

FINAL REPORT

Small Business Advocacy Review Panel on EPA's Planned Proposed Rule:

Combined Rulemaking for Industrial, Commercial, and Institutional Boilers and Process Heaters at Major Sources of HAP and Industrial Boilers and Commercial and Institutional Boilers at Area Sources

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**Final Report for the Small Business Advocacy Review Panel
on EPA's Planned Proposal of Combined Rulemaking for Industrial, Commercial,
and Institutional Boilers and Process Heaters at Major Sources of HAP and
Industrial Boilers and Commercial and Institutional Boilers at Area Sources**

1. INTRODUCTION

This report is presented to the Small Business Advocacy Review Panel (SBAR Panel or Panel) convened for the planned proposed rulemakings on the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers and Process Heaters (Boiler MACT) and on the NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources, currently being developed by the U.S. Environmental Protection Agency (EPA). Under section 609(b) of the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), a Panel is required to be convened prior to publication of the initial regulatory flexibility analysis (IRFA) that an agency may be required to prepare under the RFA. In addition to EPA's Small Business Advocacy Chairperson, the Panel will consist of the Director of EPA's Sector Policies and Programs Division within the Office of Air Quality Planning and Standards, the Administrator of the Office of Information and Regulatory Affairs within the Office of Management and Budget, and the Chief Counsel for Advocacy of the Small Business Administration.

This report includes the following:

- background information on the planned proposed rule being developed;
- information on the types of small entities that would be subject to the planned proposed rule;
- a description of efforts made to obtain the advice and recommendations of representatives of those small entities; and
- a summary of the comments that have been received to date from those representatives.

Section 609(b) of the RFA directs the Panel to report on the comments of small entity representatives and make findings on issues related to identified elements of an IRFA under section 603 of the RFA. Those elements of an IRFA are:

- a description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply;
- projected reporting, record keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be

subject to the requirements and the type of professional skills necessary for preparation of the report or record;

- an identification, to the extent practicable, of all other relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule; and
- any impacts on small entities and any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities;

Once completed, the Panel report is provided to the agency issuing the planned proposed rule and included in the rulemaking record. In light of the Panel report, and where appropriate, the agency is to make changes to the draft planned proposed rule, the IRFA for the planned proposed rule, or the decision on whether an IRFA is required.

It is important to note that the Panel's findings and discussion will be based on the information available at the time the final Panel report is drafted. EPA will continue to conduct analyses relevant to the proposed rule, and additional information may be developed or obtained during the remainder of the rule development process. The Panel makes its report at a preliminary stage of rule development and its report should be considered in that light. At the same time, the report provides the Panel and the Agency with an opportunity to identify and explore potential ways of shaping the proposed rule to minimize the burden of the rule on small entities while achieving the rule's purposes.

Any options identified by the Panel for reducing the rule's regulatory impact on small entities may require further analysis and/or data collection to ensure that the options are practicable, enforceable, environmentally sound, and consistent with the Clean Air Act.

2. BACKGROUND

2.1 Background and Regulatory History

Section 112 of the Clean Air Act (CAA) requires the Environmental Protection Agency (EPA) to list categories and subcategories of major sources and area sources of hazardous air pollutants (HAP) and to establish NESHAP for the listed source categories and subcategories. Industrial boilers, commercial and institutional boilers, and process heaters were listed as a major source for regulation. Major sources of HAP are those that have the potential to emit greater than 10 tons per year (tpy) of any one HAP or 25 tpy of any combination of HAP.

Under the CAA section 112(k) (Urban Strategy/Area Source Program), EPA is to identify and list area source categories accounting for 90 percent of the emissions of each of 30 urban HAP emitted from area sources. EPA published the Integrated Urban Air Toxics Strategy on July 19, 1999 (64 FR 38707). As part of the Strategy, EPA listed Industrial Boilers and Commercial/Institutional Boilers as two of the area source categories for regulation. Once the area source categories are listed, section 112(d) requires the EPA to

promulgate technology-based standards for the sources in the listed category. The standards can be based on either maximum achievable control technology (MACT) or, at the discretion of the Administrator, generally available control technology (GACT).

In addition, both area source industrial boilers and commercial/institutional boilers are on the list of section 112(c)(6) source categories, which requires that the listed categories be subject to MACT regulation. These categories are on the 112(c)(6) list because of emissions of mercury and polycyclic organic matter (POM).

A NESHAP (Boiler MACT) was promulgated on September 13, 2004 for industrial boilers, commercial and institutional boilers, and process heaters. Petitions for judicial review were filed on the promulgated Boiler MACT. The Boiler MACT was vacated by the D.C. Circuit Court of Appeals on June 8, 2007. The court remanded the NESHAP to EPA, requiring the Agency to revise the Boiler MACT and the associated MACT floors. In the same decision, the court also vacated and remanded EPA's CISWI definitions rule, in which the Agency had defined "commercial and industrial solid waste" to exclude materials combusted in units for energy recovery. The court held that the plain meaning of the statute required EPA to regulate under section 129 of the CAA "any" unit which combusts "any" solid waste material. Under section 129, "solid waste" is to have the meaning established by the Administrator under the Solid Waste Disposal Act. Therefore, combustion units that combust any solid waste will be subject to emissions standards under section 129. Combustion units that do not combust any solid waste will be subject to emissions standards under section 112.

2.2 Description of the Rule and its Scope

The industrial boilers source category includes boilers used in manufacturing, processing, mining, and refining or any other industry. The commercial/institutional boilers source category includes boilers used in commercial establishments (stores/malls, laundries, apartments, restaurants), medical centers (hospitals, clinics, nursing homes), educational and religious facilities (schools, universities, churches), hotels/motels, and municipal buildings (courthouses, prisons).

The vacated Boiler MACT affected industrial boilers, institutional and commercial boilers, and process heaters located at major source facilities. A process heater was defined as enclosed device using controlled flame, that is not a boiler, and the unit's primary purpose is to transfer heat indirectly to a process material. Process heaters do not include units used for comfort heat or space heat, food preparation for on-site consumption, or autoclaves. A boiler was defined as an enclosed device using controlled flame combustion and having the primary purpose of recovering thermal energy in the form of steam or hot water. Waste heat boilers are excluded from the definition of boiler.

Hot water heaters were also not regulated under the vacated rule. A hot water heater was defined as a closed vessel with a capacity of no more than 120 U.S. gallons, in which water is heated by combustion of gaseous or liquid fuel. Temporary boilers were also not regulated under the vacated rule. A temporary boiler was any gaseous or liquid fuel-fired

boiler that remained at any one location for less than 180 consecutive days. Boilers or process heaters that are used specifically for research and development were not regulated under the vacated rule.

The vacated Boiler MACT reflected the application of the maximum achievable control technology (MACT). Pollutants of interest are all hazardous air pollutants (HAP), but mainly metals, acid gases, mercury, and organic HAP. Hydrogen chloride (HCl) was the predominant HAP emitted from boilers/process heaters, and HCl was used as a surrogate for all acid gases. Boilers/process heaters also emit metals (mostly arsenic, cadmium, chromium, mercury, manganese, nickel, and lead). The vacated Boiler MACT used PM as a surrogate for metal emissions. Boilers/process heaters emit organic HAP emissions (mostly formaldehyde, benzene, and acetaldehyde). Carbon monoxide (CO) was used as a surrogate for organic HAP emissions.

In developing the vacated Boiler MACT, it was estimated that the number of affected boilers/process heaters were as follows: 3,808 solid fuel, 7,500 liquid fuel, and 46,892 gaseous fuel. These estimates were based on data that were compiled in 1999. Based on a preliminary review of responses to a survey conducted by EPA of all facilities that would have been subject to the vacated Boiler MACT, revised estimates are 2,414 major source facilities with about 11,500 boilers/process heaters. Approximately, 158 (or 7 percent) of these facilities are reported to be small entities.

As for boiler area sources, there are estimated to be over one million boilers located at industrial, commercial, and institutional area source facilities. The vast majority of area source boilers are estimated to be located at commercial and institutional facilities, and, thus, generally owned or operated by small entities. Many of the boilers at area sources are not required to have a permit or submit periodic emission reports to a state or federal agency. Natural gas is the principal fuel type used by commercial and institutional boilers, but many do combust wood, coal, or other non-fossil and biomass fuels (e.g., fish oil, landfill gas, and agricultural residues). Pollutants of interest are all HAP, but mainly, metals, mercury, and organic HAP. Industrial boilers and commercial/institutional boilers are on the 112(c)(6) list due to their emissions of mercury and POM.

2.3 Related Federal Rules

These rules will regulate source categories covering industrial boilers, institutional and commercial boilers, and process heaters. These source categories potentially include combustion units that are already regulated by other MACT standards. Therefore, we intend to exclude from these rules any boiler or process heater that is already or will be subject to regulation under another MACT standard.

Combustion units that are regulated by other standards and are therefore likely to be excluded from these rules include: solid waste incineration units covered by section 129 of the CAA; boilers or process heaters covered by the hazardous waste combustor NESHAP; kraft recovery furnaces; and electric utility steam generating units (i.e., a fossil fuel-fired combustion unit of more than 25 megawatts that serves a generator that

produces electricity for sale).

In 1986, EPA developed new source performance standards (NSPS) for industrial, commercial, and institutional boilers having a heat input capacity greater than 100 million Btu per hour (40 CFR part 60, subparts Db and Dc). The NSPS regulates emissions of particulate matter (PM), sulfur dioxide, and nitrogen oxides from boilers constructed after June 1984. Sources subject to the NSPS would also be subject to these rules because these rules regulate sources of HAP while the NSPS does not. However, in developing these rules for industrial, commercial, and institutional boilers and process heaters, EPA will minimize the monitoring requirements, testing requirements, and recordkeeping requirements to avoid duplicating requirements.

3. OVERVIEW OF PROPOSAL UNDER CONSIDERATION

3.1 Potential Requirements of the Proposals

Development of standards for major sources and area sources are a statutorily required action. Voluntary and incentive-based approaches are not available for these rulemakings. These proposals must set technology-based limits as appropriate, but will explore options to nontraditional rulemaking, such as pollution prevention approaches (e.g., energy audits and tune-ups) and innovative compliance measures (e.g., health based compliance alternatives).

Section 112(d)(2) of the CAA states that standards are based on the maximum achievable control technology (MACT). Section 112(d)(3) sets minimum stringency criteria (MACT Floor) for these standards. For existing sources, the standards shall not be less stringent than “the average emission limitation achieved by the best performing 12 percent of existing sources...” For new sources, the MACT floor is “the emission control achieved in practice by the best controlled similar source...”

The court has ruled that the “no emission reduction” MACT floors (resulting in no emission limits being set for some of the existing subcategories) in the vacated Boiler MACT are unlawful. Thus, the proposal for major sources will contain limits for HAP for all subcategories. Therefore, emission limits will need to be developed for PM (as a surrogate for metals), mercury, HCl (as a surrogate for acid gases), and CO (as a surrogate for organic HAP). Based on the rulemaking done for the vacated Boiler MACT, the likely control technology basis representing the MACT Floor for the various emission limits for major sources will be:

- PM/metals = Fabric Filters
- Mercury = Fabric Filters
- HCl = Wet Scrubber
- CO = Good Combustion Practice (CO limit/monitoring)

One of the first issues that must be addressed in these rulemakings is defining “solid waste.” The definition of “solid waste,” that is nonhazardous solid waste, is being developed by EPA’s Office of Solid Waste. Once that is determined, waste-burning

boilers will be removed from MACT databases, and the emission limits will be reassessed in accordance with recent court decisions regarding MACT floor determinations. This will require that MACT floor “emission limits” be developed for subcategories and HAP groups that had no emission standards in the vacated Boiler MACT.

To assist in this effort, EPA is currently conducting a survey to collect information on materials combusted and emissions in order to address the court decisions. That is, revising the population of boilers that should be covered under the Boiler MACT. This survey was sent mainly to major sources. Responses to the survey were received by the end of November 2008.

For the Boiler Area Source rule, emission limits for mercury and POM must be based on MACT because MACT emission limits are required under 112(c)(6) and mercury and POM are 112(c)(6) pollutants. Again, CO will be used as surrogate for POM. The likely control technology basis for mercury is either a fabric filter or fuel switching to a lower mercury content fuel and for POM is good combustion practices (GCP), such as annual tune-up or burner replacement. A work practice standard, instead of emission limits, may be proposed if it can be justified under section 112(h), that is, it is impracticable to enforce the emission standards due to technical or economic limitations. These work practice standards could include annual tune-up and/or energy audits. These work practice standards could reduce fuel use which would result in reduced emissions of mercury and POM. For the other HAP (metals, organic HAP), GACT emission limits will be proposed, using PM as surrogate for metals and CO as surrogate for organic HAP, or a GACT management practices will be proposed (annual tune-up, energy audits, installation of energy efficient boiler).

3.2 Options Likely to be Proposed

EPA is in the early stages of developing the proposals. EPA has not yet decided on a detailed approach for subcategorizing the source categories, determining the MACT floor, or the compliance requirements. As EPA is beginning to develop these rulemakings, EPA is also starting to discuss appropriate options that would, consistent with the Clean Air Act, ease the compliance burden for small businesses that may be affected by the rules while maintaining the overall goals of the programs. EPA will continue to seek input from small entities throughout the regulatory development process. We note that the vacated Boiler MACT was certified as not having a significant economic impact on a substantial number of small entities due to the decisions made at that time regarding the development of that rule. However, the decision to have a separate subcategory for small boilers which resulted in a no emission reduction MACT floor (and thus no emission limit) has since been ruled unlawful by the court. Therefore, we must assess the potential options in light of current case law.

In addition, expansion of the program to both major and area sources means that certain sectors and businesses that were not previously covered under the vacated Boiler MACT will now become obligated parties. EPA does intend to explore potential flexibility

options for small entities. Some potential options to assist small entities in compliance with the new rule requirements are discussed below.

A likely option for both rulemakings is to limit the number of subcategories to four: coal, biomass, liquid, and gas. While emission characteristics differ between fuel types. Size and duty cycle have little effect on emissions or controls. Subcategories by fuel type would simplify the regulations and enforcement. Basing subcategories on industry sectors, such as, pulp & paper, chemical, furniture, refineries, etc., or source categories, such as, commercial units, institutional units will continue to be explored. However, it currently appears that the sector has little effect on emissions or control feasibility and there is limited emissions information on many sectors. So, there appears to be no technical justification for creating additional special subcategories but EPA will continue to consider any option suggested for subcategorization to reduce the impact of the rules on small entities.

Likely options to be proposed are in terms of compliance requirements, such as, emission averaging within facility, reduced monitoring/testing requirements, or allowing more time for compliance. For area sources, exempting them from Title V permitting may be an option but only if we can determine compliance would be impracticable, infeasible, or unnecessarily burdensome.

4. APPLICABLE SMALL ENTITY DEFINITIONS

For purposes of assessing the impacts of the proposed rule on small entities, small entity is defined as: (1) a small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field. Small businesses (as well as large businesses) would be regulated by these rulemakings, as well as small governmental jurisdictions or small organizations as described above. As set by SBA, the categories of small entities that will potentially be affected by this rulemaking are defined in the following table:

Sector	NAICS Code	Defined as small entity by SBA if less than or equal to:		Major Sources	Area Sources
		Number of Employees	Millions of Dollars Revenue or Budget		
Wood Product Manufacturing	321	500		Yes	Yes
Furniture	337	500		Yes	Yes
Utilities (Municipal)	221		4 million megawatt hours	Yes	No
Food	311	500		Yes	Yes

Manufacturing					
Elementary and Secondary Schools	611110		\$7.0	No	Yes
Hospitals	622		\$34.5	No	Yes
Religious Organizations	813110		\$7.0	No	Yes
Full-Service Restaurants	722110		\$7.0	No	Yes
Commercial Printing	323	500		Yes	Yes
Hotels and Motels	721110		\$7.0	No	Yes

EPA used a variety of sources to identify which entities are appropriately considered “small.” EPA used the criteria for small entities developed by the Small Business Administration under the North American Industry Classification System (NAICS) as a guide. Information about the characteristics of the sectors comes from sources including the Energy Information Administration (EIA) within the U.S. Department of Energy and the U.S. Census Bureau. EPA then found employment, revenue, and population information for parent entities using the Dun and Bradstreet, Standard & Poor’s, American Business Information, and U.S. Census Bureau.

