Boiler MACT-Area Source GACT-CISWI-NHSM Rules Status Update CIBO Environmental Committee Meeting

John C. deRuyter- DuPont

Amy Marshall- URS

March 13, 2012

Topics

- EPA actions and timing
- Boiler MACT
- Area Source MACT/GACT
- CISWI
- NHSM
- Path forward for the rules
- Outlook

- Litigation update
- Compliance planning

March 21, 2011 EPA FR Notices- Final Rules

- Major source Boiler/Process Heater MACT
  - 40CFR63, Subpart DDDDD
    - Replaces prior vacated 2004 rule
- Area source ICI Boiler MACT/GACT
  - 40CFR63, Subpart JJJJJJ
    - New rule
- Commercial & Industrial Solid Waste Incinerator NSPS
  - 40CFR60, Subparts CCCC (new), DDDD (existing)
    - Modifies existing rules
- Non-Hazardous solid materials definition
  - 40CFR241, Subparts A & B
  - Determines if materials are fuels under MACT or wastes under CISWI
- Completion notice
- Notice of reconsideration

December 23, 2011 EPA FR Notices- Proposed Rules

- MACT & GACT notices propose changes to reconsidered 3/21/2011 final rules
  - Major source Boiler/Process Heater MACT
    - 40CFR63, Subpart DDDDD
  - Area source ICI Boiler MACT/GACT
    - 40CFR63, Subpart JJJJJJ
- CISWI notice proposes changes to 2000 final rule
  - Commercial & Industrial Solid Waste Incinerator NSPS
    - 40CFR60, Subparts CCCC (new), DDDD (existing)
- NHSM notice proposes changes to reconsidered 3/21/2011 final rules
  - Non-Hazardous solid materials definition (included in CISWI notice)
    - 40CFR241, Subparts A & B
    - Determines if materials are fuels under MACT or wastes under CISWI

Scope and Impacts

- Major Source Boiler/Process Heater MACT
  - 14,111 boilers/process heaters
    - Added 300 units to database
  - EPA estimate- capital cost $5.4B; $1.9B/yr total annual costs
  - Costs are higher than final rule
  - CIBO/URS estimate $14.5B capital cost
- Area Source ICI Boiler GACT/MACT
  - 187,000 boilers
  - Costs and benefits similar to final rule
- CISWI
  - 95 solid waste incinerators
  - Costs and benefits similar to final rules

Major Source Boiler MACT

Boiler MACT 12/23/11 Proposed Rule and Future Timing

- 60 day comment period
  - Industry requested more time to comment
    - EPA denied the request
    - All comments filed Feb. 21, 2012
- Prior EPA agreement with ENGOs to sign final rule by 4/30/12
  - Likely to be later- guess ~ May-June 2012
- All compliance dates to start from upcoming final promulgated rule FR date
  - So if ~June 2012 Fed. Reg. publication
    - Compliance date June 2015
    - One year extension to June 2016 for installation of controls
      - Industry comments support consideration of repowering as eligible for the extension- similar to utility MATS rule

Boiler MACT Significant Proposed Rule Changes some good/some bad

- Work practice standards instead of numerical limits for dioxins/furans
- PM limits split by boiler design for coal and biomass (specific limits up/down)
  - TSM alternative provided for some subcategories (not useful for coal fired units)
- CO limits generally lower; alternative CO CEMS 10 day rolling average limit provided
- HCl and Hg limits significantly lower for coal boilers
- Gas 2 specifications to be considered Gas 1 with work practices dropped H2S; Hg remains at 40 ug/m3
- O2 CEMS in stack replaced with requirement to use O2 trim system for CO compliance
- Operating parameter limits changed to 30 day rolling average
- Startup/shutdown definitions based on 25% load (but need more latitude)
- Hot water heater definition includes units <1.6MMBtu/hr- excludes from applicability

