February 21, 2012

EPA Docket Center
Environmental Protection Agency
Mailcode 2822T,
1200 Pennsylvania Ave., NW
Washington, DC 20460

RE: Docket ID No. EPA-HQ-OAR-2003-0119, Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units (76 *Federal Register* 80452, December 23, 2011)

A coalition of the following industry organizations hereby submits comments on the Proposed Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units (76 Fed. Reg. 80452, December 23, 2011).

- American Forest & Paper Association
- American Coke & Coal Chemicals Institute
- American Home Furnishings Alliance
- American Iron and Steel Institute
- American Sugar Cane League
- American Wood Council
- Biomass Power Association
- Brick Industry Association
- Energy Recovery Council
- National Association of Manufacturers
- National Oilseed Processors Association
- Rubber Manufacturers Association
- Treated Wood Council
- U.S. Chamber of Commerce

These organizations and several member companies that they represent submitted extensive comments on the June 4, 2010 proposed CISWI rules and EPA's May 18, 2011 notice of reconsideration to Docket No. EPA-HQ-OAR-2003-0119. We appreciate the fact that EPA made numerous informed changes from the proposed and final rules in response to public comments, in particular the decision not to regulate at this time several types of chemical recovery, laboratory, and parts reclamation units. However, there are still several very important issues that must be addressed in order to ensure

achievable rules. For example, the contained gas definition must be retained in the rules.

Thank you for your consideration of the important issues included in these comments. Please feel free to contact Tim Hunt at 202-463-2588 on my staff as a representative of the coalition if you have questions or need more information.

Sincerely,

Paul Noe
Vice President for Public Policy
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On behalf of the listed trade associations

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I. Executive Summary

EPA has proposed changes to its Commercial and Industrial Solid Waste Incinerator (CISWI) regulations that would regulate some combustion units currently regulated as boilers and kilns as CISWI units and reset emission limits for incinerators already regulated under the CISWI rule. The universe of units to be regulated as CISWI is based on a proposed rule "Identification of Non-Hazardous Secondary Materials (NHSM) That Are Solid Wastes," which is included in the same Federal Register notice as the proposed changes to the CISWI rules. Although EPA has proposed several changes that reduce the universe of regulated units from that previously contemplated under the 2010 proposed rule, comments being submitted on the two proposed rules by several parties demonstrate that some of the units EPA is still proposing to regulate under the CISWI rule do not in fact burn solid waste. Many of the NHSM that EPA presumes to be solid waste are in fact fuels. As EPA has not yet finalized the changes to the NHSM rule, we do not know how EPA can properly determine what units to include in the CISWI analysis. In fact, we suspect that EPA arbitrarily classified sources burning NHSM as CISWI if the sources indicated on their Information Collection Request (ICR) survey response that they would continue using the units to burn the NHSM for any materials that were determined to be solid waste, but would stop using them as boilers for any NHSM that were determined to be waste. Nonetheless, further changes are needed to the proposed CISWI rules to ensure the standards reflect what units will actually be able to achieve.

A. The CISWI Rules are Not Achievable

EPA has "cherry picked" the best data in setting each standard, without regard for the sources from which the data come. The result is a set of standards that reflect the performance of a hypothetical set of best performing sources that simultaneously achieve the greatest emission reductions for each and every pollutant rather than the actual performance of a set of top performers. A "source-based" approach would result in emission limits that a real-world incinerator, kiln, or energy recovery unit could actually achieve.

Even if EPA rejects the source-based approach, there are other adjustments to the standard setting process that would help improve achievability. Use of an upper limit (UL) instead of an upper predictive limit (UPL) or incorporation of a percent reduction standard are two options. Additional consideration of fuel and waste feed variability is also needed.

EPA has acknowledged that the composition of the fuels and NHSM burned in the units to be covered by the CISWI rule is a key factor in the profile of emissions from these units. EPA has further recognized the impact of fuel characteristics on variability from

combustion units under the Industrial Boiler MACT by incorporating a fuel variability factor into many of the proposed emission limits under that rule. However, EPA has not to date included a fuel or waste stream variability factor in its standard setting process for CISWI units. This has resulted in emission limits that almost no existing sources in EPA's CISWI database can meet. EPA should collect fuel and waste variability data for all top performers.

Another element of the rule contributing to a lack of achievability is the lack of separate standards for periods of startup and shutdown. In the Boiler MACT, EPA has justifiably proposed work practice standards that boiler operators must follow during periods of startup and shutdown, as it is impossible to comply with numeric standards during those periods and no startup or shutdown data were used to set the stack test-based limits. The same applies for CISWI ERUs. Very little data is being used to set the CISWI standards, very little consideration of emissions variability is being incorporated into the calculations, and there has been no consideration of emissions during startup and shutdown in development of the standards. Simply removing the oxygen correction for the CO limit is not adequate to address this issue. EPA must either ensure that the data on which the standard is based include representative data from startup and shutdown or, alternatively, set a separate work practice standard.

Finally, although EPA has stated its intention to develop standards that are at least three times the detection limits of the test methods that sources must use to demonstrate compliance, its procedure for doing so is flawed. The procedure for developing a "representative detection limit" takes into account only the capabilities demonstrated by a limited number of laboratories and does not factor in the uncertainty associated with stack sampling.

B. EPA is Appropriately Limiting the Types of Units to be Regulated, but Must Improve the Definition of "Homogeneous Waste"

EPA has appropriately determined that various types of units do not need to be regulated at this time. These include chemical recovery units, cyclonic burn barrels, burn-off ovens (including foundry sand reclamation units), soil treatment units, laboratory analysis units, and space heaters. We support EPA's decision not to regulate these units as CISWI for the many reasons laid out in our comments on the June 2010 proposed rule. EPA also asks for comment on the need to retain the definition of "contained gaseous material" in the CISWI rule. It is necessary to do so, given the regulatory uncertainty that EPA created in the response to comments to the NHSM rule. Having a definition of "contained gaseous material" in the rule will significantly improve the clarity of the rule and will minimize the possibility that the rule will be misconstrued in the future (in the way that it was upon issuance of the March 2011 CISWI rule).

Qualifying small power production facilities and qualifying cogeneration facilities that burn homogeneous waste for the production of electric energy or steam or both are not subject to CISWI. Given the importance of the term "homogenous waste" in this exclusion, EPA is proposing a definition of "homogenous waste." Any final definition of homogenous waste must take into account variability in fuel streams, and in their combustion characteristics and emissions profiles. We strongly disagree with EPA's conditions on the term "homogeneous" that would require consistent emissions and composition.

C. Industry did not have Adequate Time to Comment on the Proposed Changes to the CISWI and NHSM Rules

On December 23, 2011, EPA published three notices proposing four new rules to reconsider and/or amend the March 21, 2011, final Boiler rules under the Clean Air Act (CAA) and the Resource Conservation and Recovery Act (RCRA): the major-source National Emission Standards for Hazardous Air Pollutants (NESHAPs) for industrial, commercial and institutional boilers and process heaters under CAA § 112 (Boiler rule);[1] the area-source NESHAPs for industrial, commercial and institutional boilers under CAA § 112 (Area Source rule);[2] and the New Source Performance Standards (NSPS) and emission guidelines for commercial and industrial solid waste incinerators under CAA § 129 and Non-hazardous Secondary Materials (NHSM) rule – under the RCRA – defining "solid waste" to demarcate applicability under CAA § 112 and § 129 between boilers and solid waste incinerators (CISWI and NHSM rule).[3]

As EPA is well aware, the proposed rules have raised an unprecedented number of complex issues in determining the appropriate MACT floors for these very large, diverse source categories. The simultaneous proposal of the rules greatly complicates the analysis of whether the standards can be achieved by affected sources. A large percentage of sources must first apply a complex set of factors under the NHSM rule to each material they combust, to determine whether EPA is likely to consider the material a waste or a fuel. If the materials would be considered *solid waste*, the source combusting those materials would be considered an *incinerator*, and it must then consider the applicability and achievability of the *CISWI* standards. On the other hand,

[1] National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 76 Fed. Reg. 80,598 (Dec. 23, 2011) (to be codified at 40 C.F.R. 63) (Boiler Rule).

[2] National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers, 76 Fed. Reg. 80,532 (Dec. 23, 2011) (to be codified at 40 C.F.R. pt. 63) (Area Source Rule).

[3] Commercial and Industrial Solid Waste Incineration Units: Reconsideration and Proposed Amendments; Non-Hazardous Secondary Materials That Are Solid Waste, 76 Fed. Reg. 80,452 (Dec. 23, 2011) (to be codified at 40 C.F.R. pt. 241) (CISWI and NHSM Rule).

if under the NHSM rule, the materials are characterized as *fuel*, the source combusting those materials would be considered a *boiler*, and the source must then consider the applicability and potential achievability of the *Boiler rule* (for a major source) or *Area Source rule* (for a non-major source).

When EPA initially proposed these rules for comment on June 4, 2010, the Agency provided 60 days of comment. As multiple entities explained in letters to EPA then, 60 days is inadequate for sources to review voluminous data and EPA's analysis and to assess the achievability and impact of all four rules on the full range of affected sources at each facility.

In response to our request on the initial rule, EPA provided additional time for comments. Now on reconsideration, the rules are no less complex, EPA has added data that must be reviewed for 300 additional sources, and sources face the same pressures of sorting complex data and developing thorough comments that address very technical issues. Although requesting a public hearing would have extended the comment period, we decided our time was better spent in developing comments. There is an extensive amount of data within the docket that takes many hours to sort through in order to produce comprehensive comments. Also, because EPA only allowed a few weeks, during the holidays, for review of the four proposals before the hearing would have been held, there was effectively less time to sort data in advance of a hearing. We were doubtful that we could have produced enough specific information to have a meaningful discussion by that date. For all these reasons, rather than use a procedural tool to achieve an extension, we decided to seek, in a straightforward fashion, additional time to prepare comments.

Understanding that EPA has made public commitments for an accelerated process to complete these rules, we only asked for 30 additional days for the Boiler MACT, CISWI and NHSM rules. We did not expect to need additional time for comment on the Area Source rule. EPA has an obligation to provide the public with a reasonable opportunity to comment on proposed rules. We have identified many issues with the proposed rules, but the lack of an extension has resulted in less time to fully develop our arguments and detailed justification for each of our comments.

D. We are Concerned That EPA Will Not Have Adequate Time to Address Comments

We are also very concerned that EPA is not leaving itself sufficient time to evaluate the substantive comments including new data, make appropriate revisions, and finalize within a couple of months after an important interagency review process. Cutting corners and rushing major rules such as these to the Federal Register greatly increases

the chance of errors and oversights that would either make it vulnerable under court review or require further modifications after promulgation. That does not serve the public or the Agency well.

II. We Support Changes to the Compliance Dates

Preamble Section I.C.16 [76 Fed. Reg. 80465] states "EPA is proposing to set the compliance date for existing sources in the incinerator, ERU, and waste-burning kiln subcategories 5 years after the date of publication of the final reconsideration rule or 3 years after the state plan is approved, whichever happens earlier. This date is being proposed in order to provide facilities sufficient time to install controls or to make other compliance-related decisions. For new sources in the incinerator, ERU, and waste-burning kiln subcategories, the EPA is proposing to change the compliance date to 6 months after the date of publication of the final reconsideration rule."

