



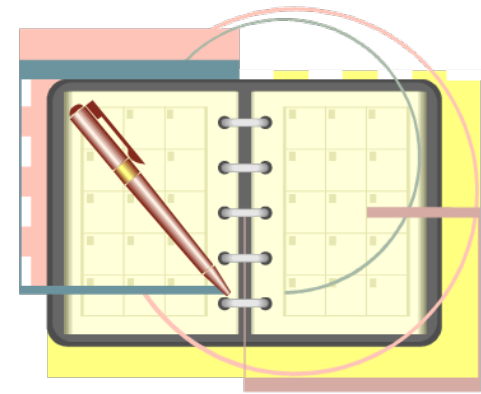
ROOST: 112(J) STRATEGY FOR WOOD FUEL BOILERS

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TODAY'S AGENDA

- Waste, NOT
- Subcategorizing overview
- Establishing the MACT Floor
- The North Carolina Data Set
- Good News in the Tar Heel State
- Virginia Up in the Air
- What's up with Wisconsin?
- A Roadmap to 112(j) Compliance
- Compliance Timelines
- An Old Friend



THE AHFA PROCESS

Our off-fall is not a waste
(OSW ANPR)
IS a nonhazardous secondary
material

Functionally distinct subcategory
(Sec 114 responses and technical
memorandum)

MACT

Since states are applying 112(j), we
begin our discussions at the state
level and carry them through to
EPA

For use in coal co-firing:
HBCA Remains available
Emissions averaging remains
available (define averaging period)

ONE PERSPECTIVE ON THE VACATUR

- Why the rule was vacated:
 - Many boilers should instead be regulated as *solid waste incinerators* under CISWI (CAA Sec. 129)...
 - Because CISWI applies to units burning any waste



BOILERS OR CISWI?

- Hinges on definition of “waste” in the Solid Waste Disposal Act of 1965 (SWDA):
 - 129(g)(6): “solid waste.. shall have the meanings established by the Administrator pursuant to the Solid Waste Disposal Act”:
 - ...any garbage, refuse, sludge, from a waste treatment plant, water supply treatment plant, or air pollution control facility and other **discarded material**, including solid, liquid, semisolid, or contained gaseous material resulting industrial, commercial, mining, and agricultural operations, and from community activities...



SOLID WASTE ANPR ISSUES

- Encourages *recycling* and *reuse*
- “Cellulosic Biomass” (CB) is proposed as a fuel
- For essentially similar proposed rule we will send supporting comments, including notations on saleability and commerce in wood dust



DRIED WOOD SUBCATEGORY

- The AHFA has proposed to DEQ and DAQ a subcategory described by:

Emissions exclusively from boilers at wood furniture manufacturing or similar facilities combusting dried wood $\leq 10\%$ * moisture including engineered wood

- The subcategory would not include wood treated with chemicals such as creosote
- * In agreement with AHFA, DAQ has subsequently proposed a moisture limit of $<20\%$



MACT FLOOR CALCULATION

1. The average emission limitation achieved by the BEST performing 12% of the existing sources, with 30 or more sources.
2. The average emission limitation achieved by the best performing 5 sources, if less than 30 sources.

Ref: 40 CFR 63.112(d)(3)