Boiler MACT Limits Comparison- Hg, HCl, PM

HAP/Fuel	Proposal	Final	Re-proposal	Factor Better	Proposal	Final	Re-proposal	Factor Better	Units
	Existing Boilers				New Boilers				
Hg Biomass	0.9	4.6	3.1	**0.7**	0.2	3.5	0.86	**0.2**	lb/TBtu
PM Biomass	0.02	0.039	multiple	NA	0.008	0.0011	multiple	NA	lb/MMBtu
HCl Biomass	0.006	0.035	0.022	**0.6**	0.004	0.0022	0.022	10.0	lb/MMBtu
Hg Coal	3	4.6	3.1	**0.7**	2	3.5	0.86	**0.2**	lb/TBtu
PM Coal	0.02	0.039	multiple	NA	0.001	0.0011	multiple	NA	lb/MMBtu
HCl Coal	0.02	0.035	0.022	**0.6**	0.00006	0.0022	0.022	10.0	lb/MMBtu
Hg Oil	4	3.5	26	7.4	0.3	0.21	0.49	2.3	lb/TBtu
Hg Oil non-continental	4	0.78	26	33.3	0.3	0.78	0.49	**0.6**	lb/TBtu
PM Oil	0.004	0.0075	multiple	NA	0.002	0.0013	multiple	NA	lb/MMBtu
HCl Oil	0.0009	0.00033	0.0012	3.6	0.0004	0.0032	0.0012	**0.4**	lb/MMBtu
Hg Gas 2	0.2	13	7.9	**0.6**	0.2	7.9	7.9	1.0	lb/TBtu
PM Gas 2	0.05	0.043	0.0067	**0.2**	0.003	0.0067	0.0067	1.0	lb/MMBtu
HCl Gas 2	0.000003	0.0017	0.0017	1.0	0.000003	0.0017	0.0017	1.0	lb/MMBtu
Or clean gas 2 can opt in to Gas 1 work practice if:	NA	Hg content <40 ug/m3 (H2S criteria removed)			NA	Hg content <40 ug/m3 (H2S criteria removed)			

Note – Existing liquid Hg limit should be 0.43 lb/TBtu – EPA miscalculated.

Boiler MACT Limits Comparison- CO

HAP/Fuel	Proposal	Final	Re-proposal	Factor Better	Proposal	Final	Re-proposal	Factor Better	Units
Short-term/3 hour	Existing Boilers				New Boilers				
CO Biomass FB	250	430	370	**0.9**	40	260	230	**0.9**	ppm at 3%O2
CO Coal pulverized	90	160	41	**0.3**	90	12	9	**0.8**	ppm at 3%O2
CO Coal stoker	50	270	220	**0.8**	7	6	19	3.2	ppm at 3%O2
CO Coal FB	30	82	56	**0.7**	30	18	17	**0.9**	ppm at 3%O2
CO Oil - Heavy	1	10	10	1.0	1	3	10	3.3	ppm at 3%O2
CO Oil - Light	1	10	7	**0.7**	1	3	3	1.0	ppm at 3%O2
Long-term limit (10 day except as noted)			10 day except as noted				10 day except as noted		
CO Biomass FB	NA	NA	180	NA	NA	NA	180	NA	ppm at 3%O2
CO Coal stoker	NA	NA	34	NA	NA	NA	34	NA	ppm at 3%O2
CO Coal FB	NA	NA	59	NA	NA	NA	59	NA	ppm at 3%O2
CO Coal pulverized	NA	NA	28	NA	NA	NA	28	NA	ppm at 3%O2
CO Oil - Heavy	NA	NA	18	NA	NA	NA	18	NA	ppm at 3%O2
CO Oil - Light	NA	NA	60	NA	NA	NA	60	NA	1 day block average

10-day rolling average limit with use of CO CEMS

Boiler MACT Limits Comparison- PM

HAP/Fuel	Proposal	Final	Re-proposal	Factor Better	Proposal	Final	Re-proposal	Factor Better	Units
	Existing Boilers				New Boilers				
PM Biomass FB	0.02	0.039	0.11	2.8	lb/MMBtu	0.001	0.0098	9.8	lb/MMBtu
PM Coal pulverized	0.02	0.039	0.044	1.1	lb/MMBtu	0.001	0.0013	1.3	lb/MMBtu
PM Coal stoker	0.02	0.039	0.028	**0.7**	lb/MMBtu	0.001	0.028	28.0	lb/MMBtu
PM Coal FB	0.02	0.039	0.088	2.3	lb/MMBtu	0.001	0.0011	1.1	lb/MMBtu
PM Oil - heavy		0.0075	0.062	8.3	lb/MMBtu	0.0013	0.013	10.0	lb/MMBtu
PM Oil - light		0.0075	0.0034	**0.5**	lb/MMBtu	0.0013	0.0011	**0.8**	lb/MMBtu
PM Oil non-continental		0.0075	0.008	1.1	lb/MMBtu	0.0013	0.008	6.2	lb/MMBtu

