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Air Quality *Hot Topics* for Industrial Facilities in Tennessee

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Presentation Outline

1. SSM SIP Rule - possible TDEC SIP changes?
2. Ozone NAAQS - could your area be nonattainment one day?
3. Boiler MACT - compliance options?
4. NSPS Reports - is electronic reporting in the future?

SSM - Startup, Shutdown, or Malfunction

- > **Startup** (the setting in operation of a source for any reason) and **Shutdown** (the cessation of operation of a source for any reason)
 - ❖ Predictable periods of operation
 - ❖ Emissions maybe higher during startup due to operational considerations or control technology limitations
- > **Malfunction** (a sudden and unavoidable breakdown of process or control equipment); “Upset” and “breakdown”
 - ◆ It is possible for a malfunction to occur during startup, shutdown, or normal operation
- > Does not include periods of maintenance

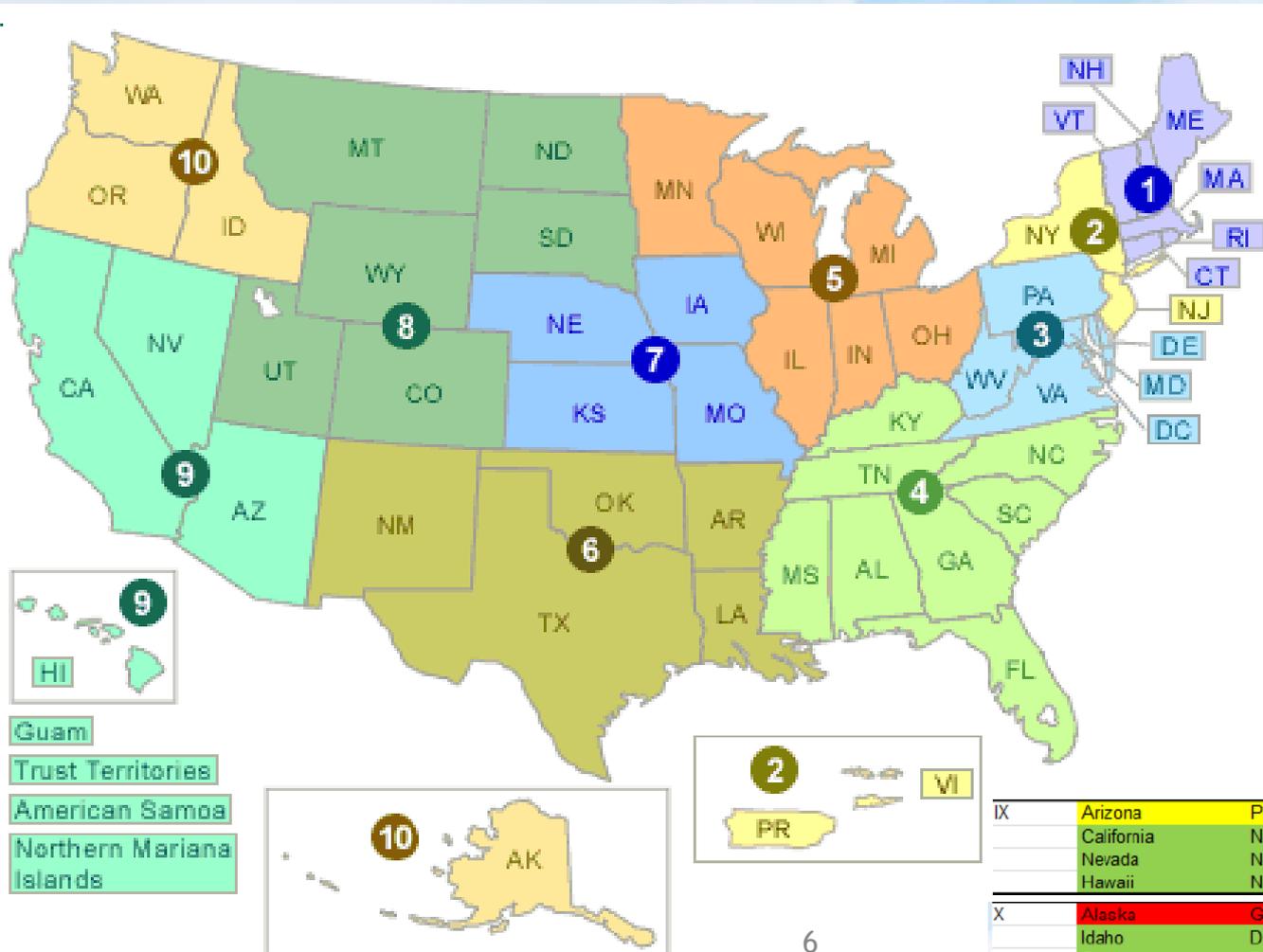
Planned vs. Unplanned/Malfunction

- > Furnace blasting to start batch operations
- > **Electricity Outage** vs. Scheduled Outage
- > Plant-wide turnarounds
- > Instrument purging, cleaning, and repair
- > Equipment's Predictive Maintenance Activities
- > **Fire/Hurricane**
- > Boiler start-up **and associated malfunction**
- > Emergency generator tune-up and use

2011 Sierra Club Petition

- > Historically, many State Implementation Plan (SIPs) used by states to implement Federal air pollution rules have included blanket provisions allowing varying kinds of automatic forgiveness for violations of many emission standards during periods in which the associated equipment was in the process of a SSM event