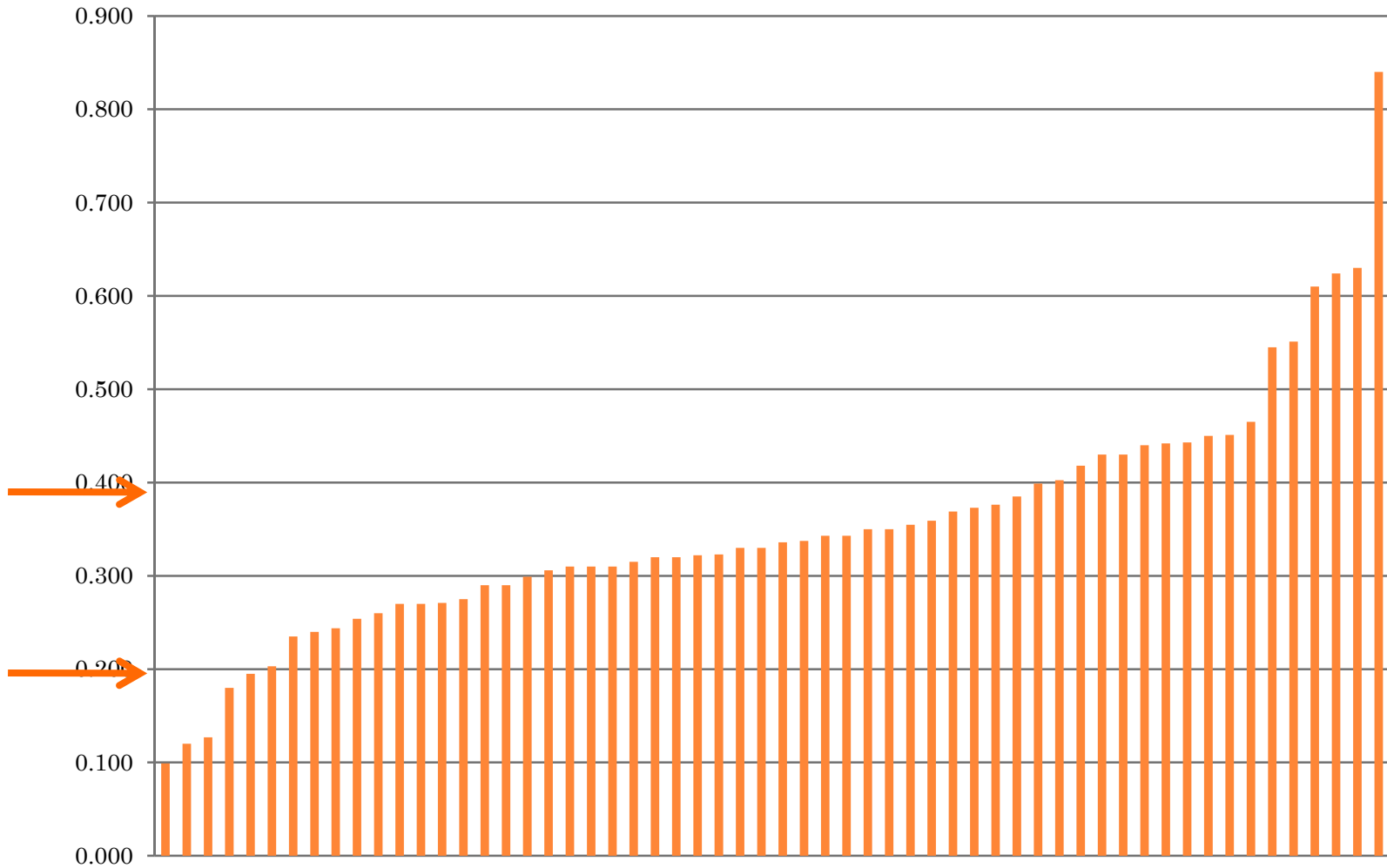
112(J) IN NORTH CAROLINA

- Memorandum from Attorney General's Office says vacatur of Boiler MACT “un-promulgates” the rule
 - Just as if rule was never promulgated
 - Therefore, 112(j) MACT “hammer” applies
- In response, DAQ moves ahead with 112(j) applications, and now is locked into timeline in federal rule.
- DAQ compiles wood boiler data set for MACT floor analysis

