

Boiler Rules Regulatory Update CIBO Quarterly Meeting

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Reconsideration Package

- ▶ We are supposed to see proposed reconsideration packages for MATS, Boiler MACT/GACT, CISWI any day now!
- ▶ The MATS package will give a preview on the BMACT startup and shutdown revisions
- ▶ Hopefully, EPA will propose rule revisions, not just ask for comment on what they did in 2013, and the changes will be finalized quickly so facilities can finalize implementation plans
 - ▶ Jim Eddinger indicated technical corrections would be included
- ▶ CIBO and others have provided info on startup/shutdown and we may see startup based on some “milestone plus max time” type of definition (not² likely to get site specific)

Reminder on Reconsideration Issues

▶ MACT

- ▶ Startup and shutdown definitions
- ▶ Minimum CO 130 ppm limits for coal and liquids
- ▶ PM CPMS, including consequences of exceeding the parameter
- ▶ Technical clarifications, including natural gas EGU applicability, Hybrid Suspension Grate CO limit, dates, recordkeeping (esp. Gas 1 SS)

▶ GACT

- ▶ Startup and shutdown definitions
- ▶ PM standard for low-sulfur oil units
- ▶ Limited use subcategory
- ▶ Provisions eliminating ongoing testing/sampling in certain cases

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- ▶ 3 ▶ e.g., where results < ½ of limit

Reminder on Reconsideration Issues, cont.

▶ CISWI

- ▶ Definition of CEMS data during startup and shutdown periods
- ▶ PM limit for waste burning kilns
- ▶ Technical clarifications such as when new test data become applicable, effective date for recordkeeping requirements, notification requirements for performance tests triggered by deviations

▶ MATS

- ▶ Definition of startup and shutdown

CO as a Surrogate for Organic HAP

- ▶ The 130 ppm CO limits are part of the reconsideration package relative to notice & comment issues
 - ▶ Whether CO is a valid surrogate for organic HAP is one of Sierra Club's big points in its litigation brief. They claim:
 - ▶ CO is not a good surrogate for POM, PAH, benzene, formaldehyde
 - ▶ PAH and POM are not reduced by same measures used to reduce CO
 - ▶ EPA's own documents indicate the surrogacy breaks down at <200 ppm and formaldehyde levels appear to increase at <150 ppm
 - ▶ They disagree with the 130 ppm threshold approach
 - ▶ Using CO does not allow EPA to identify the top performers for
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- ▶ 5 OHAP

Southern Company Comments

- ▶ CO is not a good choice for a surrogate for other OHAP across the spectrum of fuels, boilers, and operating conditions (like temperature)
- ▶ Army study found that as CO increased, PAH decreased.
- ▶ SC concludes that one or more of the routes of formation and/or destruction of CO vs other OHAP must be different when the flame temperature goes up
- ▶ Suggest using benzene or toluene as a surrogate with annual stack testing

