

August 23, 2010

Lisa P. Jackson, Administrator
U.S. Environmental Protection Agency
Mail Code 2822 T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Attention Docket ID Nos: EPA-HQ-OAR-2002-0058 and EPA-HQ-OAR-2006-0790

Re: National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers Proposed Rule

National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters Proposed Rule

Dear Administrator Jackson:

The Northeast States for Coordinated Air Use Management (NESCAUM) offer the following comments on two proposed rulemakings by the U.S. Environmental Protection Agency, published on June 4, 2010 in the Federal Register: 1) *National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers Proposed Rule* (75 FR 31896 – 31933); and 2) *National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters Proposed Rule* (75 FR 32006 – 32073). NESCAUM is the regional association of air pollution control agencies representing Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.

NESCAUM strongly supports EPA's efforts to develop these two rules that will substantially reduce emissions of hazardous air pollutants (HAPs) from a broad sector of industrial, commercial, and institutional boilers. After coal-fired power plants, these sources are among the largest emitters of toxic and criteria air pollutants in the country. Accordingly, the benefits to the public's health and welfare that will result from well-constructed, clear, and comprehensive rules for these sectors are substantial. It is with this in mind that we offer the following comments.

Emission Limits

Variations in Emission Limits for Similar Units

NESCAUM is concerned by the widely varying emission limits proposed for similar units regulated under section 112 of the Clean Air Act (CAA). In the past, where large differences in

cost and protectiveness were associated with definitions in the regulations, litigation has resulted due to uncertainty over the meaning and application of those definitions. The NESCAUM states urge that that MACT and GACT levels be harmonized across the two proposed rules, thus resulting in consistent emission limits for similar units.

Section 112 of the CAA mandates that EPA set emission limits for covered units at “the maximum degree of reduction that is achievable,” and not merely the MACT floor. Accordingly, where feasible, EPA should adopt emission limitations of similar stringency for similar units, irrespective of how the source is regulated (e.g., as an area source or major source under section 112). NESCAUM suggests that EPA revise calculations based on a single database. If the data suggest separate numbers for major and area sources within the same category, EPA should move beyond the MACT floor and use the more stringent number and apply it in both rules.

Carbon Monoxide (CO) Emission Limits

NESCAUM has serious concerns with the proposed CO limits in both rules. First and foremost, NESCAUM states do not concur with the assumption that, at lower emission levels, CO is an appropriate surrogate for reducing polycyclic organic matter (POM) emissions. Analyses by states of this issue support this conclusion. If EPA's position is that increased combustion will result in lower emission levels of organics, then we suggest that EPA use a combustion efficiency limit and test method rather than a CO standard. For existing units, EPA should require annual tune-up and testing of combustion efficiency (oxidative). For new units, EPA should require that they meet the U.S. Department of Energy's AFUE standards for direct heating devices and boilers or ASHRAE155p standards.

If EPA chooses to continue to use CO as a surrogate for POM emissions, we recommend that it re-evaluate its approach towards emission limits and control options for CO. Increasing combustion efficiency may reduce POM emissions, but the use of CO controls may not. Furthermore, the proposed CO limits may be unachievable for some existing units. If such a unit has NO_x limits, then it will need to install add-on CO controls to these units, likely CO catalysts, which will do nothing to reduce HAP emissions. If a unit does not have NO_x emission limits, it may increase NO_x emissions in order to reduce its CO emissions, once again with little impact on its overall HAP emissions. NESCAUM recommends that EPA use a multi-pollutant approach to re-evaluate the proposed CO emission limits in light of the potential negative impacts of the CO limits on the emissions of other air pollutants.

CO limits for oil boilers

For oil boilers, EPA's proposed limit of 1 part per million (ppm) CO for new oil boilers falls below reference test method variability. Additionally, the 1 ppm limit would likely require use of CO continuous emission monitoring systems (CEMS) for all oil units. Furthermore, NO_x reduction strategies for ozone reduction may be negated if CO limits for HAPs are too low. For example, lime kilns have experienced exceptionally high NO_x values (1100 ppm NO_x) resulting from CO controls. The graph in Figure 1 provides an example of this tradeoff, which is a plot of

annual NO_x vs. CO emission rates (lb/mmBtu) obtained from stack tests at a paper mill waste fuel incinerator.