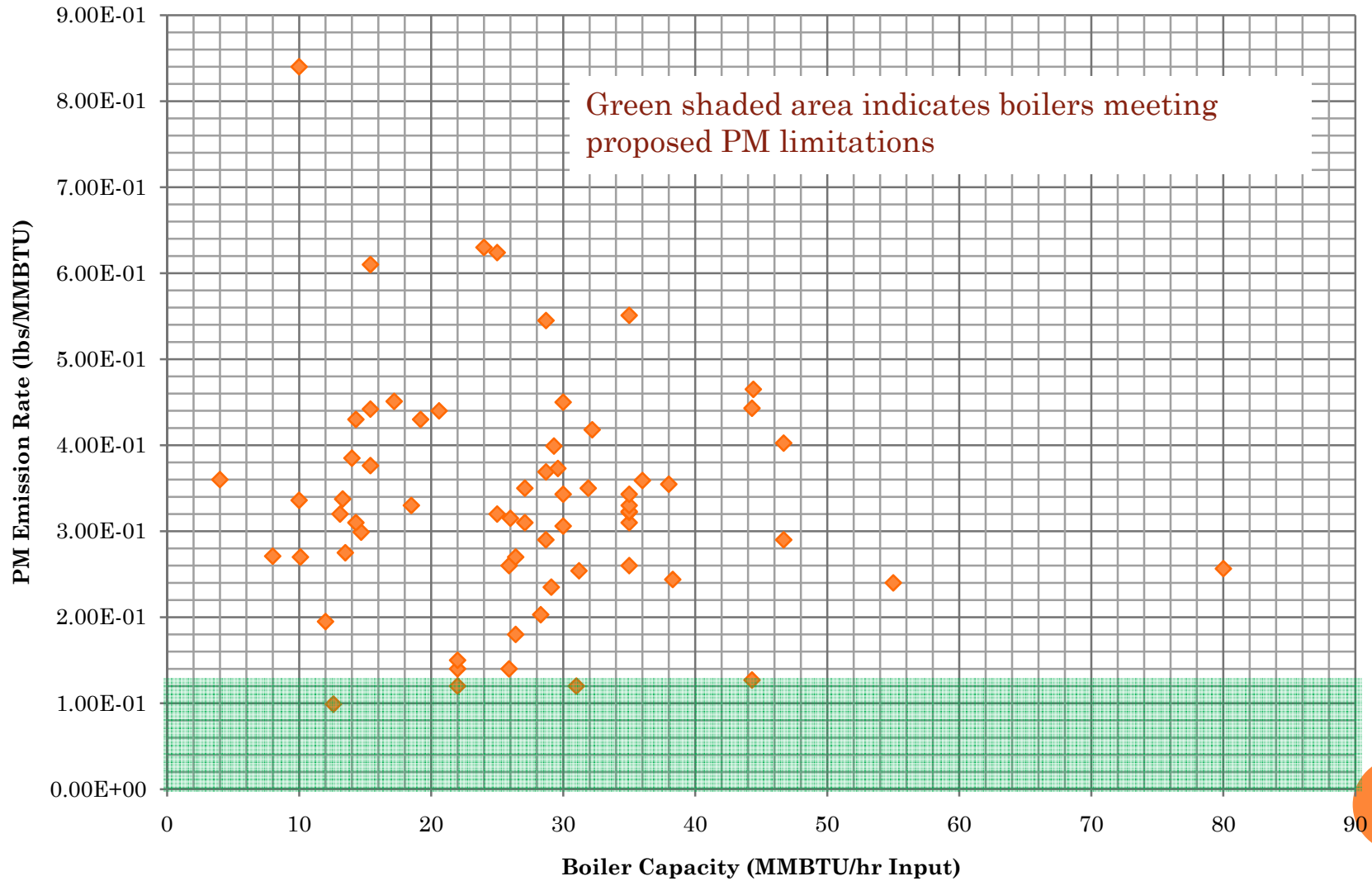


NC BOILERS EMISSION DATA

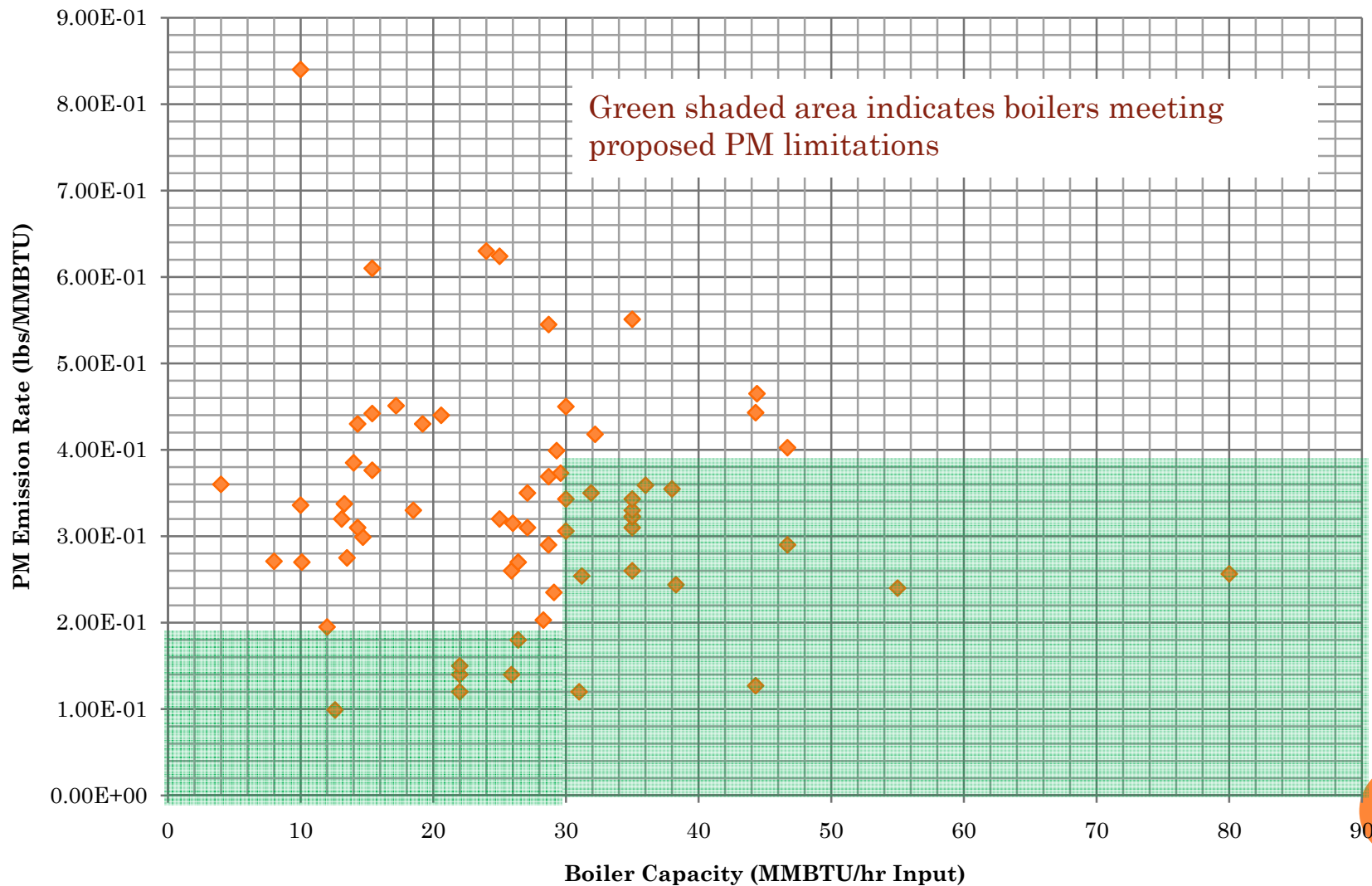
LIMITS 0.19, 0.39 LBS/MMBTU



UNIFIED LIMIT AND THE RAW DATA SET



DAQ PROPOSED LIMITS AND THE CURRENT DATA SET (0.19, 0.39 LBS/MMBTU PM)



