

ERM Air Quality Roundtable

February 21, 2018

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The business of sustainability



Health & Safety Moment - Mindfulness



- Focus on a single task for an allotted amount of time – prioritize and resist the urge to deviate from your plan.
- If (when) you get stuck in a task, change your physical environment to stimulate your senses.
- Delegate! Have compassion for yourself, and reach out for help.
- Stay practical – be practical in what you expect of yourself or your team, especially knowing they are under similar stresses.
- Focus on the now – quiet the constant chatter in your head and ignore distractions. Focus on the present, not what has happened or what could happen, but what IS happening. Simply know where your attention is at all times.

#57185 - While walking to my vehicle with another colleague, I was on my phone and my colleague slowed me down as a car was fast approaching.

#56923 - Subcontractors were rushing to complete their work, therefore the work completed was sloppy and potentially unsafe.

#56878 - An ERM employee almost walked into a wall due to being distraction by a poster that was recently displayed.

#56761 - I cut my finger while chopping vegetables at home. I observed that I routinely do not pay enough attention while cooking at home.

#56515 - During the H&S tailgate meeting, ERM contactors were distracted by cell phones. ERMer asked contractors to put away cell phones during the remainder of the meeting so they can pay better attention.

#55984 - Tailgate discussion about working safely and taking our time on site; it is Friday and everyone is excited to get home. Getting home safe is most important.

(t!)

Agenda for Today's Roundtable

Time	Topic
1:00 pm – 2:00 pm	Regulatory Reform
2:00 pm – 3:00 pm	Air Compliance Best Practices
BREAK	
3:00 pm – 4:00 pm	Air Permitting Strategy Considerations
4:00 pm – 4:30 pm	Stack Testing Best Practices & New Issues
4:30 pm – 5:00 pm	Open Discussion & Wrap Up

Join us for Happy Hour at Radio Milano: 5:00 pm onwards

Regulatory Reform & Impact on Business Planning



Regulatory Reform: Is it Helping Yet?

Tools & Tactics

- Executive Orders
- Congressional Review Act
- Legislative Repeal
- Nominees
- Defunding
- Litigation Tactics
- Delays/Extensions
- Notice & Comment Rulemaking



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Agency Rule List - Update 2017

Environmental Protection Agency

Agency	Agenda Stage of Rulemaking	Title	RIN
EPA/OGC	Proposed Rule Stage	Revision of Procedural Rules for Hearings on Cancellations, Suspensions, Changes in Classifications, and Denials of Pesticide Registrations	2015-AA00
EPA/OEI	Proposed Rule Stage	Environmental Protection Agency Freedom of Information Act Regulations Update	2025-AA38
EPA/OEI	Proposed Rule Stage	Revisions to 40 CFR Part 2, Subpart b (Confidentiality of Business Information)	2025-AA39
EPA/OEI	Proposed Rule Stage	E-Discovery Privacy Act and Privacy Act Exemptions	2025-AA40
EPA/OW	Proposed Rule Stage	Federal Mercury Aquatic-Dependent Wildlife Criteria Applicable to California	2040-AF65
EPA/OW	Proposed Rule Stage	Federal Numeric Nutrient Criteria Applicable to Missouri Lakes	2040-AF69
EPA/OW	Proposed Rule Stage	Federal Aluminum Aquatic Life Criteria Applicable to Oregon	2040-AF70
EPA/OW	Proposed Rule Stage	Rule to Withdraw of Certain Federal Water Quality Criteria for Lead Applicable to California	2040-AF71
EPA/OW	Proposed Rule Stage	Rule to Withdraw Certain Federal Water Quality Criteria for Chlorodibromomethane Applicable to California	2040-AF72
EPA/OW	Proposed Rule Stage	Rule to Withdraw Certain Federal Water Quality Criteria for Dichlorobromomethane Applicable to California	2040-AF73
EPA/OW	Proposed Rule Stage	Definition of "Waters of the United States" – Recodification of Preexisting Rules	2040-AF74
EPA/OW	Proposed Rule Stage	Second Action: Definition of "Waters of the U.S."	2040-AF75
EPA/OW	Proposed Rule Stage	Postponement of Certain Compliance Dates for Effluent Limitations Guidelines and Standards for the Steam Electric Power Generation Unit Source Category	2040-AF76