Projected Boiler MACT Units That Can Meet All Limits Simultaneously Without Capital Cost for Additional Controls

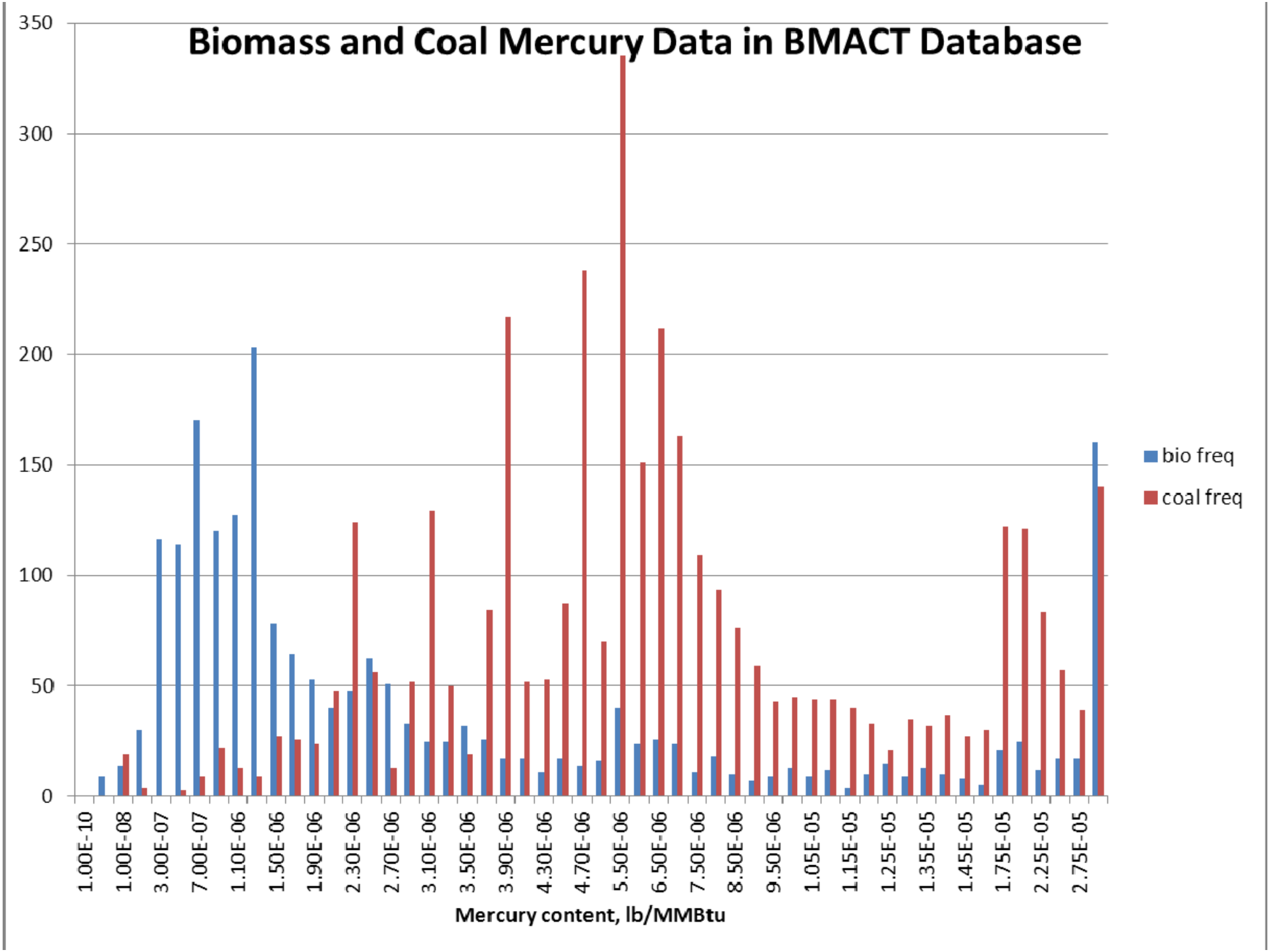
Subcategory	Total Units	Total Passing Units	Percent Passing
Biomass Wet Stoker/Sloped Grate/Other	298	31	10.40%
Biomass Kiln-Dried Stoker/Sloped Grate/Other	63	3	4.76%
Biomass FB	24	18	75.00%
Biomass Dutch/Pile	22	17	77.27%
Biomass Suspension Burner	47	2	4.26%
Biomass Fuel Cell	15	5	33.33%
Biomass Hybrid Suspension/ Grate	18	6	33.33%
Coal pulverized	188	11	5.85%
Coal stoker	378	5	1.32%
Coal FB	34	26	76.47%
Oil - Heavy	293	3	1.02%
Oil - Light	252	0	0.00%
Oil non-continental	42	0	0.00%
Gas2	78	7	8.97%
	1752	134	7.65%