- > A 2011 *Sierra Club* petition to EPA pointed out that the SSM provisions of the SIPs of 39 states were inconsistent with the wording of the CAA and were impermissible, particularly when treating planned events the same as unplanned events (ex. malfunctions)

Feb. 2013 EPA Proposal- Affected States



- 9 HI
- Guam
- Trust Territories
- American Samoa
- Northern Mariana Islands



I	Maine	Grant
	New Hampshire	Partial Grant/Deny
	Rhode Island	Grant
	Vermont	No Action
	Massachusetts	No Action
	Connecticut	No Action
II	New Jersey	Partial Grant/Deny
	New York	No Action
	Puerto Rico	No Action
	US Virgin Islands	No Action
III	Delaware	Grant
	District of Columbia	Partial Grant/Deny
	Virginia	Grant
	West Virginia	Grant
	Maryland	No Action
	Pennsylvania	No Action
IV	Alabama	Grant
	Florida	Grant
	Georgia	Grant
	Kentucky	Grant
	Mississippi	Grant
	North Carolina	Grant
	South Carolina	Partial Grant/Deny
	Tennessee	Grant
V	Illinois	Grant
	Indiana	Grant
	Michigan	Grant
	Minnesota	Grant
	Ohio	Partial Grant/Deny
	Wisconsin	No Action
VI	Arkansas	Grant
	Louisiana	Grant
	New Mexico	Grant
	Oklahoma	Grant
	Texas	No Action
VII	Iowa	Partial Grant/Deny
	Kansas	Grant
	Missouri	Partial Grant/Deny
	Nebraska	Deny
VIII	Colorado	Partial Grant/Deny
IX	Arizona	Partial Grant/Deny
	California	No Action
	Nevada	No Action
	Hawaii	No Action
X	Alaska	Grant
	Idaho	Deny
	Oregon	Deny
	Washington	Grant

2014 - Court Case

- > April 2014 - Natural Resources Defense Council v. EPA & Cemex
 - ❖ Ruled that EPA did not have the authority to allow for special treatment of malfunction events with excess emissions for NESHAP standards that control hazardous air pollutants (aka MACT standards)
- > September 2014 - EPA proposes to apply these changes to malfunctions as well
 - ❖ This only affects 17 states

May 2015 - Final Action

> Final action:

- ❖ Responds to 2011 Sierra Club Petition
- ❖ Clarifies the EPA's SSM Policy
- ❖ Finalizes the Administrator's findings that the SSM provisions in the SIPs of **36** states (45 jurisdictions) do not meet the requirements of the CAA
- ❖ SIP Call - required to submit changes to their SIPs within 18 months (by 11/22/16)
 - ◆ TDEC, Shelby County, Knox County

TDEC's SSM Rule

1. Objection to provisions that authorize a state official to decide whether to “excuse or proceed upon” violations of SIP emission limitations that occur during SSM events (1200-3-20-.07(1))
2. Objection to provision that excludes excess visible emissions from the requirement that TDEC automatically issue a NOV for all EE (1200-3-5-.02(1))

Possible SIP Options

1. Remove SSM exclusions - i.e., emission limits apply continuously
2. Revise emission standards - provide different emission limit for SSM events
3. Create alternative work practice standards during SS events
4. Add enforcement discretion language

Possible Facility Action Items

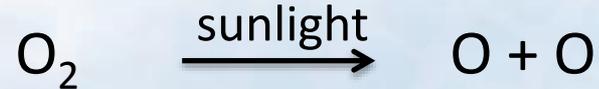
- > Stay up-to-date on how your agency might be handling the SIP Call
 - ❖ 11/16 - EPA SIP submittal deadline
- > Compile a list of SSM events
 - ❖ Quantify emissions from potential activities

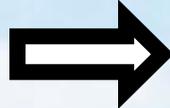
Avoiding SSM Trouble

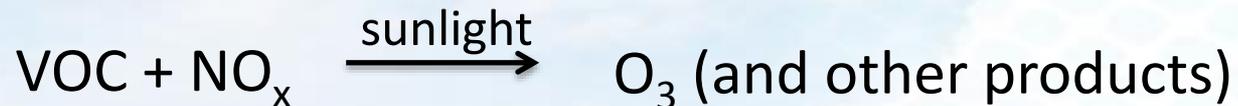
- > Evaluate options for demonstrating compliance with SS events as well as eliminating the cause of M events (upsets)
 - ❖ Why are EE occurring during SS events? Would emissions be better if SS were done faster/slower?
 - ❖ Try to predict when malfunctions would cause an emission problem - is there a procedural change that could reduce emissions?

Ground Level Ozone Formation

Stratospheric Ozone  Good



Ground-level Ozone  Bad



Historical Ozone NAAQS (1971-2008)

Final Rule/Decision	Primary/Secondary	Indicator ⁽¹⁾	Averaging Time	Level ⁽²⁾	Form
1971 36 FR 8186 Apr 30, 1971	Primary and Secondary	Total photochemical oxidants	1-hour	0.08 ppm	Not to be exceeded more than one hour per year
1979 44 FR 8202 Feb 8, 1979	Primary and Secondary	O ₃	1-hour	0.12 ppm	Attainment is defined when the expected number of days per calendar year, with maximum hourly average concentration greater than 0.12 ppm, is equal to or less than 1
1993 58 FR 13008 Mar 9, 1993	EPA decided that revisions to the standards were not warranted at the time				
1997 62 FR 38856 Jul 18, 1997	Primary and Secondary	O ₃	8-hour	0.08 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
2008 73 FR 16483 Mar 27, 2008	Primary and Secondary	O ₃	8-hour	0.075 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years