5. SMALL ENTITIES THAT MAY BE SUBJECT TO THE PROPOSED REGULATION

The estimated number of small entities that will be subject to these rulemakings, as required by CAA, for the various industrial, commercial, and institutional sectors are presented in the following tables:

Boiler MACT

Sector	Estimated Number of Small Entities
Food and Kindred Products (NAICS 311)	7
Plastics and Rubber Products Manufacturing (NAICS 326)	12
Lumber and Wood Products (NAICS 321)	20
Furniture and Fixtures (NAICS 337)	9
Paper and Allied Products (NAICS 322)	16
Chemical and Allied Products (NAICS 325)	18
Electric, Gas, And Sanitary Services (i.e., Municipal Boilers) (NAICS 221)	26
Fabricated Metals Products (NAICS 332)	9
Petroleum Refining and Related Industries (NAICS 324)	8
Primary Metal Manufacturing (NAICS 331)	6

Transportation Equipment Manufacturing (NAICS 336)	6
Printing and Related Support Activities (NAICS 323)	5
Oil and Gas Extraction (NAICS 211)	3
Nonmetallic Mineral Products Manufacturing (NAICS 327)	3
Waste Management (NAICS 562)	2
Educational Services (NAICS 611)	2
Others (NAICS 212, 313, 316, 339, 493, 423)	6
TOTAL	158

Boiler Area Sources

Sector	Estimated Number of Small Entities
Food Manufacturing (NAICS 311)	18,200
Wood Product Manufacturing (NAICS 321)	1,300
Religious Organizations (NAICS 8131)	37,500
Wholesale Trade (NAICS 422)	1,900
Real Estate (NAICS 531)	329,000
Educational Services (NAICS 611)	210,000
Traveler Accommodations (NAICS 7211)	42,700
Hospitals (NAICS 622)	23,800
Food Services and Drinking Places (NAICS 722)	21,200
TOTAL	685,600

Based on the 2002 Economic Census, EPA believes that the percentage of firms qualifying as small entities under the NAICS definitions in each of these sectors range from 96 percent to 99.5 percent. It should be noted that the estimate of facilities nationwide in each of the sectors is projected from inventories of boilers, inspected for safety and insurance purposes, from 13 states, the actual number of small entities that ultimately subject to these rules could be different than this initial estimate.

6. SUMMARY OF SMALL ENTITY OUTREACH

6.1 Small Entity Outreach

Before beginning the formal SBAR Panel process, EPA actively engaged in outreach with entities that would potentially be affected by the upcoming rulemaking. EPA held phone conferences with some of these companies, and also had conference calls with an ad-hoc coalition of small entities to discuss the proposed rulemaking and to provide these contacts with an early opportunity to ask questions and discuss their concerns with the upcoming rulemaking. EPA provided each potential small entity representative (SER) with general information on the SBAR Panel process and background information on the Boiler MACT and the Boiler Area Source rulemaking process. Once the SBAR Panel

process began and potential SERs were identified, EPA held an outreach meeting with the potential SERs on November 13, 2008.

6.2 Summary of EPA's Outreach Meeting with Potential Small Entity Representatives

On November 13, 2008 EPA held a two-hour meeting with potential SERs for this SBAR Panel and invited representatives from the Office of Advocacy of the Small Business Administration and the Office of Information and Regulatory Affairs within the Office of Management and Budget to the meeting. To help them prepare for the meeting/teleconference, on October 30, 2008, EPA sent materials to each of the potential SERs via email. A list of the materials shared with the potential SERs during the pre-panel outreach meeting is contained in Appendix A. The Outreach Meeting was held to solicit feedback from the potential SERs on the upcoming rulemaking. Representatives from nine of the twelve companies and organizations that we selected as potential SERs for this SBREFA process participated in the meeting (in person and by phone).

The meeting was opened by Lanelle Wiggins, acting in place of Alex Cristofaro, EPA's Small Business Advocacy Chair, with a short introduction to the Regulatory Flexibility Act (RFA) and SBREFA; this also included an explanation of the SBREFA process, the purpose of the Outreach Meeting, and the importance of the SERs' comments. Following this was a presentation by EPA staff on the Boiler MACT and Boiler Area Source rules, requirements of CAA, and our current thinking on the scope of the proposed requirements for the Boiler MACT and Boiler Area Source rules. EPA then began a discussion on how the rulemakings are working so far, previous alternatives used in past rulemakings, and potential small business flexibilities for these rules. (See Section 8.5 for discussions/comments raised during the EPA Outreach Meeting, and Appendix B for the written comments received from potential SERs.) EPA asked that the potential SERs provide feedback on the outreach packet they received as well as the outreach meeting itself by November 26, 2008.

A discussion of issues related to the NESHAP program (both the Boiler MACT and Boiler Area Source rules) followed EPA's presentation. The area source program was discussed for those who are not as familiar with the program since many small entities have not previously been subject to emission standards. Further, there were discussions regarding the changes mandated by Court that will be proposed in the Boiler MACT and Boiler Area Source rules that are of importance to the small entities. These changes include: standards for all HAP and subcategories instead of a MACT floor of "no emission reduction" (thus requiring emissions limits for all units) and work practice standards only if they can be justified due to technical or economic reasons. In general, potential SERs noted that a regulatory approach to improve combustion efficiency, such as work practice standards instead of emission standards, would have positive impacts with respect to the environment and energy use and it would save revenue.

6.3 Summary of SBAR Panel's Outreach Meeting with Small Entity Representatives

The SBAR Panel convened on January 22, 2009. The Panel held a formal outreach meeting/teleconference with SERs on February 10, 2009. To help the SERs prepare for the meeting/teleconference, on January 29, 2009, the Panel sent materials to each of the SERs via email. A list of the materials shared with the SERs during the SBAR Panel Outreach Meeting is contained in Appendix A. Information presented at the meeting included:

- Background and regulatory history
- Overview of proposal ideas
- Applicable small entity definitions
- Small entities potentially subject to regulation
- Regulatory flexibility options for small entities
- Preliminary cost and economic impact on small entities

The Outreach Meeting was held to solicit feedback from the SERs on their suggestions for the upcoming rulemakings. The main areas for comment received in the previous outreach meeting covered the following topics:

- Subcategorization of units
- Health-Based Compliance Alternatives
- Emission Averaging

EPA asked the Panel Members to elaborate on specific information needed from the SERs that will help inform their report to the Administrator. The Panel summarized the following needs:

1. Specific Ideas for making compliance with both the major source boilers and process heaters rule and the area source rule more flexible to small entities. Ideas emphasized to date have included:
 - a. Health-based Compliance Alternatives
 - b. Increased subcategorization (considering unit design, fuels, operations)
 - c. Energy Audits, and how they can be made most effective
2. Emission variability issues to the extent there is data to support the variability of emissions across a certain subcategory, and/or intra-unit variability.

The Agency received written comments from five SERs (See Appendix B). Section 8.6 of this document contains a summary of the minutes for the February 10 Panel Outreach Meeting.

7. LIST OF SMALL ENTITY REPRESENTATIVES

Of the original 15 potential SERs who participated in the pre-panel outreach 14 were selected as official SERs for the Panel process. In addition to the original 14, the National School Board Association was added following the pre-panel outreach meeting.

The Council of Industrial Boiler Owners participated at the pre-panel level and provided comment, but did not participate in the panel stage. The official SER list is as follows:

Waccamaw Community Hospital
David W. Crego
Murrells Inlet, SC

Bulter Printing & Laminating Inc.
Walter L. Nordblom
Bulter, NJ

Port Townsend Paper Corporation
Eveleen Muehlethaler
Port Townsend, WA

Bamberg County Hospital
R. Dean Felkel
Bamberg, SC

Monadnock Paper Mills, Inc.
Richard Verney
Bennington, NH

Sugar Cane Growers Cooperative of Florida
Kathleen Lockhart
Belle Glade, FL

Darby Schools
Mr. Rick Scheele
Darby, MT

Hartzell Hardwoods, Inc.
Terri Gerlach
Piqua, OH

Orrville Utilities
Jeff Brediger
Orrville, OH

Cedar Lane Farms
Tom Machamer
Wooster, OH

American Forest & Paper Association
Timothy G. Hunt
Washington, DC

National School Boards Association
Marc Egan
Alexandria, VA

American Home Furnishings Alliance
Bill Perdue
High Point, NC

American Hotel and Lodging Association
Kevin Maher
Washington, DC

Interfaith Coalition on Energy
Andrew Rubin
Melrose Park, PA

8. SUMMARY OF INPUT FROM SMALL ENTITY REPRESENTATIVES

8.1 Number and Types of Entities Affected

Though the SBAR Panel did not receive specific comments on the number and types of entities that may be affected by the two rulemakings, the Panel believes that the SERs are in agreement with EPA on this matter. The tables in Chapter 5 of this report, which present the industry, commercial, and institutional sectors, number of small entities potentially affected by the two rules, were provided to the SERs before both outreach meetings, and were discussed at the meetings.

8.2 Potential Reporting, Record Keeping, and Compliance

During the outreach meeting, EPA directed the focus to a list of directed questions EPA had prepared for SER (See Appendix B for the actual questions). The purpose of the questions was for EPA to collect information on how small entities will have to absorb the costs of compliance with the proposed rulemakings. The SERs were encouraged to provide comments on the specific questions in addition to other metrics of absorbing costs of the regulations. Several SERs noted that recordkeeping activities, as was required by the vacated Boiler MACT, would be especially challenging for small entities that do not have a dedicated environmental affairs department. They estimated that one hour per day would be devoted to recordkeeping activities mentioned in the regulatory options. Two SERs commented that requiring recordkeeping and reporting for operator training or certification would be an increased burden with little environmental benefits.

8.3 Related Federal Rules

The only comment the SBAR Panel received from SERs on related Federal rules was about the rulemaking on the definition of non-hazardous solid waste. The SERs

commented that the solid waste definition could have significant economic impact on small entities. The SERs commented that additional regulatory requirements that would be imposed on a small entity if it was regulated as an incinerator under section 129 of the CAA would present an extreme burden on a small entity, possibly forcing the facility to shut down.

8.4 Regulatory Flexibility Alternatives

As described in section 6.2 and 6.3 above, EPA conducted outreach to SERs by sending outreach packages and conducting outreach meetings/teleconferences with them on November 13, 2008 and February 10, 2009. In addition to the oral comments that the SERs made during the outreach meetings, the Panel received written comments from 5 potential SERs during the pre-Panel outreach and from 5 SERs during the formal Panel outreach process (including two who submitted a set of joint comments). The written comments were distributed to all Panel members as they were received. A summary of the comments is provided below.

8.4.1 Work Practice Standards

During the SER Outreach meeting, several questions were directed towards the SERs regarding the management practices (e.g., tune-ups, operator training or certification) that are typically required by their State. It was commented that they are not aware of any state requirements for boiler “tune-ups” but they believe annual tune-ups are the most cost effective way to improve boiler performance and reduce emissions under a MACT rule. One SER, representing sugar cane growers, suggested that a fuel specification standard specifically for bagasse-fired boilers could also be a cost effective option, as it would eliminate or reduce the needing for testing and monitoring, but only if it was an option and not a requirement.

The SERs commented that it is less clear how requiring energy audits would work for small sources since the annual tune-up may achieve most of the emission reduction benefits. The SERs have concerns with implementation of energy audit findings, but if required to implant energy audit findings, one SER suggested that the threshold should be no more than a 1-year payback period.

As for operator licensing, only 11 states and 18 major cities have some program with respect to boiler operator licensing. In many instances, when a licensed boiler operator is required is dependent on the size and operating pressure of the boiler. Boilers located at large industrial facilities generally have dedicated operators who have been trained in the proper operation and maintenance of boilers. Boilers located at commercial and institutional facilities generally are smaller than those at industrial facilities and do not have dedicated operators but are operated by staff personnel (e.g., custodian) who do not have the same degree of training in good combustion practices.

The SERs presented their estimates on the cost and burden for permitting, recordkeeping, annual tune-up, and operator training and licensing, but commented EPA should consider

other ways to mitigate the cost of compliance for small entities, including relaxed monitoring, recordkeeping/reporting and testing obligations.

8.4.2 Subcategorization

SERs commented that subcategorization is a key concept that could make sure that like boilers are compared with similar boilers so that MACT floors are more reasonable and could be achieved by all units within a subcategory using appropriate emission reduction strategies. One SER commented that bagasse-fired boilers should be regulated as a separate subcategory. Bagasse-fired boilers have several unique characteristics. The boilers usually are operated only during the sugarcane harvest. The design of the furnace, combined with the high moisture content and other characteristics of the bagasse, produces a relatively unique combustion process and a characteristic mix of emissions. Emissions data obtained by EPA for other solid fuel-fired boilers are not likely to be representative of the emissions from bagasse-fired boilers.

One SER commented that EPA should subcategorize based on coal type. Coal rank matters because different categories of coal have very different characteristics. Coal-fired boilers are not “one-size fits-all,” but rather much more specialized units that are designed to operate effectively burning a particular type of coal. Boilers designed to burn a certain coal type cannot burn other coal ranks to meet emission limits. In addition to properly recognizing technological differences, subcategorization will also help alleviate the achievability concerns likely to stem from combining boilers that burn different coal ranks when determining the MACT floor.

Several SERs commented that EPA should examine a full list of possible subcategories based on fuel type, boiler type, and duty cycle. The structural differences among boiler types (e.g., fluidized bed, stokers, pulverized coal, suspension burners) translate into distinct combustion efficiency and emissions profiles that are unrelated to control technology. The vacated Boiler MACT subcategorized fuels into solid, liquid and gas. The SERs requested that further subcategorization be made for fuel such as coal, wet biomass, dry biomass, distillate fuel oil, residual fuel oil, and gas. SERs also commented that limited use boilers (such as those used in churches, municipalities) be a subcategory,

A comment raised during the SER Outreach Meeting was whether EPA could subcategorize on facility-level differences as opposed to technical differences in the unit size and design. For example, some SERs asked whether a separate subcategory for units at small entities could be developed. Since the SER Outreach Meeting, EPA has investigated the issue and based on a review of the legislative history has determined that economic grounds are not to be the basis for creation of section 112 categories. Therefore, it is clear that EPA has concluded that subcategorization cannot be based solely on costs or entity size. The types of factors that are rational bases for subcategorizing are emissions differences, based on the fuel burned, combustor size and use characteristics, and the technical feasibility of applying emissions controls.

8.4.3 Health Based Compliance Alternatives (HBCA)

Several SERs commented that the HBCA for both hydrogen chloride (HCl) and manganese is perhaps the most important step EPA can take to mitigate the serious financial harm Boiler MACT will otherwise inflict on small entities using solid fuels nationwide and, therefore, HBCA should be a critical component of any future rule to lessen impact on small entities. The HBCA that were in the vacated Boiler MACT were one of the several decisions EPA made that resulted in limiting the impact of the rule on small entities and the rule not having a significant economic impact on a substantial number of small entities.

The panel and SERs acknowledge that the HBCA provision was the main issue in the litigation of the Boiler MACT but the Court did not rule on this issue in vacating the Boiler MACT.

8.4.4 Potential Adverse Economic Impact

Several SERs commented that their interpretation of these rulings would find them in a awkward financial situation. One SER commented that with profits of less than one percent over the last five years, how would they get and repay the capital to buy, install, and maintain the new equipment required by these rules. The SER commented that “we have been down this road before” when they invested over \$350,000 during the late 1990s to minimize emissions from one of their existing boilers; the SER believe that they still have not recovered from that investment.

One SER expressed concerns that, depending on the range of requirements, the regulations could be exceptionally costly or even outright unaffordable for local school districts to implement, and urged EPA to fully and seriously weigh the ultimate consequences the regulations might have on the nation’s school districts.

Several SERs commented that they know of several other small entities that will also be negatively affected by these rules. They feel that the impact of these rules, as they understand them, will put them out of business. This is due to the fact that the estimate for the equipment and installation to bring their seasonal boilers up to the new rule standards would be over \$500,000 which is nearly half of their yearly sales.

8.4.5 Emissions Averaging

SERs commented that a measure EPA should consider to lessen the regulatory burden of complying with Boiler MACT is to allow emissions averaging at sources with multiple regulated units. By allowing averaging, sources with multiple units at a common site will be able to achieve EPA’s regulatory requirements at lower overall compliance costs while achieving the same emission control benefit. This enables innovation and offers the flexibility to match control technologies to the units with the highest utilization at a facility.

SERs commented that another approach that can aide small entity compliance is to set longer averaging times (i.e., 30-days or more) rather than looking at a mere 3-run (hour) average for performance. Given the inherent variability in boiler performance, an annual or quarterly averaging period for all HAP, but especially for CO, would prevent a single spike in emissions from throwing a top performing unit into non-compliance.

Several SERs commented that properly capturing variability is central to establishing MACT standards that are achievable by all similarly situated units in a given subcategory. There are at least four aspects of variability that must be considered in setting MACT floors: (1) boiler operating variability (such as load swings), (2) variability in control device performance, (3) variability in the test methods, and (4) variability in the composition of fuels combusted.

9. PANEL FINDINGS AND DISCUSSION

9.1 Number and Types of Entities Affected

The Boiler Area Source rule consists primarily of institutional and commercial facilities, such as, schools, churches, and hotels/motels. For the Boiler MACT, the small entities are primarily industrial facilities, such as, lumber mills and municipal boilers. For a complete description and estimate of the type and number of small entities to which the proposed rules will apply, see section 5.

9.2 Potential Reporting, Record Keeping, and Compliance

In general, state agencies will enforce both the Boiler MACT and the Boiler Area Source rules, owing to CAA section 112(l), which directs the EPA Administrator to delegate to each State, when appropriate, the authority to implement and enforce standards and other requirements pursuant to section 112 for stationary sources located in that State. Title V of the CAA requires that a State's permit programs ensure compliance with all requirements established under section 112 applicable to major sources and area sources. Section 502(a) of the CAA, however, provides that the Administrator may exempt an area source category (in whole or in part) from title V if the Administrator determines that compliance with title V requirements is impracticable, infeasible, or unnecessarily burdensome on an area source category. Therefore, if the Boiler Area Source rule exempts sources from the need to obtain a title V permit, it is unclear whether state agencies will implement and enforce the rule. Regardless of whether a rule is delegated, EPA retains enforcement authority for section 112 rules.