We agree with EPA's proposal to extend the compliance dates for new and existing units. EPA proposed to revise the CISWI, Boiler MACT, and Non-Hazardous Secondary Materials (NHSM) rule in December 2011, so facilities are still facing significant regulatory uncertainty, in that they are not sure if their NHSM are fuels or waste and they are not sure what the final emission limits will be for their boilers/energy recovery units. Owner/operators of units that may be regulated by CISWI or by Boiler MACT, depending on the way the fuels are defined as provided by the NHSM rule, will need additional time to:

- potentially obtain additional characterization data on their fuels;
- follow the requirements of the new NHSM rule to determine if the material is a solid waste or not;
- potentially prepare, submit, and get approval for an application for a non-waste determination;
- determine if they can meet the CISWI standards or the Boiler MACT standards or both;
- determine how they can comply with the overlapping compliance requirements of Boiler MACT and CISWI if they intend to take advantage of fuel switching provisions; and
- potentially engineer, install, and start-up new air pollution controls and CPMS to be able to comply with the emission and operating limits of either CISWI, Boiler MACT, or both, depending on the materials that the unit will burn.

We note that EPA is proposing changes to several emissions standards, changes to the number and type of subcategories, and changes to the criteria that will be used in the first instance to determine whether a unit is covered by the Boiler MACT or the CISWI

rule. All of these proposed changes will affected the level of the standards and the manner in which these standards will be applied to affected sources. This means that EPA's proposal to reset the compliance deadlines is justified by the facts and wholly consistent with the holding in *NRDC v. EPA*, 489 F.3d 1364 (D.C. Cir. 2007).

III. The CISWI Rules Are Unachievable and Are Unreasonably Costly

Based on the data available to EPA, the Agency has projected that only 2 units will meet the CISWI limits for existing units:

- 1 of 26 solid ERUs
- 1 of 6 liquid ERUs
- 0 of 26 incinerators
- 0 of 14 small incinerators
- 0 of 23 kilns

This is clear evidence that the CISWI rules are unachievable and, therefore, unjustifiably stringent. EPA itself admits that this regulation will likely cause many units to cease operation due to the costs of controls required, that it will prevent the building of new units, and that it will increase costs to many other units that have to substitute purchased fossil fuels for secondary materials currently burned as fuels. Such statements further demonstrate that the standards are unwarranted. The biggest problem with EPA's approach to setting the standards is that they are being set using a very small amount of data from a very small number of sources. For the incinerator subcategory, the reason a small number of units are being used to set the limits is that the existing standard caused many units to shutdown. The remaining units would have installed or improved controls in order to comply with the original CISWI standards, effectively resulting in the new limits being set based on the top performers among the already top performers. None of these units, all of which comply with the current limits from the 2000 CISWI rule, comply with the revised limits.

If facilities with boilers, kilns, and incinerators burning solid waste cannot achieve the limits and cannot afford to install the multiple, costly controls required by this rule, they will stop burning these valuable secondary materials and many of these materials will be disposed in landfills, thus increasing greenhouse gas emissions and increasing our reliance on fossil fuels. This is not the intent of the Clean Air Act or the Resource Conservation and Recovery Act, nor is it consistent with the goals of the President and Congress in steering our country toward greater use of alternative fuels.

Additionally, we are very concerned that the proposed standards will cost much more to implement than EPA predicts. EPA's cost analyses are discussed in the ERG

memorandum “Compliance Cost Analyses for CISWI Units”[4] (November 10, 2011). EPA has estimated an installed capital cost for add-on control equipment of $517 million for ERUs, but we believe the cost will be closer to $643 million. A difference of this magnitude (nearly 25 percent) is very meaningful any time, but particularly during times like now when economic conditions are difficult and there is fierce competition for funding. The methodology used to develop these cost estimates, which were developed by AF&PA, was discussed in AF&PA’s comments on the proposed rules.

EPA’s CO cost analysis for ERUs is clearly flawed. For liquid/gas-burning units, a tune-up was assigned for units under 36 ppmvd, advanced combustion controls (linkageless boiler management system) for units in the 36 to 96 ppmvd range, and a CO oxidation catalyst for units over 96 ppmvd. For biomass-burning units, a tune-up was assigned for units under 735 ppmvd, advanced combustion controls (linkageless boiler management system) for units in the 735 to 1,960 ppmvd range, and a CO oxidation catalyst for units over 1,960 ppmvd. For coal-burning units, a tune-up was assigned for units under 69 ppmvd, advanced combustion controls (linkageless boiler management system) for units in the 69 to 184 ppmvd range, and a CO oxidation catalyst for units over 184 ppmvd.

There are several problems with this analysis. First, installation of a combustion control system will not be sufficient to reduce biomass ERU CO emissions below 490 ppm from levels up to 1960 ppm. There are many factors that cause high CO emissions, and often combustion air and fuel delivery system retrofits are necessary to reduce CO emissions, at costs exceeding $500,000. Second, EPA has not shown that CO catalysts can be installed on biomass ERUs and achieve reductions from above 1960 ppm CO to below 490 ppm CO. EPA has also not considered the impact of reheating the stack gas to the temperature window in which a CO catalyst will be effective in controlling emissions in its analysis. There are also trade-offs between CO and NO_X emissions that need to be considered when determining the appropriate CO emissions reduction strategy. This is particularly important under § 129, where both CO and NO_X are expressly required to be regulated.

The December 2011 CISWI reproposal contains the following limits for biomass, coal and solid fuel CISWI units, some of which we believe are extremely problematic, in that the limits may not be achievable even with the most robust pollution control technologies available.

[4] EPA-HQ-OAR-2003-0119-2552

Pollutant (units) [1]	December 2011 Reconsideration Proposal Biomass	Coal	Liq/Gas
SO_2 (ppmv)	7.3	650	720
Cd (mg/dscm)	0.00078	0.058	0.023
Pb (mg/dscm)	0.0019	0.0031	0.096
HCl (ppmv)	0.50	0.50	14

[1] All emission limits are measured at 7% oxygen.

A. Sulfur Dioxide (SO_2)

The biomass CISWI limit for SO_2 of 7.3 ppmv was derived from 3 tests (3 runs each) corresponding to 3 biomass boilers (ALIPRiverdale, MEHuberEngineeredWoodLLC, OKIPValliant). Generally, when essentially 100% biomass with perhaps small amounts of extraneous sources of sulfur are burned in a boiler, the SO_2 emissions are expected to be minimal, as was the case for these 3 boilers. However, when NHSM containing sulfur are mixed in with the biomass, even accounting for the "in-situ" sulfur capture that is inherent for most biomass/bark-fired boilers, low levels of SO_2, in the range of 50 to 100 ppm, could result in the boiler exit before any secondary control is applied. For such low, uncontrolled levels, it would be very difficult even for a very efficient SO_2 scrubber (such as a spray dryer absorber) to reduce the SO_2-laden gases down to levels below 10 ppm. In other words, it is not too difficult to reduce the SO_2 levels in a coal-fired boiler flue gas from about 500 or 1000 ppm down to 50 or 100 ppm (>90% removal), but the same level of control efficiency would be very difficult to obtain if the uncontrolled levels drop below about 100 ppm. We recommend that a common limit for SO_2 be applied to coal and biomass CISWI units, since ultimately the level of control is dictated by technological limitations of flue gas SO_2 control.

B. Cadmium (Cd) and Lead (Pb)

The biomass CISWI limit for Cd of 0.00078 mg/dscm was derived from 3 tests (3 runs each) corresponding to 3 biomass boilers (CAWheelabratorShasta, LAIPMansfield, MEHuberEngineered WoodLLC). The biomass CISWI limit for Pb of 0.0019 mg/dscm was also derived from 3 tests (3 runs each) corresponding to 3 biomass boilers (ALIPRiverdale, CAWheelabratorShasta, MEHuberEngineered WoodLLC).

Figures 1 and 2 show the levels of Cd and Pb measured in the stack gases of 31 pulp mill boilers (from a total of 33) that were initially deemed to be CISWI units following the ICR effort. These figures show that the majority of the boilers could not have met the current proposed limits of 0.00078 mg/dscm for Cd and 0.0019 mg/dscm for Pb.

Cd and Pb are HAP metals that are present in the fuel burned in a boiler. As such, their concentrations could vary significantly across all kinds of biomass or NHSM from across the U.S that could be burned in a boiler. The boilers with the lowest Cd or Pb emissions are also the boilers having the lowest levels of Cd or Pb or both in the fuels burned, rather than the highest level of PM emissions control. The addition of a fuel variability factor, similar to that used in the Industrial Boiler MACT floor analysis, would help take the effect of fuel pollutant content into account and improve achievability.

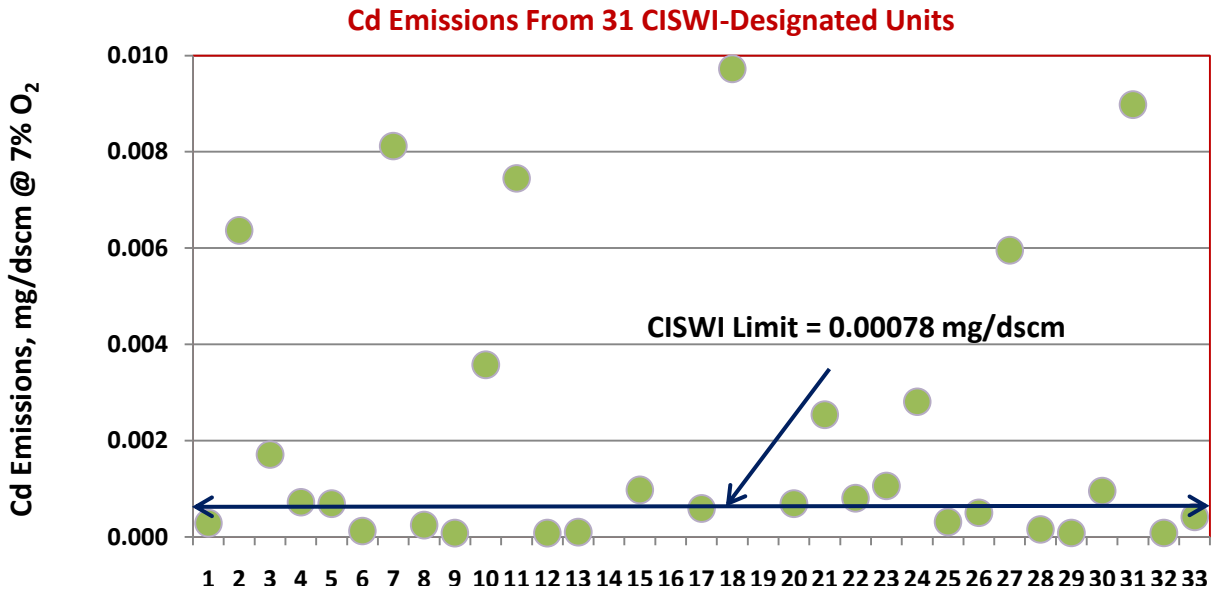

Figure 1. Cadmium Emissions Measured in 31 of 33 CISWI-Designated FPI Biomass Units

