

**BOARD OF DIRECTORS**

**Co-Presidents**

G. Vinson Hellwig  
Michigan  
Larry Greene  
Sacramento, CA

**Co-Vice Presidents**

David Shaw  
New York  
Lynne A. Liddington  
Knoxville, TN

**Co-Treasurers**

Mary Uhl  
New Mexico  
Merlyn Hough  
Springfield, OR

**Past Co-Presidents**

Colleen Cripps  
Nevada  
Arturo J. Blanco  
Houston, TX

**Directors**

Rick Brunetti  
Kansas  
Joyce E. Epps  
Pennsylvania  
Andrew Ginsburg  
Oregon  
Anne Gobin  
Connecticut  
Cheryl Heying  
Utah  
James Hodina  
Cedar Rapids, IA  
Cindy Kemper  
Johnson County, KS  
John S. Lyons  
Kentucky  
Richard Stedman  
Monterey, CA

**Executive Director**

S. William Becker

August 23, 2010

Docket Nos. EPA-HQ-OAR-2006-0790,  
EPA-HQ-OAR-2002-0058 and  
EPA-HQ-OAR-2003-0119  
U.S. Environmental Protection Agency  
EPA Docket Center  
Mailcode: 2822T  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

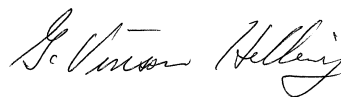
Dear Sir/Madam:

On behalf of the National Association of Clean Air Agencies (NACAA), thank you for this opportunity to comment on the following EPA proposals, which were published in the *Federal Register* on June 4, 2010: National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (Docket No. – EPA-HQ-OAR-2002-0058), National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers (Docket No. – EPA-HQ-OAR-2006-0790), and Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units (Docket No. – EPA-HQ-OAR-2003-0119).

NACAA is the national association of air pollution control agencies in 52 states and territories and over 165 metropolitan areas across the country.

Thank you for this opportunity to comment on the proposal. Please contact us if we can provide additional information.

Sincerely,



G. Vinson Hellwig  
Michigan  
Co-Chair  
NACAA Air Toxics Committee



Robert H. Colby  
Chattanooga, Tennessee  
Co-Chair  
NACAA Air Toxics Committee

**NACAA Comments on EPA Proposals for Regulation of Hazardous Air Pollutants (HAPs) from Industrial, Commercial and Institutional (ICI) Boilers under Section 112 of the Clean Air Act (CAA) and for Regulation of Toxic and Criteria Air Pollutants from Commercial Industrial Solid Waste Incineration (CISWI) Units under Section 129 of the CAA**

Docket Nos. EPA-HQ-OAR-2006-0790; EPA-HQ-OAR-2002-0058;  
EPA-HQ-OAR-2003-0119

August 23, 2010

Pursuant to the solicitation for public comment published in the *Federal Register* by the U.S. Environmental Protection Agency (EPA) on April 29, 2010, the National Association of Clean Air Agencies (NACAA) is pleased to provide the following comments on two EPA proposals for regulation of HAPs from ICI Boilers under Section 112 of the CAA and for regulation of toxic and criteria air pollutants from CISWI units under section 129 of the CAA. NACAA is the national association of air pollution control agencies in 52 states and territories and over 165 metropolitan areas across the country.

The proposed rules will substantially reduce emissions of hazardous air pollutants (HAPs) from a broad sector of industrial, commercial and institutional boilers and from commercial solid waste incinerators. In addition, these rules will directly limit sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) from commercial solid waste incinerators and indirectly reduce SO<sub>2</sub> and particulate matter (PM) emissions from each of these categories of combustion units. These combustion units are (after coal-fired power plants) among the largest emitters of toxic and criteria pollutants in the country. Accordingly, the benefits to public health and welfare that will result from a well-considered rule are substantial.

NACAA strongly supports adoption of timely HAP emission limitations for each of these sectors. The final regulations should meet both the letter and the intent of the statute and strike the appropriate balance in protecting public health, while avoiding the imposition of unnecessary costs on the regulated community. If EPA fails to adopt a standard in a timely fashion, or if it fails to adhere to the statute and the rule is overturned once again, the public health benefits will be delayed. In addition, a significant burden will fall to state and local agencies that will be obliged to issue several thousand permits on a case-by-case basis. In the current economic climate these agencies can ill afford to engage in such an undertaking while maintaining present activities to protect public health and welfare.

## **SUMMARY**

NACAA believes that the recent proposals are a vast improvement over earlier efforts and that EPA is generally on the right track. Under sections 112(d)(2) and 129(a)(2) of the CAA emission limits for existing sources must reflect the maximum degree of reduction in emissions that the Administrator determines is feasible (MACT) **and** shall not be less stringent than the average emission limitation achieved by the best performing 12 percent of sources (for which the Administrator has emissions information) (the “MACT floor”). NACAA agrees with EPA’s conclusion that recent court decisions require that (a) floors for existing sources must reflect the average emission limitation achieved by the best-performing 12 percent of existing sources; (b) a

MACT floor cannot be “no control”; (c) EPA cannot ignore non-technology factors that reduce HAP emissions and (d) the levels of HAP in fuels consumed by sources must be reflected in the MACT floor determination.<sup>1</sup> NACAA also agrees that EPA’s proposal to establish four categories based on fuel type – coal, biomass, liquid and gas – is reasonable and well documented.

The HAP emissions in this sector are generated by the combustion of fuel by affected units. Accordingly, such emissions can be expected to be reduced if those units improve their fuel efficiency. Since MACT standards include operational standards that “reduce the volume of... such pollutants through process changes...or other modifications...,” EPA has the authority to establish a “beyond the floor” requirement for a one-time energy assessment that would identify opportunities for sources to voluntarily reduce their own operating costs, while decreasing emissions of HAPs regulated under section 112, criteria pollutants (such as SO<sub>2</sub>, NO<sub>x</sub> and PM<sub>2.5</sub>) and greenhouse gases.

While NACAA generally supports EPA’s proposed rules, NACAA does not agree with the proposed adoption of a “designed to combust” test for subcategories rather than use of the actual fuel being combusted. This test is not logically related to emissions of HAPs, is susceptible to gaming by certain sources and may be impossible for other well-controlled sources to meet. NACAA has identified several other areas where it appears that EPA’s approach to establishing a MACT floor is inconsistent or otherwise flawed. Moreover, the reasoning and basis for several key decisions are not well documented. In most of these instances, the application of alternatives does not significantly alter the resulting calculation. However, the lack of a consistent, reasoned basis for EPA’s choices creates a risk that the rule will be overturned and in some instances, the resulting floor calculation will be substantially different if other, equally reasonable, factors are used in developing the final determination.

Finally, in some instances EPA’s various proposals provide for widely differing emission limits for similar units depending on the specific wording of the subcategories and the definition of solid waste. In the past, where large differences in cost and protectiveness are associated with definitions in the regulations, the result has been litigation and uncertainty over the meaning and application of those definitions in specific circumstances. Significantly more stringent CISWI limits will discourage the use of solid wastes in ways that will increase cost to industry while increasing emissions of greenhouse gases. Sections 112 and 129 each mandate that the emission limitation for covered units be “the maximum degree of reduction that is achievable,” not merely the MACT floor. Accordingly, where feasible, EPA should adopt MACT limitations of similar stringency for similar units, irrespective of whether, for example, the source is regulated as an ICI Boiler under section 112 or a CISWI unit under section 129. This action, along with adoption of SO<sub>2</sub> and NO<sub>x</sub> limits under EPA’s contemplated Transport Rules (Phase II), would reduce the impact of litigation over the definition of solid waste and avoid potentially perverse and unanticipated environmental consequences associated with artificially encouraging or discouraging certain sources from combusting solid wastes. NACAA believes that corrections can be made within the court-ordered deadline that will permit adoption of lawful, sensible and protective limits for emissions of HAPs within these sectors. We also believe that it is better to

---

<sup>1</sup> A source that is a low emitter because of low levels of HAP in its fuel can still be a “best performer” whose emission levels are part of the “average of the best performing 12 percent.”

“get it right” this time and would support a request to the plaintiffs for several months additional time to promulgate a final rule if EPA demonstrates that additional time is necessary to conduct the analyses that we recommend.

## BACKGROUND

The history of EPA regulation of toxic air pollutants over the past 40 years demonstrates that this area has proven to be challenging to the agency. EPA has had the authority and obligation to regulate emissions of HAPs since 1970,<sup>2</sup> but over the next 20 years it managed to set emission limitations for only seven HAPs.<sup>3</sup> Even where it set limits,<sup>4</sup> those limits applied to only a subset of the emitters of those HAPs.

Frustrated with the slow pace of reductions in HAP emissions, in the 1990 CAA Amendments Congress severely cabined EPA’s discretion and established an extremely prescriptive approach to be employed. Instead of allowing/requiring EPA to determine which pollutants were hazardous, Congress enacted a list of 189 HAPs. Rather than allowing EPA to decide the degree of risk that was acceptable, Congress established a technology-based approach (MACT standards for emitters of the regulated HAPs) and “residual risk” requirements to address any significant risk that might remain after adoption and implementation of the MACT standards. Congress further narrowed EPA’s discretion in determining the “maximum achievable control technology” by promulgating a simple mathematical formula to establish minimum emission limitations for MACT standards. Under the statute, the emission limitation adopted by EPA for a covered unit may be no less stringent than the average of the best performing 12 percent of similar units.<sup>5</sup> To ensure that further delays in regulating toxic air pollutants would not occur, Congress established tight deadlines for promulgation of EPA rules and created a regulatory disincentive – a hammer – that would occur if EPA missed a deadline for regulating a particular industrial sector. The MACT “hammer” provides that if EPA fails to promulgate a MACT standard for a particular sector by the statutory deadline, state and local permit authorities must issue permits within 18 months establishing such limits on a case-by-case basis.

Demonstrating the continued difficulty in addressing these issues, even where its discretion is severely limited, now, 20 years after the 1990 amendments, we find that EPA has missed the section 112 statutory deadline for three large industrial sectors, has not yet implemented limits under section 129 for industrial solid waste incineration units and has not yet adopted limits for emissions of hazardous air pollutants from coal-fired power plants.

When the court vacated the earlier ICI Boiler MACT rule it fell to state and local permit authorities to commence the process of developing case-by-case MACT permits for these units.

---

<sup>2</sup> In 1977 Congress adopted amendments to enhance EPA’s authority and require additional progress in regulating HAPs.

<sup>3</sup> EPA set emission standards for certain emitters of asbestos, beryllium, mercury, radionuclides, inorganic arsenic, benzene and vinyl chloride

<sup>4</sup> Several of the limits set were the result of lawsuits, see, e.g., Sierra Club v. Gorsuch, New York v. Gorsuch.