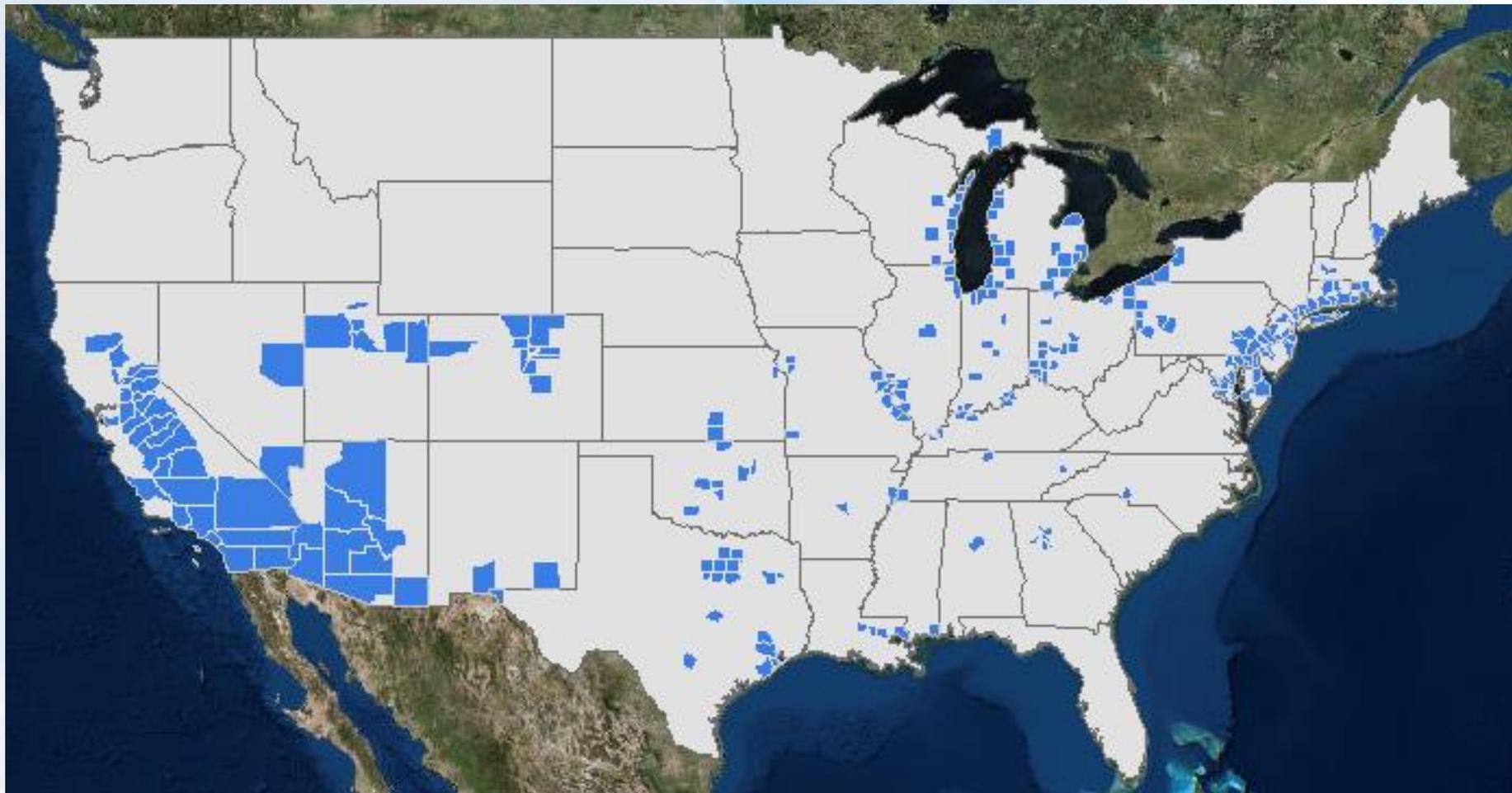
2008 Revised 8-hr Ozone NAAQS Nonattainment Area

- > Knoxville - Blount, Knox, and Anderson (partial) counties
 - ❖ Marginal Nonattainment area
 - ❖ Redesignated to Attainment in July 2015 (effective August 2015)
- > Memphis - Shelby County
 - ❖ Marginal Nonattainment area

Final 2015 Ozone NAAQS

- > 70 ppb based on fourth-highest max. daily 8-hour concentration per year, averaged over three years
- > Grandfathering provision for certain preconstruction permits
- > Public engagement items - updates to ozone monitoring season and air quality index (AQI)