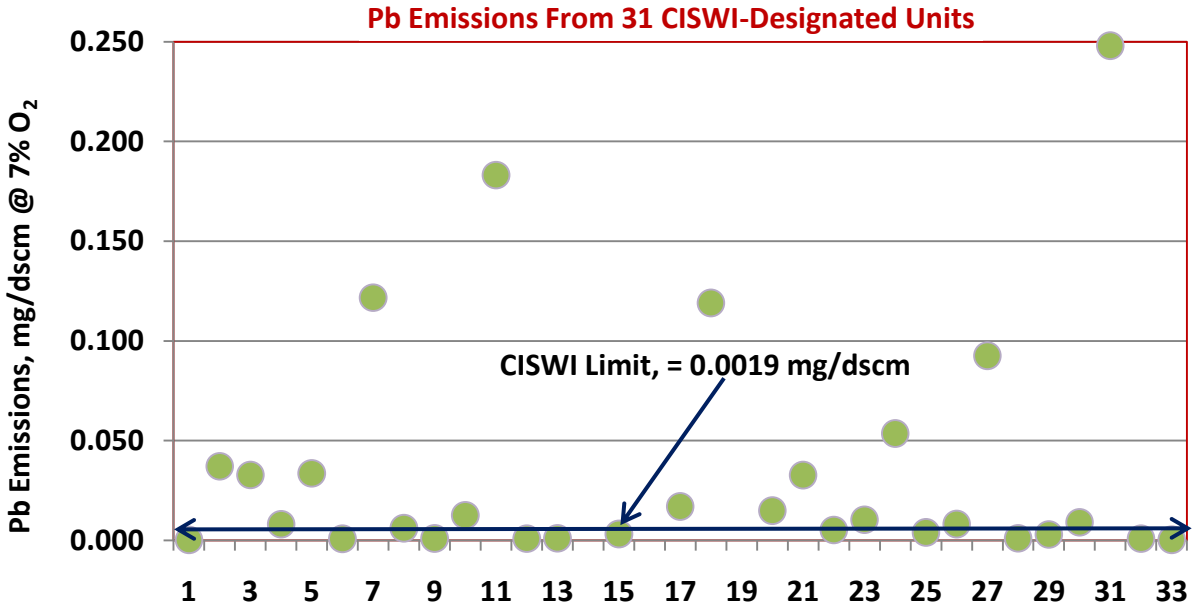

Figure 2. Lead Emissions Measured in 31 of 33 CISWI-Designated FPI Biomass Units

C. Hydrochloric Acid (HCl)

The biomass and coal (solid fuel) CISWI limit for HCl of 0.5 ppmv was derived from 4 tests (3 runs each) corresponding to 4 boilers (ALIPRiverdale, TXInternationalPaper QueenCity, WALongviewFPP, WINSPWAshland). All four were biomass-fired boilers.

The discussion provided above for SO_2 emissions and control at low levels of SO_2 also applies to HCl, although with HCl being a stronger acid, the level of control achievable is generally much higher. Nevertheless, maintaining HCl emissions at levels below 0.5 ppm would be both a technological challenge in terms of control and an analytical challenge in terms of measurement. Unless great care is taken, the detection limits for HCl could easily approach the 0.5 ppm level. Further, when the uncontrolled emission levels of HCl are on the order of 10 to 20 ppm, installing a scrubber for HCl emissions control is an economically infeasible option. In-duct HCl control by injection of lime or dolomite may not consistently yield results of HCl levels in the stack below 0.5 ppm. We suggest that the HCl limit be set at a level above the measurement (lab + stack) quantitative limit for HCl and above levels that can be met consistently by injection of trona or other alkaline absorbents into the flue gas duct streams.

IV. We Support EPA's Decisions Not to Regulate at This Time Various Types Of Units

Preamble Section I.C.3 [76 Fed. Reg. 80460] describes several types of units that will not be covered by this rule: cyclonic burn barrels, burn-off ovens, soil treatment units, laboratory analysis units, and space heaters. EPA explains that these units are distinguishable from the units that are covered by the rule and that, by and large, the Agency does not have adequate data at this time to set standards for them. [76 Fed. Reg. at 80460]. Similarly, EPA proposes a definition of foundry sand thermal reclamation units and explains that such units are a subset of burn-off ovens that will not be regulated at this time due to lack of sufficient emissions information. *Id*. at 80463. The revised definitions for these types of units are provided at §60.2265 and §60.2875.

We agree with the revised definitions of each of these types of units and agree that they should not be regulated at this time. Our comments on the June 2010 proposed rules (see for example AF&PA comments at EPA-HQ-OAR-2003-0119-1951) provided detailed justification for this approach. We incorporate by reference those comments.

V. Comments on Definitions

A. The Definition of Contained Gaseous Material Needs to be Retained

EPA asks for comment on the need to retain the definition of "contained gaseous material" in the CISWI rule. 76 Fed. Reg. 80463. We believe that it is necessary to do so, given the regulatory uncertainty that EPA created in the response to comments to

the NHSM Rule. EPA states in the preamble to the CISWI reconsideration rule that it did not intend to create ambiguity and did not intend to change any of its previous positions regarding contained gas. 76 Fed. Reg. 80463. Similarly, EPA includes language in the preamble to the NHSM Proposal that says the "burning of gaseous material, such as in fume incinerators (as well as other combustion units, including air pollution control devices that many combust gaseous material) does not involve treatment or other management of solid waste (as defined in RCRA section 1004(27)." 76 Fed. Reg. 80473 (repeating language from a May 13, 2011, letter to American Forest & Paper Association). The only way to give effect to this intent is to make the definition of "contained gaseous material" apply to the interpretation of the term "solid waste" in the CISWI rule. It is imperative that EPA explain in the preamble to the final CISWI and final NHSM rules how it intends to do this.

We note that the rule language in the reconsideration rule does not include a definition of "contained gaseous material." The definition of "contained gaseous material" is currently in the CISWI regulations at 40 CFR 60.2265 and 40 CFR 60.2875. The 2011 CISWI Rule removed these definitions. See 76 Fed. Reg. 15761 (noting that Section 60.2265 is amended by, among other things, removing the definition of "contained gaseous material") and 76 Fed. Reg. 15782 (same for Section 60.2875). The effective date of the CISWI Rule was delayed by EPA. See 76 Fed. Reg. 28662 (May 18, 2011). However, EPA's action delaying the effective date of the CISWI rule was vacated by the U.S. District Court for the District of Columbia (C.A. No. 11-1278). As a result, the March 21, 2011, final CISWI Rule became effective on May 20, 2011, and, under 40 CFR 60.2005, the changes to Subpart CCCC went into effect on September 21, 2011. Thus, the definition of "contained gaseous material" has been removed from 40 CFR 60.2265. We think it is clear from EPA's discussion of this issue in the preamble to the reconsideration proposal that the Agency intends to put this definition back in the rule. We request that EPA do so. Having a definition of "contained gaseous material" in the regulatory text will significantly improve the clarity of the rule and will minimize the possibility that the rule will be misconstrued in the future (in the way that it was upon issuance of the CISWI rule).

Even with the rule changes included in the proposed reconsideration rule, the CISWI rule would not include a definition of "solid waste." In the absence of a regulatory definition, we think it is clear that the statutory definition would apply directly to this rule. Of course, the whole point of having a definition of "contained gaseous material" is to clarify the use of that term in the definition of "solid waste." Although we think this is obvious and an unavoidable result under the law, we ask that EPA expressly state in the final CISWI reconsideration rule that the regulatory definition of "contained gaseous material" is intended to clarify the use of the term "solid waste" in the context of the CISWI rule.

If EPA does not believe that the CISWI definition of "contained gaseous material" would apply when interpreting the statutory definition of "solid waste" for the purpose of the CISWI rule, then EPA should include a definition of solid waste in the CISWI rule and make it clear that it must be interpreted in conjunction with the definition of "contained gaseous material."

Our petition for reconsideration[5] included detailed justification for the need to retain the definition of contained gaseous material. The comments in that petition are hereby incorporated by reference. We have also provided detailed comments on this issue to the NHSM rulemaking docket.

B. Homogeneous Waste

Under section 129(g)(1) of the Clean Air Act, qualifying small power production facilities, as defined in 16 U.S.C. 769(17)(C) and qualifying cogeneration facilities, as defined in 16 U.S.C. 796(18)(B), which burn homogeneous waste (such as units which burn tires or used oil, but not including refuse-derived fuel) for the production of electric energy or in the case of qualifying cogeneration facilities which burn homogeneous waste for the production of electric energy and steam or forms of useful energy (such as heat) which are used for industrial, commercial, heating or cooling purposes, are not subject to CISWI. Given the importance of the term "homogeneous waste" in these exclusions, the regulated community had asked EPA to define that term in the CISWI rule and EPA did so in the final rule published on March 21, 2011. However, because this definition was not included in the proposed CISWI rule, EPA is now seeking comment on it in the CISWI Reconsideration rule.

The coalition objects to EPA's definition of homogeneous waste, as well as EPA's discussion of this definition in the preamble to the CISWI reconsideration rule. In fact, we believe that not even traditional fuel could meet EPA's definition, thereby undermining Congress' intent to provide a CISWI exemption for qualifying small power production facilities and qualifying cogeneration facilities. Any final definition of homogeneous waste must take into account variability in fuel streams, and in their combustion characteristics and emissions profiles.

EPA has defined "homogeneous waste" as wastes that are "stable, consistent in formulation, have known fuel properties, have a defined origin, have predictable chemical and physical attributes, and result in consistent combustion characteristics and have a consistent emissions profile." 40 C.F.R. 60.2265. The preamble to the CISWI Reconsideration rule adds additional conditions. "Consistent in formulation" and

[5]EPA-HQ-OAR-2003-0119-2502

"predictable chemical and physical attributes" are interpreted as "physical and chemical characteristics are consistent throughout." "Consistent combustion characteristics" and "consistent emissions profile" are interpreted to mean "similar or identical to any other sample." The preamble language also imposes additional conditions on mixtures of homogeneous wastes. Not only must they be homogeneous, they must be from a known origin, mixed in a constant proportion, and conditioned or gasified. *See* 76 Fed. Reg. at 80462.

This narrow definition of "homogeneous waste" is inconsistent with the intent of Congress. Section 129 was added to the Clean Air Act Amendments of 1990 as an amendment offered during floor debate in the Senate on S. 1630. This amendment broadened the municipal solid waste combustion provisions of the bill to include other categories of waste incineration. However, in doing so, the authors were careful to recognize that some incinerators should not be regulated under this new provision:

> As such, the amendment exempts secondary material recovery facilities from these requirements because their specific purpose is to recover valuable materials--- like palladium from used catalysts. These operations are exempt to encourage greater reuse and recovery of materials rather than discarding them in landfills.
>
> The amendment also exempts facilities regulated under the Public Utilities Regulatory Policy Act (PURPA). These facilities are important because they are actually cogenerators of electricity. They turn waste to energy.
>
> 4 Legislative History of the Clean Air Act Amendments of 1990 (Comm. Print 1993) at 7054 (Sen. Baucus).

While the legislative history of section 129 does not provide a definition of "homogeneous waste," it is clear from the language of the statute that Congress distinguished between heterogeneous material, such as municipal solid waste or "refuse-derived fuel" and homogeneous material, such as tires and used oil. This distinction is consistent with the clear Congressional intent to regulate municipal solid waste incinerators, while recognizing that the combustion of all materials need not be regulated under this section. *See id*. at 7051-52 (Sen. Durenberger) (describing a solid waste disposal crisis and concern over "the large number of air toxics emitted by municipal waste combustion units") and 7055 (Sen. Baucus) (discussing the need to separate materials from a mixed waste stream to reduce air emissions).

Based on this legislative history and the plain language of the statute, we believe that the determination whether a material is "homogeneous" should be made on a material by material basis. Thus, the exemption from section 129 for qualifying facilities applies

to qualifying facilities that combust materials that fall within a distinct category, such as the tire or used oil examples given in the statute, whether or not such materials would be considered a waste under the NHSM Rule. While they are not wastes unless discarded, one example of a distinct category of homogeneous materials would be treated railroad ties and utility poles. In fact, any category of secondary material that is generated from the same type of production process should be considered homogeneous. While such materials may have some variability in composition or emissions, as demonstrated by the secondary materials data available in the docket for this rulemaking, that variability does not exceed the variability found in traditional fuel and therefore does not mean a secondary material is not homogeneous.

