

PERFORMANCE TESTING FOR BMACT AND MATS



CIBO Focus Group
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TODAY

General overview of how to approach the stack testing that is required to demonstrate compliance with emission limits

- ✘ Provide a list of items/issues to consider in setting up and conducting a testing project**
- ✘ Generate an “awareness” that “Operations” and “Environmental” are facing common issues**
- ✘ Specifically look at sorbent trap testing for Low Emitting EGU (“LEE”) in the MATS Rule**

STACK TESTING



SO, ...
YOU'LL BE STACK TESTING, EH?

*“You unlock this door with the key of imagination. Beyond it is another dimension ... You're moving into a land of both shadow and substance, of things and ideas. **You've just crossed over into ...**”*



STACK TEST? ... REALLY?

Regulatory requirements

- ✘ Periodic Demonstration of Compliance
- ✘ Periodic Demonstration that the Continuous Emissions Monitoring System (CEMS) are providing valid data.... A Relative Accuracy Test Audit (RATA)

OR, POSSIBLY....

“Internal” Reasons

- ✘ Evaluation of Equipment Performance Guarantees
- ✘ “Conducting a Study” – engineering / diagnostic / “what if”....

KEY STEPS - EARLY

Identify key players within company:

- ✘ Overall coordinator for operations
- ✘ Source Contact for test crew
- ✘ Who is Notified of results?



KEY STEPS - EARLY

If this is a test required (by rule, or permit, etc.), AND if it is non-routine, then consider identifying regulatory contact in advance



TEXAS COMMISSION
ON ENVIRONMENTAL QUALITY



SOURCE CONTACT



- Knowledgeable of operations & personnel
- Communication point between testers and Client (at the plant and at the office)
- Available during set-up
- Available during testing
- Identified early (preferably when project is bid; at least by time project is awarded)

KEY STEPS - EARLY

Most Important Concept:

**Keep everyone informed of
status and expectations**

Pre-test activities:

- × Site visit?
- × Identify testing location
- × Identify and clarify any safety concerns/issues
- × If a required test:
 - + Pre-test meeting with Agency?
 - + Agency notification – timing?

(still more) Pre-test activities:

× Define the Test:

- + Pollutant(s) to be tested?
- + What are the units of measure of the results?
- + Which test methods to use?
 - Permit/regulation requirement? **[DOUBLE-CHECK THIS]**
 - VE's required?

(and even more) Pre-test activities:

- × Define expectations
 - who (source? tester? consultant?) provides:
 - + Preparation of Sampling Plan Preparation of “Protocol” or “Intent to Test” or “Notification” (for required testing) –
 - + Submittal to agency?
 - + Input on appropriateness of methods?

CONCERNING THE TEST METHODS:



**Don't risk
being
transported
to
“Assumption
World”!**

SO MANY REGULATIONS...

Last count:

- ✘ 94 subparts for NSPS (40 CFR 60)
- ✘ 22 subparts for hazardous air pollutants (40 CFR 61)
- ✘ 133 subparts for NESHAPS (40 CFR 63)

Nuances in rules (example: “MATS Method 5”)

Suggestion: double-check the methodology!!



- ✘ Testing location ID:
 - ❑ Duct / stack measurements (meet requirements?)
 - ❑ Ports (properly located / clean)
 - ❑ Access



- × Expected:
 - Temperature
 - Flow
 - Pressure
 - Moisture
 - Concentrations

“PRESENTED FOR YOUR CONSIDERATION...”

Rod Serling, 1959

Operational contemplations

- ✘ Ramping up for the big day:
 - + Try to schedule maximum load prior to test
 - + Replace all the bags in the baghouse
- ✘ Optimize the “study” test program?
 - + If checking “what if?” scenarios, what potential unintended consequences to consider?
 - + Concurrent testing of “other” constituents

MORE TO CONSIDER...

Test Day:

- ✘ Stable operations...
 - + load swings cause heartaches; “nobody else messes with any operations on test day”
 - + Fans, dampers, valves, etc.... IMPORTANT
- ✘ Awareness of process time constraints
- ✘ Collect concurrent process data... as much as practical – look for relationships

-
- × Define Post-Test Activities (the REPORT):
 - + Specific units (lb/hr, lb/mmBTU, ppm @ 7%O₂)
 - + Preliminary results?
 - + Draft for review?

 - × Submittal:
 - + Timetable
 - + Whose responsibility?