The General Provisions, subpart A of 40 CFR part 63, list the requirements for recordkeeping and reporting to ensure compliance with, and effective enforcement of rules established under section 112 of the CAA. As part of any rulemaking, these requirements are evaluated to determine the minimum recordkeeping and reporting necessary to ensure compliance with and enforcement of the proposed rules. The Panel recommends that EPA minimize the potential burden of compliance on small entities.

Specifically, with respect to sources at area sources, the Panel recommends EPA consider an exemption from title V permitting requirements, reduced monitoring requirements, and less frequent reporting.

9.3 Related Federal Rules

The Panel is aware of the requirements of section 112 of the CAA that direct EPA to establish national emission standards for hazardous air pollutants for both major and area sources. Section 112 requires the regulations to reflect the maximum degree of reductions in emissions that is achievable taking into consideration the cost of achieving emission reductions, any non-air quality health and environmental impacts, and energy requirements. Section 112 further states that these standards shall not be less stringent than the average emission limitation achieved by the best performing 12 percent of the existing sources, commonly referred to as the “MACT floor.”

The Panel is also aware of the rulemaking currently underway by EPA’s Office of Resource Conservation and Recovery to issue a final rule on the definition of non-hazardous solid waste. Boilers that combust any solid waste material would be regulated under section 129 of the CAA instead of either the Boiler MACT or the Boiler Area Source Rule.

9.4 Regulatory Flexibility Alternatives

EPA is seeking to minimize the burden of the proposed rules on small entities in both complying with the standards and in the permitting, recordkeeping, and reporting requirements. Because of the potential burdens and costs of meeting these standards, the Panel recommends that EPA consider and seek comments on the flexibility options described below. Several SERs commented that flexibility is important to small entities. The Panel believes that EPA should consider adopting the following flexibility options if it could assure that they significantly reduce compliance burden without significantly compromising intended protections for human health and the environment.

9.4.1 Work Practice Standards

A work practice standard, instead of MACT emission limits, may be proposed if it can be justified under section 112(h) of the CAA, that is, it is impracticable to enforce the emission standards due to technical or economic limitations. Potential work practice standards could include annual boiler tune-up and/or energy audits. These work practice standards could reduce fuel use and improve combustion efficiency which would result in reduced emissions.

In general, SERs commented that a regulatory approach to improve combustion efficiency, such as work practice standards, would have positive impacts with respect to the environment and energy use and save on compliance costs. The SERs strongly suggested that a work practice standard would be necessary for area sources to comply with the rule. The SERs were concerned with work practice standards that would require

energy audits and implementation of audit findings. The basis of these concerns rested upon the uncertainty of the potential costs and the lack of standardized energy audit criteria. A SER noted that even if an energy audit finding has a short payback, there is no guarantee that there are available funds to implement a particular audit's findings.

The Panel believes that EPA should consider a regulatory approach based on improving combustion efficiency. EPA should investigate the extent to which such an approach could have multiple positive impacts for the facility with respect to the environment, energy use, and saved compliance costs for the affected facility. The panel recommends that EPA consider requiring annual tune-ups, including standardized criteria outlining proper tune-up methods targeted at smaller boiler operators. In addition, the panel recommends that EPA analyze and consider the efficacy of energy audits at improving combustion efficiency and the cost of performing the audits, especially to smaller boiler operators. Furthermore, the panel recommends the EPA take comment on the cost and efficacy of energy audits.

9.4.2 Subcategorization

SERs commented that subcategorization is a key concept that could ensure that like boilers are compared with similar boilers so that MACT floors are more reasonable and could be achieved by all units within a subcategory using appropriate emission reduction strategies. SERs commented that EPA should subcategorize based on fuel type, boiler type, duty cycle, and location.

The Panel recognizes the need to subcategorize in order to develop MACT standards that are reasonable and achievable for the various boiler types and fuels used in the industrial, commercial, and institutional source categories. SERs recommended that EPA adopt the following subcategories for boilers:

- Fuel type (including coal rank, bagasse, biomass by type, and oil by type);
- Boiler design type (e.g. fluidized bed, stoker, fuel cell, suspension burner);
- Duty cycle;
- Geographic location;
- Boiler size;
- Burner type (with and without low-NOx burners);
- Process heaters;
- Limited use boilers.

The Panel acknowledges that it may not be practicable to adopt all of the proposed subcategories, as there is substantial overlap between the groups. However, the Panel recommends that EPA consider the subcategories discussed by SERs and adopt a set of standards that is consistent with the Clean Air Act and which effectively reduces burden on small entities.

9.4.3 Health Based Compliance Alternatives (HBCA)

In the vacated Boiler MACT, there were two HBCA (HCl and manganese) that could be used if the facility could demonstrate it was a low health risk to the surrounding community. Several SERs commented that adopting an HBCA for both HCl and manganese would perhaps be the most important step EPA could take to mitigate the serious financial harm the Boiler MACT would otherwise inflict on small entities using solid fuels nationwide and, therefore, HBCA should be a critical component of any future rule to lessen impact on small entities.

In light of SER comments, the Panel recommends that EPA adopt HBCA as a regulatory flexibility option for the Boiler MACT rulemaking. The panel recognizes, however, that EPA has concerns about its legal authority to provide an HBCA under the Clean Air Act, and EPA may ultimately determine that this flexibility is inconsistent with the Clean Air Act.

9.4.4 Emissions Averaging

SERs commented that a measure EPA should consider to lessen the regulatory burden of complying with Boiler MACT is to allow emissions averaging at sources with multiple regulated units. SERs commented that another approach that can aide small entity compliance is to set longer averaging times (i.e., 30-days or more) rather than looking at a mere 3-run (hour) average for performance. Given the inherent variability in boiler performance, an annual or quarterly averaging period for all HAP, but especially for CO, would prevent a single spike in emissions from throwing a unit into non-compliance.

The Panel appreciates the SERs comments regarding emission averaging and recommends that EPA consider a provision for emission averaging and long averaging times for the proposed emission limits.

9.4.5 Compliance Costs

Several SERs noted that recordkeeping activities, as written in the vacated boiler MACT, would be especially challenging for small entities that do not have a dedicated environmental affairs department. The SERs advocate for the most efficient way to get reductions in HAP and requested that the Panel consider all available alternatives to reduce to a bare minimum any extraneous requirements that require considerable paperwork that in the opinion of the SERs do not contribute to emission reductions.

The Panel recommends that EPA carefully weigh the potential burden of compliance requirements and consider for small entities options such as, emission averaging within facility, reduced monitoring/testing requirements, or allowing more time for compliance. For area source boilers, the Panel recommends that EPA consider exempting them from Title V permitting.

Appendix A

List of Materials EPA Shared With Potential SERs (October 2008)

- PowerPoint Presentation entitled “Combined Rulemaking for Industrial, Commercial, and Institutional Boilers and Process Heaters at Major Sources of HAP and Industrial Boilers and Commercial and Institutional Boilers at Area Sources” including:
 - Regulatory History
 - Overview of Proposal Ideas
 - Applicable Small Entity Definitions
 - Small Entities Potentially Subject to Regulation
 - Regulatory Flexibility Options for Small Entities
 - Schedule
- List of Potential SERs
- Questions for Potential SERs
- EPA Report: Revised Economic Impact Analysis of the Industrial Boilers and Process Heaters NESHAP (Condensed Version), June 2007
- Draft Report: Economic Impact Analysis of NESHAP for Institutional, Commercial, and Industrial Boilers at Area Sources, RTI International, February 2007
- Memorandum: Cost-to-Sales Analysis of Testing and Monitoring Costs, RTI International, June 7, 2007
- Cost-to-Sales Appendix A (Excel file)

Additional Materials the SBAR Panel Shared With SERs (February 2009)

- PowerPoint representation (revised)
- Memorandum: Preliminary Small Entity Cost and Emission Impacts for Boiler and Process Heater Rulemakings, January 2, 2009
- Spreadsheets: Control Costs for Preliminary Economic Analysis
- Memorandum: Draft Small Entity Screening Analysis: Industrial Boilers and Process Heaters, January 26, 2009
- Spreadsheets: Small Business Screening Analysis Results
- Information on the Linkageless Combustion Controls
- Spreadsheet: Health Based Compliance Alternative Tracking Table
- Spreadsheets: Capital Costs for Scrubbers, ESP, and Fabric Filters

Appendix B

Written Comments Received from SERs

Comment Received from Cedar Lane Farms

To: Jim Eddinger
U.S. EPA
From: Thomas Machamer
Cedar Lane Farms Corp.
Wooster, Ohio

December 2, 2008

Ref: Rulemakings, HAPs and Public Comments

Cedar Lane Farms is a 220,000 sq.ft. wholesale greenhouse in rural Wayne County, Ohio. We have two 5.6mmBtu coal fired stokers and a 8.5mmBtu Atmospheric Fluidized Bed Combustor System (AFBC). At the peak of our production season we employ over 50 people and annual sales of under \$1.4 million. Historically there has been a greenhouse on this farm for over 100 years.

The wholesale value of just the greenhouse industry (floriculture) is over \$4 billion. This is according to the U.S. Dept. of Agriculture Statistics Services. This \$4 billion does not include sales from the tree nurseries, landscape companies, retail garden centers and retail box stores like Lowe's or Wal-Mart. These other green industries will be negatively impacted as well. The cost (if still in business) will be passed on to the retail consumer.

Our interpretation of these rulings find Cedar Lane Farms in a financial awkward situation. With profits of less then 1% over the last five years, we ask ourselves, how will we get and repay the capital to buy, install, and maintain the new equipment required by these rules.

We have been down this road before of Maximum Achievable Control Technology (MACT) with the installation of our 8.5mmBtu AFBC heating system, in the late 1990s, to reduce our stoker use and minimize our environmental emissions. We invested over \$350,000 to accomplish this. It took us over ten years to get the system up and running. We believe we still have not recovered from that investment.

We have however reduced our sulfur emissions "VOLUNTARILY" with the AFBC. Actually, due to the way we calculate our emissions with the Maximum Potential Emissions calculations, the installation of the AFBC has put us potentially under these rulings .

We know of several other local green industry companies that will also be negatively effected by these rules.

To summarize the impact of these rules, as we understand them, they will put us out of business. This is due to the fact that the estimates for the equipment and installation to bring our seasonal stokers up to the new rule standers would be over \$500,000. This is nearly half of our yearly sales.

We ask for your assistance and recommendations you may have to keep Cedar Lane Farms in business under these rules.

Respectfully Submitted

Thomas Machamer
President CLF Corp.

Comments Received from Sugar Cane Growers Cooperative of Florida

Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500
Telephone (352) 336-5600
Fax (352) 336-6603

November 26, 2008

Via Electronic Delivery

Energy Strategies Group
Sector Policies and Program Division (D243-01)
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

Attention: Jim Eddinger

SUBJECT: BOILER MACT SUBCATEGORIZATION AND BAGASSE BOILERS Dear

Mr. Eddinger:

This letter is on behalf of the Sugar Cane Growers Cooperative of Florida (SCGCF), a Small Entity that will be impacted by the Boiler MACT rule, and the Florida Sugar Industry (FSI), which is comprised of sugarcane processors located in south Florida. These processors harvest sugarcane to produce raw and/or refined sugar. The SCGCF and FSI operate industrial boilers that use bagasse (a co-product of sugarcane processing) as their primary fuel.

The FSI understands that the U.S. Environmental Protection Agency (EPA) is currently determining subcategories of boilers that should be regulated under Section 112 of the Clean Air Act (CAA). To assist EPA with its determination, the FSI has prepared a report (attached) concerning the U.S. sugarcane industry. The FSI's report explains why bagasse is a fuel and not a solid waste, and why bagasse-fired boilers should be regulated under Section 112 of the CAA in a separate subcategory of solid fuel-fired boilers.

Bagasse is mostly carbon, hydrogen, and oxygen. It contains a small amount of nitrogen, traces of other elements, and very low ash and sulfur content. Since the bagasse is washed and re-washed during the milling operation, it is very clean and typically has about 50-percent moisture content, as it is fed into the boilers.

For more than 200 years, the sugarcane industry has used bagasse as its primary fuel. Sugarcane mills use bagasse-burning boilers to produce steam, which is needed to evaporate the sugarcane juice, run rotating equipment, and produce electricity. The electricity is used for internal operations in the mill and any excess is provided to the power grid.

Bagasse has been used in sugar mills worldwide to displace the use of fossil fuels. Burning bagasse, instead of fossil fuels, reduces carbon dioxide (CO₂) emissions into the atmosphere and, thus, helps mitigate global warming. In the United States, bagasse helps reduce the nation's dependence on imported fuels.

Bagasse-fired boilers have several unique characteristics. The boilers usually are operated only during the sugarcane harvest, which typically lasts less than 6 months in Florida. The design of

the furnace, combined with the high-moisture content and other characteristics of the bagasse, produces a relatively unique combustion process and a characteristic mix of emissions. Among other things, the combustion temperatures in the FSI's furnaces are relatively low, which produces relatively low nitrogen oxide (NO_x) emissions, and relatively high carbon monoxide (CO) emissions. Of course, emissions of sulfur dioxide (SO₂) and metals remain very low.

EPA's emissions data for other solid fuel-fired boilers are not likely to be representative of the emissions from bagasse-fired boilers. Consequently, EPA is not likely to establish an appropriate MACT floor for bagasse-fired boilers if bagasse-fired boilers are regulated under Section 112 in a category that includes other types of solid fuel-fired boilers. Therefore, EPA should establish a separate subcategory for bagasse-fired boilers when EPA establishes the MACT floor for solid fuel-fired boilers.

In conclusion, bagasse is a valuable fuel that is unique to the sugar industry. Bagasse-fired boilers are designed to burn bagasse instead of fossil fuels, resulting in:

- Reduced CO₂ emissions, thus helping to mitigate climate change;
- Reduced emissions of metals, SO₂, and NO_x, when compared to the use of fossil fuels;
- Reduced dependence on foreign oil; and
- Energy and economic savings for the nation.

For all of these reasons, EPA should establish a separate subcategory for bagasse-fired boilers, and not place bagasse-fired boilers in a general category with other types of solid fuel-fired boilers, when EPA establishes the MACT floors.

Please do not hesitate to contact me at (352) 336-5600 if you have any questions about these issues.

Sincerely yours,

GOLDER ASSOCIATES INC.

David A. Buff

David A. Buff, P.E., Q.E.P.

Principal Engineer

Enclosures

Cc: Kathy Lockhart, SCGCF

February 24, 2009

To: Alexander Cristofaro, Small Business Advocacy Chair
c/o Nathaniel Jutras
Environmental Protection Agency
Office of Policy, Economics, and Innovation
1200 Pennsylvania Avenue, NW
MC 1806A
Washington, D.C. 20460

Subject: Sugar Cane Growers Cooperative of Florida
Response to EPA Questions for Small Entity Representatives for Boiler MACT
and GACT

Sugar Cane Growers Cooperative of Florida (SCGCF) appreciates the opportunity to submit comments on the Boiler MACT and area source rulemakings. SCGCF is a small entity representative (SER) which owns and operates a manufacturing source in the Florida sugar processing industry. Sugarcane is brought to the facility and processed into raw sugar. Boilers are used to generate steam for the grinding of the sugarcane and for the processing into raw sugar. Biomass fuel (bagasse) is generated as a by-product of the sugarcane grinding process. The bagasse is burned as the primary fuel in the on-site boilers.

The SCGCF facility has a total of six (6) bagasse boilers that were built between the years of 1963 and 1982. The boilers range in size from 110,000 lb/hr steam to 264,000 lb/hr steam. Each of the boilers has a spray impingement wet scrubber for particulate control.

EPA has asked SERs to consider several questions and respond to materials shared during the February 10th SER meeting held at EPA's offices in Washington, DC and by teleconference. Many of these issues were discussed at the 2/10 meeting so these written comments supplement or reinforce points made by SCGCF or other SERs. We address each question in turn below.

A. Questions from EPA Letter Addressed to SERs

- For the Boiler MACT, are there other regulatory options or small entity flexibilities than those listed in slide 18 and 34?

Response: The following is a list of other regulatory options that could bring more flexibility to small entities in regards to boilers:

- a. Boiler Type/Design (e.g. fluidized bed, spreader stokers, dutch ovens, fuel cells, and suspension burners);
- b. Process Type (base loaded boilers, load-following boilers);
- c. Size (medium (30-100 MM Btu) in addition to small and large, or by NSPS size ranges);
- d. Fuel Types (single fuel boilers vs combination boilers) ;
- e. Subcategories within biomass (dry wood, bark/wet wood, bagasse);
- f. Burner types (with and without low-NOx burners)
- g. Sector or products produced (e.g., sugar industry sector)

Subcategorization is a key concept that could make sure that like boilers are compared with similar boilers so that MACT floors are more reasonable and could be achieved by all units with a

subcategory using appropriate emission reduction strategies. Analysis of Florida sugar industry boilers provided to EPA in the combustion survey in November 2008 shows significant

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differences in performance amongst boilers burning bagasse and boilers burning other types of biomass. Also, stoker boilers may perform differently than fuel cells or suspension burners in terms of CO, HCl and PM emissions when burning the same fuel. The differences in emissions are so great that a MACT floor derived from the biomass boilers subcategory, even a subcategory of “wet biomass”, could essentially mean that bagasse boilers would need to be replaced-- at significant expense. See the attached report entitled “Subcategories by Fuel Type: Why EPA Should Regulate Bagasse Fuel as a Separate Subcategory”, previously submitted to EPA for further information.