The exemption for qualifying facilities does not require that the facility combust a homogeneous fuel stream. It says that if a qualifying facility combusts a waste, that combustion is not subject to section 129 as long as the waste that is combusted is homogeneous. This means that a qualifying facility can combust a mixture of fuels without becoming subject to section 129 as long as each component of the mixture is either a non-waste or is homogeneous. Thus, notwithstanding the NHSM Rule, a qualifying facility can combust tires, off-specification used oil, and bark at the same time. Similarly, a qualifying facility can combust railroad ties and resinated wood at the same time. The combination of fuels is endless, and what fuels are used will depend on market forces and the needs of the boiler. However, if each separate fuel is either a non-waste or homogeneous, a qualifying facility remains exempt. We believe that any other interpretation of this section of the Clean Air Act would undermine Congress' intent, as expressed by Senator Baucus, to exempt "cogenerators of electricity," including facilities that "turn waste to energy."

We strongly disagree with EPA's conditions on the term "homogeneous" that would require consistent emissions and composition. As EPA has recognized in the NHSM Proposal, the constituents in traditional fuel can be highly variable. *See* proposed 40 C.F.R. 241.3(d)(iii) (allowing use of ranges) and 76 Fed. Reg. at 80477. *See also* "Contaminant Concentrations in Traditional Fuels: Tables for Comparison," November 29, 2011 (EPA-HQ-RCRA-2008-0329-1877) (showing a wide range of contaminant values in traditional fuels). EPA should recognize that the same variability may exist in homogeneous waste. There will be ranges of combustion characteristics and emissions within a particular category of homogeneous waste– but that fact should not preclude material from being considered homogeneous. Instead, homogeneity should be based on the fact that a material is from a specific source category, as opposed to heterogeneous municipal solid waste.

We also note that the conditions that EPA has proposed to place on mixtures of two homogeneous wastes are not only inconsistent with the statutory language, as discussed above, but also are inconsistent with the NHSM Rule. The CISWI Reconsideration preamble language says a mixture of two homogeneous wastes must be "conditioned or processed." Does EPA intend the term "processed" to have the same meaning as in the NHSM Rule? Under the NSHM Rule, a material that is processed and meets the NHSM legitimacy criteria is not a waste and therefore need not meet the homogeneous waste definition. However, the definition of homogeneous waste could be relevant to a secondary material that does not meet the legitimacy criteria. In such a case, what level of processing is contemplated?

Finally, we ask EPA to clarify the relationship between gasification and the definition of homogeneous wastes. As EPA recognized in the NHSM Rule, synthesis gas produced from a gasification process that meets EPA's legitimacy criteria is not a waste. 76 Fed. Reg. at 15538 (noting that syntheses gas is processed). In addition, as discussed above, unless contained in a container, synthesis gas cannot be considered a waste. However, the preamble to the March 21, 2011, CISWI rule included troubling language that implied that synthesis gas would have to meet EPA's definition of "homogeneous waste." 76 Fed. Reg. at 15715 ("Gasification processes that incorporate clean up technologies in the production of synthesis gas would generally result in a homogeneous product, however a consistent waste input would still be necessary to ensure a consistent emissions profile of the synthesis gas."). This language is not included in the preamble to the December 23, 2011, CISWI Reconsideration rule. Please confirm that synthesis gas, and indeed any gas not contained in a container, is not a waste and does not need to meet any criteria applied to homogeneous waste.

C. We Agree that Chemical Recovery Units are Properly Defined and Should Not Be Regulated At This Time

Preamble Section I.C.11c [76 Fed. Reg. 80463-4] discusses another type of potentially regulated combustion unit: chemical recovery units. Identified units have been burning sulfur-bearing compounds that are classified as non-hazardous waste. These units do not fit into the existing four sub-categories for CISWI units. EPA therefore revised the definition of chemical recovery units and has decided not to regulate them at this time.

The definition of chemical recovery unit in both Subparts CCCC and DDDD is the same:

> ***"****Chemical recovery unit means combustion units burning materials to recover chemical constituents or to produce chemical compounds where there is an existing commercial market for such recovered chemical constituents or compounds. A chemical recovery unit is not an incinerator,*

waste-burning kiln, an energy recovery unit or a small, remote incinerator under this subpart. The following seven types of units are considered chemical recovery units: (1) Units burning only pulping liquors (i.e., black liquor) that are reclaimed in a pulping liquor recovery process and reused in the pulping process. (2) Units burning only spent sulfuric acid used to produce virgin sulfuric acid. (3) Units burning only wood or coal feedstock for the production of charcoal. (4) Units burning only manufacturing byproduct streams/residue containing catalyst metals which are reclaimed and reused as catalysts or used to produce commercial grade catalysts. (5) Units burning only coke to produce purified carbon monoxide that is used as an intermediate in the production of other chemical compounds. (6) Units burning only hydrocarbon liquids or solids to produce hydrogen, carbon monoxide, synthesis gas, or other gases for use in other manufacturing processes. (7) Units burning only photographic film to recover silver." [CCCC §60.2265 at 76 Fed. Reg. 80501 and DDDD §60.2875 at 76 Fed. Reg. 80522].

We agree with the revised definition of a "chemical recovery unit" and agree that such units should be not be regulated at this time.

VI. Data Quality and Floor Setting

A. EPA Should Adjust its Floor Setting Process

Section 129 of the Clean Air Act requires MACT standards for new and existing units to be based on "maximum degree of reduction in emissions" considering cost, and non-air health and environment impacts and energy requirements. It also requires minimum standards that are at least as stringent as the emissions limitations achieved by best performing unit(s) in a category, commonly referred to as "MACT floor limits." In its CISWI rule proposal, EPA used a step-by-step statistically-based methodology to establish MACT floor limits for both new and existing units in each of four CISWI categories. Methodology steps included ranking units based on average performance as determined from EPA's emissions database, selecting best performing unit(s), pooling test run data for the selected unit(s), characterizing the data as normally or log-normally distributed, and calculating an upper limit, all on a pollutant-by-pollutant basis.

Commenters stated that the methodology EPA used was flawed, especially in light of EPA's very limited database developed through its Information Collection Request, and that it resulted in overly stringent standards. This stringency was evidenced by the fact that in each and every case, over 100 in all, EPA's floor limit (the minimum standard) ultimately became the final standard despite EPA's detailed assessment of beyond-the-floor options. Of central relevance was whether the methodology properly accounted for

the full range of emissions variability. Commenters suggested many changes and corrections to the methodology and its implementation and encouraged EPA to ensure its floor limits reflected previously achieved standards.

In the final rule EPA used the same basic approach and steps in setting the MACT floors as in the proposal, but made two changes – 1) pooled data were judged log-normally distributed unless conclusively demonstrated otherwise, and 2) units with more data were adjusted to weight their influence on the pooled data calculations. EPA also employed its proposed alternate case upper predictive limit (UPL) instead of the base case upper limit (UL) to calculate the floors.

EPA's methodology is still flawed. When coupled with its very limited database, typically a single 3-run test per pollutant for only some of the CISWI units, EPA's rigid statistical approach has resulted in inconsistent, sometimes irrational, and economically challenging if not unachievable emission standards. EPA has a responsibility to obtain emissions data that represent the actual range and variability of operating conditions. It is not rational for EPA to turn a blind eye toward the inadequacy of the existing emissions data and unwarranted for the Agency to claim that the mere use of "available data" exonerates the Agency from obtaining additional data when needed to avoid facially implausible results.[6] These standards also encourage practices counter to EPA's own solid waste management and energy policies. For example:

- Existing biomass power plants combusting clean forest-derived biomass and subject to Boiler MACT rules must meet a hydrogen chloride emission limit of 0.022 lb/MMBTU, equivalent to about 17 ppmdv7[7]. Add even small amounts of biomass of a type that EPA has now deemed "solid waste," such as treated wood, to the fuel mix and the boiler becomes subject to CISWI Energy Recovery Unit (ERU) rules where the limit drops to 0.45 ppmdv7, 38 times more stringent. The CISWI mercury limit is twice as stringent. On the other hand, the CISWI PM limits for coal and liquid ERUs are less stringent than all but one of the Boiler MACT coal and liquid subcategory PM limits. While we understand why there is not likely to be perfect harmony between Boiler MACT and CISWI standards, the sheer magnitude of differences casts serious doubt on the viability of EPA's floor-setting methodology. MACT is after all a technology-driven standard and there is no fundamental difference between the equipment or combustion properties of biomass-to-energy boilers subject to Boiler MACT and those subject to CISWI that would justify the radically diverse standards.

[6] We note that, unlike § 112(d)(3)(A), EPA's standard setting obligations under § 129(a)(2) are not limited to sources "for which the Administrator has emissions information." The lack of such a qualification in § 129 is a clear signal that EPA must actively seek to obtain comprehensive data on the sources covered by § 129 standards.

[7] Parts per million dry volume corrected to 7 percent oxygen.

- In the above example, the exceedingly low CISWI hydrogen chloride and mercury limits, among others, will drive biomass power plants to abandon burning biomass "solid wastes" that would subject them to the CISWI standard or, due to economic constraints, cease operating altogether. This would result in landfilling of urban wood and landfilling or open burning of agricultural residues, in contradiction to EPA's own Solid Waste Management Hierarchy, federal and state air pollution control programs, renewable energy policies, solid waste landfill "diversion" programs, and mandated permit requirements to generate emissions offsets from combusted biomass.
- EPA's CO standard for the new CISWI biomass category is based on a single 3-hour test of the one unit identified as the best performer. The test consisted of three runs having identical results at 153 ppmdv7. In this case and for other CO floor limits EPA had adjusted any measured CO data below a calculated method detection level, which resulted in some higher values being used in floor calculations, but also resulted in lower variability (especially for new source floors), since the same value was utilized in all 3 runs for calculation of the UPL. EPA conducted its statistical analysis and set the limit at 160 ppmdv7, less than 5% above the average test result. It's hard to understand how this limit reflects emission variability, especially since EPA itself recognizes that CO in particular is a variable pollutant stating "CEM data show that CO levels have a higher degree of variability than other pollutants" (76 Fed. Reg. 15646). Here and elsewhere EPA has applied its methodology to very limited data with seemingly no check on whether the resulting floor limit is rational.
- Section 129 requires new units to meet standards which are equivalent to or more stringent than existing units, but EPA's methodology resulted in CISWI MACT floors for new solid/biomass ERUs that were much less stringent for six of ten pollutants. EPA "fixed" this problem by lowering the new unit limits down to the level calculated for the existing units for these six pollutants explaining in table footnotes: "The NSPS limit exceeds [i.e., is less stringent than] the EG limit. The EG limit was selected as the NSPS limit." (76 Fed. Reg. 15710, 15726, 15727). This is a further example of application of statistics to a small database yielding irrational results.

Given these types of unusual outcomes and the apparent limitations of EPA's database and methodology EPA should reconsider its CISWI MACT floor-setting methodology. EPA must examine the reasonableness of derived MACT floor limits, erring on the side of achievability; otherwise, it risks setting standards that have not been achieved in practice, in contradiction to the law. Specifically, EPA should include reconsideration of the following methodological steps and issues raised by commenters:

1) The effect of waste composition. In the final rule, the selected best performing CISWI units frequently combusted "solid wastes" in small proportion to total inputs, or burned wastes that did not contain significant amounts of the constituents that would cause emissions (e.g., chlorine in biomass generating

hydrogen chloride emissions). As a result, stringent emission limits for hydrogen chloride, cadmium, lead, mercury and dioxin/furan were driven more by waste characteristics and composition than the control technology employed at the best performing units. Stand-alone biomass power plants (as opposed to ERUs located at manufacturing facilities) are economically driven to burn large proportions of "solid wastes" such as urban wood and are particularly disadvantaged by these limits where incremental emission reductions exceeding 99% would be required. EPA should consider waste content variability adjustments, percent reduction alternative standards (see #4 below), geographic factors (e.g., biomass chloride content related to location) and other approaches that yield achievable standards and otherwise level the playing field for units trying to responsibly utilize the nation's biomass residuals.