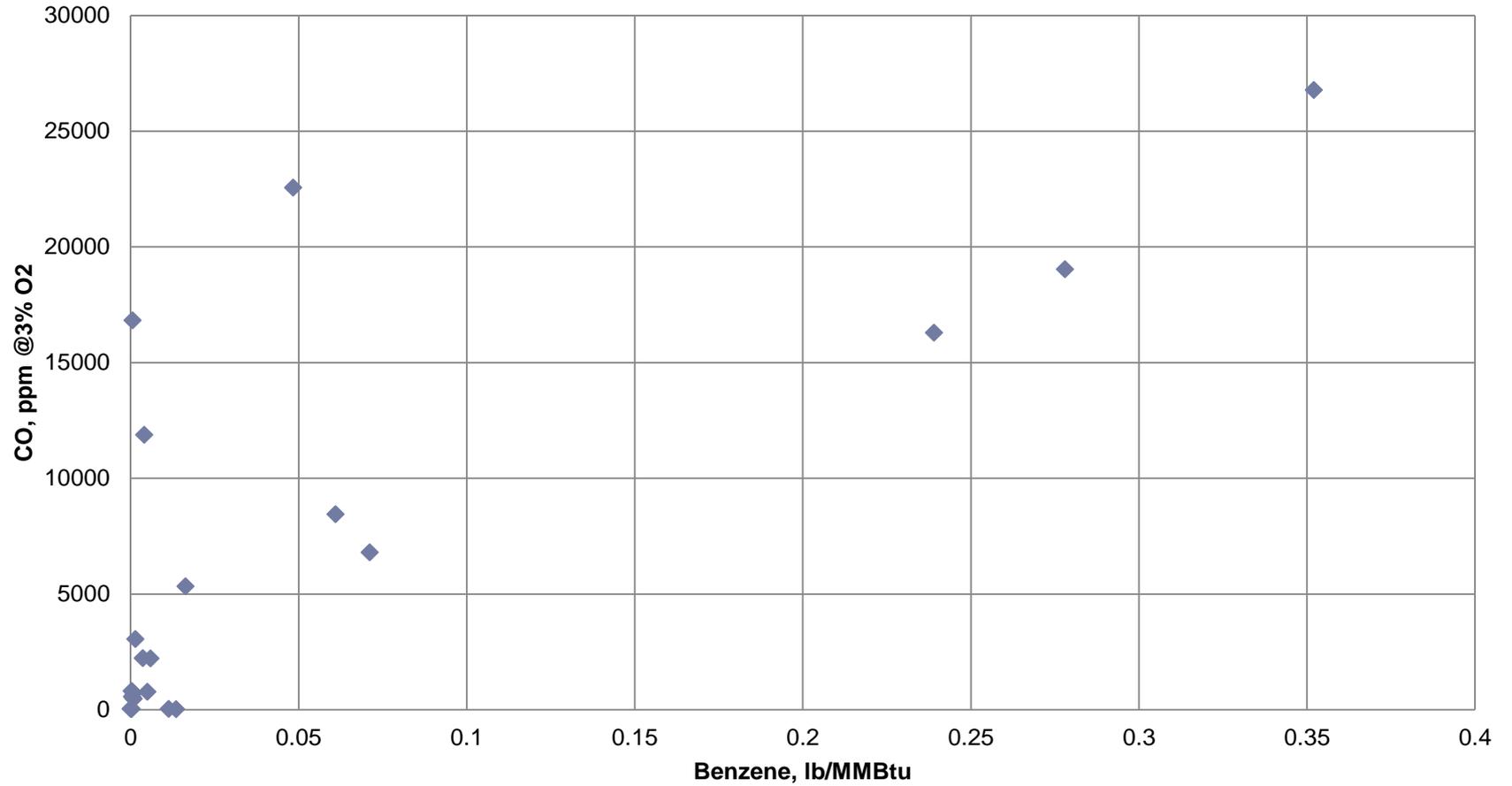
Benzene and Toluene Data Points

- ▶ There is little benzene and toluene data in the database (see tables below – numbers represent data points, divide by 3 to get # of units)
- ▶ There are some tests concurrent with CO
 - ▶ There seems to be a general correlation (see following graphs)