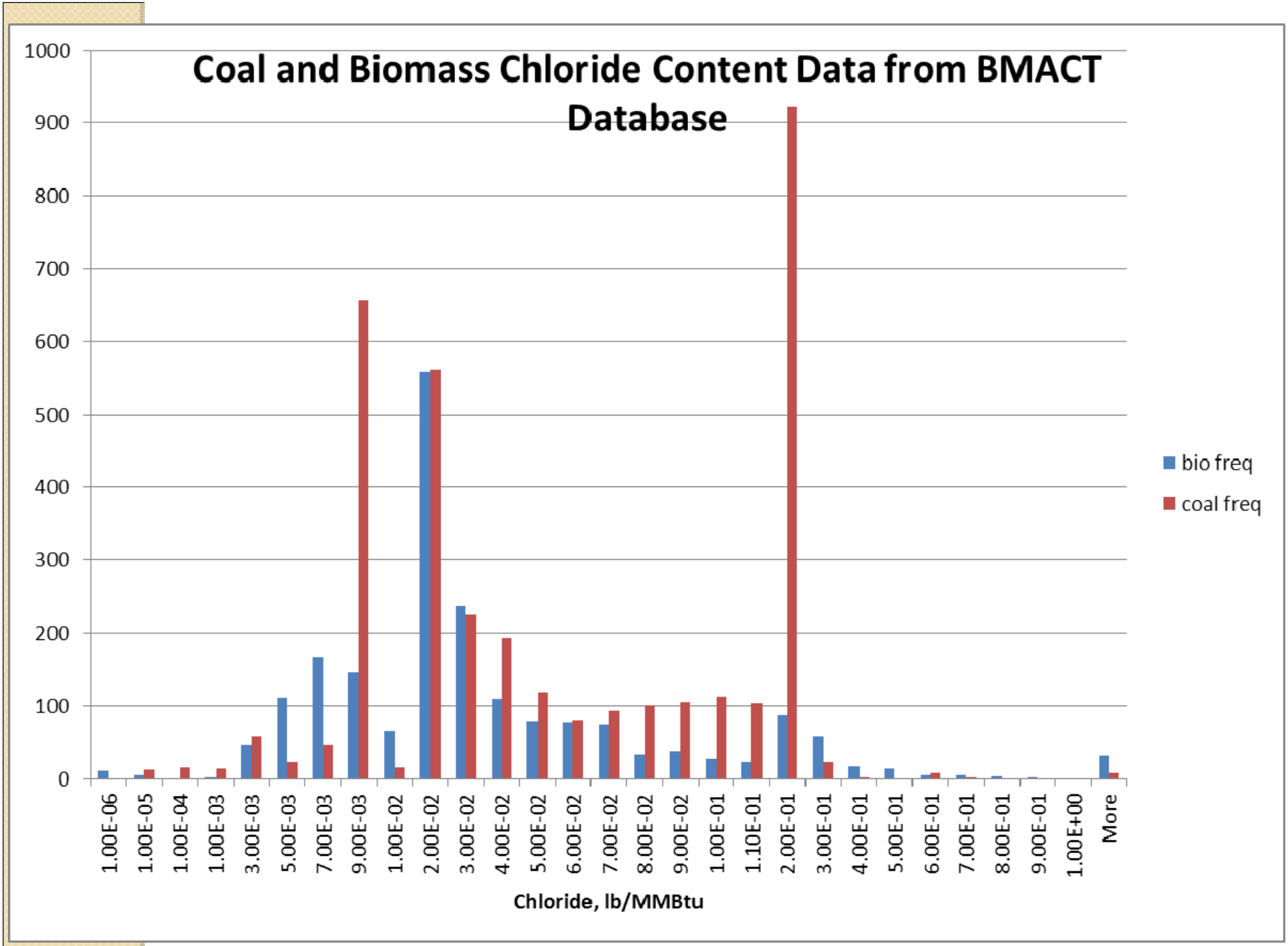
CIBO Main BMACT Proposed Rule Comments

- Support D/F work practice; other Gas 1 specification for Hg only; TSM but provide for liquids; others
- Problems with floor setting methodology
  - Solid fuel HCl & Hg
  - Liquid limits
- CO limit problems
  - Use work practice instead as in utility MATS
  - Failing that, provide alternatives to address achievability
- Startup/shutdown
  - Support work practice for S/S, but allow unit specific procedures/conditions
- Emissions averaging
  - Expand scope
  - Include repowered (converted to natural gas firing) solid or liquid fired units to be included in original subcategory emissions average

BMACT Solid Fuel HCl and Hg

- 2011 BMACT limits for Solid Fuel HCl and Hg based on lowest emitting solid fuel fired boilers (burning at least 90 percent of any solid fuel)
- If HCl and Hg limits are split for biomass and coal and set based on lowest emitting units burning 90% coal and 90% biomass, limits go up for coal and down for biomass/combo boilers.
- Following charts show the mercury and chloride data for biomass and coal in EPA BMACT database.


Biomass and Coal Mercury Data in BMACT Database
350
300
250
200
150
100
50
0
1.00E-10
1.00E-08
3.00E-07
7.00E-07
1.10E-06
1.50E-06
1.90E-06
2.30E-06
2.70E-06
3.10E-06
3.50E-06
3.90E-06
4.30E-06
4.70E-06
5.50E-06
6.50E-06
7.50E-06