2) Selection of upper limit value. In the final rule, EPA selected the 99th percentile upper predictive limit of the pooled best performer data as the MACT floor for each pollutant. To the lay person, 99% may sound like a very high compliance probability. To the CISWI operator, however, it means a 1% probability of failure, per pollutant, per performance test and represents an unacceptable compliance risk with numerous attendant consequences. For a two unit facility and nine pollutant limits non-compliance risk of a single performance test is 1-(0.99)^{18} = 17%, or approximately one failure every six years. In addition, setting the standard right at the selected upper limit does not allow for any compliance margin that every operator needs. For floors set using statistical metrics EPA should reconsider using a 99.9% upper limit as the MACT floor, as it did with the CO limit in the March 2011 Boiler MACT rule.

3) Upper Predictive Limit (UPL) versus Upper Limit (UL). In the final rule, EPA determined the MACT floor limit for each pollutant using individual test runs and a UPL calculation. The UPL as a statistical tool is misapplied in this case and should not have been used. The UPL's fundamental premise is that run-to-run performance test results are randomly distributed over the entire population distribution. EPA acknowledges this random premise (76 Fed. Reg. 15724), yet it provides no evidence supporting it. In fact, run-to-run results within performance tests at many CISWIs are not likely to be distributed randomly across the entire distribution. Rather, each of the three runs conducted during a performance test reflects conditions affecting a unit's emissions at the time of the test. Many of these conditions (e.g., waste characteristics, condition of combustor and air pollution control equipment, season of the year) are likely to remain the same or at least similar over the short duration (up to a few days) of a performance testing program. Results for individual runs in a short term performance test will therefore not vary randomly across the entire distribution of emissions that would be observed over longer (monthly or annual) time periods. Accordingly, when using the statistical approach to establish MACT floor limits EPA should use the UL, as originally proposed in the CISWI rule, instead of the UPL.

4) EPA's upper limit (UL) and upper predictive limit (UPL) calculations do not properly account for both intra-unit and inter-unit variability. In its UL and UPL calculations EPA has used the square root of sample variance instead of the total

variance. By substituting sample variance for total variance EPA has not properly accounted for total variability. Total variability is the sum of both within (intra) and between (inter) unit variability. Inter-unit variability is an additive value because the variance in emissions from each of the top performing sources is independent of one another and dependent on each individual unit's waste composition, combustor type, air pollution control type, test conditions and sample matrix. Intra-unit variability is the variability observed in test results from the same unit due to differences in waste composition, and process and air pollution control operation conditions during each test run. As such, if total variability is not addressed MACT floors will not represent limitations that can be achieved. Whether EPA uses the UPL or UL approach to determine MACT floors it should use the modified UPL or UL that accounts for total variance as used in the proposed Portland Cement Rule[8] and the HWC MACT Rule[9]. EPA provided no rationale for why it did not use total variance instead of sample variance in the UPL or UL MACT limit calculations. Its response only addressed use of UPL. The HWC MACT Rule estimated MACT floors that were achievable by the average of the best performing sources by using total sample variance.

The equation for the Modified UPL or UL that addresses total variance is:

$$\text{UPL or UL} = \text{Mean} + t\sqrt{V_T}$$

Where Mean is the average of the best performing MACT unit averages and V_T is the total variance determined as the sum of the within (intra) source variance and the between (inter) source variance.

$$\text{Total Variance of } V_T = V_B + V_{w,}$$

Where V_B is the variance of the average of the best performing unit averages. As described above V_B is additive because the variance of each unit is independent of one another and dependent on individual units waste composition, combustor type, air pollution control type and sample matrix affects when sampling. V_W is the within or intra source variance and is calculated as the sum of the variances of individual runs within each of the best performing sources since individual unit test results will vary with waste composition, and process and air pollution control operation conditions during each test run.

5) Alternative percent reduction standard for hydrogen chloride, sulfur dioxide, and mercury. EPA's final emission standards are set as stack discharge concentrations. In the final CISWI rule preamble, EPA did not address

[8] Development of the MACT Floor for the Proposed NESHAP for Portland Cement, April 2009. EPA-HQ-OAR-2002-0051-2011.

[9] Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. September 2005, Pages 7-5 to 7-7. EPA-HQ-OAR-2004-0022-0453.

comments requesting an alternative percent reduction standard, but did reject a similar comment in the Boiler MACT rule on the basis that it has no best performing unit data with which to determine appropriate values. We believe EPA is looking at this alternative too narrowly. If data specific to these units are unavailable, EPA should look beyond CISWI units to determine demonstrated emission reduction performance capabilities of air pollution control devices on combustion sources. EPA could rely on engineering calculations and vendor representations of achieved-in-practice results to define numerical best control efficiency performance of air pollution control equipment under Section 129(a)(3) provisions, which allow standards to be based on "methods and technologies for removal or destruction of pollutants before, during, and after combustion." EPA should establish emission reduction (percent removal efficiency) standards for sulfur dioxide, hydrogen chloride and mercury as compliance alternatives to the concentration-based standards.

6) Pollutant-by-pollutant approach. This issue has been vetted in other forums, but it bears repeating the request here on the basis of legal arguments presented by multiple commenters. EPA's pollutant-by-pollutant approach has significant impact on the achievability of the CISWI standards. EPA should reconsider its pollutant-by-pollutant approach, instead using unit-by-unit composite performance to rank and select best performing unit(s), especially considering the fact that EPA's database demonstrates that only 2 of 95 units have "achieved in practice" all of the final emission standards.

B. The CISWI Limits Do Not Consider Higher Emissions of CO and Other Pollutants During Periods Associated with Unit Start-Up and Shutdown When the Unit is Operating Under Non-Steady State Conditions

In the proposed CISWI NSPS and Emission Guidelines, EPA did not provide separate treatment of startup and shutdown periods. The proposed CISWI rule stated that the emission limits apply at all times, including startup, shutdown, and malfunction (SSM) periods.[10] EPA stated in the preamble that the Agency was not proposing separate emission standards during startup or shutdown for the following reasons:

> "We determined that CISWI units will be able to meet the emission limits during periods of startup because most units use natural gas or clean distillate oil to start the unit and add waste once the unit has reached combustion temperatures. Emissions from burning natural gas or distillate fuel oil would generally be significantly lower than from burning solid wastes. Emissions during periods of shutdown are also generally significantly lower than emissions during normal operations because the

[10] 75 Fed. Reg. 31949

materials in the incinerator will be almost fully combusted before shutdown occurs." [75 Fed. Reg. 31964]. [11]

While this may be generally true for incinerators, this does not adequately characterize many energy recovery units (not all boilers startup on natural gas or distillate oil as evidenced by examining EPA's CISWI database, which includes startup fuel for each unit that submitted an ICR response). In addition, it also does not account for the fact that oxygen levels at startup can be very high and result in very high pollutant concentrations when correction to 7 percent oxygen is required. EPA recognized this fact in setting different emission standards for startup and shutdown under the recent revisions to the Portland Cement MACT standards and NSPS.[12]

Many commenters objected to EPA's position and offered various alternatives, including establishing separate standards for these periods. In the March 2011 final rule, however, EPA maintained its position that the same emission standards applicable during other operating periods will also apply during startup and shutdown. The preamble states:

> *"In establishing the standards in this final rule, EPA has taken into account startup and shutdown periods and have not established different standards for those periods. The standards that we are finalizing are based on short term stack tests for pollutants that generally are not expected to vary significantly at startup and shutdown. The possible exception here is CO, which in some subcategories such as ERUs, could vary at startup and shutdown. However, the percent oxygen operating limits will ensure that combustion conditions are optimized and the CO is minimized. Solid waste and fuel-fired ERUs do not normally startup and shutdown more the once per day. Thus, we are not establishing a separate emission standard for these periods because startup and shutdown are part of their routine operations and, therefore, are already addressed by the standards. Periods of startup, normal operations, and*

[11] EPA also relied in part on the *Sierra Club* decision invalidating the Part 63 SSM general provisions, asserting that while the ruling "directly affects only [a particular] subset of CAA section 112(d) rules …, the legality of source category-specific SSM provisions such as those adopted in the 2000 CISWI rule is questionable." 76 Fed. Reg. at 15737. This is flawed reasoning for three reasons. First, it does not necessarily follow that the court's holding extends beyond the bounds of § 112 – particularly in this case, where § 129 specifies that standards must be established pursuant to § 111, under which SSM provisions have been implemented since the early 1970's. Second, the 2000 CISWI SSM provisions are work practices, which qualify as "emissions standards" under the Act. Lastly, as explained above, the available data indicate that emissions during periods of SSM are significantly different from emissions during normal operations – even for the best performing sources. Therefore, some accommodation for SSM periods must be provided.

[12] Rulemaking dockets EPA-HQ-OAR-2007-0877 and EPA-HQ-OAR-2002-0051

shutdown are all predictable and routine aspects of a source's operation. We have evaluated whether it is appropriate to have the same standards apply during startup and shutdown as applied to normal operations, and as the rule is structured, well operated and controlled units should be able to meet the standards at all times." 76 Fed. Reg. 15738.

In presenting this petition it is important that we distinguish between EPA's definitions of "startup period" and "shutdown" contained in the CISWI rule[13] which exclude all periods when waste is burning, and the broader scope of startup and shutdown which includes those periods of transition when firing auxiliary fuel and/or solid waste when the unit is operating under non-steady state load conditions. For example, for an ERU this includes the period when bringing the unit on line after solid waste has been "charged" and started burning but before reaching steady state steam load as well as periods after waste has ceased being charged and waste combustion is completed. It is these transition periods in which the greater concern exists regarding variability of emissions and for which EPA has no emission data.

We disagree with EPA's unsupported assertions that the standards address startup and shutdown periods. Corrected (and even uncorrected) emission concentrations can be significantly higher during startup and shutdown due to the unavoidable less-than-optimal emissions control performance during transitional (non-steady state) conditions. For example, at biomass ERUs combustion-related emissions such as CO, particulate (smoke), and opacity increase during the startup period when load and temperature are coming up to full load steady-state conditions. The Maine Department of Environmental Protection has stated "Wood and multi-fueled boilers produce large CO variations during startups as the boiler heats up. Start-ups can take up to 14 hours for some units. Shutdowns can also result in significant CO variability."[14] EPA itself recognized in the Boiler MACT that "CEM data show that CO levels have a higher degree of variability than other pollutants" (76 Fed. Reg. 15646). It doesn't matter whether these units are being fired with biomass fuel or biomass solid waste – the equipment involved is virtually identical and fuel combustion characteristic differences are minimal. Startup burners reduce emissions by preheating the combustion chamber and downstream equipment but are not sized to achieve full load temperatures; even if they were, they could not completely avoid temporary sub-optimal combustion conditions as heat load shifts from auxiliary fuel to waste during startup and from waste to auxiliary fuel during shutdown. Air pollution control equipment goes through similar transient temperature

[13] 40 CFR 60.2265 and 40 CFR 60.2875 definitions: *Startup period* means the period of time between the activation of the system and the first charge to the unit. *Shutdown* means the period of time after all waste has been combusted in the primary chamber.