Competing Priorities

- Nominees
- Immigration
- Tax Reform
- Obamacare
- International Trade
- Finance Industry
- 25 Million Jobs
- \$1T in Infrastructure
- Environmental Policy

Go to www.menti.com

Quick Poll - 2 Questions:

- 1 Grab Your Phone
- 2 Go to www.menti.com
- 3 Enter code 75 80 3 and vote

A Closer Look at What's Been Done

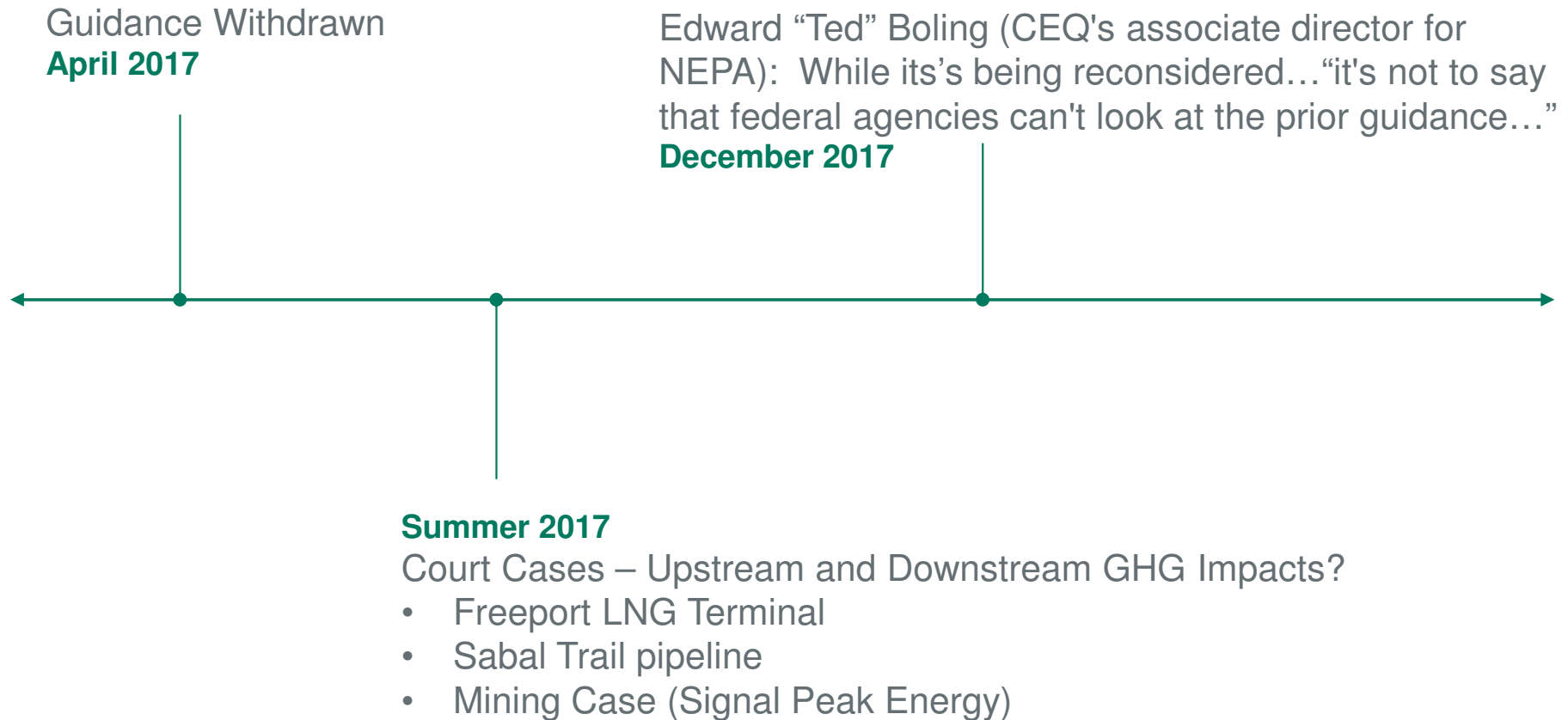
NSR Reform

- 12/7 Memo on Actual-to-Projected-Actual Test
- 2/14 House Subcommittee Hearing
- EPA Task Force/External Coalition
- Bill Wehrum's perspective