Current Compliance with Revised Ozone NAAQS



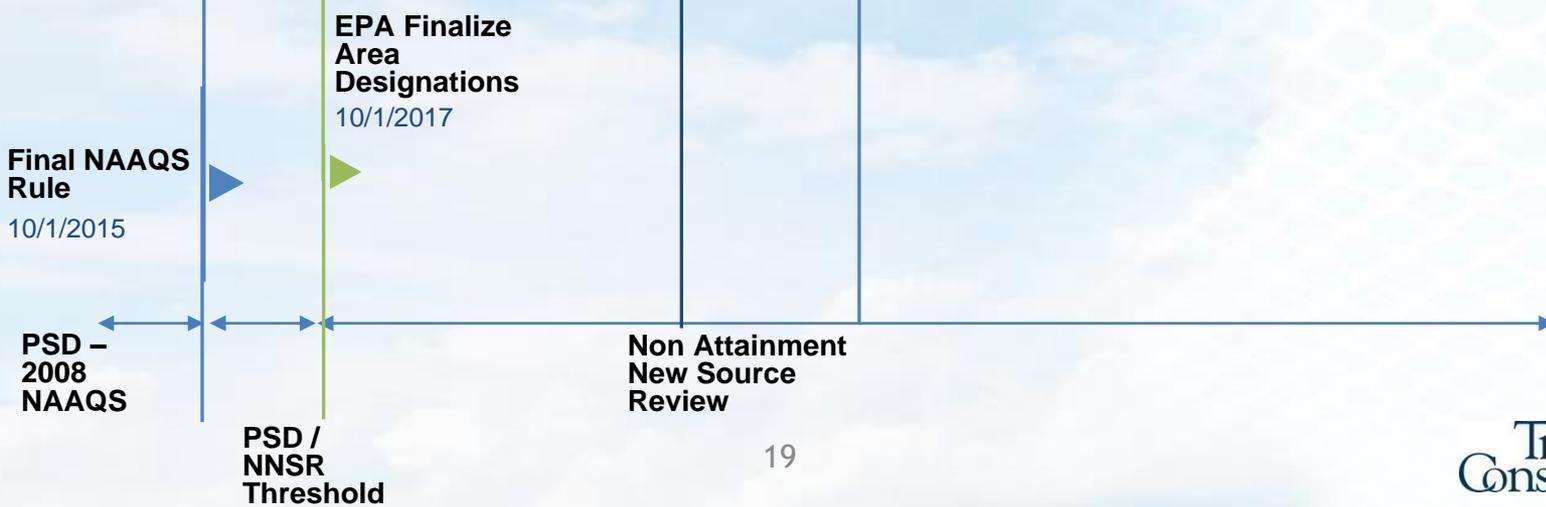
2012-2014 data shows 241 counties in violation of the 2015 revised ozone standard

EPA Projected Compliance with Proposed Ozone NAAQS

EPA projects that most counties will meet the new ozone standards in 2025



Final Rule Timeline



What's So Bad About Non-Attainment?

- > Nonattainment New Source Review Permitting
 - ❖ Additional permitting requirements come into effect
 - ◆ Lowest Achievable Emission Rate (LAER) - emissions control for NO_x or VOC emissions
 - ◆ Emission Offsets - 1) reduce emissions at site, 2) purchase reduction credits from another company
- > State Regulatory Requirements
 - ❖ Implementation of Reasonably Available Control Technology (RACT) for certain source categories
 - ❖ Facility specific requirements
- > Title V Major Source Threshold
 - ❖ Potentially reduced for VOC and NO_x (10, 25, 50, 100 tpy?)