[14] Letter James P. Brooks, Bureau Director, State of Maine Bureau of Air Quality to James Eddinger, USEPA, February 4, 2010.

and flow conditions, e.g., changing furnace temperature and velocity profiles make SNCR systems less effective during startup than during full load steady state conditions. These conditions are distinct from the less variable conditions that occur during typical steady-state operations. EPA's emission database excludes these periods and therefore does not capture this component of variability, leading to MACT floors that have not been achieved in practice.

EPA should reconsider the standards that are applicable during startup and shutdown periods. EPA should include review CEMS and other data and conduct an engineering assessment of combustor and air pollution control equipment practices to establish performance capabilities. If EPA cannot use best operating practices under Section 129 as it has under Section 112, then it should consider several options for separate and distinct startup and shutdown standards including:

- Uncorrected concentration standards that reflect actual performance (simply removing the oxygen correction as EPA has proposed to do in the reconsideration rule is not sufficient and does not reflect what CISWI ERUs achieve during startup);
- Corrected concentration standards developed from data obtained during startup and shutdown periods with longer averaging times to accommodate short term swings; and
- For existing units requiring State Implementation Plans (SIP), a process that sets case-by-case numerical mass-based emission standards.

In the Boiler MACT rule, EPA had also proposed that standards apply at all times. However, in the final Boiler MACT rule, EPA responded differently to commenters' objections. In the final rule EPA incorporated a work practice standard in lieu of numerical limits for periods of startup and shutdown. The work practice standard requires sources to minimize periods of startup and shutdown following manufacturers' recommended procedures.

Because EPA recognized the need to modify startup and shutdown provisions in the Boiler MACT, it would be arbitrary not to take the same approach in the CISWI rule. The very same equipment and combustion conditions (boiler, air pollution control equipment, fuel/waste characteristics) that prompted EPA to change startup and shutdown provisions in the Boiler MACT also exist with the units regulated under the CISWI rule. EPA even acknowledges in both rules that sources can alternate between being boilers and incinerators based on whether they burn "fuels" or "solid wastes". Yet EPA gave no explanation why the change made in the Boiler MACT wasn't considered an issue in the CISWI rule. Accordingly, EPA should make accommodations for startup and shutdown in the CISWI rule just as it has under the Boiler MACT.

EPA should expand definitions of “startup period” and “shutdown” in 40 CFR 60.2265 and 40 CFR 60.2875 to include time periods of non-steady state operation after initial waste charging during startup and before auxiliary fuel firing during shutdown. Current definitions include only those periods when solid waste is not burning. These more limited definitions may have been appropriate for some categories which move seamlessly from auxiliary fuel to waste, but need to be changed to accommodate all units now included in the CISWI rule.

C. EPA Has Improperly Determined the Representative Detection Limit for Floor Setting

In the December 23, 2011 proposal, EPA explained that to establish the stack test-based emission standards for different pollutants, they used the following procedure:

1. EPA utilized the data provided by source operators to identify the best performing sources for each subcategory and for each pollutant.
2. Using the data for the best performers, EPA calculated the 99 percent UPL for each pollutant and source subcategory.
3. The above calculated values were compared to three times the representative detection limit (RDL) for each pollutant, and the emission standards were set at the higher of the UPL or the three times RDL value.
4. EPA calculated the RDL for each pollutant by averaging the detection limits for that pollutant which were reported by the best performing sources in all subcategories.

We support EPA’s decision to multiply the representative detection limit by three to determine the lowest level at which the emission standard for any pollutant could be set. We are, however, concerned that EPA’s approach in calculating the representative detection limits for various pollutants by averaging the detection limits achieved by the best performers is based only on partial information on method detection limits and is, consequently, incorrect and needs to be modified.

In response to EPA’s reconsideration of the boiler MACT and CISWI standards, NCASI submitted extensive comments to EPA which noted that (1) source emission testing has three components, namely source sampling, sample recovery, and sample analysis, (2) the errors associated with sample collection and recovery are much greater than those associated with sample analysis, and (3) to determine the source test method detection and quantitation limit, EPA procedures must account for the variability associated with source sampling and sample recovery.

These issues were also identified in an ASME report entitled “Reference Method Accuracy and Precision (ReMAP), Phase 1,” which examined the precision of selected

EPA source emission test methods. The report, which is referenced in the December 23, 2011 EPA proposal, makes several important points: (1) there are both random errors and systematic errors (bias in the measurement process, (2) "the magnitude of random errors associated with extraction and recovery of the sample from the stack might be expected to vary in proportion to stack concentrations," and (3) "estimation of method precision must be based on data from special tests where multiple sampling trains are used simultaneously to determine the stack pollutant concentration." In its proposal, EPA has ignored these issues and considered only the precision of laboratory analytical measurements in establishing method RDLs. We urge EPA to carefully evaluate the method quantitation limited-related issues raised by NCASI in its July 15, 2011 comments and the comments submitted in response to the December 23, 2011 proposal.

We believe that consideration of these issues will result in higher RDL values for several of EPA's reference test methods and will raise the emission standards for many source categories.

D. Clarification is Needed on How to Handle Non-Detect Data

In setting limits under this rule, EPA has attempted to ensure that they are not set at less than 3 times a "representative detection limit" or RDL.[15] Therefore, EPA has not set out procedures for handling non-detect data obtained from fuel analyses or stack testing. The RDL was determined based on only the laboratory analysis data from the top performing units, and does not take into account the error associated with sampling procedures. We have not had adequate time to evaluate all of the limits against what our members typically experience as non-detect levels from the companies used by our members. However, we request that EPA include a provision in the rule that states if a facility does a stack test or fuel analysis using the appropriate methods and procedures set out in the rule and obtains a result that is labeled as non-detect but is above the emission limit, the source has 60 days to retest and demonstrate that emissions or fuel constituents are below the standard.

VII. Subcategorization of Solid Fuel ERUs

A. We Support the Additional Breakout of Coal and Biomass ERU Subcategories for PM, Cd, Pb, and Dioxin/Furan

The June 2010 proposed CISWI Rule provided sub-categories for 1) Incinerators, 2) Energy Recovery Units (ERUs), 3) Waste Burning Kilns, 4) Small, Remote

[15] 76 Fed. Reg. 80463.

Incinerators, and 5) Burn-Off Ovens. Emission limits for all ERU were the same, with no differentiation by unit design or primary fuel type.

Many comments were submitted on the issue of further subcategorizing ERUs. EPA's explanation for subcategorization in the Boiler MACT preamble is equally as applicable to CISWI ERUs. Additional reasons are: (1) since the Clean Air Act requires EPA to set sulfur dioxide limits for CISWI units and since coal contains significant concentrations of sulfur and biomass generally would contain little or no sulfur, a subcategory for coal-fired boilers should be established. Expensive control devices such as a spray dryer absorber could not reduce the outlet concentrations of sulfur dioxide to the single ppm levels equivalent to those of a biomass boiler; (2) observation of the proposed Boiler MACT floor standards proposed for biomass and coal units shows that there are significant differences in outlet emissions of HCl, mercury, and carbon monoxide; (3) likewise, the NO_X emissions from the top performing biomass, coal, liquid, and gas-fired units would all be significantly different due to inherent differences in the design of these units.

MACT floors need to be based on data representative of the various types of ERUs and EPA should properly utilize the flexibility provided in Section 129(a)(2) of the Clean Air Act: *"The Administrator may distinguish among classes, types (including mass-burn, refuse-derived fuel, modular and other types of units), and sizes of units within a category in establishing such standards."*

In response to comments received on subcategorization of ERUs, the March 2011 Final Rule divided ERUs into 3 groups: 1) liquid/gas fired units, 2) coal-fired units, and 3) biomass fired units. Emission limits for liquid/gas fired units were different than emission limits from coal-fired and biomass units. The CO, NO_x, SO_2 emission limits for coal-fired and biomass units were different in the March 2011 Final Rule, but the other emission limits were the same for these two groups.

The December 2011 Proposed Rule further divides the emission limits for coal-fired and biomass units. Emission limits for CO, NO_x, SO_2, PM, Cd, Pb, and D/F are different for coal-fired and biomass units; only the Hg and HCl emission limits are the same for both groups. EPA provides the following as the basis for the additional subcategorization:

> *"The generation of PM is affected by the combustor design and operation. Therefore, design differences between biomass and coal ERU units have an impact on the generation of PM. We also are separating Cd and Pb with PM primarily due to the observation that these metals typically precipitate onto PM and are controlled along with PM. Finally, while D/F formation depends to some extent on the amount of chlorine available in the combustion gases, it is also affected by the amount of time the*

chlorine and hydrocarbon materials remain within a particular temperature range. The time gases remain in this range is a function of the combustor design, therefore, we have proposed separate limits for D/F as well." 76 Fed. Reg. 80458.

We support the further differentiation between coal-fired and biomass ERUs proposed in the December 2011 rule due to the differences highlighted by EPA. However, we also support keeping solid fuel ERUs together for purposes of HCl and Hg limits.

B. Definitions of Coal and Biomass ERU Subcategories Should Be Revised

EPA should reconcile the definitions of units designed to burn coal in Boiler MACT and CISWI. In the preamble to both the Boiler MACT and CISWI rules, EPA recognizes and discusses that boilers and energy recovery units maybe switching back and forth between Boiler MACT and CISWI as a result of waste-to-non-waste fuel or non-waste-fuel-to-waste switches. Being able to switch between CISWI and Boiler MACT will help provide sources with flexibility in their selection of materials they chose to combust for energy recovery.

In the reconsideration proposals for Boiler MACT and CISWI, EPA provides definitions for units designed to burn coal and units designed to burn biomass. However, the definitions differ substantially and will create confusion and lead to achievability issues if multi-fuel units are treated as biomass units under one rule and coal units under the other.

In the CISWI reconsideration proposal, EPA defines energy recovery units designed to burn coal and energy recovery units designed to burn biomass at §60.2265 and §60.2875 as follows:

> *"Energy recovery unit designed to burn biomass (Biomass)* means an energy recovery unit that burns solid waste, biomass, and non-coal solid materials but less than 10 percent coal, on a heat input basis on an annual average, either alone or in combination with liquid waste, liquid fuel or gaseous fuels.
>
> *Energy recovery unit designed to burn coal (Coal)* means an energy recovery unit that burns solid waste and at least 10 percent coal on a heat input basis on an annual average, either alone or in combination with liquid waste, liquid fuel or gaseous fuels."

The CISWI definitions differ from the definitions in Boiler MACT at §63.7575:

> *"Unit designed to burn biomass/biobased solid subcategory* includes any boiler or process heater that burns at least 10 percent biomass or bio-based solids on an annual heat input basis in combination with solid fossil fuels, liquid fuels, or gaseous fuels.
>
> *Unit designed to burn coal/solid fossil fuel subcategory* includes any boiler or process heater that burns any coal or other solid fossil fuel alone or at least 10 percent coal or other solid fossil fuel on an annual heat input basis in combination with liquid fuels, gaseous fuels, or less than 10 percent biomass and bio-based solids on an annual heat input basis."