<sup>5</sup> The standard is to be based on application of Maximum Achievable Control Technologies (MACT), but may not be less stringent than the level achieved by the average of the best performing 12 percent of units in the subcategory for which the Administrator has information.

The court decisions that struck down EPA's initial attempts to establish MACT standards for ICI Boilers suggest that MACT floors should be developed based on the simple, plain language of the statute.

NACAA formed a technical workgroup with representatives from approximately 17 state and local air pollution control agencies to provide recommendations for case-by-case MACT determinations and development of new and existing source MACT floors. The data utilized by EPA in establishing the vacated standard was based upon data on gaseous, liquid, and solid fuel-fired boilers and process heaters gathered for the Industrial Combustion Coordinated Rulemaking. NACAA's initial review concluded that this data set was extremely limited<sup>6</sup> and obsolete, with much of the available data from testing conducted 20 years ago or more. Moreover, the available data was targeted at an approach to MACT floor setting that has subsequently been rejected by the Courts.

For this reason, in November of 2007 NACAA requested that its members forward to the technical workgroup existing emissions data for (1) hazardous air pollutants identified by EPA as associated with this category and (2) criteria pollutants that may serve as regulatory surrogates. Replies were received from more than 40 state and local permitting authorities in all regions of the country. In a number of instances the permitting authorities reported that they did not have any useful information. However, those authorities that did have information provided several thousand emissions data points. These data were screened to eliminate data in forms (such as tons per year or pounds per hour) that could not be readily employed to compare emissions performance between different sized units. As of the date of publication of NACAA's Model Rule, the association's data set included over 750 usable data points for CO and PM, reflecting the CO and PM performance of emission units of a wide range in sizes, fuels and locations. These data reflect the results of reference method testing, similar to the test results employed by EPA. Moreover, since the permitting authorities that did have information provided information on all sources within their jurisdictions; there is no reason to suspect a bias in NACAA's data.

The data were sorted and analyzed to generate emissions profiles for the relevant subcategories and the average emissions performance of the best performing 12 percent of existing sources<sup>7</sup> for which emissions data were available was calculated. Finally, replicate testing of sources within the subcategories was reviewed and statistical techniques applied to calculate a variability factor to be applied to the average of the top-performing 12 percent in setting a MACT limit based on the MACT floor. This effort was a far more rigorous and expansive undertaking than employed by EPA in developing prior MACT standards. The NACAA database, including identifiers that enabled retrieval of the underlying original test reports, was provided to EPA in June of 2008. At the time NACAA acknowledged that there were limitations to its data set and recommended additional testing to fill those gaps.

EPA has subsequently reached the same conclusion about the adequacy of its earlier data set and undertook a multi-year data acquisition and stack testing program before attempting to re-propose a MACT standard for ICI Boilers.

---

<sup>6</sup> In establishing the limits in the now-vacated rule, EPA often relied on data relating to "a few" or "several" sources.

<sup>7</sup> One data subset contained fewer than 30 sources. In this instance, the floor was calculated using the average of the best performing five sources. See, 42 U.S.C. 7412(d)(3)(B).

## **MACT LIMITS SHOULD BE BASED ON THE FUEL CONSUMED, NOT ON WHETHER THE OPTIONS FOR FUEL USE INCLUDE A PARTICULAR FUEL**

The level of emissions of HAPs anticipated from well-performing units will differ substantially depending on the fuel that is being combusted. Accordingly, NACAA agrees that the large subcategories identified by EPA in its ICI Boiler MACT proposal – coal-fired, biomass-fired, liquid-fired and gas-fired – are reasonable and warranted by the differences in technology and expected performance, given the nature of the fuel consumed. EPA acknowledges that the properties of the fuel being combusted contribute significantly to the level of HAP emissions.<sup>8</sup> However, the proposed rules fail to properly address this fundamental point in several important ways.

First, while the section 112 limits are based on MACT floor analyses that recognize this principle, the proposed section 129 limits are not. The section 129 categories are based on the purpose of the unit and traditional waste management categories (incineration, energy recovery, waste-burning kilns, etc.). While these subcategories are consistent with the language of section 129, they make no distinction between coal-fired, biomass-fired, liquid-fired and gas-fired energy recovery units. Industrial boilers combusting waste coal should not be expected to meet mercury limits achieved by biomass or oil-burning units; units combusting wet (low BTU) waste wood would have a difficult time meeting CO levels expected of coal-fired units. While we are loath to suggest even more subcategories than EPA has proposed,<sup>9</sup> NACAA believes the “energy recovery unit”<sup>10</sup> section 129 subcategory should be further divided by fuel type. In order to avoid a situation where the use of subcategories with only a few units gives rise to MACT floors that are unreasonably lax because of the calculation of small sample variability, NACAA suggests that EPA use its authority to establish “beyond the floor” limits to conform emission limits for section 129 energy recovery units and section 112 boilers burning similar fuels.

Second, while the MACT floors are calculated based on the fuel consumed during the test, the EPA section 112 proposal sets out a different test for determining which limit would apply to a particular unit in the future. EPA calls this test a “designed to combust” test, asserting that the limits will apply depending on the nature of the fuel that a unit is designed to combust. However, any unit that burns a fuel must be “designed” to combust that fuel and units that combust multiple fuels are, in fact, designed to combust each of those fuels. Under the proposal, the applicability of different limits is based on whether a source has combusted a prescribed amount of a type of fuel, not necessarily the fuel it combusts during a compliance test, and not the fuel that might be expected to dominate its current emissions profile. Thus, a unit would be

---

<sup>8</sup> “[B]ased on recently obtained information, we now understand that factors other than the controls (e.g., waste mix and combustion conditions) affect HMIWI performance, and those emission reduction strategies must be accounted for in MACT floor determinations.” 73 Fed. Reg. at 72,970, 72,975. See also 74 Fed. Reg. at 51,377-79.

“Based on the Brick MACT decision, we believe a source’s performance resulting from the presence or absence of HAPs in fuel materials must be accounted for in establishing floors; i.e., a low emitter due to low HAP fuel materials can still be a best performer.” p 22.

<sup>9</sup> As we shall explain below, some of the existing subcategories serve no useful purpose.

<sup>10</sup> EPA concludes that most ICI Boilers that combust solid waste would fall into this subcategory.

“designed to combust” coal if at some unspecified time it generated at least 10 percent of its annual heat input from coal. EPA’s proposal continues with a tiered system where, if the source did not burn 10 percent coal, it would look to see if it burned more than 10 percent biomass, and if it did, it would be subject to the biomass limits. If a source burned less than 10 percent solid fuel and **any** liquid fuel at all, it would be subject to the limits for liquid-fired units (even if it obtained 99.9 percent of its heat input from natural gas). Under this scheme a unit would be a coal-fired unit,<sup>11</sup> subject to the emission limitations based on the emission profile of coal-burning units, even if today it is burning 100 percent biomass. This would result in a situation where the CO limit is unattainable at the source, while the mercury and hydrogen chloride (HCl) limits are overly lax. This scheme also unfairly affects those who co-fire natural gas and oil, since the combustion of any oil at all would remove the exemption from emission limitations that EPA proposes for natural gas-fired units.

The proposal does not set out a rationale for this new approach or why the procedures set out in the vacated rule to address fuel mixtures are inadequate. NACAA recommends that MACT limits be established for each major category of fuels and that the procedures found at 40 CFR 63.7530 be used to address fuel mixtures.

## **MACT LIMITS FOR SIMILAR UNITS SHOULD BE CONSISTENT**

New and modified sources subject to section 165 must install “the best available control technology” (BACT) for a number of criteria pollutants regulated under the CAA, including as relevant here CO, SO<sub>2</sub>, NO<sub>x</sub> and mercury. In the proposed rules EPA is setting limits for certain pollutants based on the application of “the maximum achievable control technology” – MACT. There is nothing in the plain text of the CAA or its legislative history that suggests that Congress intended MACT, which applies to emissions of highly toxic and carcinogenic pollutants, to be less stringent than BACT, which applies to criteria pollutants. Indeed, for new sources it is clear that Congress intended MACT<sup>12</sup> to be at least as stringent as the lowest achievable emission rate (LAER), which is generally recognized as being more stringent than BACT.

Regulatory authorities are to consider cost when establishing both BACT and MACT limitations that are more stringent than the MACT floor. There is nothing in the CAA that speaks to how EPA and permitting authorities must weigh cost against other considerations in establishing BACT. However, there has been a substantial body of precedent that speaks to this issue. In contrast, in establishing a requirement for a MACT floor, Congress effectively set a floor on what should be considered reasonable costs for MACT control technologies. Since MACT may be no less stringent than the performance level of the best-performing 12 percent, the cost to those sources of achieving that level of performance (including the worst-performing unit within a subcategory) must be within what was considered to be appropriate for MACT sources in that subcategory. This is of particular relevance to the set of rules under consideration, where the cost of control for similarly situated units is essentially the same but the calculated MACT floors are substantially different.

---

<sup>11</sup> The proposal does not set out how the percentage of annual heat input is to be determined, but sources will need to know in advance of the commencement of a given year which limits apply to operations during that year.

<sup>12</sup> The MACT floor definition is essentially the same as the definition of LAER, which applies to new and modified sources in non-attainment areas.

In its MACT determinations EPA needs to explain how an emission limit imposed for a unit subject to section 129 (and therefore presumably meeting the reasonable cost test for MACT) is not reasonable for an identical unit subject to section 112. Under EPA's proposal those units will be regulated as energy recovery units (under section 129). The PM emission limits for new energy recovery units under section 129 are 500 times higher (less stringent) than those for new incinerators under section 129. EPA should explain why this is the case for its proposed MACT standards. NACAA understands EPA's MACT floor calculation process, but EPA is proposing a MACT standard, not merely calculating a MACT floor. Given this difference in emission limits few sources will elect to be a new "incinerator" of solid waste if they can be classified as some other type of unit (even though the design and operating characteristics of the unit may be unchanged).

PM and mercury limits for existing units are more strict for energy recovery units than for incinerators (50 percent more stringent for PM and a factor of three for mercury). HCl limits are also more stringent for energy recovery units (by a factor of 20), while CO levels are more stringent for incinerators (by a factor of 70). In addition, PM emission limits for new ICI boilers (under section 112) are more stringent than for new energy recovery units (under section 129) (0.001 vs 0.003 lb/MMBtu). For existing coal-fired units the CO limits are also higher under section 129 than under 112 (150/290 ppm vs 30-90 ppm). For oil-fired units the CO difference is even greater (150 ppm vs 1 ppm). In each of these examples, significant differences in EPA's proposed MACT standards exist and EPA offers no technical justification for its proposal that these limits in fact represent application of the "maximum achievable" control technologies.