Another approach that can aide small entity compliance is to set longer averaging times (i.e., 30-days or more) rather than looking at a mere 3-run average for performance. Given the variability in moisture content of wet biomass, and particularly for bagasse, many boilers exhibit inherent swings in performance, including those with good controls. Therefore, an annual or quarterly averaging period for all the HAPs, but especially for CO, would prevent a single spike in emissions from throwing a top performing unit into non-compliance. Longer averaging times still ensure compliance but reflect the realities of boiler diversity within a subcategory, and also align better with health-related impacts of HAPs which are more long-term than short-term.

SCGCF also strongly supports inclusion of the health based compliance alternative (HBCA) for HCl and manganese, and would be extremely helpful for small entities. Bagasse-fired boilers would find the HBCA for manganese very valuable since manganese is the primary metal in bagasse. However, the HBCA for HCl would also be helpful for any boilers burning wood.

Compliance with the Boiler MACT rule could be as high as \$30 million per boiler in capital costs (based on replacing the boiler). Therefore, the value of the HBCA could be far greater than EPA estimates in the analysis presented to SERs. Thus the expected savings for just the boilers at our Mill could easily exceed \$100 million-- a significant amount of money by any standard.

What concerns would you have if a work practice standard included: (1) annual tune-up, (2) operator training and licensing, (3) fuel specifications, (4) energy audit/assessment, and (5) requirement to implement cost-effective findings of energy audit?

Response: We believe annual tune-ups are the most cost effective way to improve boiler performance and reduce emissions under a MACT rule. SCGCF already conducts tune-ups, so making them a regular routine would ensure their continued use and emission reduction benefits. The specifics of what constitutes a tune-up will require careful consideration and may need to vary between boiler types and sizes.

SCGCF already performs operator training to ensure safe and efficient operation of the boilers. However, the licensing requirement could add cost burdens without any real benefit.

A fuel specification standard could also be a cost effective option, as it would eliminate or reduce the need for testing, monitoring, etc. However, this would have to be an option, not a requirement.

It is less clear how requiring periodic energy audits would work for small sources since the annual tune-up may achieve most of the emission reduction benefits. It is assumed that any program will be limited to the boilers and not include other parts of a mill. We have concerns

with implementation of energy audit findings. This could be much more expensive with unclear emission reduction benefits when compared with the annual tune-up.

What are the costs of performing each of these work practices?

Response: One proposed requirement for existing units is to conduct a facility-wide energy audit and to implement any efficiency-enhancing activities identified. An energy audit is estimated to cost between \$5,000 and \$10,000 per boiler, which includes measurements of steam parameters, air temperatures, flow rates, etc.

If a requirement for implementation of the energy conservation measures identified by the energy audit is imposed, what rate-of-return (in percent terms, not payback period) would be the minimum required for you to implement any identified energy conservation measures for your type of operation?

Response: If SCGCF is required to implement energy audit findings, the threshold should be no more than a 1-year payback period. When capital is tight, there is a significant opportunity cost to spending money on something that takes as long as three years to get a return when other projects have higher returns but must be passed over. Thus EPA needs to include the cost of implementing any projects arising from the audit in its Economic Impact Analyses for small entities. Finally, if EPA proceeds with any requirements to implement audit findings, there should be a reasonably long period of time to make the change; up to five years especially if capital approval is required and the boiler is old.

Are your boilers required to be permitted by the state? If so, what is the cost for permitting? If not, what would you estimate the burden to be in terms of costs and hours if the boilers are required to be permitted?

Response: Yes, these boilers are required to be permitted by the state. The cost of the periodic Title V operating permit renewal is about \$15,000 every five years. This cost is relatively small in comparison to the cost of the boiler operation. The permitting activities are performed by outside contractors.

How much burden (in terms of cost and hours) would it be for you to maintain a file with daily operation and each inspection and maintenance conducted?

Response: Generally, these records are already kept at the facility. However, if required for compliance purposes, this would add a level of complexity, thoroughness, and oversight by a supervisor. Additional cost is estimated at \$10,000 per year.

If your boiler was subject an emission limitation would you consider switching to a less polluting fuel and how much additional burden (in terms of cost and hours) would it add? What fuel would your facility switch to (or blends of fuels)?

Response: Switching from bagasse to a less polluting fuel is not an option for SCGCF or the sugar industry due to the cost. Since bagasse is a by-product of the sugarcane processing, it is essentially free. Due to the large energy requirements of the boilers, having to purchase alternative fuels, even other biomass, would render the operation economically unviable. In other words, if bagasse could not be burned as a fuel, the facility would shutdown due to economic impacts.

B. Complete List of Questions for SERs to help us estimate the impact of potential new requirements the Agency is considering

Management Practices

Adding management practices requirements for area source boilers:

1. Does your state already require annual tune-up of the boiler that the Agency is considering adding?

Response: No, the state of Florida does not require an annual boiler tune-up.

2. If not, do you perform an annual tune-up as part of routine maintenance, and what is your estimate of the cost to perform it? What percentage of the cost of performing routine maintenance is the annual tune-up?

Response: The SCGCF does perform an annual boiler tune-up on each of its boilers. The sugar industry in Florida is seasonal, with the sugarcane harvesting season lasting from five to six months each year. The bagasse fuel from the sugar processing operation can contain significant amounts of sand, depending on the land on which the sugarcane was grown. This causes more extensive maintenance activities compared to fossil fuel-fired boilers and even wood-fired boilers. During the off-season, SCGCF routinely performs boiler maintenance and boiler tune-ups. The estimated cost to perform the annual tune-up on each boiler is \$5,500. This cost is 3% percent of the cost of performing all the routine maintenance activities on each boiler.

3. Does your state already require any training or certification (licensing) of the boiler operator that the Agency is considering including in the rule?

Response: No, the state of Florida does not require any boiler operator training or certification at this time.

4. If not, and a certified (licensed) boiler operator is required, what is your estimate of the cost of either certifying the current boiler operator or adding a certified (licensed) boiler operator? What percentage of your facility's or organization's budget will this cost be?

Response: The estimated cost to certify the current boiler operators (staff of 6) is \$20,000 annually. This cost is 2% percent of the facility's annual operating budget for the boilers.

Energy audit (assessment):

1. Does your state or local electric power company offer any assistance, incentive, or discount in conducting an energy audit (assessment) for your facility? Response: No 2. If a requirement for implementation of the energy conservation measures identified by the energy audit is imposed, what rate-of-return (in percent terms, not payback period) would be the minimum required for you to implement any identified energy conservation measures for your type of operation?

Response: 50%

Good Combustion Practices:

1. Do you employ any monitors, emissions or process parameters, to monitor the operation of the boiler?

Response: Yes.

2. If yes, how many? Are these monitors in place for environmental regulatory reasons? Insurance reasons? Or both?

Response: The boilers each have monitors for steam flow, temperature and pressure. Combustion air temperature is monitored. Oxygen monitors are also installed at the outlet of each boiler. The wet scrubber on each boiler has monitors for pressure drop, water flow and inlet water pressure. These parameters have established ranges in a Compliance Assurance Monitoring (CAM) Plan in the Title V operating permit. One boiler (Boiler No. 8) has operational limits on oxygen content of the flue gas, and also has an Operation and Maintenance (O&M) Plan which is part of the Title V operating permit. Many of these monitors are in place for environmental regulatory reasons.

Compliance Demonstration

1. Does your state require any continuous monitoring of emissions or process parameter that the Agency is considering including in the rules? If so, what are the costs to the facility? What percentage of overall facility costs do these represent?

Response: The State of Florida only requires those monitors contained in the Title V operating permit, as described above. These are parameters the Agency has previously considered including in the boiler MACT rules. The primary additional initial costs to the facility would be in converting the instrumentation to record on a continuous basis; produce averages for appropriate averaging times (i.e., 3-hours); setting up alarms; and for data archiving and reporting. These additional costs are estimated at \$800,000 initial costs. Ongoing annual costs would be for maintaining the equipment, calibrations, etc., which are estimated at \$50,000 annual costs. These annual costs represent about 85% percent of the total facility annual boiler operating costs.

2. If your boilers were subject to emission limits, are there testing ports available for conducting compliance tests? If not, what do you estimate the costs to be of modifying the stack for testing?

Response: Yes, test ports are already available.

3. If your boilers were subject to emission limits, are there alternatives to monitoring emissions or stack testing that would be less costly to demonstrate compliance? How much less costly are these alternatives?

Response: Yes, parametric monitoring on air pollution control equipment and fuel testing would be good alternatives to stack testing or CEMS on boilers. Flexible and simple compliance options would help to minimize cost and administrative burden on small entities.

Permitting:

1. Are your boilers required to be permitted by the state? If so, what is the cost for permitting? If not, what would you estimate the burden to be in terms of costs and hours if the boilers are required

to be permitted? What is the size of these costs compared to the costs of boiler operation and the facility as a whole? Are your permitting activities done by in-house staff or by outside contractors?

Response: Yes, these boilers are required to be permitted by the state. The cost of the periodic Title V operating permit renewal is about \$15,000 every five years. This cost is relatively small in comparison to the cost of the boiler operation. The permitting activities are performed by outside contractors.

2. Are your boilers required to be inspected for safety or insurance reasons? If so, how often is this performed? What is the cost of these inspections? What is the size of these costs compared to the cost of boiler operation and the facility as a whole?

Response: All boilers have annual safety inspections. Sometimes the cost is covered in the insurance premiums but other times the cost is separate and can be a few thousand dollars for each boiler. This represents a few percent of the annual boiler maintenance costs.

Compliance:

1. How do you know if your boilers are following proper operation and maintenance procedures, and practicing good combustion?

Response: SCGCF has in-house procedures to ensure proper operation and maintenance procedures, and that we are practicing good combustion. The procedures include the following:

- Some boilers have self-diagnostic controls, which aid in operation and maintenance.
- Visual flame inspections are done periodically to monitor combustion.
- An outside contractor performs test on boiler feedwater and chemicals and provides a report.
- Daily, monthly, quarterly and annual checklists are kept for various boiler maintenance items such as changing of safety valves (relief, safety, hydraulic, pneumatic, etc.), boiler water quality testing, daily boiler checks and walk downs, testing of burner safeguards, daily testing of low water cutout devices, and annual boiler inspections.
- One or more of the following activities are performed during boiler inspections, tune-ups or during other periods as necessary:
 - Checking all electrical and combustion control systems
 - Cleaning/reconditioning and inspecting the feedwater system
 - Using operating procedures and training
 - Inspection and cleaning, as necessary, of fireside and water-side surfaces
 - Testing of exhaust gases (CO, CO₂, other) to calculate combustion efficiency and make necessary adjustments to the combustion system
 - Inspection and repair of refractories in boiler
 - Cleaning and inspecting fan housing, blades, and inlet screens
 - Fuel quality and proper fuel handling (including monitoring quality, periodic sampling and analysis, fuel supplier certification)
 - Maintain minimum O₂ levels at the boiler outlet
 - Monitoring furnace temperature
 - Proper fuel distribution in the combustion zone and on the grates

2. How much burden (in terms of cost and hours) would it be for you to maintain a file with daily operation and each inspection and maintenance conducted?

Response: Generally, these records are already kept at the facility.

3. If your boiler was subject an emission limitation would you consider switching to a less polluting fuel and much additional burden (in terms of cost and hours) would it add? What fuel would your facility switch to (or blends of fuels), and what benefits outside of reduced emissions could your facility experience?

Response: Switching from bagasse to a less polluting fuel is not an option for SCGCF or the sugar industry due to the cost. Since bagasse is a by-product of the sugarcane processing, it is essentially free. Due to the large energy requirements of the boilers, having to purchase alternative fuels, even other biomass, would render the operation economically unviable. In other words, if bagasse could not be burned as a fuel, the facility would shutdown due to economic impacts.

Capital Availability and Regulatory Impact:

1. Are your firm's or organizations expenses for the activities listed above largely paid for out of equity, earnings, or debt?

Response: Expenses almost always come from earnings unless a capital project is large enough to require use of equity.

2. Considered together, how much of your firm's or organization's revenues or budget are the costs of the activities listed above in percentage terms?

Response: Total estimated costs above represent about 90% percent of the facilities total operating budget.

**Comments Received from American Forest and Paper Association
(AF&PA)**

Email from Tim Hunt, American Home Furnishings Alliance, to Jim Eddinger, EPA,
dated 12/01/08

Jim,

The minutes capture my memory of the meeting pretty faithfully.

I would make a discrete action item out of your response to question 24 so that it is highlighted like you have done with other action items since this issue is so critical to a MACT/GACT rule that minimizes impacts to small entities. It would read (additions in CAPS): EPA will contact the facilities identified in the best-controlled 12 percent OF VARIOUS POSSIBLE SUBCATEGORY GROUPINGS to request long-term data THAT WOULD SHOW PERFORMANCE VARIABILITY OVER TIME.

In addition, I would also create an action item around responses to questions 27 and 28 that would say: "EPA will investigate ANY REASONABLE SUGGESTIONS FOR NEW/ADDITIONAL sub categorizations THAT are statutorily appropriate AND MIGHT REDUCE IMPACTS ON SMALL ENTITIES." Once we have had a chance to look at the survey results, we should have some suggestions for possible subcategories.

Once we have the information on HBCA from you, I can try and answer Keith's question about its exact value to small entities in my sector. I can say with confidence now, however, that HBCA for both HCL and Manganese will be a critical component of any future rule to lessen impact on small entities. I was glad to see the concept reaffirmed in the recent Hazardous Waste Combustor MACT (FR 10/28 - excerpt attached)

I have asked my members to consider the questions posed to SERS and get feedback to me later this month which I will be glad to share in January.

I would note that the schedule you sent out says promulgation by March 2010 when the consent decree you mentioned is July 15th 2010. It's probably worth updating especially since letters to facilities that will have to do HAP testing won't go out until early next year.

I've built an e-mail distribution list of the SERS in case any of us want to set up a call in advance of any future call or meeting. I'd be glad to host if there is an interest.

Hope everyone had a good Thanksgiving.

Tim

February 24, 2009

Submitted electronically by e-mail

To: Nathaniel Jutras
Office of Policy, Economics, and Innovation
U.S. Environmental Protection Agency

Subject: AF&PA/Port Townsend Paper Company feedback on questions for
Small Entity Representatives for Boiler MACT and Boiler GACT

Dear Nathaniel,

The American Forest & Paper Association (“AF&PA”) and Port Townsend Paper Corporation (PTPC) appreciate the opportunity to submit comments on the Boiler area source and MACT rulemakings. AF&PA is the national trade association of the forest, pulp, paper, paperboard, and wood products industry. The U.S. forest products industry accounts for approximately 6 percent of the total U.S. manufacturing GDP. The forest products industry generates over \$200 billion a year in sales and employs more than one million people earning \$54 billion in annual payroll. The industry is among the top ten manufacturing sector employers in 48 states. Approximately one third of AF&PA’s member companies are small businesses by the Small Business Administration’s definitions for wood product and pulp and paper companies including Port Townsend Paper Corporation and Monadnock Paper Mill, Inc¹. PTPC operates an unbleached Kraft pulp and paper mill in Port Townsend Washington where it is the largest employer with 285 workers. The mill is the largest recycler in Jefferson County WA and produces 650 tons per day of containerboard, unbleached Kraft papers and market pulp sold primarily in Western North America and Asia. Some of our large member companies also have small facilities such as box plants, converting facilities or small building products mills that are very similar to small entity facilities and would be subject to an area source rule. We support policy efforts to increase our nation’s energy security and our member companies are leading the way by combining advanced technology and innovative manufacturing practices with responsible stewardship of our nation’s natural resources.

¹ As you know, Richard Verney, CEO of Monadnock Paper, was unable to participate as a SER due to other obligations with his company but was glad AF&PA could participate and represent his views.

EPA asked small entity representatives (SER) to consider several questions and respond to materials shared in advance of the February 10th SER meeting held at EPA's offices in Washington, DC. Many of these issues were discussed at the 2/10 meeting so these written comments supplement or reinforce points made by us or other SERs. We address each question in turn below.

1) EPA Question: For the Boiler MACT, are there other regulatory options or small entity flexibilities than those presented and listed below (taken from PowerPoint presentation)?

1. Limits = MACT floor = Average emission level of lowest emitting 12%
2. Options currently being considered for MACT floor Technology Basis
 - a. PM/metals = Fabric Filters/ fuel switching
 - b. Mercury = Fabric Filters / fuel switching
 - c. HCl = Wet Scrubber / fuel switching
 - d. CO = GCP (CO limit/monitoring)/burner replacement
3. Beyond-the-floor
 - a. fuel switching
 - b. Energy audits
4. Emission averaging within facility
5. Health-based compliance alternatives for the HCl limit and TSM limit
6. Subcategorization
7. Alternate metals standard
8. Reduced monitoring
9. Reduced compliance requirements

Response – The list above has most of the approaches that could be helpful to bring flexibility to small entities. However, some of the categories identified are very broad so it's unclear exactly what is meant in terms of flexibility. For example, subcategorization is a key concept that could ensure like boilers are compared so that MACT floors are more reasonable and achievable by all units with a subcategory using appropriate emission reduction strategies. Some preliminary analysis of boilers that AF&PA provided to EPA in the context of the EPA's draft HAP testing plan² shows significant differences in performance amongst different boilers design types burning biomass. Specifically, fluidized bed boilers perform three to over ten times better than other boiler types, such as stoker, fuel cells or suspension burners in terms of CO, HCl and PM emissions when burning the same fuel. The differences are so great that a MACT floor derived from the fluidized bed boilers could essentially mean that other types of boilers would need to be replaced, surely a non-viable result for many facilities and an outcome

² See attached January 12 2009 comments from Timothy Hunt to Jim Eddinger on EPA's Draft Phase II Boiler MACT and CISWI MACT Testing Plan

that the authors of the Clean Air Act surely did not contemplate. Therefore, we urge the Agency to use its broad authority to create subcategories as a means of avoiding the potential statutory conflict identified by Judge Williams in his concurrence in the “Brick MACT” decision – *i.e.*, the possibility that “what has been achieved” by certain facilities in a category results in a standard that is not “achievable” by most other facilities in the category.

