STACK TESTING 101
HOW TO GET READY FOR A STACK TEST

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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

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 …****"*

www.ThisDayinQuotes.com

The
Twilight
Zone

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

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…

- 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 <u>any</u> 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%O_2)**
  - **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)

QUESTIONS?

Thank you very much!

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