If the PM and mercury limits remain roughly as proposed for existing sources,<sup>13</sup> few sources will want to be regulated under section 129. Most sources will want to argue that they get a "meaningful" contribution to the overall combustion process from what they burn. This will increase the level of disagreement over whether a material is a waste and may result in fewer sources burning waste materials. Some sources (with low CO levels) might find it in their interests to assert that they are incinerators rather than energy recovery units. Thus, the definitions of "solid waste" and "incinerator" may matter to a number of sources.

EPA should also consider its proposed MACT rules in light of BACT determinations for similarly situated units and explain why emission limitations deemed "available" as BACT are orders of magnitude more stringent than the ("maximum achievable") MACT standards. A comparison of the proposed standards for new units with those proposed for existing units highlights the issue. The following table sets out the differences for waste burning kilns:<sup>14</sup>

---

<sup>13</sup> NO<sub>x</sub> and SO<sub>2</sub> limitations under section 129 may also discourage combustion of solid waste. This issue can be addressed by EPA when it adopts emission limitations for large industrial units under Phase II of its Transport Rules.

<sup>14</sup> These differences suggest that the MACT floor for existing units was largely based on emissions from uncontrolled units. They may also be the result of large "variability" calculations. For incinerators and for Energy Recovery Units (except for CO) the differences are much smaller, suggesting that the "best performing units" may have some level of controls. There may also be an error, as the SO<sub>2</sub> limit proposed for new Energy Recovery Units is the same as that proposed for existing units.

	New Waste Burning Kilns (ppmv)	Existing Waste Burning Kilns <sup>15</sup> (ppmv)
NO <sub>x</sub>	19	1100
SO <sub>2</sub>	1.5	410
CO	36	710

A review of EPA's RACT/BACT/LAER clearinghouse reveals a number of BACT decisions for cement kilns that are far more stringent than EPA's proposed limits.<sup>16</sup> In addition, EPA's control technologies guidelines for cement kilns,<sup>17</sup> published under section 108 of the CAA, document the existence of cost-effective retrofit technologies available for control of SO<sub>2</sub> and NO<sub>x</sub> in cement kilns. EPA seems to assume either that there are no cost-effective controls for these pollutants at cement kilns or that the CAA does not require MACT limits to be based on these controls. EPA should explain its rationale in greater detail and set forth a basis for any final decision it makes. There are other proposed floor limits that greatly exceed what would be expected from the application of maximum achievable technology. For example, under the alternate definition of solid waste, EPA's proposed MACT limit for CO emissions from biomass-fired fluidized bed boilers is 10,650 ppm. EPA should review each of its proposed MACT limits to ensure that they reflect the application of maximum achievable technology, not merely the MACT floor. In addition, it would seem that MACT should be more stringent than either GACT or BACT. Accordingly, MACT limits for cement kilns for SO<sub>2</sub> and NO<sub>x</sub> should be at least as stringent as BACT limits for such units.

## **EPA MAY NOT IGNORE EMISSIONS DATA MAINTAINED BY STATE AND LOCAL PERMITTING AUTHORITIES**

EPA acknowledges that it did not use any of the emission test reports in state and local permit authority files and provided to it in the summer of 2008 (in the NACAA Model Rule database) in establishing its proposed MACT floors.<sup>18</sup> Instead, EPA based its calculations entirely on its "new" data set that incorporates data collected by emission sources. We believe this is a clear error that will jeopardize the final rule. We acknowledge that the subsequently collected data fills gaps that existed in the NACAA data set and do not object to EPA's use of this additional information. Incorporation of these test results in EPA's MACT floor calculations is not likely to change the calculated floor for many subcategories, but, especially considering the proposed adoption of many small subcategories, this cannot be known or assumed to be true. Exclusion of reference test results merely because they were maintained in the files of the regulatory authorities rather than those subject to regulation is arbitrary.

NACAA believes that its data set is more objective than the subsequent industry testing, since the NACAA testing was often supervised by state or local inspectors and was conducted

---

<sup>15</sup> Many of these kilns use coal or natural gas as their primary fuel and burn tires or other secondary materials as secondary fuels.

<sup>16</sup> Many of these decisions are for new units, but are based on technologies suitable for retrofit (albeit at somewhat greater cost).

<sup>17</sup> See, [http://www.epa.gov/ttn/catc/dir1/cement\\_updt\\_1107.pdf](http://www.epa.gov/ttn/catc/dir1/cement_updt_1107.pdf) See also additional studies by Northeast States for Coordinated Air Use Management (NESCAUM) <http://www.nescaum.org/documents/ici-boilers-20081118-final.pdf>; [http://www.nescaum.org/documents/hg-control-and-measurement-techs-at-us-pps\\_201007.pdf](http://www.nescaum.org/documents/hg-control-and-measurement-techs-at-us-pps_201007.pdf).

<sup>18</sup> NACAA has formally resubmitted this data to the dockets in these rulemakings.

without knowledge by the source (or the permitting authority) that the data would be used in developing emission limitations. In contrast, testing conducted as part of EPA's more recent information-gathering activities was almost universally conducted by sources who understood that it was in their interest to obtain high emission levels during the testing and was conducted without oversight by federal, state or local authorities. The regulated community was allowed to define the operating parameters for the tests.<sup>19</sup> More importantly, the EPA data includes numerous entries where a source was combusting different fuel mixes, which NACAA believes will be difficult to translate into enforceable MACT limitations. While NACAA and EPA data sets often produce generally consistent results, EPA is not free to exclude from the calculation of the top performing 12 percent testing conducted for other compliance purposes as required by state and local permit officials. EPA has asserted that it does not need to consider the information provided to it by NACAA since industry sources "should" have provided this information. This assumption has not been shown to be correct and is insufficient given EPA's obligation to consider all emissions data and the relative ease of determining whether there are any NACAA-provided test results that should be included in the evaluation of the top 12 percent of performing units or any variability analyses that are conducted.

NACAA does not assert that the MACT floor calculations should be based on the data it provided to EPA in lieu of that subsequently collected by EPA, just that EPA must consider all of the emissions data available to it and not ignore the NACAA-provided information. Indeed, the EPA data fills significant gaps in needed knowledge of mercury, HCl and dioxin/furan information.

## **MEASUREMENT AND UNIT PERFORMANCE VARIABILITY SHOULD BE CLEARLY DEFINED, JUSTIFIED AND CALCULATED IN A WAY THAT BALANCES THE DESIRE FOR CERTAINTY WITH PROTECTION OF PUBLIC HEALTH**

We offer a caution to EPA and the regulated community regarding the notion of "variability" in compliance with emission limits. NACAA agrees that common sense and several court decisions support the notion of incorporating a reasonable compliance margin in MACT floors. However, this concept is not incorporated in the statute itself and EPA could lose its discretionary authority to incorporate reasonable compliance margins if it continues to accept the ever-more creative arguments put forth by industry for larger and larger determinations of variability. This is not mere speculation; in the now-vacated rule, EPA had accepted in its final rule an industry argument that a "variability" factor of 16,100 percent should be applied to the MACT floor for a subcategory. In other words, EPA had agreed that the calculated MACT floor should be multiplied by a factor of 161 to account for "variability." We submit that, had the court reached the merits of that provision, it would not have survived and, with its rejection, EPA's ability to provide reasonable compliance margins might have been constrained in

---

<sup>19</sup> We do not assert that there was widespread "gaming" by industry, only that there is no reason to believe that the more recent data is more credible than the information submitted by NACAA. We do note that the Office of Management and Budget (OMB) was extensively involved in the development of the test plan and that NACAA's comments respecting the test plan were largely ignored by EPA and OMB, while industry requests were accommodated. NACAA hereby incorporates its comments to EPA and OMB on the proposed testing in this comment and the administrative record in this matter.

important ways. The latest proposal similarly contains a number of errors that each improperly inflate the variability assigned to the MACT floors and, in combination, lead to excessively high MACT floors for certain subcategories. These errors include the use of differences in performance of units instead of the variability of the performance of each “clean unit,” double counting the variability associated with fuel, the use of inconsistent assumptions in standard setting and compliance determinations and the use of inconsistent definitions of “performance” in the MACT floor calculation process. They also include a failure to consider the adverse public health impacts associated with the procedures advocated by industry and a failure to rationally address the statistical impact on variability associated with industry arguments for a large number of subcategories with small numbers of sources.<sup>20</sup> NACAA anticipates that industry representatives may submit comments suggesting even more creative methods for calculating large variability factors and so, in addition to commenting on issues that appear from the proposed MACT floor calculations, we offer several methods for judging the overall appropriateness of variability factors that might be developed for the final rule.

### **EPA’s calculation methodologies should ultimately reflect the intent of Congress**

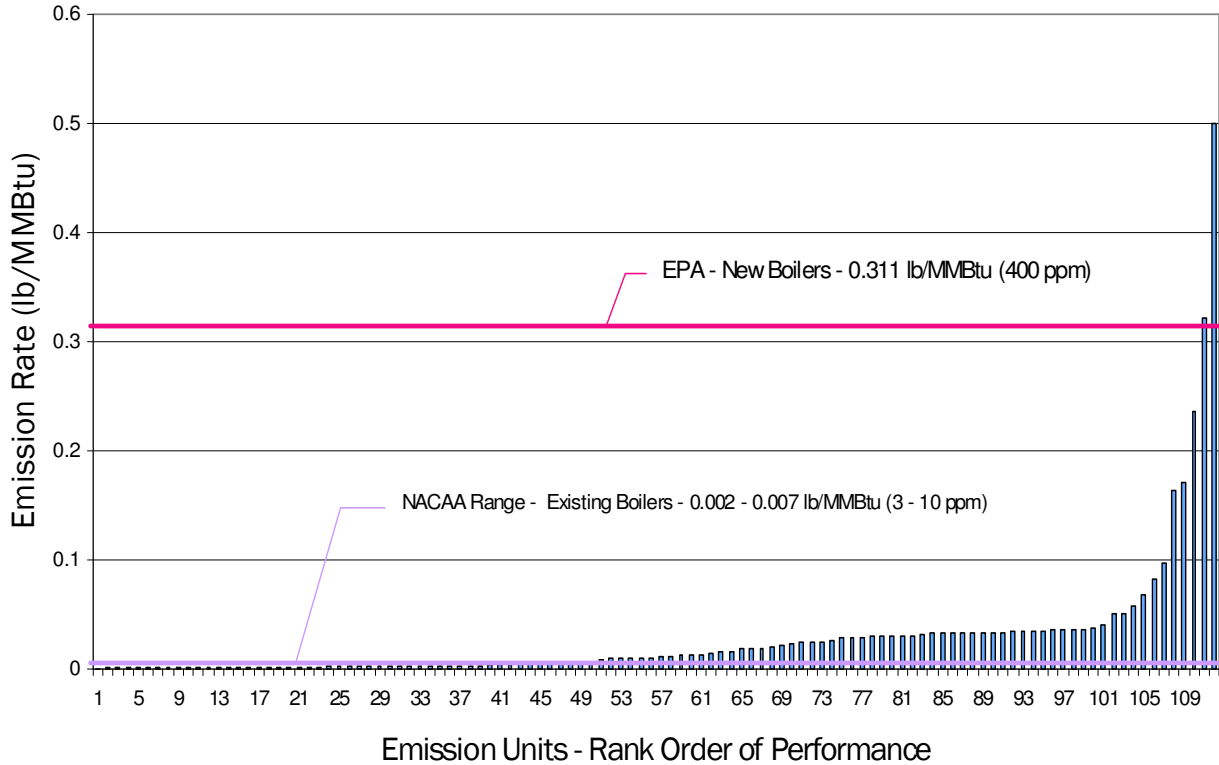
NACAA commends EPA for attempting to develop a statistical approach that is sound and that can be broadly applied to numerous different data sets. NACAA agrees with much of EPA’s approach, including the use of log normal calculation procedures where the distribution of the data is skewed. However, this theoretical procedure involves a number of decisions where no single approach is “correct.” NACAA anticipates that EPA will receive numerous comments arguing for other approaches that will provide MACT floor calculations that are more acceptable to the commenters. NACAA suggests that, as with any other theoretical exercise, whatever process EPA finally relies on must be validated by looking at the result it creates and examining whether the end result is reasonable. Toward this end we recommend a simple test – whether the resulting floor requires a substantial majority of each subcategory to make some degree of emission reduction. This test is based on the overall structure of sections 112 and 129 that require EPA to set a MACT floor at what is nominally the performance of the 94<sup>th</sup> percentile of the units. A reasonable allowance for performance variability leads to MACT floors that will be somewhat higher, but should not be so high that no unit within the subcategory currently emits at levels greater than the floor. The following charts illustrate the concept.