Below is a full list of possible subcategories EPA should examine and use to develop sample MACT floor limits:

- a. Boiler Type/Design (e.g. fluidized bed, spreader stokers, dutch ovens, fuel cells, and suspension burners);
- b. Load changes (base loaded boilers, load-following boilers);
- c. Process Heaters (separate from boilers);
- d. Size (medium (30-100 MM Btu) in addition to small and large, or by NSPS size ranges);
- e. Fuel Types (single fuel boilers vs combination boilers) ;
- f. Subcategories within biomass (dry wood, bark/wet wood, bagasse);
- g. Oil Subcategories (residual oil, distillate oil);
- h. Coal subcategories (bituminous, sub-bituminous, lignite or regional differences in coal grades);
- i. Burner types (with and without low-NOx burners)
- j. Sector or products produced (e.g., forest product sector)

We believe the first approach listed above (set MACT floor according to the average emission level of the top 12%) could significantly hamper EPA’s efforts to consider flexibility for small entities. This methodology for setting MACT floors was used in the recent Hospital Infectious Medical Waste Incinerator (HIMWI) MACT³. AF&PA identified several serious issues with that methodology in its February 17th comments on the HIMWI MACT⁴ which would be relevant if applied to Boiler MACT. To avoid these problems, EPA should recognize that emission data that comes from compliance tests are not indicative of the range of normal operating conditions and that EPA should only use test data from normal operating conditions when setting the floor. In addition, the set of MACT limits needs to be based on actual facilities that can meet all 4 HAP limits (CO, PM, Hg, and HCl) and not a composite, hybrid, hypothetical “uber” facility that doesn’t exist. EPA should look at the data recently gathered in the ICR process and focus on those boilers for which it has data for all four HAPs. We would expect that some of the top performers for one of the HAPs will not be able to achieve the limits for

³ See December 1, 2008 Federal Register

⁴ See attached comments filed with Air Docket February 17, 2009 from AF&PA, American Chemistry Council and Alliance for Automobile Manufacturers (2060-0534)

the other HAPs if the floors are developed pollutant by pollutant since control strategies can lead to conflicts and sub-optimization of emission reductions for the other HAPs. Ultimately, EPA needs to identify actual facilities – twelve percent of them -- within the subcategory that can meet all the HAP limits; otherwise, EPA will be basing its decisions on a non-existent facility.

Regardless of approach, consideration of variability will allow EPA to consider both ends of the boiler diversity spectrum that may include many small entities. There are at least four aspects of variability that should be reflected in the MACT setting process – boiler operating variability (such as load swings), variability in control device performance, variability in the test method behind the emission data, and variability in the composition/contamination of the fuel burned. An additional aspect of variability that EPA may need to address if the recent DC Circuit Court opinion⁵ stands is the difference between various start-up, shutdown, and malfunction (SSM) events of boilers and their controls or operations. Cumulatively, these SSM events can result in a broad range of actual performance among the top performing units. Unfortunately, the data that EPA has, as extensive as it may appear, still lacks sufficient information to tease out the range of variability that exists. As a result, EPA will need to make significant upward adjustments to possible MACT limits to capture all four elements of variability described above. EPA may need to experiment with different statistical approaches in deriving these variability factors to account for distribution of the boiler population and sampling errors.

Another approach that can aid small entity compliance is to set long averaging times rather than looking at a brief snapshot of performance. Given the inherent swings in performance for many boilers including those with good controls, an annual or quarterly averaging period for all the HAPs would prevent a single spike in emissions from throwing a top performing unit into non-compliance; or alternatively, lead a small entity to “over design” its controls at great expense so it never exceeds a limit during a short term test or averaging period to remain in full compliance 24/7/365. Longer averaging times still ensure compliance but reflect the realities of boiler diversity within a subcategory.

Finally, and certainly not least, the inclusion of the health based compliance alternative (HBCA) for HCl and manganese is extremely helpful for small entities in our sector. For example, biomass fired boilers at small businesses in the wood product, paper or lumber business would find the HBCA for manganese very valuable since manganese is the primary metal in wood and is a threshold pollutant that qualifies under section 112(d)(4). Similarly, the HCl HBCA is very critical for many boilers burning coal or saltladen wood. Although EPA’s analysis shows 13 small entity mills (and another 140 mills

⁵ U.S. Circuit Court of Appeals for the District of Columbia December 19, 2008 decision in Sierra Club v EPA for consolidated cases Nos. 03-1219, 06-1215, and 07-1201.

from larger forest product companies) submitted HBCA, AF&PA expects many more small entities would use it in our sector -- especially if the emission limits are significantly more stringent than the 2004 Boiler MACT. In discussions with members, the value of the HBCA could vary from \$1M to over \$10M in capital costs per mill, which is far greater than EPA estimates in the analysis presented to SERs. Thus, the expected savings for just the small entities in our sector could easily exceed \$100M – a significant amount of money when capital is so scarce and the economy is in recession. We would also point EPA to AF&PA's comments on the Boiler MACT proposal in 2003 and the 2006 industry interveners' brief in the Boiler MACT litigation⁶ for a vigorous defense of why the HBCA is legal under the Clean Air Act and how it can work easily for all involved from small entity to regulator.

We appreciate EPA providing more information about linkageless boiler management system (LBMS) on February 17th since we are not familiar with them. However, we remain very concerned with the assumption that installation of the LBMS will allow all biomass boilers to meet the proposed CO limit of 210 ppm, especially for units firing wet biomass. Without real world data and applications, EPA should not rely on untried systems.

One opportunity to minimize costs to small entities that is not mentioned in the list above is to embrace a broad definition of fuel in the context of section 112 and 129 or alternatively, a narrow definition of non-hazardous solid waste. Burdens would most likely be less on small entities if they are regulated under Boiler MACT as fewer pollutants are regulated than under section 129. Section 112 only applies to major sources while section 129 could impose its more stringent requirements on much smaller facilities which will have a disproportionate number of small entities. The Resource Conservation Recovery Act gives EPA broad discretion to limit materials classified as solid waste as only those that are truly discarded. EPA's January 2nd Advance Notice of Proposed Rulemaking on the subject (74 FR 41) begins to lay out a framework where most materials burned would be classified as fuel and thus the combustion units that burn them remain under Boiler MACT. We believe improvements can be made to the approach that the Office of Solid Waste takes in its upcoming rulemaking and have provided suggestions for important improvements (see AF&PA's attached February 2nd comments) so that all legitimate boilers remain covered under Boiler MACT.

⁶ See brief filed October 23rd 2006 in NRDC v EPA before DC Circuit Court (Case Nos 04-1385, 04-1386, 05-1302, 05-1434, and 06-1065) [pages 16-29] and AF&PA's March 13, 2003 comments to EPA on the proposed Boiler MACT [pages 2-26].

2) EPA Question: For the Boiler Area Source Rule, are there other regulatory options or small entity flexibilities than those listed below (taken from PowerPoint presentation)?

- a) Based standards on GACT (Generally Available Control Technology)
 - i) MACT required for Hg and POM
- b) Promulgate a work practice standard instead of emission limits
 - i) if it is not feasible to enforce an emission standard
 - ii) Stack testing and monitoring not required
- c) Exempt area sources from Title V if compliance is determine to be impracticable, infeasible, or unnecessarily burdensome
- d) Mercury & POM
 - i) MACT emission limits – required under 112(c)(6)
 - (1) Carbon monoxide (CO) limit as surrogate for POM
 - (2) Likely control technology basis
 - (a) Hg: fabric filter/fuel switching
 - (b) POM: GCP (annual tune-up)/burner replacement
 - ii) Work practice standard – if can be justified under section 112(h), that is, it is impracticable to enforce the standards to technical or economic limitations
 - (1) Good combustion controls: Annual tune-up
 - (2) Energy audits: Reduced fuel use = reduced emissions of Hg and POM
- e) Other HAP (metals, organic HAP)
 - i) GACT emission limits
 - (1) PM as surrogate for metals
 - (2) CO as surrogate for organic HAP
 - ii) GACT management practice standard
 - (1) Improved efficiency = Reduced fuel use = reduced emissions
 - (2) Good combustion controls: Annual tune-up
 - iii) Energy audits
 - iv) Installation of energy efficient boiler (New boilers)
- f) Exempting area sources from Title V permitting - If we can determine compliance would be impracticable, infeasible, or unnecessarily burdensome

Response: As discussed during the February 10th meeting, EPA has a good case to support work practice standards for mercury and POM under section 112(c)(6) for area source boilers instead of setting emission limitations. These boilers given their number, diversity and challenges to consistently capture, control and measure HAP emissions make them strong candidates for work practices. The \$23 billion per year price tag estimated by EPA for setting stringent MACT-like emission limits for Hg and POM and monitoring compliance is reason enough to use the discretion under the Clean Air Act to use the authority of section 112(h). This level of cost would be devastating to small entities. We note that, as high as the EPA cost estimate is, EPA may have underestimated the impacts on biomass fired boilers, many more of which could not meet the suggested emission limits.

For example, EPA's analysis shows only 14% of biomass fired boilers would have to incur control costs. Yet, the average mercury emission factor for bark is above the initial 5×10^{-7} lb/MM Btu limit⁷ - a value that is almost 15 times lower than the limit in the 2004 Boiler MACT rule. Similarly, liquid fired boilers will have trouble meeting the Hg limit of 3×10^{-6} given the typical levels of mercury in residual or distillate oil. Thus EPA's assumption of no cost for Hg compliance needs to be revisited IF EPA is at all serious about this option.

Responses to the other options to add flexibility are addressed below in the context of more specific questions posed to SERs.

3) EPA Question: What concerns would you have if a work practice standard included: (1) annual tune-up (2) operator training and licensing, (3) fuel specifications, (4) energy audit/assessment, and (5) requirement to implement cost-effective findings of energy audit?

Response: We believe annual tune-ups is the most cost effective way to improve boiler performance and reduce emissions under a GACT approach. Many facilities already conduct tune-ups, so making them a regular routine would ensure their continued use and emission reduction benefits. The specifics of what constitutes a tune-up will require careful consideration and may need to vary between boiler types, fuels and sizes. For example, tuning a small gas-fired package boiler may be simpler than a large multi-fuel fired boiler with a complex operating system. Alternatively, mandated annual tune-up for small gas/distillate fired units or even biomass fired units that already have very low HAP emissions may not be worth the effort from a cost benefit perspective.

It is less clear how requiring periodic energy audits would work for small sources since the annual tune-up may achieve most of the emission reduction benefits. It is assumed that any program will be limited to the boilers and not inadvertently include other parts of a mill since that is beyond the scope of the area source rule. In discussions with other SERs from commercial sectors like churches and schools, audits also serve the function of examining energy use in the building and whether changes like installation of programmable thermostats or new insulation or windows should be considered. These settings are very different than industrial settings where a company already has significant financial incentives to manage energy use while making a product like paper, boxes, or lumber.

⁷ EPA was asked at the 2/10 meeting for more information on how it derived the possible emission limits beyond what was presented in the ERG memo dated January 2, 2008.

We definitely have serious concerns with mandating operator training/licensing, fuel specification and implementation of energy audit findings (see more detailed responses below). Each of these could be much more expensive with unclear emission reduction benefits when compared with the annual tune-up.

4) EPA Question: Are your boilers required to be permitted by the state? If so, what is the cost for permitting? If not, what would you estimate the burden to be in terms of costs and hours if the boilers are required to be permitted?

Response: Almost all states require permitting of boilers in our sector at a cost of \$5-10K per boiler but permitting may be unique to the larger mills within the forest product sector. Permitting for boilers at sawmills and box plants are less common depending on their size. Some boilers are permitted but then classified as insignificant or exempt sources. For most of these mills, they are no full time environmental specialists that are familiar with permitting procedures so in some sense the burden is disproportionate compared with larger mills which deal with a wider variety of regulatory obligations. Therefore, these companies would have to hire consultants to do their permitting work at over a hundred dollars an hour. For many small entities, Boiler GACT may be their first introduction to the Clean Air Act.

5) EPA Question: How much burden (in terms of cost and hours) would it be for you to maintain a file with daily operation and each inspection and maintenance conducted?

Response: Based on past experience of similar requirements, recordkeeping would take between 30 minutes to 2 hours per day to maintain. In other words, up to a quarter of full time equivalent (FTE) just to track this information. Although some mills may maintain records for their own purposes, a record for compliance purposes adds a level of complexity with additional oversight by supervisors. Based on our informal member survey on this topic, out of pocket costs for the recordkeeping system range from \$2,000 to \$7,500 per year.

6) EPA Question: If your boiler was subject to an emission limitation would you consider switching to a less polluting fuel and how much additional burden (in terms of cost and hours) would it add? What fuel would your facility switch to (or blends of fuels)?

Response: Fuel switching is always an option but the price of energy is the most dominant reason mills currently switch fuels and want to maintain the flexibility of using

alternative fuels as prices change in the future. The cost of energy is among the mill's highest operating costs. The choice for the new fuel would be heavily dependent on its cost and availability compared to the current fuel. Clearly, some boiler designs may limit the flexibility to switch from different types of solid fuels or to burn liquid or gas. For example, in the wood products industry, the primary fuel is biomass (e.g., bark, sanderdust, and trim) that comes from the production process. Biomass is a renewable resources and carbon neutral from a greenhouse gas perspective. In addition, access to natural gas pipelines is a frequent impediment to fuel switching as is the need to modify fuel delivery systems such accommodating a lighter fuel oil. Bringing in fossil fuels to a wood product plant would not make economic or environmental sense. EPA should not consider fuel switching as part of any MACT floor consideration. In fact, subcategorization based on fuel type will be an important approach to reduce impacts on small entities.

Responses to Other EPA Questions for SERs from November

Tune-up Questions

1. Does your state or local authority require an annual or periodic tune-up of the boiler?

Response: In an informal survey of our members, including large companies that cut across many different states (approximately 25), companies reported that less than half the states require annual or periodic tune-up. Thus, the majority of states do not actually require tune-ups.

2. If not, do you perform an annual or periodic tune-up as part of routine maintenance, and what is your estimate of the cost to perform it? What percentage of the cost of performing routine maintenance is the annual tune-up?

Response: The vast majority but not all of the companies responding to our informal survey conduct tune-ups. The costs for the tune-ups range from \$1,000 to \$7,500 and are between 5 and 20% of the total maintenance costs for the boiler. The actual cost of improvements can exceed \$100,000 depending on the boiler and issues addressed.

3. Does your state or local authority require any training or certification (licensing) of the boiler operator?

Response: Most states (roughly 80%) covered by our survey do not require any training or certification (licensing) of the boiler operator.

4. If a certified (licensed) boiler operator is required, what is your estimate of the cost of either certifying the current boiler operator or adding a certified (licensed) boiler operator? What percentage of your facility's or organization's budget will this cost be?

Response: Reported costs from informal survey suggest between \$20,000 and \$30,000. However, always having a certified operator on site adds significant additional labor costs, especially for small facilities that may only have one or a part-time boiler operator. For our larger companies with bigger mills the cost is clearly a small fraction of the mill budget, but for sawmills or box plants the cost could be a few percent.

Energy Audit Questions

1. Does your state or local electric power company offer any assistance, incentive, or discount in conducting an energy audit (assessment) for your facility?

Response: About eight states are known to offer this service and another ten don't. Several mills did not know whether their utilities or states offered audits, but clearly they are not well advertised if they do.

2. If a requirement for implementation of the energy conservation measures identified by the energy audit is imposed, what rate-of-return (in percent terms, not payback period) would be the minimum required for you to implement any identified energy conservation measures for your type of operation?

Response: Capital investment is highly constrained in the pulp and paper industry in recent years, and very much so in 2009. Minimum annual rates of return for approving projects of this nature have ranged from about 50% to over 100% in recent years.

Good Combustion Practices Questions:

1. Do you use any monitors, emissions parameters, or process parameters to monitor the operation of the boiler?

Response: According to our survey, the majority (90%) have some sort of monitoring system.

2. If you use monitors, what kind and how many? If monitors are used, are these monitors in place for environmental regulatory reasons?

Response: The range of monitors include O₂ (most common), CO and pressure and temperature gauges (fairly common), and in one instance, NO_x monitor with

control system. Most monitors (such as fuel flow, pressure, temperature, O₂) are for tracking process performance and optimizing combustion efficiency rather than environmental compliance, which would necessitate greater precision and incur certification and additional maintenance costs. According to our informal survey, less than half have been installed as a result of permit conditions and the adaptation to regulatory compliance of the others would require some additional effort and expense. Monitors also can serve a safety function at the plants in addition to optimizing process efficiency.

Compliance Demonstration Questions

1. Does your state require any continuous monitoring of emissions or process parameter(s)? If so, what are the costs to the facility?