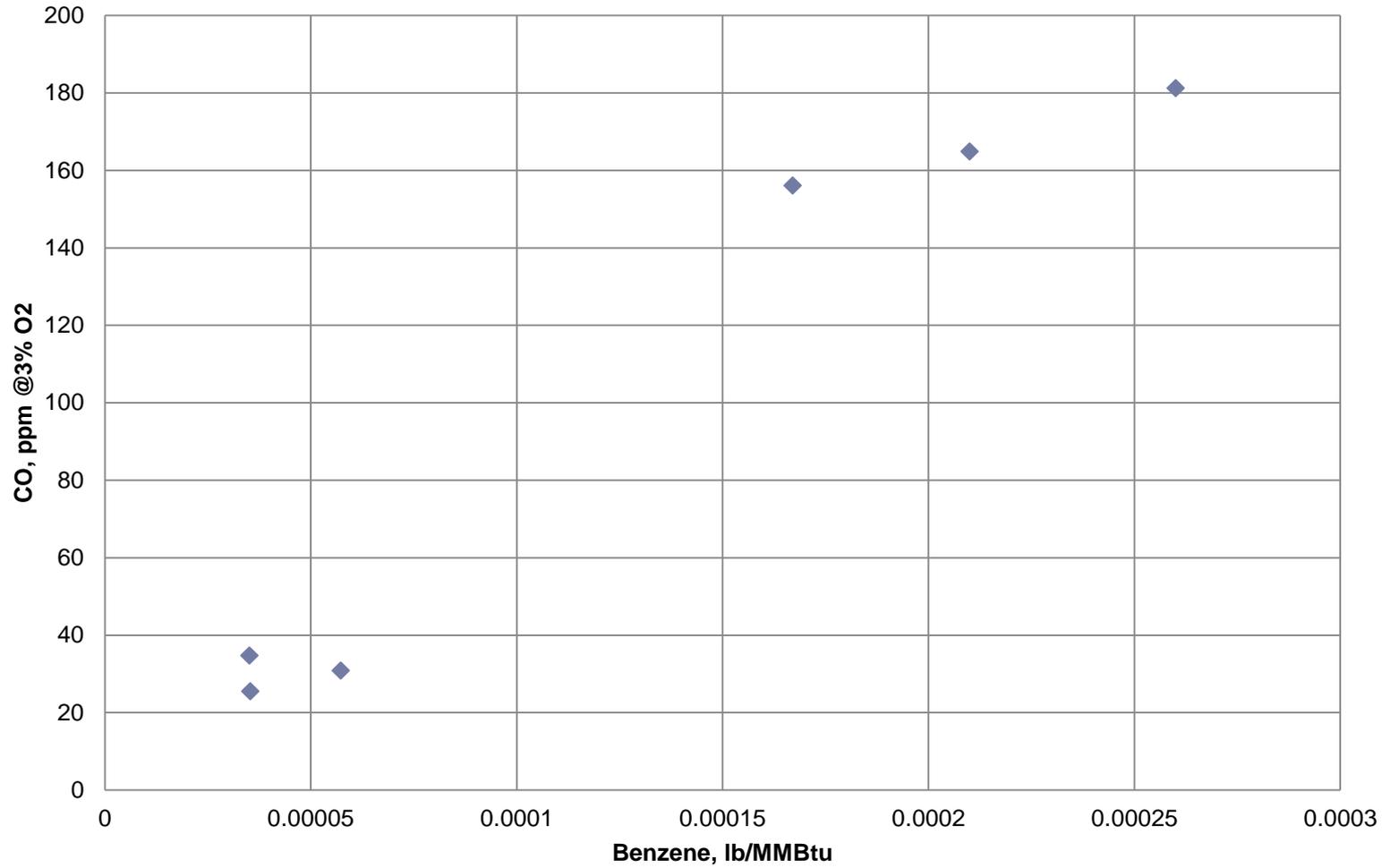
toluene	63
Suspension/Grate	27
PC	24
Stoker/SlopedGrate/Other	6
Light Liquid	3
FB	3

benzene	87
Suspension/Grate	27
PC	24
Stoker/SlopedGrate/Other	15
Fuel Cell	9
FB	3
Suspension Burner	3
Light Liquid	3
Dutch Oven/Pile Burner	3

