Don't have a compost bin? Now is a good time to start one!
- Get your tools ready...replacing what needs it too. You will be happy you did when you need them in Summer.
- The grass is always greener on the other side of the fence? Spring is the best time to plant a new lawn. If you already have established grass, it is ok to start trimming early...just don't trim too much the first few times.
- Deadhead those tulips and daffodils...but leave the rest of the plant for later.