In addition, NESCAUM believes that EPA's database reflects steady state operation and does not account for CO emission increases during periods of startup and shutdown. NESCAUM therefore suggests that EPA set this emission limit at 10 ppm (@ 3% O₂) to reflect variations in operations and test method detection limits.

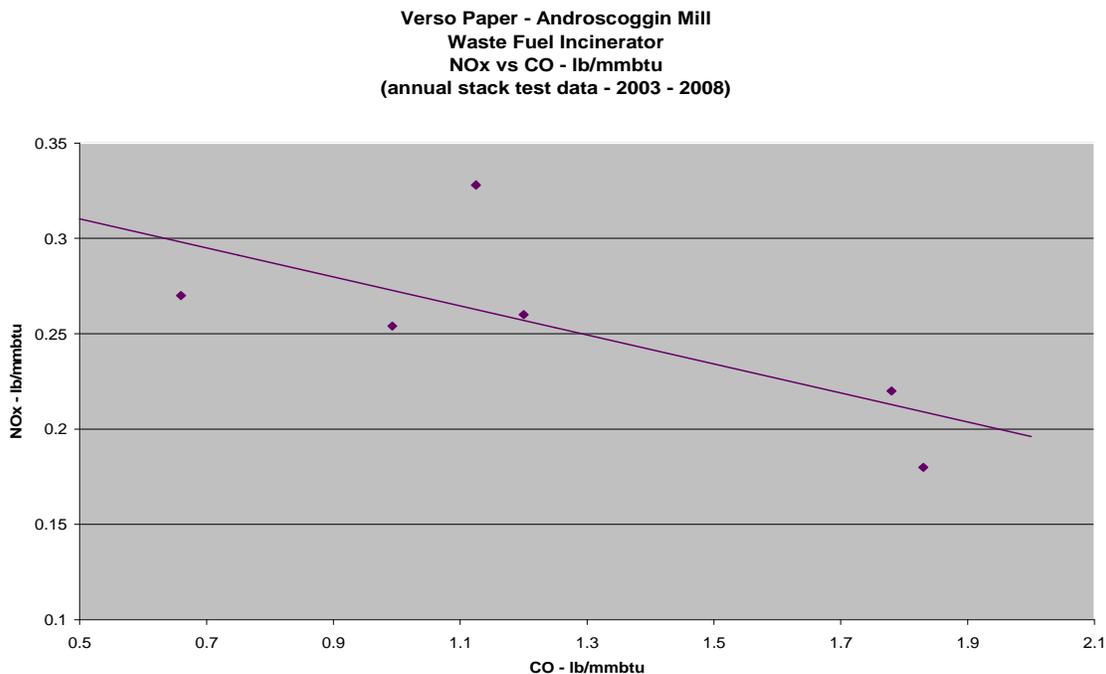


Figure 1. Plot of annual NO_x vs. CO emission rates (lb/mmBtu) obtained from stack tests at waste fuel incinerator.

CO limits for biomass units

For biomass units, the CO limit for existing wood boilers in the proposed area source rule is four times lower than the limit for existing wood boilers in the proposed major source rule. This appears to place a larger compliance burden on the same sized units located at smaller facilities; is this EPA's intent? In addition, continuous compliance may be unachievable, as the proposed emissions limits are based on stack tests, and not CEMS data. The CO emission rate will likely vary over time due to changes in load conditions and fuel variability. It is unlikely that available stack test data have adequately characterized this variability.

Hydrogen Chloride and Mercury Limits

As with CO emission limits, the proposed mercury and hydrogen chloride emission limits are set too close to the detection limits for their respective specified test methods. They also do not

account for fuel variability. The NESCAUM states recommend that EPA revise these numbers to account for these issues.

Requirements for Natural Gas

NESCAUM has concerns regarding the elimination of CO limits for all refinery gas-fired boilers due to potential aldehyde emissions from this source category. NESCAUM recommends that EPA set CO emission limits for refinery gas boilers and process heaters larger than 10 mmBtu/hr. Furthermore, NESCAUM also recommends that EPA require an annual tune-up for all natural gas boilers, refinery gas-fired boilers, and process heaters.