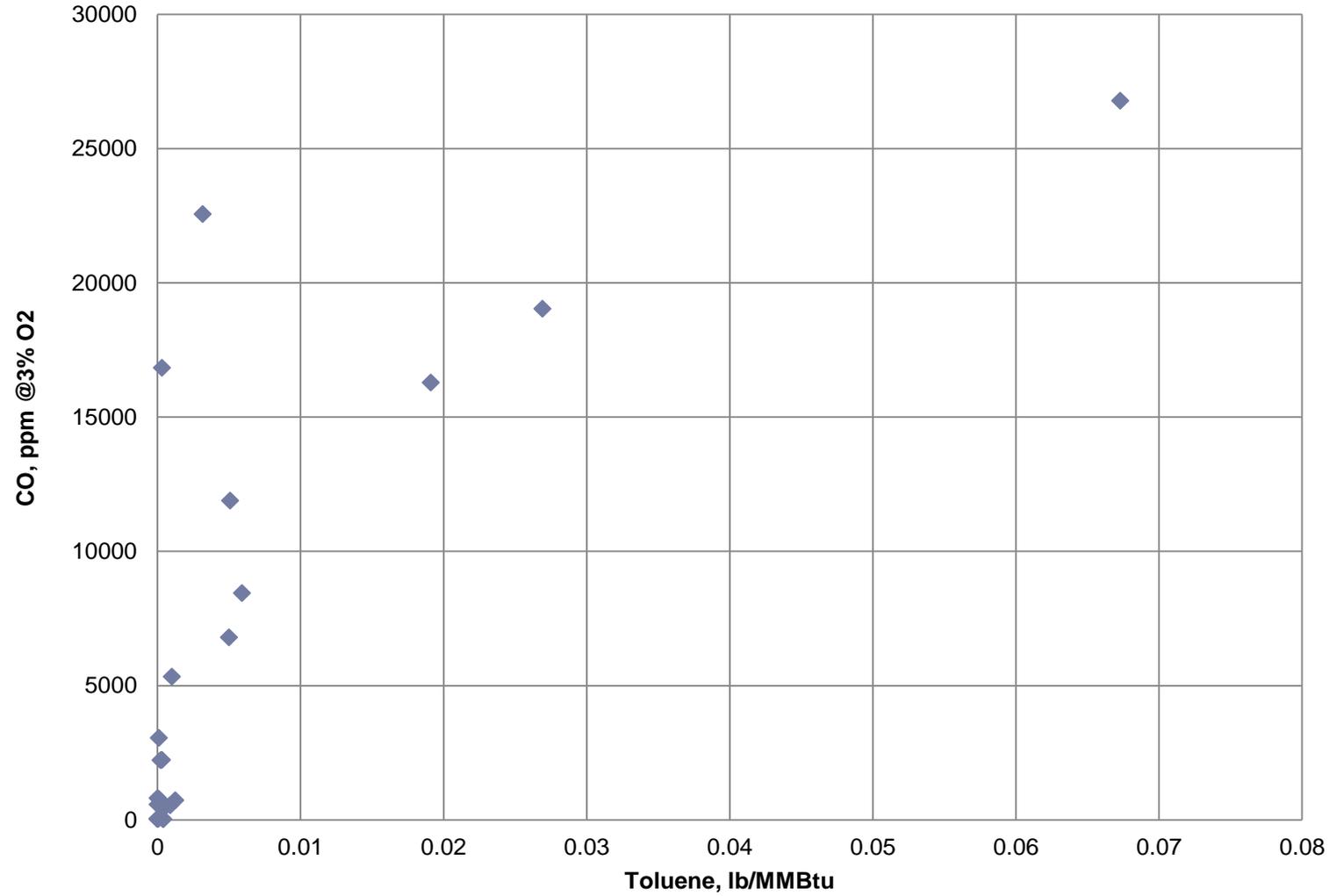
CO vs Benzene for Biomass Boilers



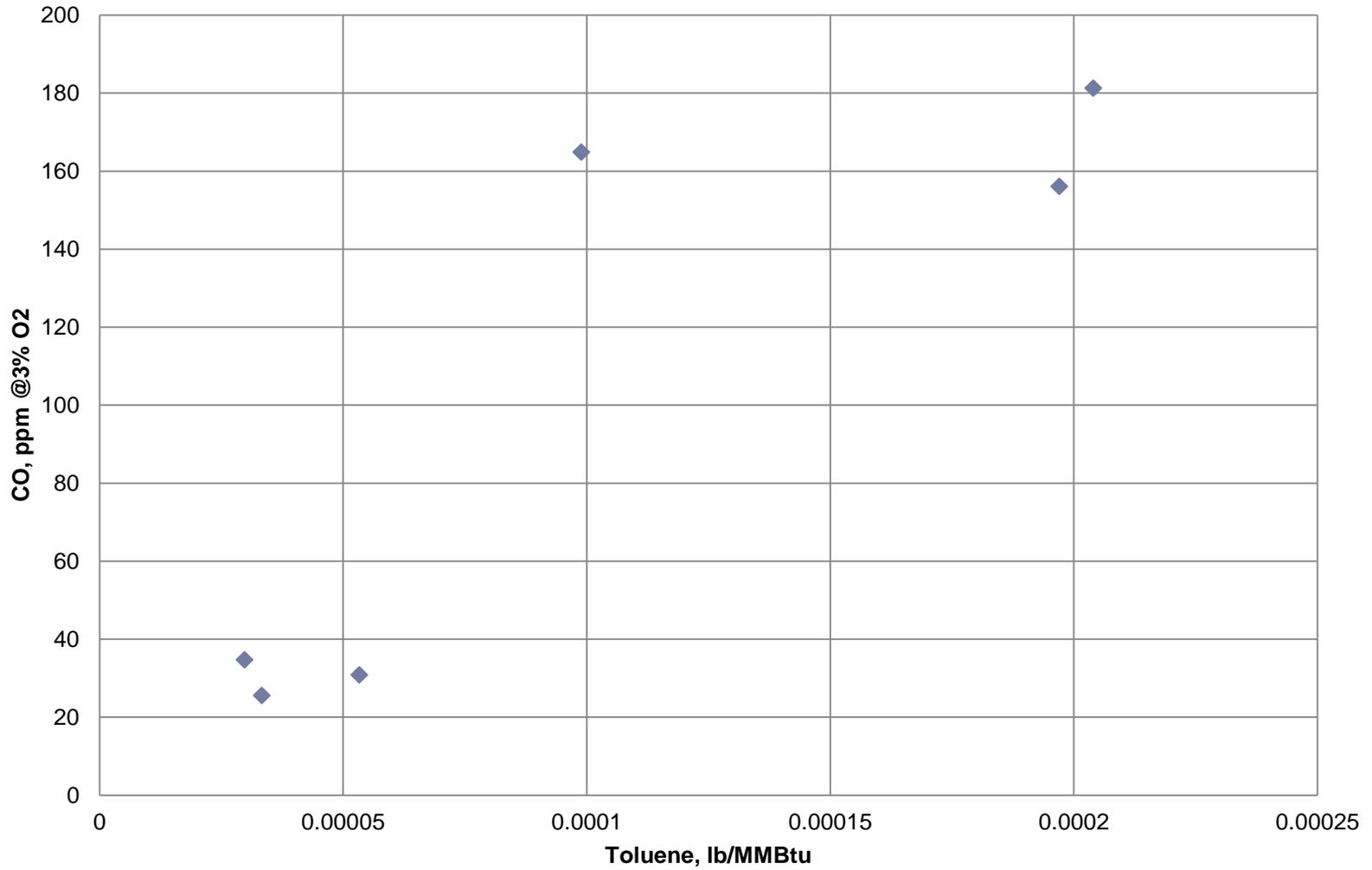
CO vs Benzene for Coal Boilers



CO vs Toluene for Biomass



CO vs Toluene for Coal



The other big point is floor development

- ▶ Sierra Club argues that the subcategories are unlawful and arbitrary
 - ▶ “Boilers are not of a different class, type, or size just because they happen to be burning different fuels at a given time.” Units can switch subcategories just by changing fuel mix.
- ▶ SC argues the 99 UPL is unlawful, is not the average
- ▶ SC also argues that top performers were inappropriately excluded from the analyses in some cases
 - ▶ e.g., units co-firing different fuels such as gas and solid fuel together or coal and biomass together
 - ▶ They believe that these data cannot be excluded since they belong to the subcategory
- ▶ How the MACT floors were developed evolved over the 4 versions of the rule from 2010-2013

Evolution of Boiler MACT Floors

- ▶ In the 2010 proposal there were fewer subcategories and units were subcategorized based on a 10% threshold
 - ▶ If a unit fired at least 10% coal it went into a coal subcategory, etc.
 - ▶ Biomass, coal, and liquid had separate limits for PM, Hg, HCl