Recommendation	Notes to Consider
Eliminate the need to consider emissions increases in non-modified emissions units	Policy and guidance?
Allow Project Netting	Note this was once allowed
Use Potential-to-Potential comparison to determine modification applicability	Would need regulatory language and to be squared with DC Court precedent
Define the term "Project"	Removing the 2009 rule stay is one path forward

A Closer Look at What's Been Done

CEQ Climate Guidance



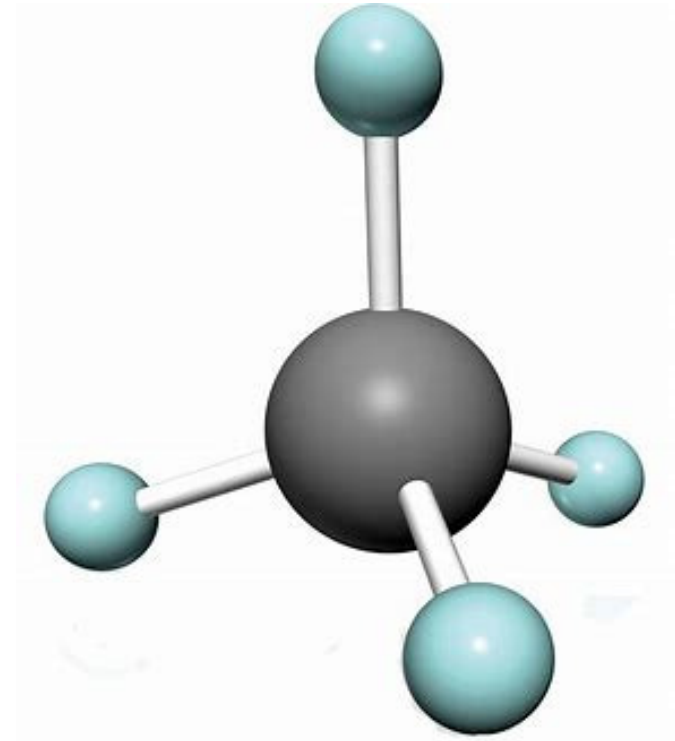
A Closer Look at What's Been Done

Subpart OOOOa

- To Stay or Not To Stay?
- Reconsideration Process Finally Moving
- Technical Fixes and Improvements to Rule
- Regulation of Methane