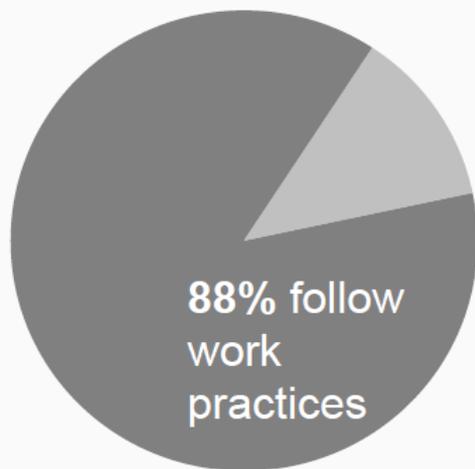
What Can You Do?

- > Review proposed ozone standard
- > Understand ozone trends in your area
- > Stay current in the public designation process
- > Evaluate timing of future projects
 - ❖ Apply for permits as soon as possible if your area will be impacted by the new ozone standard!
- > What will future permitting require for a demonstration of compliance with the new ozone standard?

Coverage of Boiler MACT Regulations

Major Source Boilers

About 14,000 covered units



12% have numerical emission limits

88% follow work practices

88% (about 12,300) would need to follow work practice standards, such as annual tune ups, to minimize toxics.

12% (about 1,700) would need to meet numerical emission limits to minimize toxics.

Area Source Boilers

About 183,000 covered units

No natural gas boilers are covered by this rule.



Less than 1% have emission limits

99% follow work practices

99% (about 182,400) would need to follow work practice standards, such as tunes ups on a biennial or 5-year basis, to minimize toxics.

Less than 1% (about 600) would need to meet emission limits to minimize toxics

Major Source Boiler MACT Applicability Decision Flow

- > Is unit a boiler or process heater?
 - > Does it combust fuel (rather than a solid waste)?
 - > Is facility a major HAP source?
 - > Confirm it is not in an exempted category
-
- > Is it a new or existing unit?
 - ❖ New: Constructed after June 4, 2010
 - > What type of fuel(s) are fired?
 - > What subcategory does unit fall into?

Subcategories **NOT** Subject to Any Emission Standards

- > Boilers < 10 MMBtu/hr (any fuel)
- > Limited Use Boiler/Process Heater
 - ❖ Has federally enforceable average annual capacity factor of no more than 10%
- > Metal Process Furnaces
- > “Gas 1”-fired boilers and process heaters
 - ❖ Natural gas or Refinery gas
 - ❖ “Other Gas 1”
 - ◆ Contains < 40 mg/m³ of mercury

Compliance Requirements - General

> Compliance with emission limits

- ❖ Stack testing, or
- ❖ Fuel analysis (HCl, mercury, TSM), or
- ❖ Continuous monitoring system (CMS)
 - ◆ CEMS
 - ◆ COMS
 - ◆ CPMS
 - ◆ PM CPMS



All require site-specific testing or monitoring plan

> Site-specific monitoring plan

- ❖ Also applies if petition Administrator for alternative monitoring parameters
- ❖ Submit upon request
- ❖ Does not apply to sources with existing CEMS or COMS operated per Appendix B of Part 60 that meet §63.7525

Boiler MACT Briefing - Potential Issues

> Malfunction

- ❖ EPA did not account for malfunctions when setting limits, but this is required by CAA §112
- ❖ EPA cannot set a numeric limit for malfunctions and must do work practice standards

Lessons Learned (1 of 2)

- > EPA's Electronic Reporting Tool (ERT), Version 5.0
 - ❖ Create and submit test plans as well as calculate and submit the test results (CDX registration)
 - ❖ Confirm testing firm will complete submittal
- > Boiler MACT Compliance Reporting with EPA's CDX CEDRI
 - ❖ More than one report can be required from same unit under §63.7550(c) if different compliance methods used for different pollutants
 - ❖ CEMS form does not include all CMS systems

Lessons Learned (2 of 2)

- > Continuous Operating Parameters (via testing)
 - ❖ Compliance with operating limit for “operating load” maintained through 30-day rolling average
- > Compliance with O₂ Operating Limit Required for units subject to CO limit
 - ❖ CO performance testing
 - ❖ O₂ analyzer system
 - ❖ Oxygen trim only required for applicable systems
- > Notification of Compliance Status (NOCS)
 - ❖ Separate submittals for new and existing units (if applicable for your facility)
 - ❖ Required within 60 days after completing performance testing