- ▶ Based on comments, from 2011 on, EPA only considered emissions data for units burning at least 90% of a particular fuel type, since not all units are designed to fire multiple fuels
 - ▶ So data from a unit firing 50% biomass and 50% gas is excluded from all solid fuel floor calculations
- ▶ New unit floors are calculated based on a unit burning 100% of the subcategory fuel and not a process-specific fuel

DC Circuit Court Review

- ▶ EPA had requested voluntary remands to address UPL issues that arose in NACWA (SSI) case
 - ▶ Court remanded certain aspects of the rule for further explanation including how UPL represents MACT floor for new & existing units
- ▶ May 15- Court granted EPA's remand motions and set a new briefing schedule
 - ▶ BMACT
 - ▶ 60 day remand of the record
 - ▶ Partial voluntary remand of numeric standards
 - ▶ Revision of briefing schedule
 - ▶ Area Source
 - ▶ Partial voluntary remand of numeric standards
 - ▶ CISWI
 - ▶ 60 day remand of record
 - ▶ Partial voluntary remand of numeric standards
 - ▶ Revision of briefing schedule
 - ▶ NHSM
 - ▶ ENGO motion to extend filing deadlines granted

EPA Remand Relative to UPL

- ▶ EPA issued a response to remand of the record July 14 for BMACT and CISWI
 - ▶ Better explains EPA's use of the UPL
- ▶ EPA has not yet addressed UPL and floor determinations for subcategories with <9 data points
 - ▶ Affected limits on next slides