8.50E-06
9.50E-06
1.05E-05
1.15E-05
1.25E-05
1.35E-05
1.45E-05
1.75E-05
2.25E-05
2.75E-05
Mercury content, lb/MMBtu
bio freq
coal freq


Coal and Biomass Chloride Content Data from BMACT Database
1000
900
800
700
600
500
400
300
200
100
0
1.00E-06
1.00E-05
1.00E-04
1.00E-03
3.00E-03
5.00E-03
7.00E-03
9.00E-03
1.00E-02
2.00E-02
3.00E-02
4.00E-02
5.00E-02
6.00E-02
7.00E-02
8.00E-02
9.00E-02
1.00E-01
1.10E-01
2.00E-01
3.00E-01
4.00E-01
5.00E-01
6.00E-01
7.00E-01
8.00E-01
9.00E-01
1.00E+00
More
Chloride, lb/MMBtu
bio freq
coal freq

CIBO Main BMACT Proposed Rule Comments

- Natural gas curtailment
  - Revise wording to address "halted" and available gas purchase arrangements
- O2 monitoring
  - Provide additional flexibility in sensing location, O2 set point vs load and fuels
  - Recognize potential impacts on furnace safety- top priority
- Emissions and operating parameter monitoring
  - Allow SO2 CEMS for HCl compliance
  - Flexibility for sorbent injection and other operating parameters over load vs only ratio with load from performance test
  - PM CPMS/CEMS should not be required
  - 30 day averaging period for operating parameters is appropriate
  - Do not require quarterly operating parameter data submission
- Energy assessment scope should be further limited
- Include liquid fuel alternative HCl compliance based on water content as in utility MATS