Response: A handful of states appear to require continuous monitoring based on our survey but it may be as simple as monitoring temperature or opacity. The cost information provided to AF&PA in our survey shows a significant range from several thousand to about \$50,000 per year when you include the service contract and maintenance of the continuous monitoring system.

2. Does your state require any periodic testing or monitoring of emissions or process parameter(s)? If so, what are the costs to the facility?

Response: Periodic testing/monitoring is more common than continuous monitoring but still less than half the states from which we received responses from members. Again, the programs can be as simple as a visibility check to actual testing of CO or VOCs once every five years. The reported costs from our survey range from a few hundred dollars for the simplest tests to \$10,000 per year for more involved testing and in rare instances \$100,000 for a more comprehensive 5-year test suite.

3. Do your boilers have testing ports available for conducting compliance tests? If not, what do you estimate the costs to be of modifying the stack for testing?

Response: Presence of testing ports is very boiler specific, but according to our survey, most have them. Again, our survey probably oversamples larger boiler so smaller boilers would be less likely to have ports. To install a sampling port is estimated to cost \$1,000 to \$3,000 in most cases. One respondent estimated a cost of over \$100,000, which, although an outlier, may be the upper bound cost in some challenging instances.

4. If your boilers were subject to emission limits, are there alternatives to monitoring emissions or to stack testing that would be less costly to demonstrate compliance?

Response: Yes, parametric monitoring on air pollution control equipment and fuel testing would be good alternatives to stack testing or CEMS on larger boilers. For small units without air pollution control equipment and burning only natural gas or diesel fuel, periodic tune ups and monitoring of combustion conditions would be good alternatives. Flexible and simple compliance options would help to minimize cost and administrative burden on small entities.

Permitting Questions:

1. Are your boilers required to be permitted by the state or a local authority?

Response: See response to question four above on page 8.

2. Are your boilers required to be inspected for safety, insurance or other reasons? If so, how often is this performed? What is the cost of these inspections?

Response: All boilers in the forest product industry covered by our informal survey have annual safety inspections. Sometimes the cost is covered in the insurance premiums but other times the cost is separate and can be a few thousand dollars. This represents a few percent of the annual boiler maintenance costs.

Compliance Questions:

1. How do you know if your boilers are properly operated and maintained, and how do you ensure good combustion?

Response: Again each company has different practices that are appropriate for their circumstances and may not be applicable to all types of boilers or circumstances but include the following from our informal survey of members:

- Some boilers have self-diagnostic controls, which aid in operation and maintenance.
 - Visual flame inspections are done periodically to monitor combustion.
 - An outside contractor performs test on boiler feedwater and chemicals and provides a report.
 - Daily, monthly, quarterly and annual checklists are kept for various boiler maintenance items such as changing of safety valves (relief, safety, hydraulic, pneumatic, etc.), boiler water quality testing, daily boiler checks and walk downs, testing of burner safeguards, daily testing of low water cutout devices, and annual boiler inspections.
-
- Ensure good combustion for wood-fired boilers by keeping an eye on the color of ash in the mechanical collector or baghouse and by annual burner tuning by an outside service,

- Ensure good combustion for gas-fired boilers by annual burner tuning to properly adjust fuel/air ratios and by annual internal boiler inspections.
- One or more of the following activities are performed during boiler inspections, tune-ups or during other periods as necessary:
 - Checking all electrical and combustion control systems
 - Cleaning/reconditioning and inspecting the feedwater system
 - Using operating procedures and training
 - Inspection and cleaning, as necessary, of fireside and water-side surfaces
 - Testing of exhaust gases (CO, CO₂, other) to calculate combustion efficiency and make necessary adjustments to the combustion system
 - Inspection and repair of refractories in boiler
 - Cleaning and inspecting fan housing, blades, and inlet screens
 - Fuel quality and proper fuel handling (including monitoring quality, periodic sampling and analysis, fuel supplier certification)
 - Automatic O₂/CO trim control systems
 - Monitoring furnace residence time or temperature
 - Proper fuel distribution in the combustion zone
 - Stack temperature shutdown

Capital Availability and Regulatory Impact Questions

1. Are your firm's or organizations expenses for the activities listed above largely paid for out of equity, earnings, or debt?

Response: Expenses almost always come from earnings unless a capital project is large enough to require use of equity.

Comments on EPA's Economic Impact Analysis

Energy Audit Costs

One proposed requirement for existing units is to conduct a facility-wide energy audit and to implement any efficiency-enhancing activities identified. The cost analysis states that conducting an energy audit will cost \$245 for each facility.

The basis for the \$245 per boiler is not given – we assume it will be limited to the boiler(s) as EPA has no authority under GACT to require an audit of other equipment on site. An energy audit of boilers in the forest products industry definitely will cost more the \$245 unless it is heavily subsidized by the state or the utility. Given the sheer number of boilers that would be subject to a new audit obligation, EPA should assume the facility and not a utility (or state) will pay the full cost of the audit. Even a day-long walk-through audit, which is the most basic type, costs between \$1,000 - \$2,500 or more, depending on the type and number of boilers at a facility. Finally, if EPA is expecting all 1.3 million small boiler owners to have energy audits, there will be a shortage of qualified auditors which will result in either poor audits by new entrants to the audit market or a rapid rise in the cost of an audit far above the \$245 estimated.

The cost of implementing the efficiency-enhancing activities identified during an audit is not included in the analysis because it is assumed that each activity will pay for itself within three years. Based on comments from AF&PA members, if facilities are required to implement energy audit findings, the threshold should be no more than a 1-year payback period. When capital is tight, there is a significant opportunity cost to spending money on something that takes as long as three years to get a return when other projects have higher returns but must be passed over. Thus, EPA needs to include the cost of implementing any projects arising from the audit in its Economic Impact Analyses for small entities. Finally, if EPA proceeds with any requirements to implement audit findings, there should be a reasonably long period of time to make the change; up to five years especially if capital approval is required and the boiler is old.

Control Equipment Costs

The memorandum discussing the preliminary economic impacts of the boiler rulemakings presents annualized costs, but the upfront capital required to install the controls and monitors is not presented.⁸ These costs are important to consider in your

⁸ EPA provided a breakout of the capital and O&M costs for control options on February 17th which we have not studied in detail

analysis as well, especially given the current economy and the limited capital available to facilities that will be impacted by this rule. We would recommend benchmarking the capital costs of control equipment with current vendor estimates, rather than relying solely on OAQPS Control Cost Manual calculations.

Upon review of the detailed cost information provided following the 2/10 SER meeting, we have the following additional comments on the assumptions made in the control cost calculations.

- The capital recovery factor is being calculated using an interest rate of only 7%. Per the 1990 OAQPS Control Cost Manual, the interest rate used in the cost calculations is a pretax marginal rate of return on private investment, or a “real private rate of return.” In addition, the Sixth Edition of the Cost Manual (January 2002) states, “Common interest rates used by industry and accepted by the EPA for source petitions include the business’ current borrowing rate, the current prime rate, and other acceptable industrial rates of return.” Fifteen percent or higher is the customary rate-of-return on capital expenditures expected by most manufacturers. Use of the social discount rate of 7% is inappropriate because it does not accurately reflect the time value of industrial capital monies. Use of an appropriate interest rate will substantially increase the estimated annual control costs, especially for larger boilers.
- The operating labor cost of \$18.44 per hour and the maintenance labor cost of \$20.28 are lower than the typical labor rates for the manufacturing industry. EPA has used \$77 per hour for technical labor costs in its May 2008 Supporting Statement for the Information Collection Request for Boiler MACT which is more reflective of the actual cost considering benefits.
- There is no operating labor costs associated with small fabric filters in the EPA analysis, which is not supported by the control cost manual.
- It does not appear that any consideration is given to the extra costs to retrofit an existing unit, such as extra ductwork due to space considerations, cost of lost production to shut down the unit and install controls, possible costs for new ID fans or stacks, etc. At many mills, these costs can be significant percentage of the final total cost.

Thanks again for the opportunity for both of us to participate as small entity representatives in these two important rulemakings. We would like to ask that the report that provided to Administrator Jackson also be made available to all the SERs. Given the effort we and you have put into the process of soliciting SER views, it seems a

reasonable request. As was noted at the February 10th meeting, other Departments already make their reports available, so clearly there are no pre-decisional concerns.

Timothy G. Hunt
Senior Director, Air Quality Programs
American Forest and Paper Association

Sincerely,
Eveleen Muehlethaler
VP, Environmental Affairs
Port Townsend Paper Corp.

Attachments (3)

Cc: Jim Eddinger, OAQPS
Bob Wayland, OAQPS
Keith Holman, SBA
Courtney Higgins, OIRA

Comment Received from Council of Industrial Boiler Owners (CIBO)

Email from Robert Bessette, Council of Industrial Boiler Owners, to Jim Eddinger, EPA, dated 11/25/08

Jim,

I asked the following question of some of our people and Randy Rawson of the American Boiler Manufacturers Association (ABMA):

Is there something at the National Board that describes boiler inspection or insurance inspection requirements? What are the Ohio Special Boilers? Are these the ones that do not need an operator? Is there a break point between boilers that need and do not need operators?

I have also contacted the National Institute for Uniform Licensing of Power Engineers < <http://www.niulpe.com/> > for a list of state jurisdictions that have adopted an operator licensing program. As you will read below, this program is designed for safety which is the top-most concern within any boiler house.

Attached is also a copy of New Jersey's annual tune-up rule. I understand they are in the process of trying to update the program. Any tune-up program must take into consideration the linkages between Excess Air, CO, NOx and Efficiency (CO2) as expressed in the attached Graph generated by Hamworthy-Peabody Burner Company linking combustion and boiler design.

Considering the amount of time, these initial comments are not complete. Should a SEBRFA Panel be needed, we will be prepared to discuss the complete list of questions. It might be worth while for the DOE to make a presentation on the results of the Eave Energy Now Program and the 2000+ energy audits they have run. I believe part of that process was information gathered on boiler tune-ups.

RDB

The responses to date are as follows. We will have more after the holidays.

Several comments in no particular order:

As I recall an "Ohio Special" is a boiler so constructed that it has more output for the amount of surface area than a standard firetube boiler. Alternatively, since I think that Ohio's rules for operators revolve around surface area an "Ohio Special" allowed you more steaming without an operator.

The break point between attended and non attended boilers is generally two fold: state and/or local regulations requiring an operator based on boiler heating surface pressure, heat input or steaming rate and good practice at larger facilities where an on duty utility operator handles multiple systems.

There is a National Board inspection code - Part RB would seem to apply for a general inspection. However most industrial boilers are generally covered by some sort of boiler and machinery insurance and typically the inspector from the insurance company will periodically inspect the boilers. It should be noted that this inspection is for mechanical /structural integrity and not for emissions limits compliance or combustion performance.

Perhaps the attached will help in the interim. My quick take on Ohio is: Ohio law requires that steam boilers larger than 30 hp cannot be operated unless they are directly in the charge of a licensed engineer. The law goes on to define one hp as 12 sq ft of boiler heating surface. Additionally, this engineer may not leave the boiler plant unattended any longer than the length of the evaporation test of the boiler. Rules such as this have been the source of ambiguity and debate, however. The other important part of the unique Ohio Special regulations is the number of boilers at the (+/-) 358 sq. ft. heating surface restriction does not factor in to the requirement for operators. For example, as I understand it, a single 800 HP installation would require operators, but four 200 HP Ohio Specials do not, even though both scenarios generate a total of 800 HP of steam.

The National Board Inspection Code (NBIC) was first published in 1946 as a guide for state and local jurisdiction chief inspectors. It has become an internationally recognized standard, adopted by most (BUT NOT ALL) US and Canadian jurisdictions. The NBIC provides standards for the installation, inspection, and repair and/or alteration of boilers, pressure vessels, and pressure relief devices. The Synopsis I have attached is self-explanatory.

I have a couple of inquiries out that may yield more info. I'll be back with you tomorrow or so.

In addition to the material above, RE: The National Board's Synopsis and the boiler rule overview, I would offer the following observations:

The National Board does not address operational considerations - their members (the jurisdictional boiler inspectors in the several states) are primarily concerned with installation and commissioning of boilers. The NBIC offers those inspectors guidance, but in the final analysis, local and state boiler inspectors will make decisions based on their jurisdictional requirements - and, in many instances, they may differ significantly from those of the ASME and/or the NBIC. State-authorized boiler inspectors make the final decisions.

. In-service inspections are sometimes done by National Board-certified inspectors - so-called Authorized Inspectors - and many times they represent insurance companies. They, too, may use ASME and National Board codes for guidance, but they inspect primarily to satisfy insurance requirements.

. Unfortunately - and I would not say this publically, necessarily - most boiler inspectors - National Board members or AI's from insurance companies -- are NOT sufficiently - if at all -- informed on combustion practices and most certainly not on combustion practices as they may pertain to emissions control. They are oriented almost entirely to the pressure vessel.

. We know of no state requirements for boiler "tune-ups." If they exist, they most probably exist through the environmental departments and agencies of the states rather than the departments and agencies that inspect or license or certify boilers.

. According to the information I have been able to find over the last few hours, the following states and major cities have some program with respect to boiler operator licensing: Alaska, Arkansas, Maine, Maryland, Massachusetts, Minnesota, Montana, New Jersey, New Mexico, Ohio, Oklahoma, Washington, D.C., Los Angeles, Denver, Tampa, Chicago, New Orleans, Detroit, Kansas City, St. Louis, New York City, Buffalo, Philadelphia, Pittsburgh, Memphis, Houston, Salt Lake City, Seattle, Milwaukee, plus over 200 more licenses in other cities. [This is probably not as exhaustive as it should be.]

. Although I am not sure how many of the above it actually affects, in many instances when a licensed boiler operator is required is dependent on the size and operating pressure of the boiler or in

conformance with other criteria such as the Ohio Specials. The trend, now, is to take action to avoid situations where licensed operators are needed. For instance, in a hospital, efforts may be taken to localize sterilization techniques within the hospital, retrofit the boiler, and lower the pressure of an otherwise high pressure boiler to avoid having to employ a licensed operator.

. Very large boilers are operated and maintained to the highest criteria, normally. The smaller boilers - so-called commercial and institutional (schools, hospitals, prisons, shopping malls, office buildings, dry-cleaners, etc.) are not operated or maintained as vigorously, particularly in the nation's school systems. The smaller the boiler, seemingly, the less rigorous the operational criteria or routine maintenance. ABMA has fought the battle for years to train the operators of these types of systems to extend their lives and to obtain highest efficiency. When you are talking about condensing boilers - as opposed to conventional boilers - the rigors of operation and maintenance grow exponentially. If you do not practice good operations techniques and if you are not religious about maintenance, you will not get the advertising efficiency out of your boiler. Few owners understand this additional requirement when they purchase the systems. They are used to conventional systems which are far more forgiving of abandonment than are condensing systems (technologies). To reach the type of "green" efficiencies for which many are calling, condensing technology is the way to go, but too often the "green" turns to "brown" or "black" because the owner/operator doesn't operate and maintain the systems or the equipment in strict accordance with manufacturers' recommendations.

In all candor, small boiler operators typically do not take the same degree of care of their systems as to larger boiler owners/operators. The level of operator sophistication is just not there. Many small boiler operators KNOW that better operation and maintenance of their systems would save them money on many different levels, but such is just a very low if not nonexistent priority. When it comes to operational or maintenance for emissions controls . well, if they don't spend money to save money (fuel and life-of-boiler perspective), they certainly don't spend money to control emissions. Smaller boiler operators are not sophisticated on good combustion practices. Every manufacturer that sells at least a >400,000 Btu heat input boiler will thoroughly advise their customer on the proper long-term operational criteria and maintenance routine to keep that boiler alive for a very long time. Because of the way they are made, those conventional boilers (again, condensing boilers not so much) will last a very long time even if neglected.

Hope this helps. We are available for any additional consultation that is appropriate.

I agree. My experience with inspection, particularly insurance inspections, is that they are solely pressure part oriented leaving out the non pressure parts such as the burners etc entirely. In a previous reincarnation I was able to work out an arrangement with the insurance company that they would note any apparent problem areas - ie. something looks weird or damaged - on their reports but that was the extent of it. These people are pressure vessel oriented and not combustion or emissions oriented. A boiler could pass an insurance inspection flying colors and fail an emission test completely.

Several states have annual tune up requirements in their operating permits. New Jersey and Georgia come to mind but the boilers involved were larger units, say 90,000 lb/hr and above in terms of size.

We need to keep in mind that licensing per se is not necessarily the answer since in my experience there was, in general, no requirement for relicensing when say a low NOx burner was installed in place of an existing one.



NATL BOARD SYNOPSIS.pdf



NJDEPSub19v2005-12-28.pdf



HPC Combustion Performance 08-28-08.pdf

Comments Received from Orrville Utilities



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January 9, 2009

VIA E-MAIL

Mr. James A. Eddinger
U.S. EPA Mailroom (C439-01)
United States Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711

Re: Orrville and AMP-Ohio Comments on Boiler MACT Data Collection Efforts and Small Entity Issues

Dear Mr. Eddinger:

The City of Orrville Utilities and American Municipal Power - Ohio (AMP-Ohio) greatly appreciate this opportunity to comment on U.S. EPA's data collection efforts for redevelopment of its Industrial, Commercial, and Institutional Boilers and Process Heaters MACT emission limits ("Boiler MACT"). We recognize that the collection of complete, representative data is particularly critical to this rulemaking since that data will play a significant role in determining the ultimate emissions limits that are established.