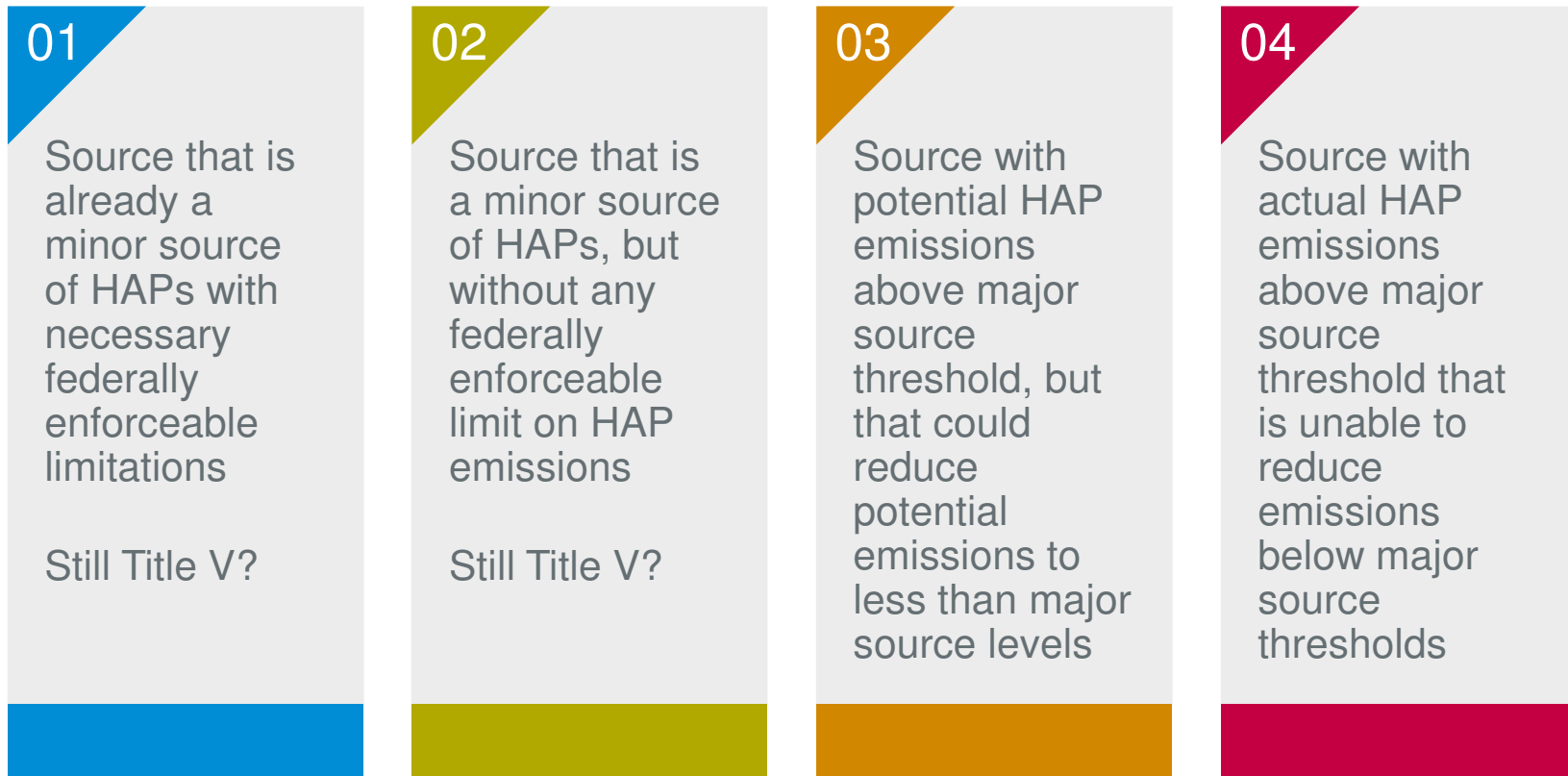
Intertwined Issues

- Status of Control Techniques Guidelines
- Existing Source Methane Rule



A Closer Look at What's Been Done

Once In, Always In for MACT



Regulatory Reform: How Will You Shift?

How does your management feel about the uncertainty, any backlash?

- **States:** Growing Patchwork?
- **NGOs:** Angrier and better funded?
- **Shareholders:** Getting more aggressive?

Air Compliance Best Practices



Permit Enforceability

State-Specific Issues

- Enforceability of information represented in permit application
- Permit limits without compliance demonstration requirements
- Permits-by-Rule: ensuring on-going compliance with facility modifications

Trends in Enforcement

- Literal interpretation vs. intent of permit conditions

Modernization Programs - Benefits

Increase future permitting flexibility

- Replacing equipment may allow a major source to become a minor source
- Replacing aging equipment improves air modeling results for future modifications

Decrease risk profile

- Game changer: 2010 1-hr NO₂ NAAQS
- PSD air modeling by neighboring development projects may indicate potential 1-hr NO₂ exceedance

LDAR Compliance

- Applicability
- Delay of repair and unplanned shutdowns or blowdowns
 - [§60.5397a(h)(2)] If the repair or replacement is technically infeasible, would require a vent blowdown, a compressor station shutdown, a well shutdown or well shut-in, or would be unsafe to repair during operation of the unit, the repair or replacement must be completed during the next compressor station shutdown, well shutdown, well shut-in, after an unscheduled, planned or emergency vent blowdown or within 2 years, whichever is earlier.
- Blowdown stacks considered open-ended lines?
- Data management

Quad Oa

- Pneumatic Controllers
 - Tracking of new or replaced controllers
 - Documentation and reporting of bleed rate
 - Manufacturer's specifications vs. actual operating conditions
 - Air bleed rate vs. pneumatic
- Applicability and requirements for rod-packing replacement
- EPA Electronic Reporting Tool
 - Who has used the system? Any lessons learned?