SELECTING THE TEST CONTRACTOR

Factors (no special order):

- ✘ Previous work / reputation
- ✘ Availability
- ✘ Personnel experience
- ✘ Cost
- ✘ Safety record
- ✘ Insurance coverage
- ✘ “Certification” ????



“CERTIFICATION”

“Air Emission Testing Body”:

- ✘ Required for Part 75 and Part 72 affected sources
- ✘ Is your tester “certified”?
- ✘ If not now, are there plans to obtain certification?
 - + If yes, when and how?
 - + If no, why not? (not automatic exclusion)

HISTORY?

- ✘ Has this been tested before?
- ✘ If so, are you willing to share test results?
- ✘ What are expected results?



OTHER THOUGHTS

- ✘ Any advantage to preliminary testing prior to a compliance test?
- ✘ Did you consider any contingency day(s)?
- ✘ If you have never been involved before, and this is now your baby, plan ahead and ASK QUESTIONS possible resources:

RESOURCES

- ✘ Who did this before?
- ✘ Consultant
- ✘ Trade association
- ✘ Testing company (disclaimer)
- ✘ On-line ...
 - + <http://www.epa.gov/oecaerth/resources/policies/monitoring/caa/stacktesting.pdf>
 - + www.activeset.com
 - + www.epa.gov/ttn/emc/promgate.html

SUMMARY OF THE OVERVIEW

Measuring emissions (for EPA or for internal use) should not be taken lightly... nevertheless, there is a wealth of information, as well as competent and experienced contractors, that can get you through the labyrinth.

Be sure to allow plenty of....

TIME to learn the options,

ENERGY to tackle the unknown,

and BUDGET to implement (sorry, but it is true)

ON TO THE NEXT TOPIC

LEE

CLASSIFICATIONS WITHIN BMACT & MATS

- There are 21 categories of Boiler MACT “existing major sources”
- There are 21 categories of Boiler MACT “new major sources”
- There are 7 categories of Boiler MACT “area sources”
- There are 6 categories of MATS “existing sources”
- There are 6 categories of MATS “new sources”

SO, WHAT'S THE SCOOP ON “LEE” ALTERNATIVES?

*pssst... first, need to know that
“EGU” = Electric Generating Unit
utilized in MATS Rule, and other places*

“LEE” = Low Emitting EGU

LEE STATUS

- ✘ LEE Status provides for reduction in some stack testing and CEMS requirements
- ✘ Source may NOT pursue LEE Status if:
 - + EGU has acid gas scrubber and has a main stack and bypass stack
 - + if EGU is new (for Hg)

LEE STATUS

Source qualifies if:

- ✘ For HCl, HF, filterable PM, total non-Hg HAP metals.... Three (3) consecutive years of performance test emission results less than 50% of applicable emissions limit
- ✘ For Hg, either:
 - + Emissions less than 10% of applicable limit
 - + Potential Hg emissions no more than 29 lbs Hg/yr AND compliance with applicable limit

LEE STATUS

For all except Hg:

Status determined after three (3) consecutive years of performance test results, all less than 50% of applicable emissions limit... on a pollutant-by-pollutant basis

LEE STATUS

For all except Hg:

To maintain LEE Status, source must conduct a performance test every three (3) years that successfully demonstrates emissions are less than 50% of applicable emissions limit