EPA Filing for Area Source Rule- JJJJJJ

- ▶ **FULL remand for new and existing Hg and CO MACT standards**
 - ▶ All are based on 9 or fewer data points
- ▶ GACT standards are not impacted

EPA Filing for Boiler MACT- DDDDD

Full Remand of the Following

New or Existing?	Subcategory	Pollutant
Existing	Fluidized bed w/ integrated heat exchanger burning coal/solid fuel	CO (but not alt. CEMS standard)
Existing	Stokers/sloped grate/others burning kiln-dried biomass	CO, Filterable PM and TSM
Existing	Suspension burners burning biomass/bio- based solids	Filterable PM and TSM
Existing	Units burning liquid fuel that are non- continental units	TSM
Existing	Units burning gas 2	CO, HCl, Mercury, Filterable PM, and TSM

Other Subcategories EPA Missed

- ▶ Existing coal fired FBC unit CO limit
 - ▶ 6 data points
- ▶ Existing heavy liquid CO limit
 - ▶ 8 data points

DDDDD- Full Remand of:

New or Existing?	Subcategory	Pollutant
New	Units burning solid fuel	HCl
New	Units burning coal/solid fossil fuel	Filterable PM and TSM
New	Fluidized bed w/ integrated heat exchanger, burning coal/solid fuel	CO (but not alt. CEMS)
New	Stokers/sloped grate/others burning wet biomass fuel	TSM (but not filterable PM)
New	Stokers/sloped grate/others burning kiln-dried biomass	Filterable PM and TSM
New	Fluidized bed burning biomass/bio-based solids	CO (but not alt. CEMS), Filterable PM, and TSM
New	Suspension burners burning biomass/bio-based solids	Filterable PM and TSM
New	Dutch overs/Pile burners burning biomass/bio-based solids	CO (but not alt. CEMS), Filterable PM, and TSM
New	Fuel cell units burning biomass/bio-based solids	Filterable PM and TSM
New	Units burning liquid fuel	HCl and Mercury
New	Units burning heavy liquid fuel	Filterable PM and TSM
New	Units burning light liquid fuel	Filterable PM and TSM
New	Units burning liquid fuel that are non-continental	Filterable PM and TSM

EPA Action- CISWI- Full Remand of:

New or Existing?	Subcategory	Pollutant
Existing	Energy Recovery Units, Liquid/Gas	All numeric standards
Existing	Energy Recovery Units, Biomass	Dioxins/furans (total mass and TEQ), HCl, Lead, Mercury, Sulfur dioxide
Existing	Energy Recovery Units, Coal	Cadmium, Dioxins/furans (total mass and TEQ), HCl, Lead, Mercury, Filterable PM
Existing	Waste Burning Kilns	CO for preheater/precalciner kilns
New	Energy Recovery Units	All numeric standards EXCEPT for CO, Nitrogen oxides, and sulfur dioxide for coal-fired units
New	Waste Burning Kilns	CO for long kilns and preheater/precalciner kilns, dioxins/furans (total mass and TEQ), HCl, Nitrogen oxides, and Sulfur dioxide
New	Small Remote Incinerators	All numeric standards
New	Incinerators	All numeric standards EXCEPT CO and Nitrogen oxides

Remand Status

- ▶ Any intelligence regarding EPA progress on the full remand?

Boiler MACT Clarification Q/A

- ▶ As discussed in prior meetings, some clarification is needed relative to use of oxygen trim systems
 - ▶ Routine times when trim control needs to not be in Cascade/Automatic
 - ▶ Do not want to be required to report each as a deviation or impact tune-up frequency
 - ▶ Drafted a Q/A to explain the situation and provide a recommended EPA response- next slides
 - ▶ Further comments prior to submission?

Draft Q/A- background and question

Q1. “Oxygen analyzer system” and “Oxygen trim system” are defined in §63.7575. Table 4 prescribes establishment of the oxygen operating limit and stipulates that operating limit to not be applicable to units that install an oxygen trim system since those units will set the trim system to the oxygen level specified in §63.7525(a); that oxygen limit is a level set no lower than the lowest hourly average oxygen concentration measured during the most recent CO performance test per Table 7. The tune-up frequency specified in §63.7540 is set at 5 years for certain units utilizing a continuous oxygen trim system. Table 9 establishes reporting requirements for deviations.