Turbine Core Replacement - PA

- Should be considered routine maintenance repair and replacement (RMRR)
- Implementation of RACT w/o rulemaking
- 15-year limit on core replacement

Break Time



Air Permitting Considerations



Update - Nonattainment Status for Houston

D.C. Circuit Rejects Obama-Era Policy For Revoking Older Ozone NAAQS

Potential Impacts

- Emission Offsets (1:1.15 for moderate v/s 1:1.3 for severe)
- Nonattainment NSR and Title V major source thresholds (NNSR – 100 tpy for moderate v/s 25 tpy for severe
Title V – 100 tpy for moderate v/s 25 tpy for severe)
- Netting thresholds (get lowered to 5 tpy from 40 tpy)

Go to www.menti.com

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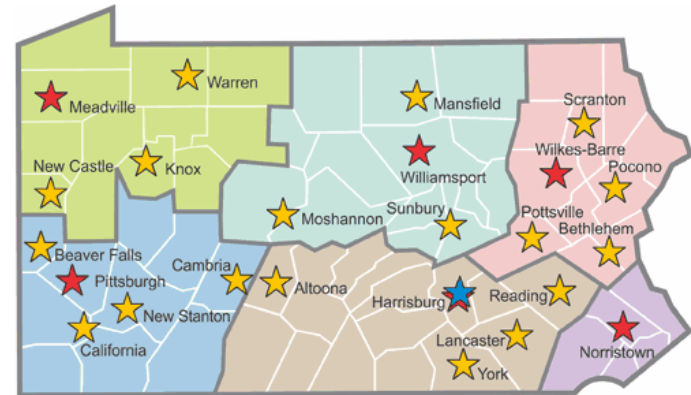
Expanding Modeling Requirements?

- Modeling in support of Title V Renewals?
- Dispersion modeling for NAAQS Compliance Demonstration due to Off-site Project
- Expanding air toxics modeling requirements in NJ

Pennsylvania GP-5

Expected around end of 1Q 2018

- New BAT Levels – Turbines and Engines
- Quarterly LDAR
- Methane Control Threshold – 200 TPY
- Pigging Considerations



Related Issues

- PADEP trying to implement electronic permitting
- Impact of Burden on Agency Resources?

Other PA Issues

- Permit Fees being reviewed – Pressure to include GHGs

See December 2017 AQTAC Meeting Documents for more detail

<http://www.dep.pa.gov/Business/Air/BAQ/AdvisoryGroups/Air-Quality-Technical-Advisory-Committee/Pages/Archive.aspx>

Pennsylvania GP-5 - Establishing BAT Floor

Re-determined BAT requirements based on additional information received from public comments

Turbine Rating (bhp)	NO_x (ppmdv @ 15% O₂)	CO (ppmdv @ 15% O₂)	NMNEHC (as propane) (ppmdv @ 15% O₂)	Total PM (lbs/MMBtu)
1,000 ≤ TR <5,000	25.00	25.00	9.00	0.030
5,000 ≤ TR <15,900	15.00 Uncontrolled or 1.75 with Control	10.00 Uncontrolled or 1.75 with Control	5.00 Uncontrolled or 4.50 with Control	0.030
≥15,900	9.00 Uncontrolled or 1.50 with Control	10.00 Uncontrolled or 1.75 with Control	5.00 Uncontrolled or 4.50 with Control	0.030