Proposed NSPS Rule

- > US EPA proposing to revise 40 CFR Part 60 General Provisions and various new source performance standards (NSPS)
 - ❖ Proposal published on March 20, 2015 in the Federal Register Vol. 80, No. 54
- > Revisions will require affected facilities to submit specified reports to EPA electronically and to maintain electronic records
- > No new reporting requirements will be added

Proposed NSPS Rule

- > Not all affected NSPS are specifically amended as a result of the proposed rule
- > Some NSPS rely solely on the General Provisions (Subpart A) and are affected only by its updates

List of Affected NSPS Subparts

Subpart A	Subpart Q	Subpart KK	Subpart III
Subpart E	Subpart R	Subpart LL	Subpart LLL
Subpart Ea	Subpart S	Subpart MM	Subpart NNN
Subpart Eb	Subpart T	Subpart NN	Subpart OOO
Subpart Ec	Subpart U	Subpart PP	Subpart PPP
Subpart F	Subpart V	Subpart QQ	Subpart QQQ
Subpart G	Subpart W	Subpart RR	Subpart RRR
Subpart Ga	Subpart X	Subpart SS	Subpart SSS
Subpart H	Subpart Y	Subpart TT	Subpart TTT
Subpart I	Subpart Z	Subpart UU	Subpart UUU
Subpart J	Subpart AA	Subpart VV	Subpart VVV
Subpart Ja	Subpart AAa	Subpart VVa	Subpart WWW
Subpart Ka	Subpart BB	Subpart WW	Subpart AAAA
Subpart Kb	Subpart BBa	Subpart XX	Subpart EEEE
Subpart L	Subpart CC	Subpart AAA	Subpart IIII
Subpart M	Subpart DD	Subpart BBB	Subpart JJJJ
Subpart N	Subpart EE	Subpart DDD	Subpart KKKK
Subpart Na	Subpart GG	Subpart FFF	Subpart LLLL
Subpart O	Subpart HH	Subpart HHH	Subpart OOOO
Subpart P			

List of Unaffected or Excluded Subparts

Subpart B	Subpart Ce	Subpart K	Subpart BBBB
Subpart C	Subpart D	Subpart GGG	Subpart CCCC
Subpart Cb	Subpart Da	Subpart GGGa	Subpart DDDD
Subpart Cc	Subpart Db	Subpart JJJ	Subpart FFFF
Subpart Cd	Subpart Dc	Subpart KKK	Subpart MMMM

- > Subparts do not currently contain emission standards or recordkeeping/reporting requirements
- > Overly burdensome
- > Reports don't contain air emissions data requested by EPA
- > To be reviewed and assessed under separate rulemaking

Proposed NSPS Rule

- > 90 days after the final rule is published, facilities have to submit all subsequent specified reports electronically
- > Only certain reports contain test methods and performance specifications supported by EPA's Electronic Reporting Tool (ERT)
- > Must continue to submit in hard copy format if electronic report or test method format is not yet supported, or if state air agency requires hard copy reports

Proposed NSPS Rule

- > Existing Compliance and Emissions Data Reporting Interface (CEDRI) can accept reports generated by EPA's ERT and a limited number of other air emission reports
 - ❖ Same CDX login used for TRI and e-GGRT
- > EPA plans to expand CEDRI to allow for additional submittals, including supported reports and test methods
- > When updated, must submit within 90 days

Proposed NSPS Rule

- > Sites may need a minor modification to Title V permits to address changes in reporting
- > Depending on permit language, some sites may not
 - ❖ “Unless otherwise specified, all records required to be maintained by this Permit shall be recorded in a permanent form suitable for inspection and submission to the Division and to the EPA.”

Questions?

Thank you!

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