As an initial matter, AMP-Ohio and its members would like to express concern about the very compressed timeframe for providing and considering additional data. We understand EPA proposes to send out supplemental information requests during early February which will ask sources to submit test data within four months (i.e., by June 1, 2009). While many sources will likely find it difficult to respond in that timeframe, those challenges will be magnified for any municipal utilities subject to supplemental requests. Perhaps most significantly, municipal utilities are typically obligated to seek legislative approval for such additional expenditures. That process alone can take months - even when expedited. Further, the proposed springtime testing period coincides with the primary maintenance season for many utilities. Since maintenance efforts often require multi-week shutdowns, this will further complicate efforts to arrange for and complete timely supplemental testing.

Even presuming the supplemental data is all submitted in a timely manner, it would still be exceptionally difficult for EPA to integrate that information into its existing database, conduct sufficient supplemental analysis of potential subcategories and related MACT floor projections and incorporate that analysis into a draft rule by mid-July 2009. Given the importance of this data and the significant impact the Boiler MACT rule will have on thousands of entities nationwide, we encourage EPA to adopt a

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deliberative, thorough approach to supplementing its existing database and evaluating that data in light of the issues highlighted below. Securing comprehensive emissions data and taking the time necessary to fully evaluate its implications will pay real dividends in the form of a more workable draft rule that properly accounts for the significant variability at and among the many sources with Boiler MACT units.

L. EPA'S SAMPLING PLAN SHOULD BE BROAD ENOUGH TO ENABLE FULL EVALUATION OF ALTERNATE SUBCATEGORIZATION APPROACHES.

As written, EPA's draft test plan is apparently structured to support the creation of certain subcategories. Specifically, the draft plan is focused on ensuring that sufficient data is gathered to subcategorize based on general fuel type. AMP-Ohio is concerned that structuring supplemental testing in this way may impair EPA's ability to evaluate other potentially beneficial subcategorization approaches.

For example, collecting only the data necessary to calculate MACT floors based on general fuel categories might make it difficult for EPA to properly assess how subcategorization can be used to minimize the impact on small entities in satisfaction of the Agency's obligations under SBREFA. That flexibility is critically important because CAA §112(d)(1)'s broad authorization to "distinguish among classes, types, and sizes of sources within a category or subcategory" presents a powerful way to tailor MACT regulation to the real world circumstances faced by small entities.

Recent case law emphasizes EPA's authority to flexibly create subcategories to accomplish needed MACT regulatory refinement. See, e.g., *NRDC v. EPA*, 376 U.S. App. D.C. 528 (D.C. Cir. 2007) (recognizing that the Clean Air Act vests EPA with "broad subcategorization authority"). One promising alternative that merits consideration is the creation of "small entity" subcategories that account for the unique constraints and emissions characteristics of small entities. By express regulatory definition, small entities are a legally distinct "size" and fall into their own "class," thus qualifying for consideration under CAA §112(d)(1). EPA should act to ensure that the combination of existing data and the data to be collected via sampling will enable full and fair evaluation of subcategories based on the size thresholds used to identify small businesses, governments and utilities that warrant regulatory relief consideration under RFA/SBREFA.

While many small entities will be impacted by the rule, the most significant impacts will be on small municipal utilities. As detailed at length in comments and briefs submitted on the vacated rule, small municipal utilities are uniquely situated, have distinctive physical characteristics, suffer particular governmental limitations, play a discrete role in our nation's power infrastructure and are critically important to the safety and well-being of their communities.¹ Those distinctive characteristics warrant the collection of sufficient data to enable full evaluation of a sector-driven subcategorization approach for

¹ EPA likely underestimates the number of impacted small municipal utilities as indicated by recent statements that only 28 such entities exist. EPA should make every effort to obtain a more complete list of small municipal utilities for use in formulating this rule. We would be happy to coordinate with EPA in working to identify additional members of this subset of the regulated community.

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small municipal utilities. See *NRDC v. EPA*, 376 U.S. App. D.C. 414, 426 (D.C. Cir. 2007) (deeming arguments “to create a separate subcategory for small municipal utilities” to be “potentially meritorious”).

Finally, EPA should collect sufficient data to evaluate the impact of varying fuel quality within the identified fuel types. This concern is very pressing for coal-burning units. Much of the variation in emissions among coal-fired units stems from the different chemical content of the coal being combusted. That distinction goes well beyond the rough class of coal at issue and is particularly notable with respect to mercury content - which varies widely among various regions. As a result, emissions analysis without enough information to differentiate based on coal quality could well lead to identification of “top 12%” sources who achieved lower emissions solely because they burned low mercury coal during testing - not due to any control technology as required by CAA §112. That would render it exceptionally difficult (and perhaps impossible) for sources that burn higher mercury coal (or coal from seams with fluctuating mercury levels) to achieve the resulting limits, even when operating the same controls used at best performing sources.

The D.C. Circuit has expressly confirmed that subcategorization is an important tool to help ensure that MACT standards are achievable in practice. *Sierra Club v. EPA*, 375 U.S. App. D.C. 228, 238 (D.C. Cir. 2007) (“one legitimate basis for creating additional subcategories must be the interest in keeping the relation between “achieved” and “achievable” in accord with common sense and the reasonable meaning of the statute.”). Analysis of the boiler emissions impacts based on regional coal composition differences may well lead EPA to conclude that it is not appropriate to adopt uniform nationwide limits for coal-fired boilers. Instead, that data may support the creation of regional subcategories that can properly account for geographic distinctions in coal content. We request that EPA confirm that its existing database and proposed test plan will be sufficient to fully evaluate this alternative approach.

II. EPA SHOULD BE PREPARED TO ADDRESS THE RECENT VACATUR OF THE SSM EXEMPTION.

EPA should also reassess the sufficiency of its boilers database and draft test plan in light of the D.C. Circuit’s recent vacatur of the exemption for startup, shutdown and malfunction periods in *Sierra Club v. EPA*, No. 02-1135 (Dec. 19, 2008). In that case, the Court of Appeals held that CAA §§112 and 302(k) work together to “require[] that there must be continuous section 112-compliant standards.” *Id.* at 15 (emphasis added). The Court then concluded that regulating startup, shutdown and malfunction periods via the “general duty” clause set forth in 40 C.F.R. §60.11(d) was not continuous §112-compliant regulation and vacated that rule entirely. *Id.* at 16.

If that decision, (which is still subject to possible rehearing and/or Supreme Court review) stands, significant additional analysis will be necessary to establish proper MACT floors for boilers. The test data EPA currently possesses (and proposes to collect) focuses solely on boiler emissions during maximum representative operating conditions that expressly exclude SSM periods. Thus, that data does not capture the much higher (and more variable) emissions that occur when boilers start up, shut down or malfunction. While it may have been appropriate to set MACT floors without considering SSM emissions when those periods were exempt, that approach is questionable if the emission standard must

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reflect the maximum achievable control technology during SSM periods as well.² If the D.C. Circuit's recent vacatur stands, EPA will need to fully assess the greater variability of SSM emissions - particularly at the best performing sources used to establish MACT floor limits.³

III. EPA'S DATABASE SHOULD FOCUS ON THE BEST PERFORMING ACTUAL SOURCES FOR ALL POLLUTANTS, NOT A HYPOTHETICAL SOURCE THAT COMBINES THE BEST ACHIEVED INDIVIDUAL POLLUTANT EMISSION RATES FROM MULTIPLE SOURCES.

The structure of EPA's draft testing approach suggests it may be planning to independently calculate MACT floors for each regulated pollutant without reference to those sources' combined emissions profiles for all HAPs. That piecemeal approach is suggested by the draft plan's proposals to collect supplemental data for only specified pollutants from identified sources, rather than evaluating the full range of regulated emissions from those sources that appear to be among the best performing sources upon which the MACT floor will be based. The database should enable an evaluation of any tradeoffs among regulated emissions that may be made when emission control techniques are implemented. For instance, high combustion temperature measures that keep CO emissions low may not be achievable at sources subject to stringent NOx limits that rely on lower temperature combustion. Also, while burning coal with higher chlorine content creates a better oxidizing environment which aids in mercury capture, those same higher chlorine levels typically trigger increased HCl generation.

Section 112(d) requires the combined consideration of "best performing" source emissions - not the isolated analysis of distinct sources on an individual pollutant basis. That result is confirmed by §112(d)(3)'s mandate that MACT floors be based on "the average emission limitation *achieved by* the best performing 12 percent *of the existing sources*...." Thus, when assessing MACT floors, it is critical to consider the emissions actually achieved by existing sources, not hypothetical sources. Using the same group of existing sources as the basis for all numeric MACT limits in a subcategory will help generate limits that properly account for the frequent trade-offs between pollutant control efforts and reflect what real world sources have achieved in practice. In contrast, isolating pollutant-specific source performance to set MACT limits without considering their emissions of other pollutants would improperly ratchet down the standards to levels that *no existing source* ever actually achieved. That approach is not what §112(d) requires and appears likely to lead to unrealistic and potentially unachievable limitations. To avoid these concerns, EPA should ensure that its database (as supplemented by testing) contains sufficient

² SSM issues should also be considered when assessing how to appropriately subcategorize boilers. Municipal utilities have unique SSM challenges associated with the variable nature of power demand. For example, when electric generators are not connected to the grid, sharp swings in direct electricity demand can trigger malfunctions that further increase operational variability.

³ This is not to suggest that EPA must (or should) create numeric emissions limits to govern SSM periods. Rather, EPA should also evaluate establishment of alternative standards under CAA §112(h) based on a finding that it is "not feasible...to prescribe or enforce an emission standard" "due to technological and economic limitations" during SSM periods. AMP-Ohio and Orville Utilities reserve the right to provide supplemental information on such limitations (including the impossibility of using many control devices during startup and shutdown) once the ultimate fate of the SSM rule is known.

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information to allow identification of the best performing sources by simultaneous reference to emissions data on all regulated parameters.

IV. ADDITIONAL COMMENTS ON MITIGATING SMALL ENTITY IMPACTS.

In addition to providing initial feedback on EPA's data collection efforts, AMP-Ohio would also like to briefly highlight several ways EPA can lessen the financial impact of Boiler MACT regulation on SBR/EFA small entities. As discussed above, subcategorization is perhaps the most significant tool at EPA's disposal to reduce the significant costs Boiler MACT will impose on small entities nationwide. Small entities simply cannot afford to shoulder additional regulatory burdens during these challenging times, and we strongly urge EPA to consider subcategorization as a possible solution.

Another important way to mitigate the impact of revised Boiler MACT limits on the regulatory community as a whole (and small entities in particular) is to ensure continued availability of health-based compliance alternatives. All AMP-Ohio generating members qualify for the HBCA and would otherwise face the significant cost and burden of installing and operating scrubber technology to reduce HCl emissions that are well within acceptable risk thresholds based on agency models. EPA's authority to establish health-based compliance alternatives for threshold pollutants like manganese and HCl are firmly grounded in direct statutory authority. See §112(d)(4) ("With respect to pollutants for which a health threshold has been established, the Administrator may consider such threshold level, with an ample margin of safety, when establishing emission standards....") They are also well supported by the substantial record underlying the original Boiler MACT rule and in detailed legal briefs and arguments presented during the appeal of that rule.

No court decision impairs EPA's plain statutory authority to adopt HBCAs. The D.C. Circuit did not rule on the legality of HBCAs when it vacated the Boiler MACT rule in 2007. Nor does the D.C. Circuit's ruling in *NRDC v. EPA*, 489 F.3d 1364 (D.C. Cir. 2007) (the "Plywood MACT" decision) have any relevance in this context. The Plywood MACT case is fundamentally different because it involved an attempt to exclude certain low-risk sources from regulation entirely. *Id.* at 536. In contrast, in the original Boiler MACT rule, EPA did the exact opposite by proceeding to *establish* alternative regulatory limits at levels that were unply protective of human health. Further, the Plywood MACT decision turned on CAA §112(c)(9)(B), a distinct statutory provision which governs deleting MACT source categories, not §112(d)(4) which empowers EPA to establish a tonnage health-based emissions standards. Finally, EPA's ongoing use of HBCA's in similar contexts further supports their continued viability here.⁴

A third measure EPA should consider to lessen the regulatory burden of complying with Boiler MACT is to allow emissions averaging at sources with multiple regulated units. By allowing averaging, sources with multiple units at a common site will be able to achieve EPA's regulatory requirements at lower overall compliance costs while achieving the same emission control benefit. This enables

⁴ For example, on October 28, 2008, EPA responded to requests to reconsider its NESHAP rules for Hazardous Waste Combustion. In its response, the Agency squarely rejected requests to eliminate health-based compliance alternatives from that rule. See 73 Fed. Reg. at 64,084 ("we reaffirm the health-based compliance alternative that we promulgated in the October 12, 2005 final rule...").

Mr. James A. Eddinger
January 9, 2009
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innovation and offers the flexibility to match control technologies to the units with the highest utilization at a facility.

We look forward to working with you as this rulemaking and your data collection efforts move forward. Should you have any questions regarding the above comments or wish to discuss, please feel free to contact me at your convenience at (216) 479-8332.

Sincerely,



Handwritten signatures of Jeff Brediger and Doug McWilliams.

Jeff Brediger and Doug McWilliams

cc: Randy Meyer
AMF-Ohio Generating Members
Allen A. Kacenjir



February 24, 2009

VIA E-MAIL

Mr. Nathaniel Jutras
Office of Policy, Economics, and Innovation (1803A)
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Re: Orrville Municipal Utilities Small Entity Representative Comments to the Boiler MACT SBREFA Panel

Dear Mr. Jutras:

Orrville Municipal Utilities ("Orrville") sincerely appreciates the opportunity to serve as a small entity representative ("SER") to facilitate reformulation of the Industrial, Commercial, and Institutional Boilers and Process Heaters MACT ("Boiler MACT") rule. Given the exceptional reach of the Boiler MACT rule and the considerable costs facing small entities, it is essential for EPA to adopt regulatory alternatives that recognize the nature and limitations of small entities and provide sufficient flexibility to enable compliance.

As an initial matter, Orrville is concerned that the exceptionally tight timetable adopted may cause EPA to make decisions that broadly impact small entities based on incomplete information. For example, although EPA is still collecting the data necessary to develop MACT floors, it has already identified in its presentation to SERs the total annual cost for various small entities. That approach fails to recognize that the costs imposed on Orrville and many other small entities will, in large part, be determined by the stringency of the MACT floors. Similarly, full MACT floor and accurate compliance cost information are both necessary to properly evaluate other alternative relief needed to protect small entities from disparate impacts - including subcategorization decisions. Given the projected impact of the Boiler MACT and areas source rules on more than 1.2 million small entities, EPA should adopt a deliberative, thorough approach that will result in informed small entity regulatory decisions based on comprehensive emissions and variability data.

I. HEALTH BASED COMPLIANCE ALTERNATIVES ARE CRITICALLY IMPORTANT TO SMALL ENTITIES.

Establishing health-based compliance alternatives (“HBCAs”) is perhaps the most important step EPA can take to mitigate the serious financial harm Boiler MACT will otherwise inflict on Orrville and other small entities using solid fuels nationwide. While standards promulgated under CAA §112(d) are typically based on the performance of control technology, CAA §112(d)(4) expressly authorizes EPA to establish risk-based standards for hazardous air pollutants (HAPs) where a health threshold has been established. That provision was enacted because “[f]or some pollutants a MACT emissions limitation may be far more stringent than is necessary to protect public health and the environment” and EPA should be able to “avoid expenditures by regulated entities which secure no public health or environmental benefit. . . .” *Id.* S. Rep. No. 101-228 at 171. As established in EPA’s own detailed briefing before the D.C. Circuit Court, HCl and manganese are two HAPs with established health thresholds that are, therefore, appropriate for risk-based evaluation. The Court’s decision to vacate Boiler MACT did not disturb EPA’s HBCAs for HCl and manganese, leaving them available to help mitigate small entity impacts without compromising protection of public health or the environment.

It is essential that EPA not underestimate the importance of this compliance option - either in terms of the number of entities HBCAs can help or the magnitude of the costs at stake. Many more small entities stand to benefit from HBCAs than EPA apparently presumes. In its February 10, 2009 SER Outreach presentation, EPA indicated that 17 small entities (and only 3 municipalities) submitted HBCA demonstrations. As an initial matter, that estimate apparently does not include many small entities that submitted HBCA demonstrations (including at least eight municipal utilities). On the municipal electric side, this confusion may stem from the fact that two independent tests exist for determining small entity status: (1) population of less than 50,000 *or* (2) annual generation of less than 4 million megawatt hours (MW-h) of electricity. 13 C.F.R. §121.201. Small entities would have to operate 19 generators of 25 megawatts (MW) or less to have the potential to exceed the annual 4 million MW-h threshold. Thus, we can safely assume that all electric-generating boilers subject to this rule qualify as small entities and will benefit significantly, as Orrville does, from an HBCA.

In any event, many more small entities stand to benefit from establishment of HBCAs in the revised Boiler MACT rule. One primary reason fewer small entities took advantage of the HBCAs in the initial rule was lack of awareness. Small entities generally have less opportunity to study new regulations and thus frequently miss otherwise viable compliance alternatives. That is particularly true where the regulations are highly technical (like Boiler MACT) and when possible exemptions impose additional analytical burdens (like the HBCA). Further, the vacated rule established a distinct, earlier deadline for HBCA demonstrations which was not well publicized. We expect that increased outreach and educational efforts (along with a harmonized deadline) would enable many more small entities to take advantage of alternative health-based limits.