Requirements for Fuel Oil

Elemental analyses of fuel oils recently conducted by NESCAUM indicate that emissions from #2 distillate oil are significantly lower in mercury and other trace metals than EPA's AP-42 emission factors would otherwise suggest. Trace metals were measured in various petroleum products sampled in the Northeast, including #6 residual fuel oil, #2 distillate oil, ultra-low sulfur heating oil, and bio-diesel. Table 1 contains the trace metal results for #2 distillate oil and #6 residual oil, which are presented as input-based emission rates.

Based on NESCAUM's fuel sampling work, the more refined petroleum products have a different composition and are lower in nickel (Ni) and vanadium (V) than the heavier #6 residual oil. The fuel sampling also found very low levels of mercury (Hg) in petroleum products, and underscored the need for EPA's National Emissions Inventory to be updated for several metals, including mercury, nickel, and vanadium. Furthermore, based on compliance data, when burned in a commercial or industrial boiler to produce heat, different blends of petroleum can have very different fine particle emission rates due to the combustion design of the heating system and the fuel composition.

The bar chart of Figure 2 shows the particulate matter (PM) emission rates for different combustion systems and fuels used in heating equipment based on analysis conducted recently by the New York State Energy Research and Development Authority (NYSERDA). Currently, #2 distillate oil is the most common fuel for heating in the Northeast, after natural gas, and has a PM emission rate of approximately 0.008 lb/mmBtu. Ultra-low, or 15 ppm, sulfur heating oil has a PM emission rate of 0.000099 lb/mmBtu, about the same as the emissions rate for natural gas-fired boilers. Number 6 residual fuel oil is commonly used in large buildings and has PM emission rate twice that of a boiler burning #2 distillate oil.

Based on these data, NESCAUM believes that EPA can achieve its emission targets by regulating ultra-low sulfur #2 distillate oil with the same regulatory strategy EPA proposed for natural gas. Additionally, many NESCAUM states have adopted, or are in the process of adopting, standards for ultra-low sulfur heating oil; it is imperative that EPA's proposed regulations do not impair state efforts to reduce sulfur emissions from these sources. NESCAUM recommends that EPA analyze the multi-pollutant benefits gained by encouraging

the use of 15 ppm ultra-low sulfur heating oil and incorporate these requirements, when appropriate, in the final rule.

Table 1. Trace metal emissions (input-based) for heating equipment.

Pollutant	Metric	#2 Distillate	#6 Residual*
Arsenic	lb/mmBtu	7.47E-07	9.07E-06
Beryllium	lb/mmBtu	ND	N/A
Cadmium	lb/mmBtu	2.34E-07	N/A
Chromium	lb/mmBtu	1.10E-05	N/A
Lead	lb/mmBtu	8.34E-06	9.93E-06
Manganese	lb/mmBtu	1.50E-05	1.5E-04
Nickel	lb/mmBtu	8.70E-05	8.93E-04

*As measured in #6 residual oil (assuming 150 kBtu/gal) and not stack results.