---

<sup>20</sup> One subcategory has but nine units and two data points for establishing a floor.

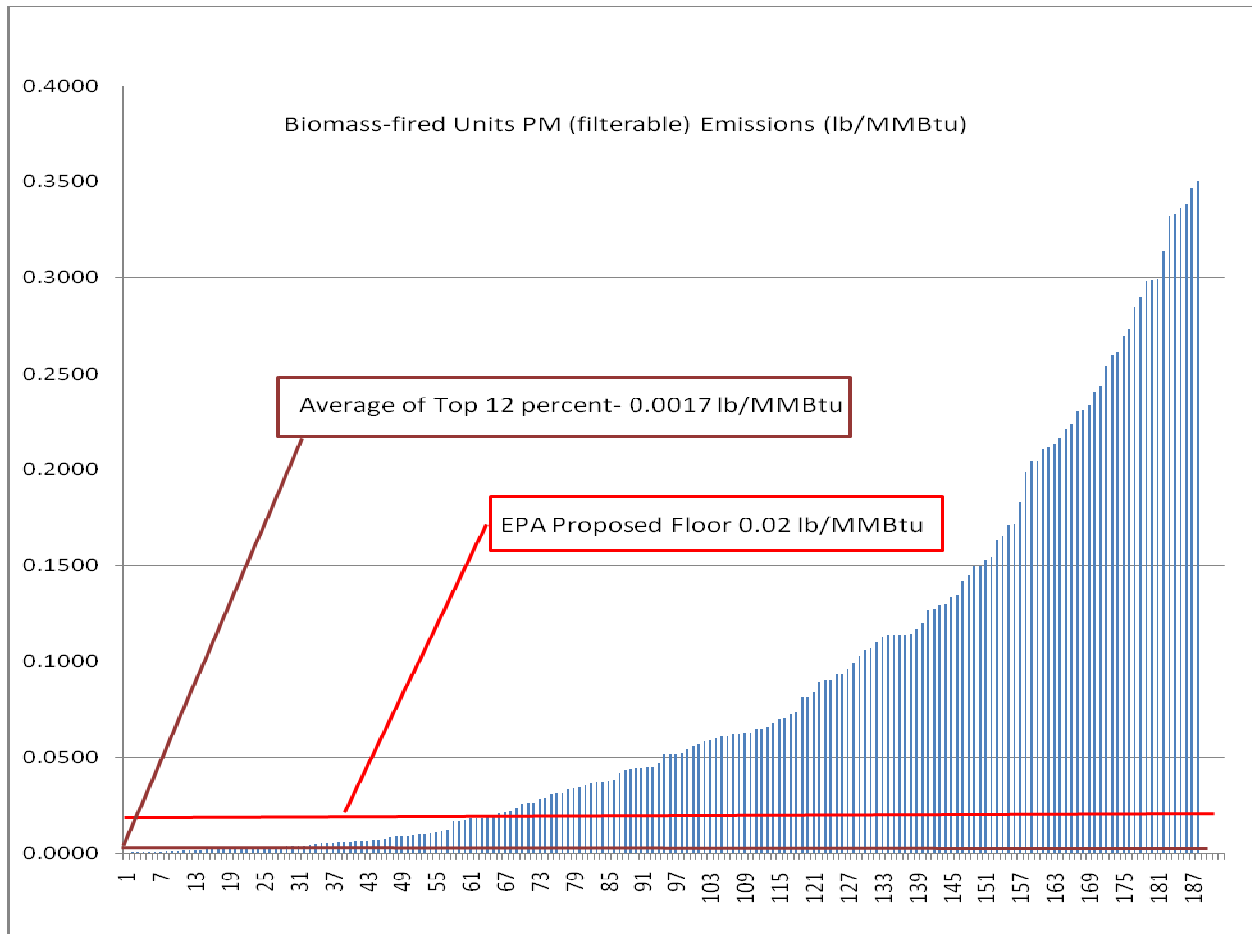
Figure 3

### Oil-Fired Boilers Carbon Monoxide Emissions



This graph illustrates a standard that does not meet either a reasonable definition of MACT or a reasonable interpretation of variability in establishing a MACT floor. Here, EPA’s proposed CO limit for new units is easily met by over 95 percent of existing units. In contrast, NACAA’s proposed range is met by one-third of the existing units and occurs at a “step” in the data that distinguishes between the best performing units and the rest of the class.

The next chart illustrates the range of PM (filterable) emissions performance of biomass-fired boilers.<sup>21</sup>

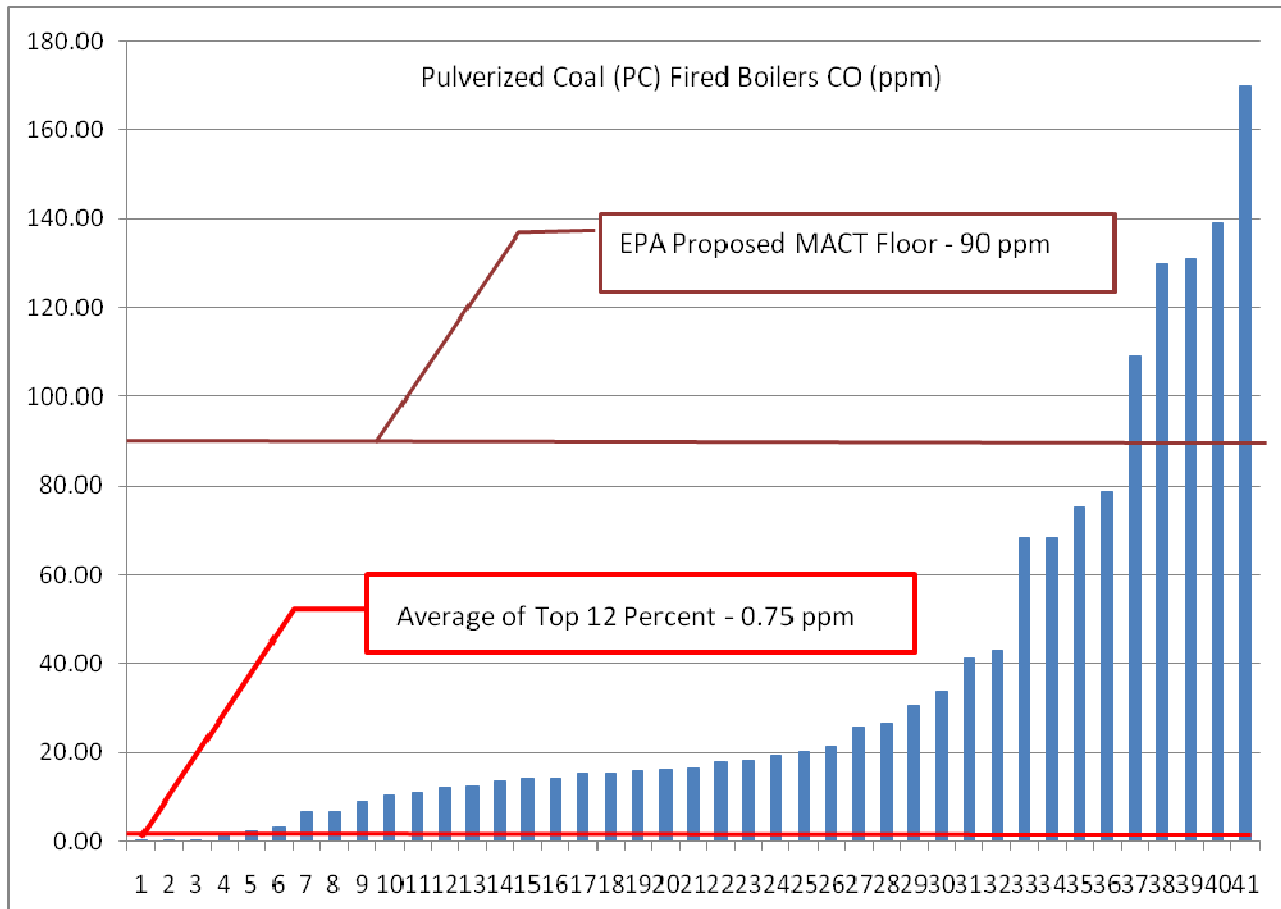


In the proposed PM emission limit for biomass-fired boilers EPA adjusted the calculated average of the top 12 percent by a factor of 11.7. This factor is higher than the variability in emissions performance one would expect from a well-controlled unit. However, a review of the emissions profile for the subcategory shows that it is an otherwise reasonable MACT floor limit in which approximately two-thirds of the existing units will need to reduce PM emissions and where the MACT floor seems to occur at a level that delineates the best performers from others in the subcategory.<sup>22</sup> This limit is reasonably consistent with BACT determinations for PM (filterable) controls and at least addresses the Congressional intent outlined above.