Opposing Comments

- EarthJustice Boiler MACT comments indicate their intentions
  - New subcategories unlawful
  - Use of surrogates unlawful and arbitrary
  - Floors are unlawful and arbitrary, do not actually reflect performance of best controlled sources
  - Averaging provisions are unlawful and inconsistent with Agency's floor approach
  - Work practice standards instead of emission standards for dioxins is unlawful and arbitrary and capricious
  - Work practice standards for Gas 1 units, some Gas 2 units, small units and startup/shutdown is unlawful and arbitrary
  - Output based alternative standards are unlawful and arbitrary
  - Beyond the floor approach is unlawful and arbitrary
  - Affirmative defense is unlawful and arbitrary

Other Comments

- American Lung Association
  - Oppose work practice standards
    - Especially for D/F
  - Need numeric limits during S/S periods
  - Support use of specific fuels during S/S periods
  - Close malfunction loophole
  - Make all monitoring and compliance data readily available
- NACAA
  - EPA overstates variability leading to grossly inaccurate results
    - Emission limits too high- too many can achieve them
  - Cannot assume an undefined work practice will control D/F emissions
    - If emissions truly insignificant, use existing authority for de minimis emissions
  - Rules do not properly address units burning mixtures of fuels

Area Source Boiler MACT/GACT

Area Source Boiler MACT/GACT Significant Proposed Rule Changes
Almost all Good but improvements can be made

- Existing boiler initial tune-up requirement set at 2 years from final rule date instead of one year
  - Comply by March 21, 2013 instead of March 21, 2012
  - Requesting comment on another additional year
  - EPA must issue a 90 day stay prior to March 21, 2012 to avoid initial compliance problem and get to final rule promulgation/new dates
    - This has not yet occurred- expect just prior to 3/21/12
- Coal fired Hg emission limit increased due to correction of analysis error
- New seasonal boiler subcategory created (shutdown for 7 consecutive months) with 5 year tune-up frequency
- Temporary boilers listed as exempt
- Operating parameter limits changed to 30 day rolling average
- Synthetic area source boilers not required to get Title V permit
- Startup/shutdown definitions based on 25% load

CISWI

CISWI Significant Proposed Rule Changes
Most okay but could be better

- Emission limits for Energy Recovery Units revised based on new additional data, changes to waste definition and inventory of units
- (No change to incinerator limits)
- Established limits on switching between Boiler MACT and CISWI
  - CISWI unit if combust any solid waste in prior 6 months
- Removed CO CEMS requirements for existing units
  - Allow use of current O2 trim systems/Reference Method testing
- Extended compliance dates
  - Existing incinerator, ERU, kiln changed to 5 years after final reconsideration rule FR publication or 3 years after state plan approved, whichever earlier
  - New incinerator, ERU, kiln changed to 6 months after final reconsideration rule FR publication

Environmental Groups' Comments

- Subcategories are illegal
- Should set limits for more pollutants
- No units should be exempted (e.g., burnoff ovens, chemical recovery units, lab units, soil treatment units, space heaters)
- Floor setting and monitoring approaches unlawful – should not use UPL, should use CEMS

Comparison of CISWI Existing ERU Limits

40 CFR 60, Subpart DDDD

Pollutant (units) [1]	Energy Recovery Units									
	6/4/10 FR Proposed	3/21/11 FR Final			12/2/11 Pre-Pub			% Increase (12/11 vs 3/11)		
		Biomass	Coal	Liq/Gas	Biomass	Coal	Liq/Gas	Biomass	Coal	Liq/Gas
CO (ppmv)	150	490	59	36	490	46	36	--	-22%	--
NO_X (ppmv)	130	290	340	76	290	340	76	--	--	--
SO_2 (ppmv)	4.1	6.2	650	720	7.3	650	720	18%	--	--
PM filterable (mg/dscm)	9.2	250	250	110	11	86	110	-96%	-66%	--
Fugitive Ash (% Visible Emissions)	no limit	5%	5%	5%	5%	5%	5%	--	--	--
Opacity (%)	1	no limit	no limit	no limit	no limit	no limit	no limit	--	--	--
Hg (mg/dscm)	0.00096	0.00033	0.00033	0.0013	0.0020	0.0020	0.0031	506%	506%	138%
Cd (mg/dscm)	0.00041	0.00051	0.00051	0.023	0.00078	0.058	0.023	53%	11273%	--
Pb (mg/dscm)	0.002	0.0036	0.0036	0.096	0.0019	0.0031	0.096	-47%	-14%	--
HCl (ppmv)	1.5	0.45	0.45	14	0.50	0.50	14	11%	11%	--
Dioxin/Furans total (ng/dscm) OR	0.75	0.35	0.35	2.9	0.52	0.51	2.9	49%	46%	--
Dioxin/Furans TEQ (ng/dscm)	0.059	0.059	0.059	0.32	0.12	0.075	0.32	103%	27%	--