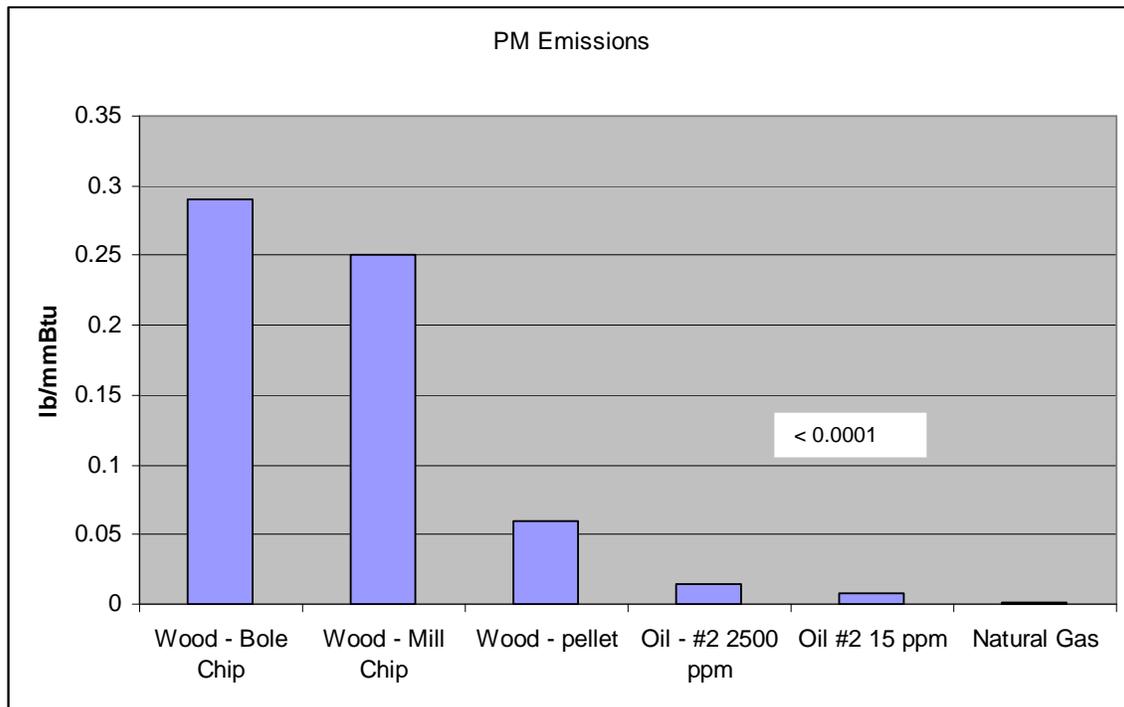


Figure 2. Fine particle emissions rates for wood- and oil-fired commercial boilers.

Sub-Categorization

NESCAUM generally supports the categories proposed in both rules. However, in certain circumstances, addition of categories may be necessary. NESCAUM recommends that EPA, at a minimum, create two additional categories of boilers: one for units smaller than 1 mmBtu/hr and another for “limited use” boilers.

NESCAUM recommends segregating units less than 1 mmBtu/hr, as we have found that these units are significantly different than the larger units in design. Additionally, the compliance burden for these smaller sized units, as proposed, will be high. NESCAUM suggests that these units be subject to unit certification by the manufacturer, as is currently done for smaller residential units. NESCAUM recommends that EPA institute a requirement for a model certification for solid fuel units less than 1 mmBtu/hr and annual tune-ups thereafter. Additional sub-categorization for boilers between 10 and 30 mmBtu/hr may also be warranted.

For units between 1 and 10 mmBtu/hr, NESCAUM recommends that EPA set emission limits as follows:

- Biomass units: PM limit of 0.08 lb/mmBtu and a CO limit of 100 ppm – this emission performance level has been achieved by several units without installation of an electrostatic precipitator (ESP) or baghouse.
- Oil units (firing fuels other than 15 ppm #2 distillate): PM limit of 0.03 lb/mmBtu and a CO limit of 10 ppm.

We further recommend that EPA require compliance testing when control equipment is installed, as well as annual tune-ups thereafter.

NESCAUM also recommends that EPA create a “limited use” boiler category, which should include units used for less than 200 hours per year or a boiler that comprises less than 10% of annual use with caveats to ensure that facilities do not aggregate many small boilers to avoid compliance with emission limits. These boilers may represent back-up or start-up boilers and should be exempted only if they use 15 ppm ultra-low sulfur content oil.

NESCAUM also recommends eliminating the proposed “fuel cell” subcategory for wood-fired boilers in the MACT rule. A fuel cell is generally understood to create electricity directly from a fuel gas without combustion.¹ As such, a true fuel cell would not be subject to the ICI boiler rule. One does not find in the technical literature a discussion of “fuel cell” combustion units. The units in EPA’s database that it styles as “fuel cell” units appear to be newer than most, and for that reason, relatively fuel efficient and low-emitting, but there does not appear to be any difference in fundamental design that would warrant establishment of a separate category.

Finally, NESCAUM believes that EPA will need to create additional categories under section 112 in both the area and major source rules for facilities that combust secondary materials or use the section 129 exemption.