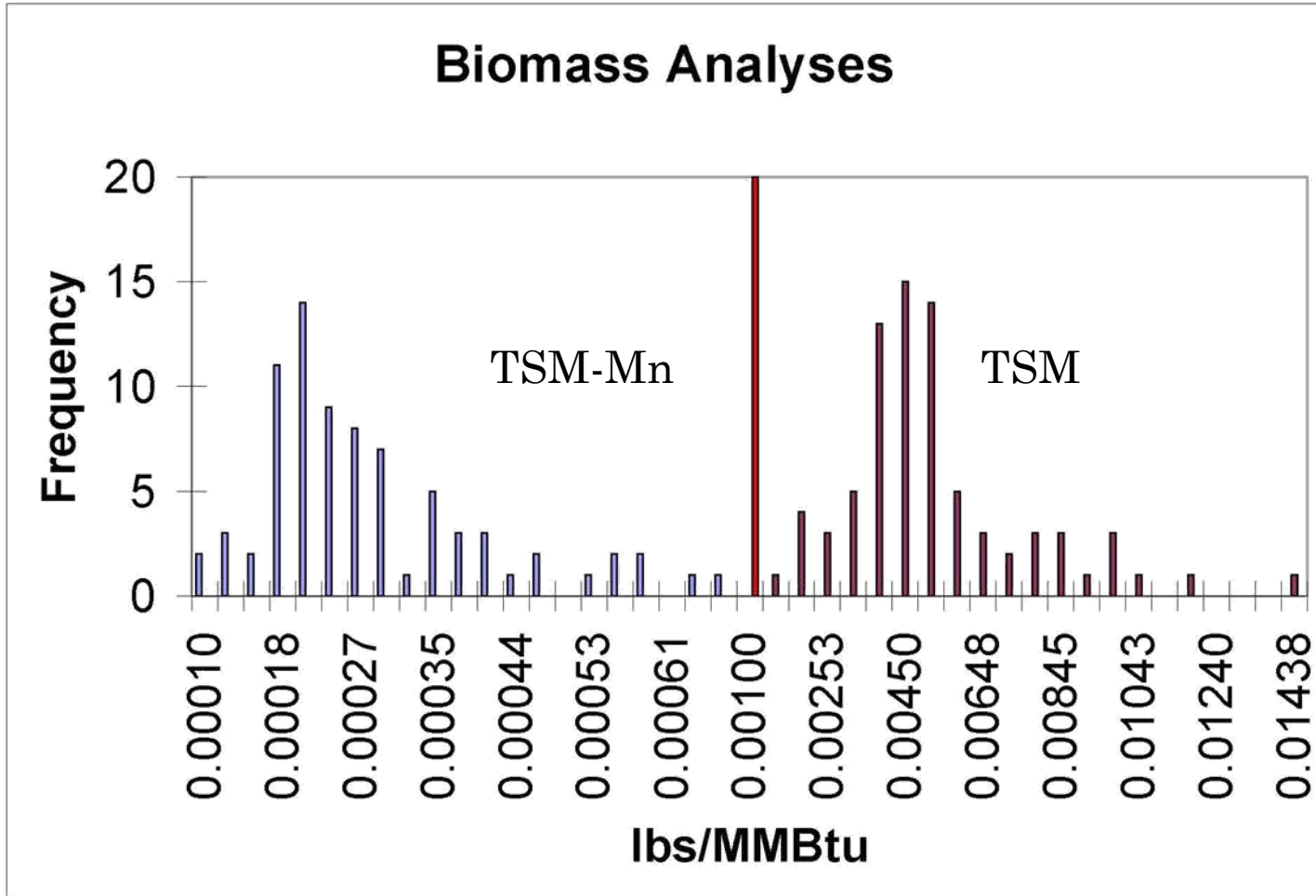
GOOD NEWS...