Non-Hazardous Secondary Materials Rule

NHSM Significant Proposed Rule Changes Mostly good

- Clarified certain materials are included within scope of biomass (traditional fuel)
  - Identified specific materials as "clean cellulosic biomass"
    - Includes: "… corn stover and other biomass crops used specifically for the production of cellulosic biofuels (e.g., energy cane, other fast growing grasses, byproducts of ethanol natural fermentation processes)"
    - These are not secondary materials or solid wastes unless discarded.
    - Contaminants not at concentrations not normally associated with virgin biomass materials
- Added process for owner/operator to petition EPA to categorically list NHSM as non-waste when used as fuel
- Revising legitimacy criteria to allow comparison of groups of contaminants and allow comparison to any traditional fuel a unit is designed to burn

Environmental Groups' Comments

- EPA's determination that scrap tires, resinated wood, pulp and paper sludge, and clean C/D wood are not waste when used as fuel is illegal
- Definition of "clean" cellulosic biomass is too expansive
- C/D wood should only be compared to virgin biomass
- Asbestos should be a regulated contaminant

Path Forward for Combustion Rules

EPA Stay of BMACT/CISWI

- District Court decision Jan. 9, 2012 on EPA stay of Boiler MACT and CISWI
  - Vacated and remanded the stay
    - Basically puts the March 21, 2011 final rules back in effect
    - Judge very critical of EPA actions
  - EPA issued a "No Action Assurance" letter Feb. 7, 2012 explaining their approach
    - No enforcement action will be taken relative to BMACT & CISWI
    - EPA will act or issue a stay under CAA if needed
    - Continue with rulemaking and schedule for final rules this year
  - Industry intervenors taking no action
  - Initial guidance
    - Do not file Initial Notifications for Major Source Boiler MACT unless required- wait for final rule
    - However- states may require action
      - Example- TX requiring IN's plus incorporation of BMACT requirements in Title V renewals, treatment of missed IN as a deviation
      - Any other states?

Congressional Activity

- H.R. 2250 introduced June 2011
  - EPA Regulatory Relief Act of 2011
  - Passed by the House
  - H.R. 2250 would:
    - Impose legislative stay on the four promulgated rules
    - Require EPA to re-propose and finalize new rules in 15 months
    - Extend compliance deadlines from 3 to at least 5 years to allow adequate time to comply with standards and install necessary equipment
    - Direct EPA to adopt definitions that allow sources to use a wide range of alternative fuels
    - Direct EPA to ensure new rules are achievable by real-world boilers, process heaters, and incinerators and impose least burdensome regulatory alternatives consistent with EO 13563 (Improving Regulation and Regulatory Review; 1/18/11)
- S.1392 introduced in Senate
  - Similar to H.R.2250 but includes a list of materials to be treated as fuels
  - Intense industrial lobbying pressure to try to pass
  - Court decision provides increased justification for compliance date extension
- Vote on Collins amendment (S.1392 language) to Transportation Bill last week
  - Senate vote 52/46- needed 60 for passage

Outlook

- Will be a difficult and costly process to
  - Make any further gains
  - Defend reasonable approaches and gains made thus far
- Congressional action/President signature on H.R. 2250 type bill a very low probability
  - Probably close to zero now?
- Remand/vacature of Boiler MACT as for 2004 DDDDD rule unlikely
- Litigation from either/both ENGOs and industry will depend on the final rule outcome
  - But likely from both for some issues
- Still much uncertainty

Litigation Update and Compliance Planning