Oxygen trim systems are routinely used on many boilers and process heaters that are subject to CO emission limits under this rule. Therefore, the above provisions will be widely applicable. Normal operation of oxygen trim systems is with the controller in Cascade or Automatic mode providing a limited +/- trim to the air flow control loop so that excess oxygen (excess air) is controlled to a setpoint curve over the firing range, with the lowest oxygen level typically occurring at the highest firing rate conditions where higher turbulence allows more complete fuel/air mixing to occur. There are inherent operating situations which require the oxygen trim control and possibly the air and fuel controls to be put in Manual mode in order to stabilize operation or protect personnel. Examples of those situations where oxygen trim systems may not be in normal operating mode include, but are not limited to the following situations and periods:

Draft Q/A- background and question- cont'd

- ▶ **Startup, shutdown, and malfunction.**
- ▶ **Oxygen analyzer calibration.**
- ▶ **Sootblowing.**
- ▶ **Ash removal.**
- ▶ **Stoker boiler ash bed manipulation.**
- ▶ **Fluidized bed boiler abnormal bed or furnace conditions.**
- ▶ **Furnace lancing.**
- ▶ **Furnace condition inspection.**
- ▶ **Transitioning between alternative fuels or starting/stopping individual fuels.**
- ▶ **Combustion control system adjustments during tune-ups or other times as needed.**
- ▶ **Fuel quality problems that require additional excess air than available under ideal conditions.**

How are operating periods when oxygen trim systems are not in normal Cascade/Automatic control mode to be handled relative to reporting and recordkeeping and required periods between tune-ups?

Draft Q/A- the answer

A1. EPA realizes that operation of boilers and process heaters routinely requires oxygen trim systems to be taken out of Cascade/Automatic control due to situations such as noted above. It is also recognized that such times are of limited duration and a fairly low percent of total operating time in cases where oxygen trim systems are employed because economical operation depends on use of the trim systems. Instances when oxygen trim systems are taken out of Cascade/Automatic control for operational and safety reasons are not reportable as deviations in compliance reports, and their occurrence does not affect the five year tune-up frequency. Additionally, the rule does require boilers and process heaters to be operated in a manner consistent with safety and good air pollution control practices for minimal emissions.

Any other issues needing Q/As?

New fuel vs. waste issue

- ▶ June 27 ruling in *NRDC, et al. v. EPA, et al.* vacates EPA's 1998 comparable fuels exclusion that allowed fuel derived from hazardous waste to be burned in lesser-regulated industrial boilers, rather than more strictly regulated incinerators, if it was comparable to fossil fuel in terms of heating value and hazardous constituent levels
- ▶ Boiler MACT liquid fuel definition includes comparable fuels
- ▶ EPA intends to seek a further stay of the mandate for the time it determines is necessary for facilities to come into compliance with the applicable requirements, or to effect an orderly transition to cease combusting and managing comparable fuels
- ▶ ²⁷(6 months????)

NHSM Rule Revisions

- ▶ Proposed revisions add creosote-treated railroad ties, C/D wood sorted per BMP, and paper recycling residuals as fuels, with limitations
 - ▶ Creosote-treated RR ties is considered fuel only if burned in unit designed to burn both biomass and fuel oil
 - ▶ Preamble proposes to also allow use in units at pulp and paper mill being converted from biomass/oil to biomass/gas but restrict to 40% of heat input, requests comment
 - ▶ CIBO comments
 - ▶ Allow CTRT as fuel in all boiler types and regardless of % of fuel mix
 - ▶ CTRT is a product that is not discarded and therefore
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- ▶ 28 cannot be solid waste

Facts on CTRT from Docket

- ▶ According to the Association of American Railroads, approximately 17 million railroad ties are removed from service each year
- ▶ Rail ties are sorted for use in landscaping (about one third) and for use in co-generation facilities (majority)
- ▶ CTRT to be burned are processed for contaminant removal and chipped
- ▶ Only about 5% of CTRT are currently landfilled
- ▶ Price of chipped CTRT can be \$20-30/ton, which can be more than some biomass fuels
- ▶ CIBO members (agribusiness, pulp/paper, power) burn CTRT as fuel now, up to 100% of fuel mix
 - ▶ Survey was sent to CIBO members to obtain data to support prior comments, limited response

Questions and Discussion