- Health
- Based
- Compliance
- Alternative
- DAQ has incorporated an HBCA Protocol into its 112(j) Guidance
- The 112(j) HBCA duplicates the HBCA crafted by the (then) AFMA in the original Boiler MACT
- Based on our experience, most dry wood boilers can easily demonstrate compliance using HBCA



BIOMASS TSM AND HBCA



THE COMPLIANCE ROAD MAP

- PM
- TSM
 - Manganese off-ramp
- HCl
- Hg
- Emissions Averaging



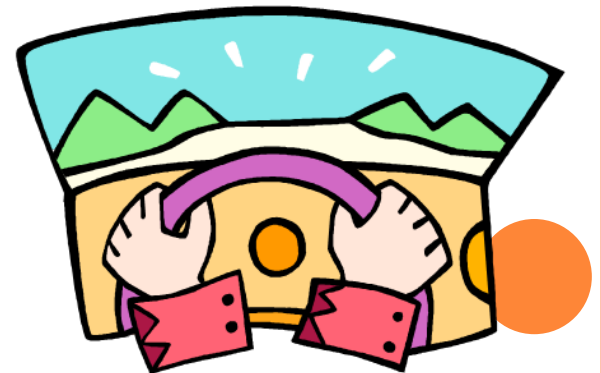
PM

- Stack test results
- Preliminary Results
 - $ER > 0.07 \text{ lb/MMBtu}$
- Next stop: TSM



TSM

- Wood Fuel Test, possibly with Stack Test Results
- Fuel Test Results Only
 - TSM ER > 0.0002 or 0.0005 lb/MMBtu limit
- Next Exit: Mn Health-Based Alternative



MN OFF-RAMP ELIGIBILITY

- 100% Wood = Worst-Case
- Fuel Test Results
- e.g., 40 m stack height
- e.g., 50 m minimum fenceline distance



DETERMINE MN OFFRAMP ELIGIBILITY

WORKSHEET 5c - Total Maximum Hourly Mn Emission Rate Comparison to Allowable Mn Emission Rate (Appendix A, Table 3)								
	Mn Emissions Average Value (lbs/MMBtu)	Mn Emissions P90 Value (lbs/MMBtu)	Heat Capacity (MMBtu/hr)	Max. Hr. Mn Emissions (using ave. Mn) (lbs/hr)	Max. Hr. Mn Emissions (using Mn P90) (lbs/hr)	Average Stack Height* (m)	Minimum Fenceline Distance (m)	Allowable Mn ER (App. A, Table 3) (lbs/hr)
Boiler								
ES-B1	3.5588E-03	4.5759E-03	36	0.1281	0.1647			0.47
			SUM	0.1281	0.1647			
	Eligible for TSM Health Based Alternative?			YES	YES			
COMMENTS:								
Using lowest value on lookup table in absence of fenceline distance and stack height								



TSM - Mn Emissions

Boiler: Erie City
Fuel Tested: Biomass
Test Date: 5-Apr-06

Sample	TSM - Mn Conc. in Fuel, z (lbs/MMBtu)	Average TSM Conc, u (lbs/MMBtu)	(z - u) (lbs/MMBtu)	(z - u)^2 (lbs/MMBtu)
1	1.8527E-04	1.9752E-04	-1.2249E-05	1.5003E-10
2	1.4127E-04	1.9752E-04	-5.6255E-05	3.1647E-09
3	2.1246E-04	1.9752E-04	1.4932E-05	2.2297E-10
4	1.7600E-04	1.9752E-04	-2.1518E-05	4.6304E-10
5	2.7261E-04	1.9752E-04	7.5090E-05	5.6386E-09
6				
7				
8				
9				
10				
SUM				9.6393E-09