Dual-Fuel Units

EPA proposes allowing a facility to use up to 10% of an alternative fuel that a boiler is “designed” to burn without having to comply with the appropriate emission limit. NESCAUM

¹ See, e.g., Standard Handbook of Powerplant Engineering, Section 8.6, Elliot (ed.), McGraw Hill, 1998.

finds this language problematic for several reasons. First, we suggest that EPA change the word “designed” to “permitted” to burn. While a unit may be designed to burn certain fuels, a state may have placed limitations on fuel use within a permit. Second, we have concerns with the 10% fuel use limit, as it creates significant enforcement issues. Without detailed requirements for tracking, recordkeeping, and reporting, the 10% limit will be difficult for enforcement staff to verify. Third, facilities’ use of the different fuels may vary from year to year, which leads to different emission limits from year to year. States would be unclear as to how to determine which emission limits would apply and when. Fourth, there are questions about what limits would apply when a boiler is simultaneously burning more than one fuel. NESCAUM recommends that EPA modify the rule to state that if a facility combusts more than one fuel type, it must meet the lowest applicable emission limit for the fuel types actually burned.

Existing Units Limits and Work Practice Standards

Energy Assessment

NESCAUM is fully supportive of EPA’s efforts to require that facilities conduct energy assessments in order to identify cost-effective energy conservation measures on the boilers’ energy consuming systems. NESCAUM believes that this assessment should be required for all sources larger than 1 mmBtu/hr. In this effort to go beyond the floor on this issue, EPA will not only reduce emissions of all HAPs but will also take strides to reduce carbon emissions from this source category. NESCAUM suggests that EPA provide greater detail on various aspects of the energy assessment.

NESCAUM also suggests that EPA include in this rulemaking guidance on the following issues:

- Specific requirements for who should conduct the energy assessment and minimum standards for an acceptable energy assessment. For instance, EPA could require a facility to conduct a fully implemented assessment as detailed in EPA’s Energy Star Facility Assessment Program, or does EPA intend an assessment to include only combustion efficiency testing and a boiler tune-up to meet the standard? NESCAUM recommends that EPA develop minimum standards and areas that must be addressed to meet this requirement.
- Clear language on what must be covered in the energy assessment, including whether the assessment should cover the entire facility or only any unit that affects the boiler. EPA should also clarify if the assessment should examine improvements in facility energy efficiency, boiler energy efficiency, or thermal boiler combustion efficiency.
- Requirements for facilities to respond to the energy assessment. For example, NESCAUM suggests that EPA require facilities to implement steps for improvements identified in the energy assessment within a three-year period for any activities that require an investment of less than 3% of gross receipts and have a positive return on investment.

Fuel Switching for Existing Units

While we understand EPA's analysis and subsequent recommendation not to require controls on existing units smaller than 10 mmBtu/hr for both rules, we do not agree that completely exempting these units from the rule is appropriate. NESCAUM recommends that EPA put in place a work practice standard that requires existing sources to reduce their HAP emissions to the greatest extent possible. Without such requirements, existing units will continue to operate well into the future via life extension projects. We therefore recommend that EPA, in addition to requiring energy assessments and annual tune-ups, require existing facilities to either comply with emission limits for larger units or require fuel switching to the cleanest fuel type. For instance, existing oil-fired units should use the cleanest fuel in their class; biomass-fired units without advanced emission controls such as baghouses or ESPs should use clean, debarked wood. There is sufficient data that indicate fuel switching within a fuel type, be it oil, coal, or biomass, will reduce emissions of EPA's target pollutants.

Compliance Assurance

Startup, Shutdown, and Malfunction Requirements

EPA proposes to regulate emissions of HAPs from boilers during all phases of operations, including startup, shutdown, and malfunction (SSM) periods. We are unsure how EPA has accounted for these emissions within the proposed emission limits, as the current data do not include such emission measurements. Furthermore, there is significant variation in the amount and duration of SSM emissions for various fuels and sizes of boilers. For example, we anticipate that variation in SSM emissions would be greater when using boilers firing solid fuels, such as biomass, than with boilers firing liquid fuels such as heating oil. NESCAUM recommends that EPA use facilities regulated under this effort to collect SSM emissions data and then revisit this issue no later than five years from promulgation to develop appropriate limits for SSM emissions. Facilities that measure emissions with CEMS could provide the basis for developing emission limits for SSM periods. In addition, EPA should examine how to evaluate SSM emissions at smaller boilers that do not have CEMS, and how those facilities could evaluate those emissions during compliance testing.