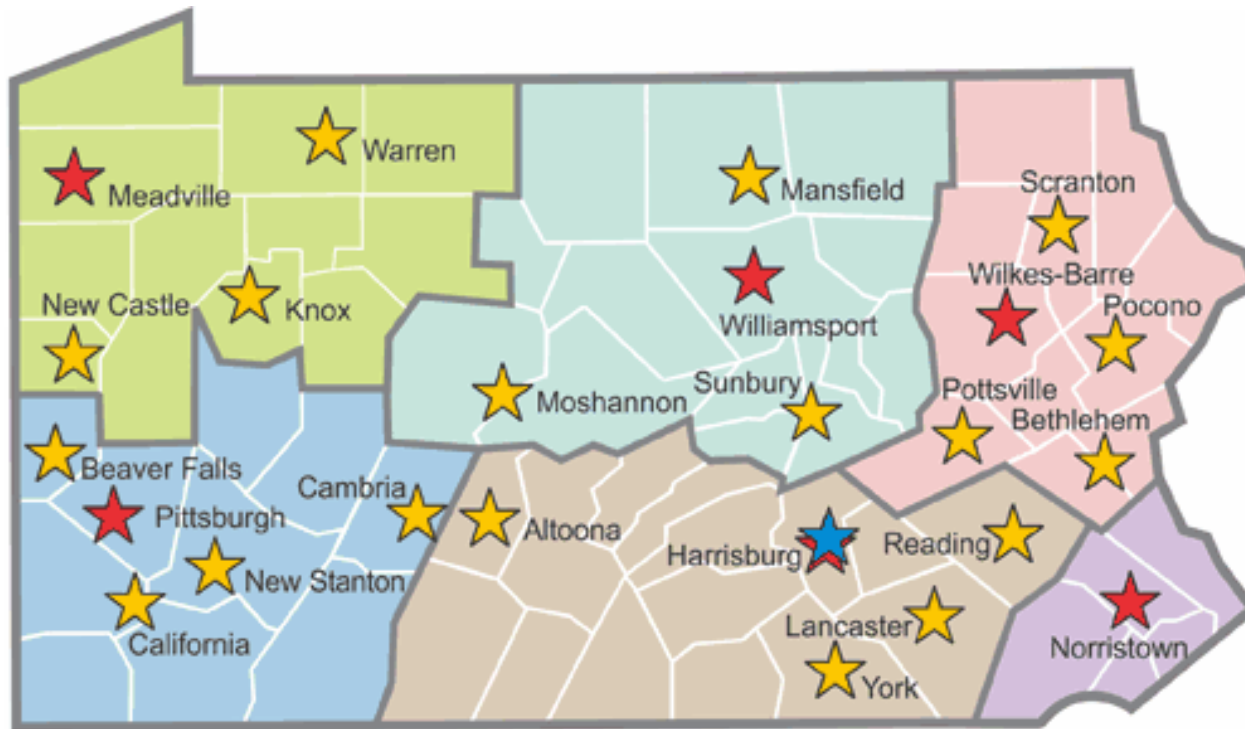
Pennsylvania GP-5 - Establishing BAT Floor

Re-determined BAT requirements based on additional information received from public comments

Engine Type	Rated bhp	NOx	CO	NMNEHC (as propane excluding HCHO)	HCHO
Lean-Burn	500 < ER <1,875 2,370	0.50 g/bhp-h	0.25 g/bhp-h	0.25 g/bhp-h	0.05 g/bhp-h
Lean-Burn	1,875 ≤ ER <3,000 ≥2,370	0.35-0.30 g/bhp-h Uncontrolled or 0.05 g/bhp-h with Control	0.25 g/bhp-h	0.25 g/bhp-h	0.05 g/bhp-h
Lean-Burn	≥ 3,000	0.05 g/bhp-h	0.25 g/bhp-h	0.25 g/bhp-h	0.05 g/bhp-h

Pennsylvania – Turbine Core Replacements

PADEP HQ Guidance – Fall 2017



Recent Experience?

- Are Regions Following?
- Variability Across State?

Consistency of Defining PTE

Get smarter about SU/SD emissions?

- Level of granularity and representativeness

Which emissions are being accounted for?

- Engine burn in period
- Compressor rod packing leaks
- Double seal purge gas venting?