LEE STATUS

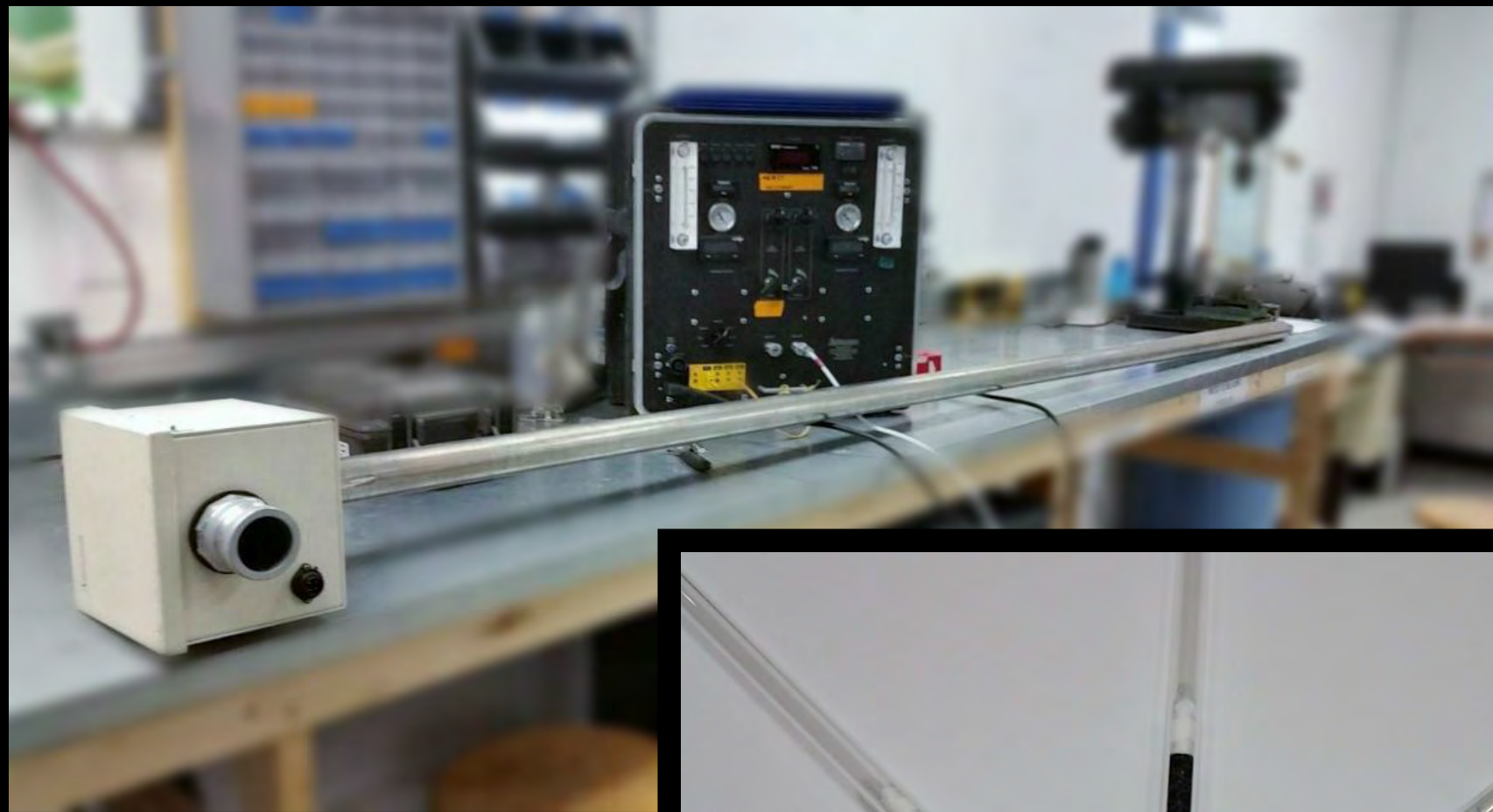
For Hg:

- ✘ Status can be determined “immediately” (*i.e.*, do not have to have 3 consecutive years of performance test results)
- ✘ Must conduct 30-boiler-operating-day performance test, using Method 30B (sorbent traps)

Details....

LEE HG DEMONSTRATION

- ✘ Method 30B (40 CFR 60, Appendix A)
- ✘ Single-point sampling at center of stack/duct ($\pm 10\%$)
- ✘ At least 3 test runs, no longer than 10 days each
- ✘ Paired traps



LEE HG DEMONSTRATION (CONT'D)

Must also have some additional concurrent data

- × Diluent (O_2 or CO_2) –
 - + Part 75-certified CEMS
 - + Method 3A
- × Stack gas flow
 - + Part 75-certified CEMS
 - + Method 2 or 2F or 2G

and...

LEE HG DEMONSTRATION (CONT'D)

- ✘ Stack gas moisture – several options....
 - + Method 4
 - + Moisture monitor – Part 75 certified
 - + Default moisture value
 - + Alternative approved by Administrator
- ✘ Hourly electrical load data (lbHg/GWh)

Detailed calculations in 40 CFR 63.1005(h)

LEE STATUS

For Hg:

To maintain LEE Status, source must conduct a performance test every year (12 months) that successfully demonstrates emissions are less than 10% of applicable emissions limit

**There are not the same
options within BMACT**



QUESTIONS?

**Thank you
very much!**

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