<sup>21</sup> The PM emissions data for the six highest emitting units have been deleted to facilitate scaling.

<sup>22</sup> We note that, even here the variability for biomass-fueled units is overstated because of EPA's handling of mixed fuels in this process. For example, when combusting biomass with a small amount of natural gas, the best performing biomass units' PM emissions are an order of magnitude lower than when the same units combust biomass with 16-25 percent "heavy liquids." EPA's calculation process does not directly compensate for the differences in secondary fuels, but incorporates these differences as "variability." NACAA recommends a different approach for mixed fuels.

The CO emissions data<sup>23</sup> below highlights a subcategory where application of EPA’s calculation methodology does not lead to a reasonable result.



The proposed pulverized coal (PC) CO emissions limit does not meet Congressional intent because of an extreme estimate of variability. Here 36 of the 41 units for which EPA had data would not need to reduce emissions of those HAPs for which CO is a surrogate. The ratio of the calculated average of the top 12 percent to the proposed floor, representing the sum of the different EPA variability calculations, is 120 (a variability factor of 12,000 percent). There is no engineering basis to believe that this estimate is within the range of what one would expect from this type of boiler. Based on this data, a more likely estimate would result in a MACT floor in the single digits of parts per million.

EPA’s procedure was to calculate the 99<sup>th</sup> percent “Upper Probability Limit” (UPL) of all of the test results available for these top 5 units. We believe<sup>24</sup> that this procedure results in an extreme “variability” factor of 120, not because the units were too “dirty”, but because some were too “clean.” EPA’s decision to create a separate subcategory for PC units led to a MACT floor that is defined by the performance of just five units. For three of the units the reported

<sup>23</sup> From EPA Appendix C-3, Table 9.

<sup>24</sup> EPA should publish its calculations, rather than merely explaining how the calculations were performed in general and then publishing the solutions obtained. It is otherwise impossible to discern exactly what EPA has done.

emission level was less than 0.06 ppm – an extremely low level<sup>25</sup> that is below the detection level in most instances. The other two units reported low, but more reasonable levels of 1.3 and 2.2 ppm. Since these latter levels are 20 to 40 times greater than the emission levels of the first three units, the use of inter-unit variability results in a large variability factor<sup>26</sup> and a MACT floor (90 ppm) that is inconsistent with the average of the top performing units.

### **EPA’s definition of “performance” for the best performing units should be consistent**

EPA has used two (or three) different methods for establishing the “performance” of average of the best-performing 12 percent. In selecting the units to be included in the top 12 percent EPA assumed that the performance of those units was demonstrated by the best test result. Thereafter, in calculating the average of the selected units EPA assumes that the performance of a selected unit is defined by all test results<sup>27</sup> available for that unit. EPA then multiplies these results by a fuel variability factor to establish the final number that it uses to calculate the floor. This fuel variability factor is also different for different units, and so, again, the unit with the lowest single test result is not necessarily the “best performer” as used in EPA’s calculations. EPA should use either the best test result for both purposes or use the best average of all test results for both purposes. This use of inconsistent definitions of performance has resulted in at least one MACT floor that is higher than it should be, as units with better average performance over all tests were excluded in favor of other units with a lower individual test result but higher overall emissions. NACAA believes that use of the average of all test results for an individual unit is an appropriate measure of the performance of that unit, provided that the subsequent analysis of variability does not then treat that average as a single test result. One way to address this issue may be to use the average of all test results to identify the best performing units in the calculation of the average of the top 12 percent, but then include all test results of the “best performers” in the determination of the potential variability of that average.<sup>28</sup> The identification of the “best performers” should be made after all of the variability adjustments have been made to the universe of “candidate best performers.” In this way the MACT floor would not be artificially increased by the use of data from sources that are ultimately not the best performers within a subcategory.

### **EPA’s procedure for calculating “variability”**

In order to evaluate whether EPA’s procedure for calculating variability is appropriate, one first has to examine what “variability” EPA is calculating and whether it is relevant to some matter under sections 112 or 129. EPA’s procedure involved determining the 99<sup>th</sup> percentile

---

<sup>25</sup> Indeed, this may simply be a reporting error, as one might expect an emission level of 0.06lb/MMBtu (10 ppm) from such units rather than 0.06 ppm.

<sup>26</sup> Inter-unit variability may simply reflect consistent differences in performance due to differences in the design of units rather than a variation in performance of all units. EPA’s procedure claims to round CO test results less than 1 ppm up to 1 ppm, but it does not appear to have done so in this instance.

<sup>27</sup> EPA includes all test results of “best performers” in its calculation of the MACT floor for each subcategory. This effectively overweights the contribution of sources that have been tested multiple times compared to those that may have been tested only once.

<sup>28</sup> This is not the same as using the 99<sup>th</sup> percentile UPL of the individual runs as a factor to multiply the average.

UPL of the difference in performance between all test runs for all units in the top 12 percent.<sup>29</sup> This calculation improperly combines two factors: (1) the inter-unit difference between the “best performers” and “the best of the best performers” and (2) the expected variability in performance for each of the best-performing units. EPA does not have the resources to evaluate each of these situations in detail to determine whether the difference represented inherent variability in performance of the unit or is a consequence of factors (such as fuel composition or specific hardware design) that are within the control of the source, and so it simply, and incorrectly, assumes that each of the units within the top 12 percent is identical and that all of the **difference** in performance is a “variability” in performance that is essentially random and therefore susceptible to statistical analysis. The difference in performance between units in the top 12 percent is unrelated to the variability in performance of any of those units. While we understand the resource constraints, the procedure to which EPA defaults seems to have no relationship to the average performance of the top 12 percent, the variability in performance that one might expect of a top-performing unit or the effect of such variability on the computation of the average.<sup>30</sup>

EPA’s approach leads, in some instances, to wildly exaggerated predictions of “variability of performance” that are not reflected in the real world and to MACT floors that are not reflective of Congressional intent.<sup>31</sup> While the courts have held that EPA has discretion in how it calculates the MACT floor, Congress has specifically determined how EPA is to calculate differences in performance among units in the top 12 percent – average them.

Other approaches are available under the statute that would yield reasonable results and that are more logically related to the statute. Rather than calculating a level of performance that is highly unlikely for each source, EPA could as a first step examine the variability in test results of the top performing 12 percent of performing units individually and ascertain the extent to which that variability might affect the calculation of the MACT floor. The probability that each of the units in the top 12 percent would experience its highest probable emissions during the same measurement period is vanishingly small and so the variability factors assigned to the actual average for this purpose would be negligible.

To understand this point, imagine that 30 sources constitute a MACT floor group and that this group is tested 100 times. Imagine that the mean value of the emissions for this group, based on the first round of testing, is 30, that emission results are normally distributed and that each unit has a 99 percent UPL of 50. As this group is tested and re-tested there will be some units that emit 35 or 40, or even occasionally 50. However, with a normal distribution of the data, there will also be some units that emit 25 or 20 or occasionally 10. As the number of tests increase, there will be a tendency for the average of these tests to approach a true “mean” value,

---

<sup>29</sup> EPA does not have sufficient replicate testing information for each of the top units in each of its subcategories to accurately determine the variability in replicate testing performance for each unit. In many instances only one replicated test was available, in others, the source was tested only once.

<sup>30</sup> Indeed, the result of this procedure is a higher MACT floor than would be obtained by calculating the 99<sup>th</sup> percent UPL of the performance of the 12<sup>th</sup> (or even 50<sup>th</sup>) percentile unit.

<sup>31</sup> Thus, we see the result, above, where the average of the top 12 percent is 0.75 ppm and EPA’s calculation process yields 90 ppm. Based on the intra-unit variability calculated by NACAA in its Model Permit Guidance, the probability of a unit that emits 1 ppm over the course of a reference test then emitting 90 ppm in its next reference test is orders of magnitude less than 1 per cent. EPA employed this procedure in its recent Portland Cement NSPS, but that does not mean that it is correct – then or now.

perhaps 30.3 or 29.5. Any given calculation of the mean will vary slightly, but the probability that all 30 units in the MACT floor group will emit at 50 during a test is exceedingly small and so an average of the 99 percent UPL of the MACT floor units (i.e., a mean value of 50) would represent an extremely unlikely<sup>32</sup> approximation of the effect of variation of the performance of those units on the calculated MACT floor. In our hypothetical example, EPA's calculation procedure does in fact lead to a value of 50, which EPA would then increase to 75 or more based on a fuel variability factor described below. The actual probability of variation in the arithmetic average of the top performing 12 percent, due to variation in individual measurements, is susceptible to calculation, but EPA's method does not address it and it is likely to be so small as to be irrelevant.

Having established the variability in the "average" due to the variability of individual units that make up the average, it would then be reasonable for EPA to establish a compliance margin such that "complying" units within the "best performing units" group are not in jeopardy of failing a replicate compliance test when operating as they did when their test results formed the basis of the MACT floor. Since nominally half of the top 12 percent do not meet the average and therefore are not complying units,<sup>33</sup> the development of a compliance margin should be limited to an evaluation of the variability of the top 6 percent performing units under the compliance conditions imposed by the regulation. Unfortunately, we largely only have data that reflect emissions variability when emissions are unconstrained, and do not have available a significant body of information that reflects how variable emissions might vary when sources are attempting to control them.<sup>34</sup> For this reason any calculation of variability using pre-regulation testing will likely overstate the post-regulation variability to some degree. Nonetheless, some evaluation of variability must be conducted and some statistical norm employed at this time. EPA has suggested the use of the 99<sup>th</sup> percentile UPL of pre-regulation testing and argued that its use is justified because EPA used the same approach in the medical waste incinerator MACT rule. This rationale does not explain why EPA believes the 99<sup>th</sup> percentile UPL is appropriate and not the 50<sup>th</sup>,<sup>35</sup> 90<sup>th</sup> or, for that matter the 99.99<sup>th</sup> percentile.<sup>36</sup>

The decision matters because with each increase in the "guaranteed" compliance margin the standard increases and there comes a point where the compliance margin is so great that sources can merely accept the risk of a failed compliance test rather than reducing emissions.<sup>37</sup> If a source fails a compliance test it will ordinarily be afforded the opportunity for a retest and only

---

<sup>32</sup> Determining this probability is similar to calculating the odds of flipping a coin 30 times and having all 30 results being "heads," except that the probability for each individual occurrence is 1/100 rather than ½. For our example, we calculate this probability at 1 in 10<sup>60</sup>.

<sup>33</sup> Those units in the top 12 percent, but with emission levels greater than the average of the top 12 percent (i.e., the 6th through 12th percent best performers), do not "comply."