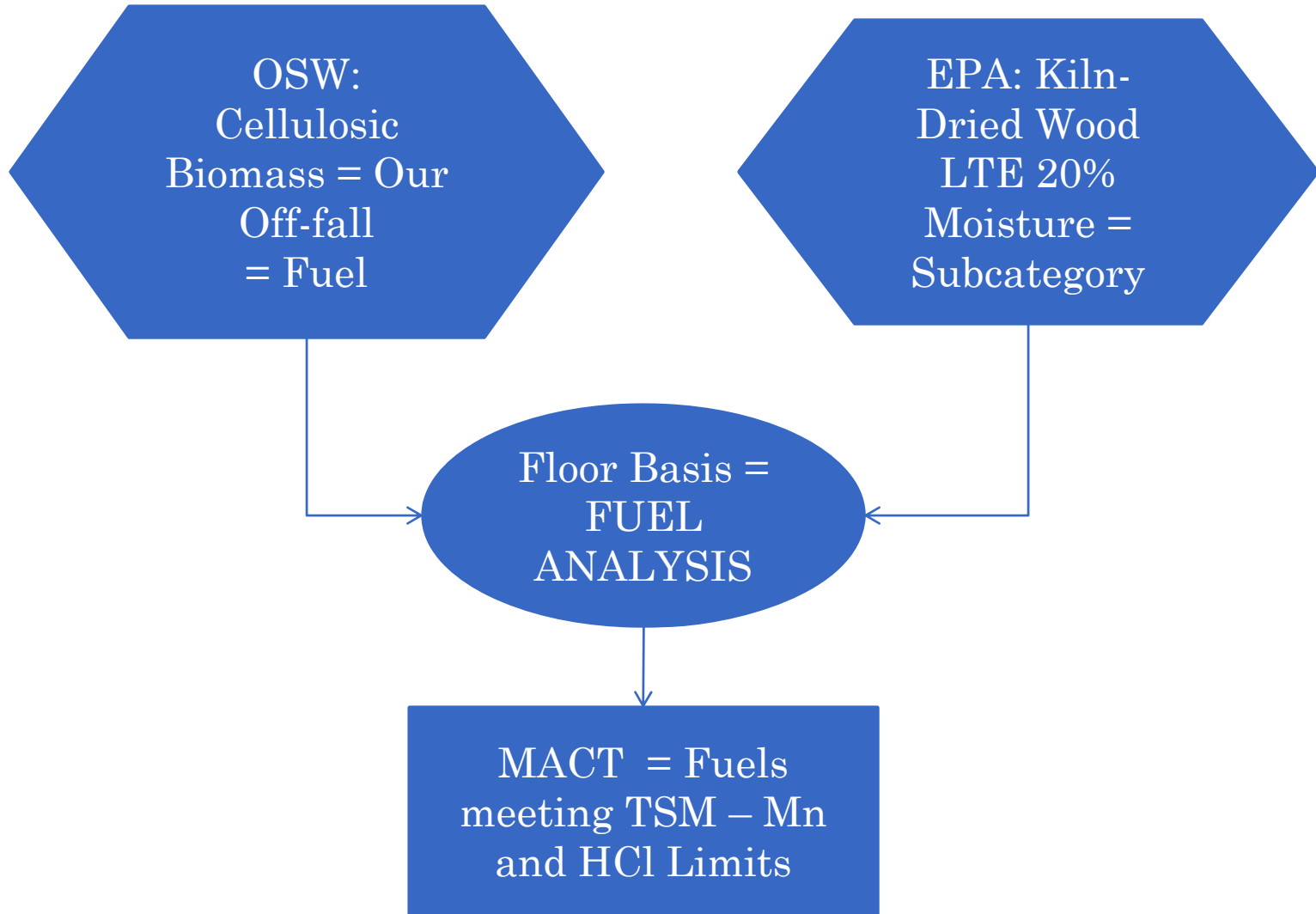
Pollutant	Calculated Emission Rate (lbs/MMBtu)	Boiler MACT Emission Limit (lbs/MMBtu)	COMPLIANCE STATUS
TSM minus Mn	2.7279E-04	1.0000E-03	COMPLIANCE