Smaller Units

We support EPA's proposal to develop emission standards for all new facilities. Based on our research and experience, we know that new boilers can be built with stacks that are appropriate for testing under EPA Methods 29, 10, and 5. We would not support EPA allowing an exemption for new units built with small stacks. If a facility were built with a small stack, temporary stack extensions could be built for testing. Furthermore, EPA's assumption that a new stack will be built for each new boiler runs counter to current state information that includes several instances in which new small gas-fired commercial boilers have been connected to existing stacks.

Fuel Analysis

EPA has not provided a clear definition as to what constitutes new fuel. Unlike liquid fuels and coal, most biomass fuels are inherently inhomogeneous. For example, does a wood chip facility need to test for Hg and HCl for every new load or new supplier of fuel? As proposed, the language is unclear as to when a facility must conduct a test to show compliance with emission limits when fuel switching occurs, or the frequency of this testing. NESCAUM recommends that EPA clarify this rule to require testing upon use of a new fuel. Additionally, NESCAUM recommends that EPA not require facilities burning biomass to conduct fuel testing on each new load of biomass nor when a facility switches biomass fuel suppliers.

Opacity Monitors

It is our understanding that the proposed rules require installing an opacity monitor, if any facility installs an ESP in order to meet a 10% opacity limit on a daily basis, with no *de minimus* threshold. Additionally, if a facility installs a fabric filter, it would be required to install an opacity monitor or a broken bag leak detector, with no *de minimus* threshold. We recommend that EPA require opacity monitors only on units larger than 30 mmBtu/hr.

Reduced Stack Testing Frequency

In the proposed rules, EPA indicates that once a facility has demonstrated compliance with the emission limit, it can reduce the frequency of stack testing. There is, however, a lack of clarity on the percentage a facility must fall below the emission limit to qualify for this reduction. In section 63.7515(b), EPA specifies that a facility must fall below 75% of the emission standard, whereas sections 63.7555 (c) (5) and 63.7555 (d) (6) refer to a 90% threshold. The NESCAUM states request EPA to clarify its intent.

Disproportionate Risk

Numerous health studies have linked exposure to elevated PM levels to a wide range of detrimental heart and lung health effects, including increased risk of premature death. Children in particular may be at greater risk in some respects than adults from exposure to air pollution for a number of reasons. Those under the age of 17 have a higher resting metabolic rate and oxygen consumption rate per unit of body weight than adults, which results in a relatively greater volume of air passing through the lungs. Children engage in activities such as playing outdoors that could increase the amount of air pollutants they take into their bodies. Children are growing and can sustain permanent damage if toxic exposures are high enough during critical growth stages, with children under the age of 17 years old at greater risk of hospitalization due to respiratory disease with increased PM-10 exposure.

With these types of relatively greater risks for children from exposure to air pollution, NESCAUM is concerned about the various efforts being pursued by government agencies and the private sector to encourage use of small biomass boilers in institutional settings, specifically schools and hospitals (the latter setting also affects sensitive adults, such as those with respiratory disease). Typically, these boilers have not had to comply with emission limits.

Implementing a strong area source standard, specifically for PM and CO emissions, will better protect the health of these sensitive populations.

Summary

We support EPA's efforts on these rules and urge EPA to adopt them expeditiously. Failure to do so, or further litigation, will only result in delaying of the emission reductions critical to ensuring the public health benefits of these rules. We look forward to working with EPA to ensure that the proposed area source and major source section 112 rules can be implemented by states to in such a manner as to maximize resources and achieve our public health protection goals.

If you or your staff has any questions regarding the issues raised in these comments, please contact Lisa Rector of NESCAUM at 617-259-2095.

Sincerely,



Arthur N. Marin
Executive Director

cc: NESCAUM Directors
Susan Lancey, EPA Region 1
Robert Wayland, EPA OAQPS