<sup>34</sup> There are data in other contexts that demonstrate that facilities that employ continuous emission monitors (CEMs) are able to reduce emissions variability by controlling process and other parameters. Some sources in both EPA and NACAA's data sets were subject to some emission limitations. In many instances however, compliance margins were so large that close control of emissions variability was unnecessary.

<sup>35</sup> Civil enforcement of environmental standards is based on a "preponderance of the evidence," which merely requires that a violation be more likely than not (51<sup>st</sup> percentile).

<sup>36</sup> Some in industry have argued that the levels should be set so that there is no significant probability that a facility would fail a compliance test at any point in its useful life.

<sup>37</sup> The selection of a 16,100-percent variability factor, discussed above, meant that no source within the subcategory could fail the standard, even if it made no attempt at compliance.

if a source has a confirmed deficiency in its control equipment will a modification be ordered. We are unaware of any situation where a source that is willing to make such modifications as are necessary to meet an applicable limit has ever been ordered to permanently cease operation on the basis of a single failed stack test. In contrast, where emission standards are overly lenient, emissions remain high, and people do become ill.

Fortunately, there are additional facts to help guide EPA's determination of a standard compliance margin to be applied to all subcategories – the compliance obligations and testing conditions that are imposed by the standard. It seems that an equitable balance is struck when the same conditions used to establish the compliance margin are thereafter used to set the compliance obligation (and vice versa). If a source is required to be regularly tested under conditions that represent the 99<sup>th</sup> percentile “worst-case” conditions, then a 99<sup>th</sup> percentile compliance margin might well be appropriate. Additionally, a larger compliance margin is ordinarily appropriate for standards with short averaging periods and continuous emission monitors than for standards that have long averaging periods or where compliance is determined by scheduled stack tests conducted by contractors engaged by the source.<sup>38</sup> We would agree with EPA that a larger compliance margin is warranted where the emission limit is at or near the detection limit of the reference method.

EPA observes that standards are to be complied with “at all times,” but this is a truism that is not particularly helpful.<sup>39</sup> What are helpful are the provisions in the rules that set out the conditions under which compliance will be determined. In years past, facilities were to be tested under “reasonable worst case conditions.” Today, that standard has been reduced to “representative” conditions – a phrase that suggests that a compliance margin based on a 99<sup>th</sup> percentile projection<sup>40</sup> of possible emissions may be too large and that industry projections of severe test conditions may be overstated. Moreover, the structure of the compliance obligations itself suggests that the 99<sup>th</sup> percentile may be too stringent. The following factors, among others set out in the proposed rules, bear on a determination of the appropriate compliance margin:

1. For sources that intend to comply with mercury and HCl fuel sampling, the rules require that a source conduct a stack test and demonstrate compliance using 90<sup>th</sup> percentile worst-case fuel (employing the student's t-test to determine that percentile);
2. For other purposes (e.g., PM and CO compliance) the source may select a “representative” operating condition (suggesting that neither a 90<sup>th</sup> percentile nor a 99<sup>th</sup> percentile worst-case test is required for these pollutants);
3. A source whose emissions during a test are less than 75 percent of the applicable limit is entitled to a reduced frequency of stack testing (suggesting that EPA does not really believe that replicate testing of sources will vary by more than 33 percent);

---

<sup>38</sup> We do not intend to cast aspersions on such contractors. Our point is that the source has substantial prior notice of such tests and is in control of the operating conditions during the test.

<sup>39</sup> EPA also asserts that the failure of a compliance test is not a violation of a standard until and unless some governmental authority agrees. We understand the reference in the context of the annual certification of compliance (where EPA does not intend sources to have to “confess” to a violation of law), but not otherwise.

<sup>40</sup> We understand that a 99<sup>th</sup> percentile UPL is not precisely the same as a 99<sup>th</sup> percentile worst-case condition, but the differences are extremely subtle.

4. Parametric operating limits may not generally be less effective than demonstrated during the stack test (a useful provision, but also one that suggests that EPA believes that in-use emissions variability is zero);
5. Many of the applicable standards and other requirements contain exclusions from full compliance at all times (e.g., six-minute exclusion under opacity requirements, 5-percent exclusion for bag leak detection systems); and
6. Power (voltage or amperage) to ESPs may not fall to less than 90 percent of that employed during a stack test<sup>41</sup> (for which we can think of no justification).

While EPA may have used the 99<sup>th</sup> percentile UPL in one recent NSPS, in other NSPS rulemaking exercises, such as the mercury limits under the utility NSPS 40 CFR Part 60, Subpart Da,<sup>42</sup> it has employed a 90<sup>th</sup> percentile statistical test (t-test) coupled with the same test for the fuel-sampling compliance demonstration.

Since we believe EPA is actually developing a reasonable compliance margin to apply to the best-complying sources, rather than anything to do with the calculation of the effect of individual unit variability on the average of the top performing 12 percent of units in a subcategory, we do not believe EPA is constrained to set a different compliance margin for each subcategory. Rather, we think that EPA could develop a factor for each of the complying units (i.e., top 6 percent) for which it has sufficient replicate testing, numerically average all such factors and apply this average factor to each of the calculated MACT floors (at least to all floors within a fuel category) and adjust this factor to reflect the realities of the compliance obligation for different pollutants. In this way the wide disparity in calculated floors occasioned by small sample sizes would be reduced and differences in the stringency of compliance demonstration methods can be accommodated.

EPA takes the result of its 99<sup>th</sup> percentile UPL calculation and applies a second variability factor, what it styles as a “fuel variability factor” to determine the overall variability to apply to a “best performing unit.” This constitutes double counting and should not be permitted.<sup>43</sup> This double counting occurs because fuel variability is part of, and in many instances the major part of, the test-to-test variability that forms the basis of the 99<sup>th</sup> percentile UPL calculation.

Where the “adjusted” average emissions of the top 12 percent is “near” the detection level, EPA proposes<sup>44</sup> to increase the calculated average so that the floor is not less than 300 percent of the detection level. To justify this increase EPA observes that when measurements are near the detection level the measurement uncertainty can be as high as (+/-) 40 percent, while such uncertainty is reduced to (+/-) 15 percent if the measured value is three times (300 percent) the detection level. Since such measurement uncertainties are necessarily part of the overall

---

<sup>41</sup> If power to the ESP falls below that employed during the test, PM control efficiency would be reduced. The amount of this reduction is presumably unit-specific and so we can think of no justification for this provision.

<sup>42</sup> See, Memorandum from Robert Wayland, OAQPS, to William Maxwell, OAQPS, “Revised new source performance standard (NSPS) statistical analysis for mercury emissions” (sic), May 31, 2006.

<sup>43</sup> EPA also contemplated separate “load” variability but ultimately concluded that this variability was incorporated in the test-to-test variability of sources. We suggest that the same result should apply to consideration of fuel variability.

<sup>44</sup> EPA employed this technique in the cement kiln NSPS rule.

variability determined in step one of EPA's procedure there is no need or basis to substitute this arbitrary figure for the actual emission data that the statute requires be used. Additionally, it also makes no technical sense to introduce a known error of 300 percent in the MACT floor in order to avoid a possible error of 25 percent<sup>45</sup> in any individual measurement. This step constitutes yet one more bias in favor of allowing higher levels of HAP emissions.

EPA's approach to "rounding" introduces an additional inappropriate bias to the calculation of MACT floors and should be revised to reflect technically correct rounding procedures and the requirements of the statute. In determining the number of units in a subcategory to include in the MACT floor analysis, EPA rounds the product of 0.12 times the number of units upward. For example, in a category with 103 emissions test averages (representing 103 units), 12 percent is 12.36. In this instance EPA based its MACT floor calculation on the performance of the top 13 units rather than the top 12 units, asserting that its process is consistent with the approach used by statisticians in survey sampling. NACAA does not take issue with this particular set of choices, but notes that it does bias the MACT floor calculation upward and leads to less stringent limits. However, in several other steps in the calculation of the MACT floor, such as the application of calculated UPLs, EPA "rounded" the interim values and in each such instance EPA rounded the values up. In most engineering calculations, rounding protocols provide for rounding down as well as up. Rounding ordinarily includes truncating the number of significant digits that are employed in a calculation and occurs at the end of the calculation process. EPA justifies its decision to only round up by asserting that to do otherwise would deprive sources of the "variability" cushion they were otherwise entitled to. Again, this argument ignores the public interest in reducing emissions of hazardous air pollutants as well as normal engineering protocols. It would also seem to be contrary to written EPA policy concerning rounding for NSPS compliance purposes.<sup>46</sup> This policy, which has not been revised to our knowledge, adopts ASTM standard rounding protocols – carry at least five significant digits throughout all intermediate calculations and employ ASTM Procedure E 380 (round down if less than 5; round up if greater than 5) for the final calculation. Where a MACT floor would otherwise be calculated at 2.27, it would seem that "rounding" a final standard to 3.00 would be technically unjustifiable and would not comply with the requirement of section 112 that the MACT standard **be not less stringent** than the average of the top 12 percent.

EPA's "rounding" policy also addresses the issue of the number of significant digits that should be in an emission standard and states that all then-existing NSPS should be construed as having no less than two nor more than three significant digits. This was important at the time because the new rounding policy replaced an earlier policy that did not allow rounding at all. If a standard were set at 3, under the earlier policy a test result of 3.0001 would be a failure; under the new policy sources could "round down" to compliance. The expression of a standard in a minimum number of significant digits limited the adverse environmental effect of this change. Since that policy only retroactively changed the number of significant digits in standards in existence, EPA has been careful (where it chose to be) to set out standards in the appropriate number of significant digits. For example, in the gasoline sulfur rule EPA had forgotten to include any number after a decimal place in the proposed standard but incorporated two numbers

---

<sup>45</sup> The difference between the potential error at the detection level and that at three times the detection level.