Therefore, a combination unit burning equal amounts of coal and biomass would be regulated as a biomass boiler under the Boiler MACT, but would be regulated as a coal ERU under the CISWI rules if it also burned some solid waste. A combination unit burning significant amounts of biomass but more than 10 percent coal will not be able to comply with CISWI CO emission limits set using data for coal units. Conversely, a unit burning TDF would be regulated as a coal unit under Boiler MACT, but would be regulated as a biomass unit under the CISWI rules if it also burned some solid waste. A unit burning TDF will not be able to comply with CISWI 7.3 ppm SO_2 limit set based on biomass units. Units that are categorized as biomass units under Boiler MACT need to be considered biomass units under CISWI, and units that are categorized as coal units under Boiler MACT need to be considered coal units under CISWI.

We propose the following revised definitions under the CISWI rule:

> *Energy recovery unit designed to burn biomass (Biomass)* means an energy recovery unit that burns solid waste and at least 10 percent biomass and non-fossil solid materials on a heat input basis on an annual average, either alone or in combination with coal or other solid fossil fuel, liquid waste, liquid fuel, or gaseous fuels.
>
> *Energy recovery unit designed to burn coal (Coal)* means an energy recovery unit that burns solid waste and coal or other solid fossil fuel on a heat input basis on an annual average, either alone or in combination with liquid waste, liquid fuel or gaseous fuels, or less than 10 percent biomass and non-fossil solid materials on an annual heat input basis.

EPA should also provide definitions in the CISWI rules for "biomass" and "solid fossil fuel" that are the same as those definitions in the Boiler MACT.

VIII. Monitoring Requirements

A. Additional Changes Are Needed to the PM CEMS Requirements

EPA is proposing to require particulate matter (PM) continuous monitors as parametric rather than direct emissions compliance monitoring for PM emissions for large ERUs and seeks comment:

> *"In today's rule, we are proposing some revisions to the monitoring requirements for ERUs with a design heat input capacity greater than 250 MMBtu/hr. In the final rules, these units were required to monitor continuously for PM using a PM CEMS; however, recent EPA experience with the utility boiler source category has led the EPA to allow PM CEMS as an alternative, rather than a requirement. The PM CEMS technology may not be sufficient to certify accurate monitor performance in the PM concentration range of the CISWI ERU limits. Therefore, we are requiring continuous parameter monitoring systems for these units similar to those being required for major industrial boilers and utility boilers." 76 Fed. Reg. 80464-5.*

However, based our experience with these monitoring systems, we believe that EPA should not require PM CPMS or PM CEMS on any biomass or multi-fuel ERU. A recent study was carried out by Georgia-Pacific and NCASI. This study consisted of installing PM CEMS on multi-fuel boilers at two different facilities. During this study, calibration testing was performed for both PM CEMS, and a follow-up Relative Response Audit (RRA) was also carried out on both PM CEMS. Two different fuel mixtures were burned during the calibration testing for each PM CEMS, and fuel mixtures burned during the RRA were slightly different than those combusted during the calibration testing. Although the two monitoring systems worked reasonably well and required minimal routine maintenance, the study identified two major problems with the backscattering monitoring system:

1. The relationship between stack gas PM concentration as measured by the PM CEMS and the manual reference method varied when the fuel mixtures were changed. This resulted in several different calibration equations for different fuel combinations.
2. The PM monitoring system failed to meet EPA's relative response audit criteria when the monitoring system was tested three months after the initial installation and calibration.

In addition to the PM monitoring instrument calibration issue, the study also identified a significant challenges associated with calibrating stack PM monitors when a source is operating at very low stack gas PM concentrations. For example, NCASI observed high

variability in EPA Method 5 measured values during tests when dual sampling trains are used simultaneously on a stack with low PM concentrations.

The findings of this study support EPA's conclusion that the currently available stack gas PM monitors are not capable of being used as compliance monitors on biomass boilers. The study results also show that because the relationship between stack gas PM concentration and instrument response varies with fuel mix, in order to develop a parameter which would indicate that the source was in compliance with the PM standards, the facility would have to carry out PM CPMS calibration tests using every possible fuel combination and fuel ratio. This would require months of testing with varying fuel mixes and would be very expensive and disruptive to a facility's operation. Even after carrying out such a study, the facility would not be able to establish a parameter not to be exceeded during routine operations to ensure compliance with the PM emission standards. The results of these studies are being submitted to EPA directly by NCASI. The results of the GP/NCASI study also raise significant doubts regarding the feasibility of installing and calibrating PM CPMS on coal-fired ERUs that also burn other fuels such as petroleum coke, wastewater treatment system residuals, recycling process residuals, TDF, and various types of biomass.

EPA discusses the reasons why these monitors cannot be feasibly applied to biomass units in the preamble to the Boiler MACT rule:

> *"The EPA agrees that PM CEMS are not demonstrated for biomass units and that significant technical concerns exist regarding the technology's ability to monitor emissions from biomass units. The technical concerns include the fact that PM CEMS are calibrated and certified to measure emissions from a single fuel type. A change in fuel would require a change in the calibration curve of the PM CEMS instrument. The unpredictable variety of biomass fuel constituents as well as biomass fuel moisture content make relying on a single calibration point problematic in terms of compliance assessment when these fuel components change. Furthermore, it is impracticable to replicate, during performance testing, all of the varying fuel conditions necessary for calibrating the monitor."* 76 Fed. Reg. 80609.

If EPA continues to require these monitors, they must clarify the requirements for installing and operating them. Although EPA states these monitors do not have to comply with Performance Specification 11 when used as CPMS instead of CEMS, EPA's proposed rule language requires sources to "certify" the monitors and include the same host of requirements in a site-specific monitoring plan as any other continuous monitoring system (see for example §60.2145(x)). We are not clear on how a source

should “certify” their PM CPMS other than through the use of PS 11. While EPA has required PM monitors in the Utility MACT, those boilers are many times larger than ICI boilers with commensurately larger PM emissions and associated impact. They also operate at relatively steady loads compared to industrial and institutional boilers that have to respond to frequent load swings, and typically burn a single fuel. EPA should remove the requirement to install PM monitors for all industrial boilers.

Lastly, EPA should not require sources to limit the 30-day rolling average PM CPMS output data (milliamps) to less than the signal level during the performance test. This would reduce the operating flexibility of these units to an untenable level and would not account for variation in the measurement device output that is likely to occur during long-term operation, especially with changes in fuel characteristics/fuel mix. Even if an installed PM monitor were held to PS-11, those specifications include a correlation coefficient of 0.85 between measured and predicted stack gas PM concentrations and the systems will have a high error band compared to the actual PM emission levels and indicate non-compliance when that is often not the case. If these monitors are retained as parametric monitors in the final rule, EPA should not require sources to “certify” them and should allow operation at a signal level that is adjusted according to the unit’s compliance margin with the applicable PM limit.

B. We Support Changes to CO and O_2 Monitoring

EPA has proposed changes to the monitoring methodology for ERU CO limits.

> *In order to be consistent with similar requirements for non-waste fuel-fired boilers and process heaters, we are proposing to remove continuous CO monitoring requirements for new and existing ERU units, instead making CO monitoring with CEMS a compliance alternative and, for larger units, requiring annual CO stack tests and continuous oxygen monitoring instead.* 76 Fed. Reg. 80461.

> *Specifically, existing ERUs with a design heat input capacity over 100 MMBtu/hr must demonstrate continuous compliance with the CO emission limits with an annual CO stack test and monitoring the oxygen content of the flue gas using a continuous oxygen monitoring system. As discussed earlier, we have removed the CO CEMS requirements for existing units, instead allowing the option for sources to use CO CEMS to demonstrate compliance with the standards. We are also requesting comment on whether allowing the option to use CO CEMS instead of oxygen monitoring is of potential use to affected sources and implementing agencies, and also whether the oxygen monitoring requirements coupled with an annual CO stack provides an appropriate parameter to ensure*

optimized combustion short of direct CO measurements. 76 Fed. Reg. 80462.

Petitioners have also commented that the final rule continuous oxygen monitoring requirements would preclude the use of existing oxygen monitoring systems that may already be installed on these units to help manage combustor operation. Petitioners have claimed that, by requiring the system meet Performance Specification 3 requirements, it is unlikely that existing oxygen monitors are located in a position that would enable their use for compliance demonstration. As a result, sources would need to install and operate an additional oxygen monitoring system. Petitioners contend that this additional system would be an added expense and would be located too far downstream of the combustion chamber to provide accurate data regarding combustion characteristics so would be of no use to combustor operation.

We are therefore proposing revisions to the continuous oxygen monitoring provisions in today's action that would afford the ability for existing sources to use their current oxygen analyzer and oxygen trim systems to demonstrate continuous compliance. We are requesting comment on the practicality of the proposed provisions, and whether alternative monitoring approaches are available that would ensure that the oxygen monitoring system is sited and operated to give accurate readings while minimizing the need for potentially duplicative monitoring systems. 76 Fed. Reg. 80462.

Many existing boilers and process heaters utilize flue gas oxygen analyzers for indication, alarm, and O_2 trim control, where the fuel/air ratio is automatically controlled for optimum combustion conditions. For many types of combustion units, O_2 monitoring occurs upstream of potential air inleakage points like preheaters, thus minimizing the potential for erroneous measurements. For these units already equipped with existing O_2 analyzer systems and/or O_2 trim systems, monitoring data from these locations are currently being used both for boiler tuning and combustion control. Therefore, if O_2 monitoring is provided as an alternative to demonstrate continuous compliance with CO limits under the Boiler MACT rule, it would be logical and technically feasible for these facilities to continue monitoring O_2 at that current location. These O_2 analyzers are not compliance CEMS and therefore do not meet PS-3 requirements. However, they are calibrated and maintained to provide reliable and safe service for combustion unit operation. Proper maintenance and calibration routines are the only available option, given the inability to certify these monitors, according to applicable Performance

Specifications, when located at the outlet to the boiler. This inability to certify is caused by stratification of gases at the boiler/process heater outlet.

Therefore, the most cost effective and technically feasible approach for utilization of O_2 analyzer systems is to:

- Allow the continued use of existing O_2 analyzers
- Allow the installation of new O_2 analyzers of appropriate design at optimal locations, and
- Allow periodic sensor calibration as an alternative to certification and as a way to ensure accurate O_2 monitoring.

Boiler combustion and optimization experts indicate that most O_2 trim systems rely on O_2 measurements at the outlet of the boiler combustion chamber. These analyzers are not certified but are employed successfully to implement control strategies. The monitoring strategy proposed above is therefore viable even if it is not connected to an automated trim system.

While O_2 trim systems are viable for combustion control, there are limitations to its applicability that are especially pertinent for multi-fuel and biomass boilers.

- O_2 trim systems are best suited when the boiler predominantly burns only one type of fuel.
- Feedback control loops in O_2 trim systems are generally developed only for the predominant fuel. This limits its applicability for multi-fuel units.
- O_2 trim systems are used as a means of “fine” control and are sometimes ineffective when there are frequent changes in fuel quality and mix. This limitation would apply to combination boilers co-firing biomass fuels.
- While it is theoretically possible to develop control systems for each individual fuel used in a multi-fuel boiler, this approach is often expensive and may be ineffective.

Given these factors, it is our recommendation that facilities be given the option to choose either the O_2 monitoring approach (install, calibrate, and monitor O_2 without the requirement to certify) or the use of an O_2 trim system.

We recommend the following changes to the regulatory language so that clarity is provided and operability is not negatively impacted.

Oxygen Sensing Location

The Oxygen analyzer system is defined in the CISWI rules as follows:

"Oxygen analyzer system means all equipment required to determine the oxygen content of a gas stream and used to monitor oxygen in the boiler flue gas or firebox. This definition includes oxygen trim systems. The source owner or operator is responsible to install, calibrate, maintain, and operate the oxygen analyzer system in accordance with the manufacturer's recommendations."