Conversions / Fuel 1 P90's / Emission Rates / TSM HBA biomass / LU

sum(z - u)^2 (lbs/MMBtu)	Number of Samples	Variance	Standard Deviation	t statistic	Average TSM Conc, u (lbs/MMBtu)	TSM minus Mn P90 (lbs/MMBtu)
9.6393E-09	5	2.4098E-09	4.9090E-05	1.533206	1.9752E-04	2.7279E-04

DEVELOPING THE SUBCATEGORY WITH HBCA



NORTH CAROLINA DAQ 112(J) TIMELINE

Date	Event
June 15, 2007	Original Boiler MACT vacated, along with CISWI rule
July 15, 2009	DAQ Part 1 applications due
September 11, 2009	DAQ Part 2 applications due
September 15, 2009	Waste-CISWI rule due from EPA
November 10, 2009	DAQ completeness notification due
July 10, 2010	New Boiler MACT due from EPA
Sept. 11, 2010 (??)	Title V application due for 112(j) provisions, <u>AND</u> application due for Air Toxics Compliance
March 10, 2011	Due date for Title V permit with 112(j) provisions <u>AND</u> Air Toxics Compliance
March 10, 2014	112(j) <u>AND</u> air toxics compliance date
July 8, 2014	Compliance demonstration plan due date
September 6, 2014	Initial compliance demonstration due date
September 6, 2019	Continuing compliance demo every 5 years



THE DAQ PART 2 APPLICATION

4. PM v. TSM. Facilities may choose to limit either TSM emissions or PM emissions (as a surrogate for TSM).

___PM (filterable) ___**X** TSM ___ N/A (gaseous fuels)

- Why TSM?
 - Avoid more restrictive PM limit of 0.19 or 0.39 lbs/MMBTU
 - Allows fuels testing instead of source testing to demonstrate compliance
 - Avoids requirement for COMS to demonstrate compliance with opacity limitation



THE DAQ PART 2 APPLICATION (CONT'D)

5. **Compliance Option.** Check which option you wish to use to demonstrate compliance with the NC DAQ guidance:

Recommended options **without** HBCA

Recommended options **with** HBCA

Alternative compliance proposal

○ Selection is non-binding



CO-FIRING WITH COAL

- TSM or PM standards could be limiting while co-firing any meaningful quantity of coal, unless additional controls are used
- If emissions averaging is allowed, coal input could possibly be as high as 50% by BTU
 - However, this is an optimal result and actual limits would depend on data gathered during an extensive testing program



112(J) IN VIRGINIA

- DEQ requested Part 1 applications February 2009
- DEQ then crafted a letter opining that Part 2 applications were not required
- We point to federal rule and disagree, submit Part 2 applications (boilerplate by AHFA-Stratus).



VIRGINIA DEQ 112(J) TIMELINE

Date	Event
June 15, 2007	Original Boiler MACT vacated, along with CISWI rule
February-ish 2009	DEQ Part 1 applications submitted
March 17, 2009	DEQ-Dowd letter stating Part 2 is voluntary
April-ish, 2009	DEQ Part 2 applications submitted
June-ish, 2009	DEQ completeness notification due
September 15, 2009	Waste-CISWI rule due from EPA
July 10, 2010	New Boiler MACT due from EPA
October-ish, 2011	? Title V application due for 112(j) provisions <i>maybe?</i>
????	Due date for Title V permit with 112(j) provisions
????	112(j) compliance date
????	Compliance demonstration plan due date
????	Initial compliance demonstration due date



112(J) IN WISCONSIN

- Part 2 applications due date extended to Sept 1 2009, with additional extension available until March 15, 2010
- DNR considering stringent NACAA guidance



REMEMBER THIS?



Boiler MACT



Compliance Manual



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