<sup>46</sup> See, "Memorandum: Performance Test Calculation Guidelines", William Laxton, OAQPS, and John Seitz, OAQPS.

after the decimal place in the final rule. When asked about the reason for this change, EPA responded:

EPA included the decimal places to ensure that the sulfur standards are not exceeded by rounding down actual average sulfur levels. We do not believe reporting the average sulfur level to two decimals creates any additional burden as the averaging calculation will yield this result to any number of decimal places. Although the decimals were not included in §80.216(a)(1)(i) for the geographic phase-in area (GPA) standard, EPA intends to revise this provision to include the decimals in a future rulemaking.<sup>47</sup>

In the current proposal EPA identifies the mercury emission standard to only one significant digit, (for example, 3 lb/TBtu expressed in other units as  $3 \times 10^{-6}$  lb/MMBtu or 0.000003 lb/MMBtu<sup>48</sup>). Under EPA's 1990 rounding policy, this will allow sources with emissions as high as 3.4999 lb/MMBtu to "comply." If the emission limitation were expressed as 3.00 lb/TBtu (0.00000300 lb/MMBtu) sources could still round down under the existing policy, but only from 3.0049. Since, as EPA's earlier memo points out, the calculation of the average of the top 12 percent, including a compliance margin, can be carried out to any number of decimal places, there is no reason to round the result. In this example, the average of the top 12 percent is 0.292 lb/TBtu.<sup>49</sup> After application of its several "variability" factors (including the double counting associated with fuel variability), EPA increases this result by a factor of nine to 2.64 lb/TBtu.<sup>50</sup> This should be more than sufficient as a compliance margin for well-controlled units. But EPA then rounds<sup>51</sup> up to 3.00lb/TBtu and truncates the result to 3, thereby allowing an additional 33-percent increase in mercury emissions to 3.4999 lb/TBtu without any technical or policy justification and without any discussion of the adverse effects of such an increase on public health and welfare. There is no reason to anticipate that a MACT floor, which is based on an average, should be a round number. In this example, if a recalculation in accordance with our comments and good engineering practices, yields a MACT floor of 2.15 lb/TBtu; EPA should set the standard at 2.15 lb/TBtu – unless, of course, it exercises its "beyond-the-floor" authority to set a more stringent standard.

Other examples of an upward bias can be found in EPA's calculation process<sup>52</sup> including: (1) exclusion of test results where the result provided is "zero" or "non-detect," but the detection limit is not provided, and (2) failure to include homogeneous waste material combusted by some biomass boilers in the fuel variability analysis (EPA argued that such data should be excluded because it is not a representative material for other boilers in the biomass subcategory).

---

<sup>47</sup>See, EPA420-F-00-018, May 2000

<sup>48</sup> This is still only one "significant" digit in this figure, irrespective of which of these two ways it is presented.

<sup>49</sup> From EPA Appendix C-2, Table 1.

<sup>50</sup> From EPA MACT Floor Analysis, April 2010, p.10.

<sup>51</sup> Technically, this is not "rounding" but simply "increasing" the number since at this point EPA did not truncate significant digits. Later, EPA truncates.

<sup>52</sup> The rounding process employed by EPA can increase MACT floor results significantly. The other biases we mention are unlikely to have a large impact on the MACT floor. The use of log-normal statistical procedures may or may not result in lower MACT limits than would otherwise be the case, but is technically justified where non-normal distributions are observed.

## THE PROPOSAL TO EXEMPT GAS-FIRED UNITS IS NOT WELL DOCUMENTED AND MAY BE UNLAWFUL

EPA has proposed to exempt natural gas-fired units from all emission limits related to HAPs in favor of a work practice standard – an annual “tune up” that would reduce HAP emissions by a small and unquantified amount by *encouraging* sources to improve the fuel efficiency of their units.<sup>53</sup> EPA asserts that enforcing a MACT standard for these units would double the cost of the Boiler MACT rule by, among other things, mandating expensive fabric filters and acid gas scrubbers at natural gas-fired units. However, since there is no cost exemption from MACT floor requirements, EPA also asserts that it would be infeasible to enforce emission limitations on this group of sources because monitoring costs for some sources would be too expensive, especially units with stack diameters less than 12 inches. In support of its argument EPA points out that the “conventional” configuration of Method 5 testing equipment would block a significant portion of a 12-inch diameter stack.

Given the low concentrations of PM and mercury found in the exhaust gases of natural gas-fired units, NACAA agrees with the notion that natural gas-fired units should not be required to install fabric filters or acid gas scrubbers to control those pollutants. However, there is no reason why they should have to if EPA undertakes to establish emission limits based on the MACT floor calculation process. The “best performing” natural gas fired units do not have these controls and so the average emission level of the “best performing” 12 percent, combined with an appropriate variability factor, should be sufficient to address PM, mercury and HCl limits without use of these controls.<sup>54</sup>

EPA overreaches when, without any discussion or analysis, it attempts to exempt natural gas-fired boilers from CO limits, as a surrogate for organic HAPs.<sup>55</sup> In doing so the agency again puts at risk a common-sense solution for those pollutants that it makes sense to exclude and undermines its credibility on other issues. EPA also undercuts its rationale for establishing MACT floors for other units, such as oil-fired boilers, with stacks less than 12 inches. Why, some will undoubtedly ask, is it feasible to measure PM, dioxin/furan and mercury emissions at oil-fired ICI Boilers and medical waste incinerators and not at gas-fired units? Does EPA believe that it can expand the notion of work practice standards instead of emission limits to any subcategory where some sources might have to install temporary scaffolding to conduct a test?

EPA points to the “conventional” configuration of the Method 5 testing equipment. However, Method 5 is a PM measurement procedure, not a CO measurement process, and sources with smaller stacks are able to work around this issue and measure PM. There is nothing in the rulemaking record that we are aware of that shows that it is infeasible to measure CO in

---

<sup>53</sup> EPA observes that 80 percent of the small boilers surveyed already conduct annual tune-ups to improve fuel efficiency. We note that EPA’s proposed work practice only requires an evaluation of options to improve fuel efficiency and no obligation to actually do so.

<sup>54</sup> We also note that the definition of MACT technology includes the use of cleaner fuels. While we agree with EPA that this should not go so far as to require the use of natural gas in lieu of coal or other fuels, it may include such responses as chlorine limits on fuels to control emissions of HCl, dioxins and furans.

<sup>55</sup> Both NACAA and CIBO (the Council of Industrial Boiler Operators) encouraged EPA to conduct testing to further evaluate the correlation between CO emissions and emissions of organic HAPs, but EPA declined to do so.

natural gas-fired boilers. Federal, state and local authorities have routinely required these measurements for years, since CO is a criteria pollutant under the CAA. Further, the rulemaking record is replete with CO measurements from units of all sizes. In fact, there are more measurements of CO at natural gas-fired units (of all sizes) in the rulemaking record than any other pollutant/fuel combination.

NACAA's data base encompassed CO measurements of 161 gas-fired boilers. This universe included a number of what we would call "gross emitters" that will likely require measures beyond what would be included in a tune up, such as new burners and/or modification of the air supply system, to substantially reduce CO levels. For these units, in particular, the notion of a "voluntary" tune up work practice standard is not an adequate substitute for a MACT standard as required by the CAA. Under section 112(h), a design, equipment, work practice or operational standard is authorized if it is not practicable to prescribe or enforce an emission limitation. However, that section requires that such work practice requirements must be consistent with the MACT and MACT floor provisions of section 112(d) and must contain such requirements as will assure the proper operation and design of those elements. In other words, there must be a reason to believe that the alternate standard will achieve a level of emission reduction that is consistent with MACT floor requirements (at a minimum). Such standards must also be consistent with the obligation to require the use of maximum achievable control technology even if measuring the in-use performance of that technology is infeasible. This could be accomplished, for example, by requiring the use of certain types of low-CO burners that have been tested by manufacturers to meet minimum efficiency requirements. Even if the "tune up" required mandatory improvements rather than merely encouraging such improvements, EPA's proposed work practice requirement would not achieve emission reductions that are consistent with the definition of MACT.

### **CATEGORIES AND SUBCATEGORIES SHOULD BE BASED ON MEANINGFUL DIFFERENCES IN ANTICIPATED FUELS AND UNIT DESIGN**

NACAA supports the development of subcategories in MACT rule development, where such subcategories are based on meaningful differences in anticipated fuels and unit designs. Because NACAA's technical team identified significant differences in the anticipated emission profiles of wood-fired and coal-fired units, the NACAA Model Permit Guidance separated EPA's solid-fuel category into two subcategories, but, seeing no clear technical difference supporting EPA's limited use subcategory, deleted it.

In the vacated ICI Boiler MACT rule, EPA had established four categories – solid-fuel, liquid-fuel, gas-fuel and limited-use boilers. In the 2000 CISWI rule there was but one category – incinerators. The proposed ICI Boiler MACT rule has 11 subcategories while the proposed CISWI rule would have five subcategories. In support of the explosion in the number of subcategories EPA explains the differences in design between, for example, a coal-fired stoker boiler and a coal-fired PC boiler. However, large boilers do not come off an assembly line<sup>56</sup> and last for up to 50 years. Almost every large boiler will have differences in design from every other large boiler. Even smaller boilers will have differences in design from small boilers produced by other manufacturers. Accordingly, it is insufficient to simply identify design

---

<sup>56</sup> Even mass-produced automobiles will exhibit design differences within and between models and manufacturers.

differences. Where EPA seeks to establish additional subcategories it must explain why those differences matter and point to information in the record that supports its conclusion. In particular, we note that EPA's Boiler MACT categories are based on the nature of the fuel that is consumed while the proposed CISWI rule categories are based on the purpose of the combustion, not the fuel. EPA should identify a consistent rationale for establishing new subcategories.

Within the Boiler MACT "coal-fired" category, EPA proposes separate subcategories for stoker, fluidized bed and pulverized coal designs. However, we know of no reason why well-controlled units of these designs should differ significantly in levels of HAP emissions. EPA's subsequent MACT floor analysis leads to calculated MACT floor levels that are often identical and are within the variability expected of such measurements, thus documenting the lack of a basis for a separate subcategory. Similarly, EPA proposes to establish four subcategories of wood-fired boilers<sup>57</sup> – stoker, fluidized bed, suspension and "fuel cell" – as well as separate subcategories for natural gas and other process gases. Again, EPA provides no demonstration that such subcategories are warranted.

The "fuel cell" subcategory of wood-fired boilers is especially problematic. A fuel cell is generally understood to create electricity directly from a fuel gas without combustion.<sup>58</sup> 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. A visit to the website of one of the manufacturers of a unit (Wellon, Inc) that EPA asserts is a wood-fired fuel cell combustion unit reveals that the company does refer to certain of its units as fuel cells, but this reference is to a marketing approach to the sale of modular units, rather than a particular design.<sup>59</sup> 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.

Creating larger numbers of subcategories usually leads to higher MACT floors in two ways. First, if a small number of the best performers (e.g., fuel cells) can be culled from a larger group into their own subcategory, the MACT floor for the larger group (the wood-fired boilers) will rise. Second, because the small group will have a small number of tests, the statistical variability of the small group will also increase, leading to MACT floor increases for both the larger group and the smaller group.<sup>60</sup>

NACAA agrees that fluidized bed combustion units (either biomass or coal-fired) are of sufficiently different design and anticipated performance that a separate subcategory may be warranted, but does not see a justification for the other subcategories proposed by EPA for the Boiler MACT rule. EPA has advised that ICI Boilers that combust solid waste would largely fall within the "Energy Recovery Unit" subcategory of the proposed CISWI rule. When burning similar materials, such units would show similar differences in emissions as ICI Boilers, irrespective of whether the material being combusted was "discarded." For this reason, those units should be subcategorized into coal-fired, wood-fired, oil-fired (if any) and gas-fired (if

---

<sup>57</sup> NACAA has raised a concern that differences in the combustion properties of "wet" wood and dry wood might warrant development of a separate subcategory.