Emission Rates / Emission Factors

- PM/PM₁₀/PM_{2.5}: Solar #s vs. AP-42 vs. available test data?
- Condensable PM

Operational Flexibility – Best Practices/Lessons Learned?

1. Compliance with emission limits during stack testing
2. MSS emissions – startups and shutdowns
3. Representative specs from manufacturer

Engine Swings

Permitting implications if replacing an existing engine with new engine of same or smaller size.

If existing engine is
NOT subject to NSPS
and MACT

If existing engine is
subject to NSPS and
MACT

Stack Testing Best Practices & New Issues



Agenda

- **Pre-test**
 - Scheduling
 - Communication
- **Ensuring compliance**
 - Diagnostic checks
 - Calibration
 - Cancel or abandon test
 - What constitutes a valid test
- **PM testing**
 - Types of PM
 - Method 202 issues
- **Credible evidence**

Pre-test

- **Scheduling**
 - Coordinating test with Gas Control and Operations
 - Meeting prior to calendar year to review test schedule
 - Ensure units can operate
 - Outlook calendar notice
- **Communication**
 - Analyst (internal or external)
 - Pollutants
 - Emission limits
 - Test method
 - Check if ports are Method 1 compliant
 - Notifications to state agencies
 - Who will interact with regulator?

Ensuring Compliance

- **Diagnostic check prior to test**
 - Should it be done?
 - When is it needed
 - History of excess emissions
 - Unit has not been tested
 - Recent overhaul
 - Tight emission limits
 - Performed by Engine Analyst
 - Handheld or portable analyzer
 - Spot check/short runs
 - Ideally two to eight weeks prior to test

Ensuring Compliance

- **Day of test**
 - Before starting the first test run
 - Note any issues or concerns with compliance during pre-test calibration
 - If the unit is not operating properly the test should not be conducted
 - Risk of not meeting an emission limit is an indication that the unit is not operating properly
- **Canceling or abandoning a test**
 - Ideally post calibration and prior to starting first test run
 - More test time generates more credible evidence
- **Valid test**
 - At least two valid runs

PM Testing

- **Filterable and condensable PM**
 - Filterable or “front half”
 - Methods 5/17/201/201A
 - Condensable or “back half”
 - Method 202 – dry impinger method
 - Vapor at stack conditions – condenses when cooled
 - Use an experienced vendor
 - Understand formation of artifacts
 - Post-test nitrogen purge of at least 1-hour reduces the formation of artifacts by at least 90%*
 - Chilling sample bottles to 6°C after recovery reduces the rate of SO₂ conversion to sulfate artifact*
 - Easy to contaminate sample
 - Long run times (method specifies)

* EPA Method 202 Best Practices Handbook

PM Testing

- **Filterable and condensable PM cont.**
 - Units equipped with SCR
 - Account for ammonium sulfate salts
 - NH_4 slip reacts in the impinger to form ammonium sulfate and ammonium bisulfate
 - Assume all SO_3 formed converts to ammonium sulfate (MW: 132)

Solar PIL 171

“The turbine combustion process has little effect on the particulate matter generated and measured. The largest contributor to particulate matter emissions for gas and liquid fired combustion turbines is measurement technique and error. [...] There are many potential error sources in measuring particulate matter. Most of these have to do with contamination of the samples, material from the sampling apparatus getting into the samples, and general human error in samples and analysis.”

“[The] turbine should have a minimum of 300 operating hours prior to conducting particulate matter source testing. The turbine should be running for 3-4 hours prior to conducting a particulate matter source test”

“Testing should include three 4-hour test runs.”

Tie In with Credible Evidence Rule (CE)

Response to comments on CE revisions (February 12, 1997):

“EPA does not agree that the CE revisions will have the effect of shortening or otherwise changing averaging times.”

“[I]n the absence of a clearly specified averaging time, the time for conducting the reference test is generally the averaging time for compliance. The appropriate averaging time could then be added to the part 70 permit, subject to public notice and comment, and EPA review.”

Open Discussion & Wrap Up



Thank You!

Join us at Radio Milano for Happy Hour