The optimum location of the sensor or sampling point is dependent on the specific boiler design. In different applications, that location might be at the furnace exit, in the convection pass, at the boiler outlet, or at another downstream location. We recommend that this language be modified as follows to allow latitude in the exact location of the sensing point:

"Oxygen analyzer system means all equipment required to determine the oxygen content of a gas stream and used to monitor oxygen in the boiler flue gas, boiler ~~or~~ firebox, or other appropriate intermediate location. …"

Oxygen Trim System Set Point

Paragraphs 60.2145(w) and 60.2710(w) state:

"(2) You must operate the oxygen trim system with the oxygen level set at the minimum percent oxygen by volume that is established as the operating limit for oxygen according to paragraph (w)(3) of this section.

(3) You must maintain the oxygen level such that it is not below the lowest hourly average oxygen concentration measured during the most recent CO performance test."

This wording is more restrictive than the wording in paragraph (w)(4), which requires calculation of a 30-day rolling average O2 concentration.

The paragraph (w)(4) language specifies calculation of a 30-day rolling average oxygen level while the (w)(2) and (w)(3) wording requires continuous operation at the minimum oxygen percent established during the prior test. Innate boiler operating characteristics require operation with higher excess air (higher oxygen) at lower operating rates simply due to lower fuel and air velocities, degraded mixing of fuel and air as those flow rates decrease, and lower furnace temperatures. Therefore, it is necessary for the actual oxygen trim system set point to vary over load, with the lowest set point typically occurring at or near full load operation. The language needs to be revised to provide this operating latitude by clarifying that the operating limit is set as a 30-day average.

C. We Support 30-day Averaging Periods for Operating Parameters

In the preamble to the December 2011 proposed rule, EPA states that it is proposing to incorporate 30-day averaging periods for operating parameters for ERUs.

> *"Likewise, to be consistent with these other rules, we have revised all operating parameter averaging for ERU units to be on a 30-day rolling average.*
>
> *Due to the relatively long operational campaigns of ERUs, the longer averaging time will allow operators sufficient flexibility for operational and control device adjustments should they be needed for short term fuel or waste characteristics variability. The EPA has determined the 30-day rolling average reporting basis is appropriate for this rule. The operating limits established through performance testing in this rule represent short term process and control operating conditions representative of compliance. Concerns of variability outside the operators control such as fuel content, seasonal factors, load cycling, and infrequent hours of needed operation prompted us to look at longer averaging periods on which to base operating compliance determination." 76 Fed. Reg. 80465.*

We concur that 30-day averaging periods are appropriate for ERUs for the reasons EPA provides in the preamble. However, these changes were not made to the regulatory text (60.2165, Table 4 to Subpart CCCC, 60.2730, and Table 5 to Subpart DDDD), which still specifies 3-hour block averages for operating parameters. EPA should make sure the regulatory language is clear on how to establish all operating parameter ranges and the required averaging periods.

D. EPA Should Incorporate Minimum Data Availability Provisions

EPA should add minimum monitoring system data availability requirements for all continuous monitoring systems. There will be times, even with a well maintained continuous monitoring system, when the system will be out of operation. Lengthening averaging periods to 30 days is not adequate to address this issue.[16] Even the final CISWI rule provided minimum data availability requirements for PM CEMS of 85 percent of the hours per day, 90 percent of the hours per calendar quarter, and 95

[16] EPA responded that, "[r]egarding comments on PM CEMS, we have modified the language from the proposed 24-hour block to a 30-day rolling average. We disagree with the commenter about applying the data availability used in Da to the PM CEMS data collection. The Agency has developed a better understanding of the need for continuous data collection since Da was published and the equipment and software have dramatically improved as shown by the acid rain program CEMS data availability success. The monitoring system must operate at all time the process is operating." Response to Comments, EPA-HQ-OAR-2002-0058-2908.1, excerpt number 31.

percent of the hours per calendar year that the affected facility is operated.[17] The final Large Municipal Waste Combustor rule also has data availability requirements: valid continuous monitoring system hourly averages shall be obtained at least 90 percent of the operating hours per calendar quarter and 95 percent of the operating hours per calendar year.[18] The Petroleum Refinery MACT, Subpart UUU, states that each continuous parameter monitoring system must have valid hourly average data from at least 75 percent of the hours during which the process operated.[19]

EPA's response that the need for minimum data availability provisions such as those in NSPS Subpart Da no longer exists due to EPA's better understanding of the need for continuous data collection and the dramatic improvement in CEMS data availability (citing Acid Rain Program) is not persuasive. SO_2 CEMS used under the Acid Rain Program would differ starkly from some of the other CEMS (Hg, HCl, PM) that might be used under the Boiler MACT. SO_2 CEMS are a mature technology in widespread use, but even mature CEMS technologies such as SO_2, NO_X, and CO should be provided some reasonable amount of downtime. The Acid Rain rules recognize that NO_X and SO_2 monitors have downtime by including missing data procedures in Appendix C to 40 CFR 75. All equipment will malfunction at some point in time, and EPA should acknowledge this fact by providing a minimum data availability requirement in the CISWI rules for continuous monitoring systems.

E. EPA Needs to Allow for Varying Operating Parameter Levels With Load (e.g., sorbent injection rate) and Fuel Mix

The CISWI rules require development of operating parameter limits (OPLs) based on the values achieved during the performance test. In many cases, these levels will be appropriate only for certain modes of operation. For example, the absolute sorbent injection rate observed during the performance test conducted under full load and using the worst case fuel mix will not correlate to the sorbent injection rate necessary during startup or periods of lower load. Frequently, sorbent injection rates are set using a feedback loop from a CEMS or CPMS to avoid wasting sorbent. EPA has acknowledged in the Boiler MACT that the sorbent injection rate will vary with load, which allows sources to adjust the sorbent injection rate by a load fraction. However, as the fuel/waste mix during the initial performance test may differ from the typical day to day fuel/waste mix, EPA should also allow adjustments to sorbent injection rates based on fuel mix. For example, if an ERU is capable of burning both coal and biomass and tested at 100% coal firing for the mercury performance test, the carbon injection rate for periods of normal operation should not only be adjusted based on load, but also by the

[17] See 40 CFR 60.2165(n)(14) and 60.2730(n)(14).

[18] See 40 CFR 60.58b(c)(10)(viii).

[19] See 40 CFR 63.1572(c)(3).

percentage of coal being fired. If a boiler is burning natural gas or other clean fuel during a certain operational period, sorbent injection is not necessary.

IX. EPA Should Set Aside the Proposed Malfunction Affirmative Defense

EPA's proposal to provide an affirmative defense for periods of malfunction is without merit. EPA must instead establish work practices to address emissions during periods of malfunction. Comments recently submitted by the "SSM Coalition" on EPA's proposed "Risk and Technology Review" rule for Mineral Wool and Wool Fiberglass manufacturing explain in detail that: (1) EPA must take malfunctions into accounts when setting §112 emissions standards; (2) the proposed affirmative defense is not a permissible substitute for setting emissions standards for periods of malfunction; and (3) the proposed affirmative defense in unreasonable and impracticable.[20] Several of the members of the coalition submitting this letter also are members of the SSM Coalition. We incorporate these comments of the SSM Coalition by reference. For these reasons, EPA should set aside the proposed affirmative defense for periods of malfunction and, instead, set a work practice standard for such periods.

X. Fuel Switching Provisions Should be Improved

EPA has proposed a mechanism for sources to move between the boiler and CISWI rules, but sources must wait 6 months after cessation of solid waste burning to move back under Boiler MACT and must provide 30 day notice of intent to re-commence combustion of solid waste.[21] EPA appears to have arbitrarily chosen 6 months, as we can find no justification for this time period in the record. With the extensive monitoring and testing required under both rules and the fact that any facility's Title V permit will include extensive compliance assurance provisions, facilities will be able to adequately ensure compliance under either rule without being restricted on the frequency of fuel switching. Sources should be allowed to make the switch between waste and fuel as often as operational concerns require provided they keep adequate records.

Allowing more flexible fuel to waste switching would also serve to address the unachievability of certain CISWI standards during startup. If an ERU is not burning solid waste during startup, it should be regulated as a boiler and therefore subject to work practice standards. Our comments on the Boiler MACT rule provide justification on why work practice standards are appropriate for periods of startup and shutdown and provide feedback on the proposed definitions of startup and shutdown under that rule.

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[20] *See* Letter to EPA Docket Center from the American Chemistry Council, *et al.*, Comments on Proposed National Emission Standards for Hazardous Air Pollutant Emissions: Mineral Wool Production and Wool Fiberglass Manufacturing (January 24, 2012).

[21] See 40 CFR 60.2145(a)(2) and 40 CFR 63.7545(g).

EPA has no authority to regulate a unit that is not burning any solid waste as a CISWI. We incorporate those comments by reference.

XI. Some Technical Corrections are Needed

A. There are Discrepancies Between the Preamble and the Regulatory Text

Two discrepancies exist between the emission limit tables provided in the preamble and the emission limit tables provided in the rules.

1) Existing Liq/Gas ERU Hg:	Preamble Table 1 [76 Fed. Reg. 80457]: 0.0031 mg/dscm vs Table 7 [76 Fed. Reg. 80527]: 0.031 mg/dscm
1) New Incinerator D/F(Total):	Preamble Table 2 [76 Fed. Reg. 80457]: 0.058 ng/dscm vs Table 5 [76 Fed. Reg. 80504]: 0.58 ng/dscm

The coalition assumes the lower values given in the preamble tables are correct.

B. There Appears to be a Discrepancy in the Definition of a New Unit

An apparent discrepancy exists regarding the date that separates an existing unit from a modified/new unit. In the December 2011 re-proposed rule, the following text appears [76 Fed. Reg. 80489]:

> § 60.2015 What is a new incineration unit?
>
> (a)(2) A CISWI unit that commenced reconstruction or modification after [DATE 6 MONTHS AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER].

But, in the definitions, the following text appears [76 Fed. Reg. 80502]:

> § 60.2265 What definitions must I know?
>
> Modification or modified CISWI unit means a CISWI unit that has been changed later than June 1, 2001, and that meets one of two criteria…

These two statements contradict each other regarding the date that is considered for modification. We assume the date provided in the definition at § 60.2265 needs to be modified to agree with § 60.2015.

XII. Conclusion

In conclusion, the coalition of industry organizations submitting these comments strongly believes that EPA must revise its approach to the CISWI and NHSM rules to recognize that energy is a commodity and is part of the raw materials used by industry to create goods and services to meet human needs. By drawing such a narrow circumference around eligible fuels, EPA once again fails to take into account today's and – perhaps more importantly – tomorrow's marketplace for energy; in particular renewable, carbon-neutral fuels and electricity.

This narrow construction of eligible fuels places the American industry at a competitive disadvantage to the non-US industry. Nowhere else in the world does government impose such significant regulatory burdens on the use of secondary materials as biomass-based energy. Such burdens will lead to significant increases in the cost of making our products which cannot be passed on to consumers because the choice of energy source will not be based on availability and economics, but on arbitrary determinations that a particular material is a waste, rather than a fuel.

Significant changes are needed to the Boiler MACT, CISWI, and NHSM rules to promote energy diversity and to establish achievable standards that provide benefit to the environment without needless expenditures of time and capital, and without increasing the amount of waste sent to landfills. We would like to work with EPA as the Boiler MACT, CISWI, and NHSM rules are finalized on ways to improve the achievability of the Boiler and CISWI rules and the implementation and workability of the NHSM rule. If you have any questions about these comments or need additional information, please do not hesitate to contact Tim Hunt of AF&PA at 202-463-2588.