<sup>58</sup> See, e.g., Standard Handbook of Powerplant Engineering, Section 8.6, Elliot (ed), McGraw Hill, 1998.

<sup>59</sup> The company will sell a fuel cell that is either top-fired or bottom-fired.

<sup>60</sup> EPA's proposed MACT standards for wood-fired boilers are identical for all pollutants except CO.

any). EPA should then use its “beyond the floor” authority to ensure that the resulting MACT standards are reasonable.

### **EPA IS NEITHER REQUIRED NOR PRECLUDED FROM EXAMINING MACT FLOOR LEVELS AS PART OF A FIVE-YEAR REVIEW OF MACT STANDARDS**

EPA has asked for comment as to whether it may (or must) consider new emissions data and calculate a new MACT floor when conducting the mandatory five-year review of MACT standards. We suggest that EPA not adopt a position that attempts to govern its review of all future MACT standards at this time. NACAA believes the better approach would be to evaluate this issue on a case-by-case basis and make a reasoned decision based on the record before it. Where the initial MACT floor is based on a robust data set, it is likely that a number of units will be top performers and reconsideration will not change the MACT floor significantly. Given the large compliance margins adopted in promulgated standards, it is unlikely that the top performers will significantly improve their performance in the next five years.

However, where the floor was based on limited testing data, testing uncertainty, rather than technical limitations, may have been the dominant factor in setting the floor. In these circumstances it may be appropriate to use (in some fashion) subsequent testing when conducting a five-year review. A review of the calculated uncertainty assigned to the best performers may be particularly relevant since, as explained above, the post-compliance period provides the first real opportunity to gauge the variability in emissions where the source is making some attempt at controlling those emissions and the data concerning this issue has been limited for almost all standards promulgated to date.

With respect to the section 129 standard under consideration, it is quite clear that the earlier data were extremely limited and information concerning variability of performance of complying units remains limited. Accordingly, NACAA recommends that in the course of its current rulemaking EPA recalculate the MACT floors for the subject section 129 units using relevant new data as appropriate, and consider this issue on a case-by-case basis as it reviews other standards.

### **THE ROLE OF STATE AND LOCAL PERMITTING AUTHORITIES SHOULD BE SET OUT AND RESOURCE IMPLICATIONS DISCUSSED**

The proposed rules will create additional resource burdens on state and local permitting agencies that will have to issue several thousand Title V permit revisions, draft emission control regulations and submit them to EPA for review and approval under section 111 of the CAA and become involved in disagreements about the applicability of section 129 standards (imposed under state regulations) for specific units. EPA can mitigate this burden in several ways: (1) provide *in its section 129 rule* (rather than in the preamble) lists of specific “secondary materials”<sup>61</sup> that are known today to constitute a waste and those that are not considered a waste;

---

<sup>61</sup> This could be accomplished by adding to its definition of solid waste based on the criteria it has proposed additional provisions such as “the definition of solid waste set out above includes, but is not limited to...” and “ the definition of solid waste set out above excludes ...” EPA has already created such lists as part of the calculation of section 112 and section 129 MACT floors. They can be found in the “Data: Fuel Analysis” table under the field “Proposed Option Waste?”

and (2) specifically set out its expectations of state and local permitting authorities and incorporate reasonable timelines in its implementation schedule.

## **EMISSION AVERAGING**

Emission averaging within a source can be an effective means of reducing compliance costs to the source without adversely impacting public health. NACAA generally supports the concept of emission averaging as set out in the proposal provided: (1) there is clear authority to do so under section 112 and (2) the benefits of averaging are fairly apportioned between the regulated community and the public. While emission averaging is helpful to sources on the margin, it should not be adopted if it will cause significant risk that the final rule will be overturned. Where a source is able to achieve more cost-effective emission reductions at one unit, emission averaging offers a “win-win” opportunity that should be embraced without penalty to the source. However, at times, compliance costs are reduced, at least in part, because sources are able to emit more of the regulated pollutant than without emission averaging because they can operate with smaller compliance margins. EPA has solicited comment on whether a 10-percent reduction in the overall emission limit would be appropriate if averaging were allowed, but has offered no estimate on how much of an emissions increase would result from averaging.

If the units at issue indeed have the 300-percent to 1000-percent variability that EPA’s MACT floor analysis suggests, a 10-percent penalty would seem to allow a fairly significant increase in overall emissions at the source. The increase in emissions could be evaluated by calculating how much the variability is decreased<sup>62</sup> when paired compliance demonstrations are to be made. It may be that this issue can also be addressed by appropriate corrections to the MACT variability analysis and compliance demonstration provisions.

## **ENVIRONMENTAL JUSTICE**

In its discussion of environmental justice issues, EPA asserts that the rule meets environmental justice concerns because it does not increase HAP emissions in minority and low income areas. We suggest that this is too low a test for disparate impact. If this rule reduced HAP emissions broadly across the country, except in minority and low-income areas, a disparate impact might result. Here, it has been established that industrial boilers are often located in minority/low-income communities and that the reductions in HAPs from the proposed rule will in fact disproportionately impact those communities – but in a beneficial way. EPA’s preamble should reflect this fact.

## **THE DEFINITION OF COAL MAY CAUSE CONFUSION**

The definition of “coal” in the section 112 major source rule includes “coal refuse.” Coal refuse is defined as coal wastes that have ash content higher than 50 percent and heat value of less than 6000 BTU. The rule then sets out that it applies to units that combust “coal.” However, units that combust coal refuse with those properties may well be subject to section 129 limits. EPA should correct the definition to avoid any confusion on this issue.

---

<sup>62</sup> Presumably, this calculation would be a variation of EPA’s determination of the Upper Probability Limit, given the variability of the units and the number of tests needed to show compliance.

## **EPA'S AREA SOURCE RULE FOR ICI BOILERS**

EPA's proposed rule would set a MACT standard of  $3.00 \times 10^{-6}$  lb/MMBtu for mercury emissions from new and existing coal-fired boilers with a heat capacity greater than 10 MMBtu/hr. This proposed standard was increased by approximately 20 percent in the rounding process and thus should be reduced to  $2.50 \times 10^{-6}$  lb/MMBtu, in accordance with the comments outlined above, but is within a reasonable range of that limit and is otherwise feasible. The CO limit for coal-fired boilers appears to be an artifact of the limited number of test results employed in the MACT floor analysis and does not reflect a MACT level of performance for these units.

Having listed this large group of boilers in order to meet the statutory requirements under sections 112 (c)(3) and 112(c)(6) that MACT standards cover 90 percent of certain HAP emissions, EPA asserts that it need not issue MACT standards for other HAPs emitted by these units because this category is not needed to meet the 90-percent requirement for those HAPs. We are concerned that EPA is likely to be challenged on this interpretation, and that an adverse decision on this issue could interfere with implementation of other parts of the rule if the MACT floor calculation must once again be revisited.

## **THE RECORD DOES NOT SUPPORT "RISK BASED" EXEMPTIONS**

EPA has solicited comment on whether the agency should adopt "risk-based" exemptions for manganese and HCl. Section 112(d)(4) of the CAA provides:

With respect to pollutants for which a health threshold has been established, the Administrator may consider such threshold level, with an ample margin of safety, when establishing emission standards under this subsection.

After careful review, NACAA has concluded that these exemptions are not authorized by the CAA and are not in the public interest. The factual predicate for the use of section 112(d)(4) for acid gas HAP and metal HAPs – the establishment of a health threshold for each of these pollutants – has not been met. Congress authorized risk-based standards only "where health thresholds are well-established...and the pollutant presents no risk of other health effects, including cancer, for which no threshold can be established..."<sup>63</sup>

Many of the HAPs for which HCl and PM are surrogates are potential or demonstrated carcinogens. Moreover, because no meaningful studies have been conducted, EPA has identified both HCl and manganese as unclassifiable for carcinogenicity. For this reason it cannot be asserted that a "well-established" threshold exists and that there is no risk of cancer. EPA's Integrated Risk Information System (IRIS) reports that no studies have identified a No Observable Effects Level (NOEL) for neurological effects for manganese.<sup>64</sup> Further, the CAA requires that a section 112(d)(4) standard include "an ample margin of safety." EPA's IRIS report concludes that the scientific confidence in the Oral Reference Concentration for HCl

---

<sup>63</sup> S. Rep. No. 228, 101<sup>st</sup> Cong. 1<sup>st</sup> Session, (December 20, 1989), reprinted in *A Legislative History of the Clean Air Act Amendments of 1990* (Comm. Print 1993), at 8511.

<sup>64</sup> See, <http://www.epa.gov/iris/subst/0373.htm>; <http://www.epa.gov/ncea/iris/subst/0396.htm>.

employed by EPA in the ICI Boiler “risk-based exemption” is “low.”<sup>65</sup> For this reason, it cannot be said that the “well established” threshold that provides an “ample margin of safety” has been established for HCl. Broader approaches for alternate emission standards were specifically rejected by Congress in the development of section 112.<sup>66</sup>

On August 6, 2010, EPA adopted a NSPS for Portland Cement plants. In its final rule EPA specifically rejected adoption of risk-based exemptions for HCl and manganese, making many of the points identified above and also relying on the benefits associated with the co-removal of SO<sub>2</sub>. There are no differences sufficient to warrant a reversal of that decision in this standard. Moreover, EPA has not identified a proposal for an exemption with sufficient specificity to allow for meaningful comment for a final rule. Finally, there is no record sufficient to support such a proposal and insufficient time under the applicable statutory and judicial deadlines to develop such a proposal and rulemaking record.

---

<sup>65</sup> The IRIS report concludes “[t]he chronic study used only one dose and limited toxicological measurements. The supporting data consist of two subchronic bioassays; the database does not provide any additional chronic or reproductive studies. Therefore, low confidence was recommended for the study, database, and the RfC”.

<sup>66</sup> Congress specifically rejected an amendment that would have provided that individual sources “could comply with alternative emission limitations in lieu of standards under this section, if the owner or operator presents evidence sufficient to demonstrate that emissions from the source in compliance with such limitations present a negligible risk to public health under criteria issued by the Administrator.” 2 Legislative History, at 3939. The Act itself provides a specific alternative emission standard for coke oven batteries. Thus, a risk-based exemption for specific sources is contrary to the statutory structure and would not be approved under a de minimis test, even if the emissions impacts were trivial. EPA’s history over the past 40 years in attempting to develop a risk-based approach to regulations of toxic air emissions, and in particular the development of residual risk programs under section 112, demonstrate that these issues are far too complex and significant to be delegated to individual sources as EPA intended.