The additional restrictions on MACT rulemaking in several recent appellate decisions will also likely make the HBCA even more important to Orrville and other small entities. If those decisions lead EPA to conclude that it has less flexibility in developing MACT floors, the revised MACT floors for HCl

and PM may be more stringent and have broader reach than under the previous rule. Any increase in the stringency of limits will increase the number of small entities forced to install control devices or shutdown, thus providing additional incentive for small entities to seek relief in available alternatives, like the HBCA.

EPA's February 10, 2009 SER presentation also significantly underestimates the financial benefit of HBCAs to Orrville and other small entities. Since EPA assumes the addition of wet scrubbers to address acid gas emissions (*id.* at 19), and since wet scrubbers are not likely to be installed to meet other Boiler MACT obligations, the simplest way to measure the beneficial value to small entities of an alternative health-based HCl limit is to quantify projected wet scrubber costs. EPA suggests that a coal-fired boiler taking advantage of the HBCA for HCl would save \$255,000 annually (*id.* at 12). Based on direct knowledge of its own facility, Orrville estimates that the cost of installing and operating wet scrubbers would be more than an order of magnitude higher. Multiplying the average estimated capital cost estimate in EPA's Air Pollution Control Technology Fact Sheet for Wet Scrubbers (\$33/SCFM) times the combined exhaust flow rate for Orrville's four boilers measured during a recent test (235,000 DSCFM) indicates Orrville's wet scrubber capital costs would exceed \$7.7 million:

$$\$33 \times 235,000 = \$7,755,000 \text{ capital costs}^1$$

EPA's Fact Sheet also projects average annual O&M costs of \$32/SCFM for wet scrubbers. This includes the cost to operate the scrubber to remove material from the air exhaust stream, and to operate the wastewater treatment system to remove it from the scrubber water, and then to dewater the sludge sufficiently to truck it to a landfill. It should not be surprising that this highly inefficient system would add significant annual operating costs to the operation of these scrubbers:

$$\$32 \times 235,000 = \$7,520,000 \text{ annual O\&M costs}$$

Using conservative financial assumptions regarding the annualized cost to borrow the capital portion of these costs (which likely underestimate real costs due to the challenging current market for public bonds),² these figures net a total annualized cost to Orrville of \$8,253,000 - more than 32 times EPA's estimate. That amounts to a 41% *increase* in Orrville's annual operating costs without any corresponding

¹ It is important to note that these calculations consistently *understate* Orrville's likely actual costs because: (1) Orrville would need multiple scrubbers to control four boilers that will likely push the per-scfm cost above the average (\$33/scfm) of EPA's cost range and toward the high-end (\$55/scfm) of the range; (2) EPA's analysis in the Fact Sheet is based on 2002 dollars while Orrville's costs would likely be incurred in 2012 and later at a higher cost due to inflation; and (3) EPA's Fact Sheet does not account for the unique costs that Orrville and other small entities may incur when disposing solid wastes created by wet scrubbers in areas with constrained capacity for such wastes.

² Specifically, this calculation assumes the issuance of public revenue bonds for a 20-year period at a 7% interest rate, which generates an amortization rate of \$94.50/\$1k. [$94.50 \times 7,755 = \$732,847.50$ annualized capital cost]

health benefit, which can be avoided simply by retaining the health-based alternative EPA has already deemed viable and appropriate.³

Many others can expect similar savings from HBCAs - at absolutely no increase in real-world environmental risk. Indeed, EPA's own SER screening analysis indicates that at least 26 small municipal utilities will be regulated under the Boiler MACT rule - many of which will have similar cost projections.⁴ Nor is the potential for cost savings limited to small municipal utilities. Rather, small entities across many industries and burning various fuels will benefit from the retention of EPA's health-based alternative compliance limits for HCl and manganese.

Finally, it is important to emphasize that establishing HBCAs fully comports with the Clean Air Act's plain language and all relevant jurisprudence. EPA's authority to establish health-based compliance alternatives for threshold pollutants like manganese and HCl is firmly grounded in direct statutory authority. See CAA §112(d)(4) ("With respect to pollutants for which a health threshold has been established, the Administrator may consider such threshold level, with an ample margin of safety, when establishing emission standards. . ."). They are also well supported by the substantial record, briefing and arguments underlying the original Boiler MACT rule.

Nor does any court decision restrict EPA's plain statutory authority to adopt the HBCAs at issue here. The D.C. Circuit did not rule on the legality of HBCAs when it vacated the Boiler MACT rule in 2007. Nor does the D.C. Circuit's ruling in *NRDC v. EPA*, 489 F.3d 1364 (D.C. Cir. 2007) (the "Plywood MACT" decision) have any relevance in this context. The Plywood MACT case is fundamentally different because it involved an attempt to exclude certain low-risk sources from regulation entirely. *Id.* at 536. In contrast, in the original Boiler MACT rule, EPA did the exact opposite by proceeding to *establish* alternative regulatory limits at levels that confirmed *no risk* to human health would exist. Further, the Plywood MACT decision turned on CAA §112(c)(9)(B), a distinct statutory provision which governs deleting MACT source categories, not CAA §112(d)(4) which empowers EPA to establish alternate health-based emissions standards. Finally, EPA's ongoing use of HBCAs in similar contexts further supports their continued viability here.⁵

³ Use of the high-range estimates from EPA's Fact Sheet (instead of conservative averages), indicates that Orrville could incur as much as \$12,925,000 in capital costs and \$11,515,000 in annual O&M costs for a wet scrubber. Total annualized cost could be as high as \$12,736,000 (64% of Orrville's current annual operating cost).

⁴ Our records indicate that most of those 26 small entity municipal utilities operate more than 1 boiler unit that could benefit from the HBCA.

⁵ For example, on October 28, 2008, EPA responded to requests to reconsider its NESHAP rules for Hazardous Waste Combustion. In its response, the Agency squarely rejected requests to eliminate health-based compliance alternatives from that rule. See 73 Fed. Reg. at 64084 ("we reaffirm the health-based compliance alternative that we promulgated in the October 12, 2005 final rule . . .").

II. TECHNICAL JUSTIFICATIONS SUPPORT SUBCATEGORIZATION BASED ON COAL TYPE AND BOILER TYPE.

A. EPA Should Subcategorize Based on Coal Type.

The coal-fired boilers used by Orrville and other small entities are not “one-size fits-all,” but rather much more specialized units that are designed to operate effectively burning a particular type of coal. Orrville and other small entities in the Midwest are designed to burn local bituminous coal. As explained below, these boilers cannot switch to other coal ranks because they are designed smaller to efficiently burn the high Btu, low ash, bituminous coal that is locally available. Unfortunately, bituminous coal has higher average mercury content than other types of coal. Thus, Orrville and other similarly situated small entities are technically incapable of meeting mercury levels that can be achieved by boilers burning the sub-bituminous and lignite coal with lower average mercury content. This is precisely the situation that Congress intended, and the courts recognized, as ripe for subcategorization to bridge the gap between what is achieved and achievable within the MACT source category.

Coal rank matters because the different categories of coal have very different characteristics. Perhaps the most critical differences are in Btu value and ash content. As summarized in one of the seminal works on boiler design and operation, both attributes vary widely across coal types:

	Bituminous	Sub-bituminous	Lignite
Heating Value	12,770 Btu	8,683 Btu	4,469 Btu
Ash / 10 ⁶ Btu	7.4 lbs	11.3 lbs	21.5 lbs

See *Steam, Its Generation and Use* (Babcock & Wilcox) p. 21-2, Table 1. Thus, sub-bituminous coal has approximately **50% more ash per Btu** than bituminous coal, and lignite has approximately **87% more ash per Btu** than sub-bituminous coal.

The type of coal to be burned is critically important to boiler design and operation. Based on its unique expertise designing and adapting boilers, Babcock & Wilcox explains that “the deposition and erosion potential of the ash are the **primary design considerations driving the overall size and arrangement**” of coal-fired boilers. *Id.* at 21-1. That is true because:

The effective utilization of fossil fuels for power generation depends to a great extent on the capability of the steam generating equipment to accommodate the inert residuals of combustion, commonly known as ash. The quantity and characteristics of the ash inherent to a particular fuel type are major concerns to both the designer and the operator of the equipment.

Id. at 21-1. Orrville and other small entities were designed to burn local coal supplies, which for the boilers in the eastern half of the U.S. meant a design compatible with the lower ash, higher Btu bituminous coal mined in the Midwest.

Orrville boilers cannot burn other coal ranks to meet emission limits. To operate the Orrville boilers at the design steam rates that are essential to their use within the Orrville electric generating system, they must use the higher-Btu, bituminous coal. Orrville boilers, like most small entity boilers in this region, are designed to fire high-Btu bituminous coal in their smaller combustion areas and with their lower volume feeding systems. Boilers that fire lower-Btu sub-bituminous or lignite coals must have room to burn proportionately more coal at any given time with commensurately larger feeding systems. Fuel switching to a different, lower-Btu coal rank would require fundamental changes to the size of the combustion area and the coal-feed system to meet design specifications for steam output. As a result, boilers built for bituminous coals, like the Orrville boilers, would not be candidates for fuel switching to meet emission limits.

Ash content of the coal to be combusted is equally critical to boiler design. As explained by Babcock & Wilcox:

The key to a successful overall gas-side design is proper sizing and arrangement of the furnace. As a first priority, the furnace must be designed to minimize slagging and to provide effective control of slag where and when it does form.

Id. at 21-14. Ash deposition and slag deposits cause numerous problems in boilers including reduced heat absorption, increased exit gas temperature (which causes additional slagging), fouling in convection banks and dangerous slag buildups that can become dislodged and fall, causing failure of furnace tubes and other equipment damage.

To protect against these concerns, boilers are designed to accommodate the ash creation potential of the coal that will be used. Specifically, boilers that burn sub-bituminous or lignite coals must be designed with “ample clearance . . . between the burners and furnace walls as well as the furnace hopper and arch” which are “keyed to the slagging classification of the coal.” *Id.* at 21-15. Boilers that burn higher ash coal are larger, with increased depth “to control slagging by reducing the input per plan area” and “side space dimensions” which “depend on the fouling classification of the coal” with higher ash coals requiring wider spacing. *Id.* at 21-16. Further, bank depths are established in part “as a function of fouling potential. . . .” *Id.* In other words, boilers must be designed larger to accommodate the higher ash content sub-bituminous and lignite coals that are mined primarily in the western United States.

These key differences preclude boilers designed to burn bituminous coal from simply switching to lower grades. They also provide ample justification for the creation of subcategories. Indeed, segregating due to technical and operating distinctions of boilers based on fuel type fits comfortably with EPA’s prior subcategorization approach in the vacated rule and its preliminary subcategorization proposals in this rulemaking (*e.g.*, the proposed segregation of “light oil” from “heavy oil” and of “wet biomass” from “dry biomass”).

In addition to properly recognizing technological differences, subcategorization will also help alleviate the achievability concerns likely to stem from combining boilers that burn different coal ranks when determining the MACT floor. One key concern for Orrville and similarly situated small entities is the achievability of mercury limits. As the attached map indicates, the bituminous coal predominantly

burned in the eastern United States has consistently higher mercury levels than the sub-bituminous coal predominantly burned in the western United States. Indeed, when preparing the original Boiler MACT rule, EPA concluded that mercury levels in bituminous coal contained almost 50% more mercury on average than sub-bituminous coal. See OAR-2002-0058-0111 (identifying the mean bituminous mercury level at 8.6 lbs/trillion Btu and the mean sub-bituminous mercury level at 5.8 lbs/trillion Btu).

If all existing coal-fired units are used to establish a single MACT floor for mercury, the “best performing 12%” will almost certainly contain a disproportionate number of units that exclusively burn sub-bituminous coal.⁶ That would raise serious achievability concerns for Orrville and the other eastern and mid-western units that burn bituminous coal. Since those units cannot switch to sub-bituminous coal without altering basic design parameters (and major logistical difficulty), they would likely be unable to achieve limits based on the best performing sub-bituminous units. Nor does the possibility of add-on controls alleviate that concern. As EPA explained when promulgating its Clean Air Mercury Rule, primary mercury control technologies are not fully developed and will not be ready for full-scale commercial use until at least 2018. See 70 Fed. Reg. 28620 (May 18, 2005) (“Hg-specific technologies such as ACI have not been demonstrated in practice on full-scale power plants for extended periods of time, nor are they considered commercially viable at this time”). Further, while conventional controls can provide mercury “co-benefits,” the MACT floor would likely be set by facilities that are already achieving such co-benefits *and* burning sub-bituminous coal thus making the use of only co-benefits technology insufficient for bituminous units to comply.

Congress drafted the Clean Air Act to ensure that EPA could and would address such achievability concerns. In the Brick MACT decision, Judge Williams wrote about the need to use subcategorization to avoid imposing unreasonable or unachievable MACT floors:

What if meeting the “floors” is extremely or even prohibitively costly for particular plants because of conditions specific to those plants (e.g., adoption of the necessary technology requires very costly retrofitting, or the required technology cannot, given local inputs whose use is essential, achieve the “floor”)? For these plants, it would seem that what has been “achieved” under § 112(d)(3) would not be “achievable” under § 112(d)(2) in light of the latter’s mandate to EPA to consider here. . . . In other words, as applied to some sources, the floor compelled by the statutory language appears to be more stringent than “beyond-the-floor.”

If this were all, we might be talking of a statute whose literal words produced a result so “demonstrably at odds with the intentions of its drafters” as to justify

⁶ This is consistent with the Eastern Research Group’s observation in its January 2, 2008 memo entitled *Preliminary Small Entity Cost and Emission Impacts for Boiler and Process Heater Rulemaking* that the “lowest 12 percent of boiler coal mercury contents were comprised of Nebraska boilers (assumed to be firing Wyoming coal), Colorado boilers, and Utah boilers.” Given the predominance of sub-bituminous coal in northern and western Wyoming, that data will likely skew nationwide mercury limits for coal-fired units absent subcategorization by fuel type.

judicial surgery. . . . Happily § 112 is not such a statute. Section 112(d)(1) authorizes the Administrator to “distinguish among classes, types, and sizes of sources within a category or subcategory,” [O]ne legitimate basis for creating additional subcategories must be the interest of keeping the relation between “achieved” and “achievable” in accord with common sense and the reasonable meaning of the statute.

Sierra Club v. EPA, 479 F.3d 875, 884-85 (D.C. Cir. 2007). Thus, EPA has not only the authority, but also the duty to create subcategories where limits may be unachievable. A subcategory based on coal type would help to ensure that small entities burning local bituminous coal would have a technically feasible option to meet MACT floor standards for mercury and other HAPs.

B. EPA Should Further Subcategorize Based on Boiler Type.

Orrville and other small entities would also benefit from subcategorization to recognize the unique and immutable effect that boiler type has on achieving emission limits. There are at least three primary categories of coal-fired boilers: spreader-stoker, pulverized coal, and fluidized bed. Operation of a spreader-stoker boiler involves feeding coal onto a grate, where a combination of underfeed air and overfeed air combust the coal. The rate at which coal is fed to the grate is vital to achieving maximum combustion efficiency. This is a simpler boiler design that will be found in most of the smaller coal-fired units operated by small entities. Orrville’s two smaller boilers are stoker units.

Pulverized coal-fired boilers combust coal in a completely different way. Before coal is combusted in a pulverizing boiler, the coal must be ground to a fine powder. This powder is then injected into the furnace, where it is mixed with primary combustion air and fed to burners for combustion. The direction of combustion air and the location of burners can differ among pulverizing units, but in all designs combustion occurs while the powder is suspended. Orrville’s two larger boilers are pulverized-coal units. Finally, fluidized-bed coal-fired boilers burn coal along with some other inert material (such as sand or ash) and a sorbent (such as limestone). A flow of air suspends these materials in a turbulent state, which allows maximum surface contact between the air and the particles. This surface contact produces more efficient combustion at lower temperatures than a spreader-stoker or pulverizing unit is capable of producing. Lower temperatures prevent the formation of nitrogen oxides, while the sorbent material captures up to 95% of sulfur pollutants.⁷ This unique method of combustion reduces emissions without control equipment in a way that is impossible for other units to replicate.

The structural differences among these boiler types translate into distinct combustion efficiency and emissions profiles that are unrelated to control technology. For example, fluidized-bed combustors are said to produce only 0.15 lbs CO/mmBtu, while traditional spreader-stoker units produce 0.5 lbs CO/mmBtu or more.⁸ Further, pulverized-coal units are generally more efficient than spreader-stoker

⁷ See U.S. EPA, OFFICE OF AIR QUALITY PLANNING AND STANDARDS, REGULATORY IMPACT ANALYSIS OF THE PROPOSED INDUSTRIAL BOILERS AND PROCESS HEATERS NESHAP (2002).

⁸ BABCOCK & WILCOX POWER GENERATION GROUP, BUBBLING FLUIDIZED-BED BOILERS 4 (2008).

units, as pulverizing units can have as little as 0.4% carbon loss while spreader-stokers can have carbon loss approaching 8%.⁹

Under the vacated Boiler MACT rule, combining these different boiler design types for purposes of establishing MACT floors created less concern because EPA did not establish a carbon monoxide emissions limit for existing sources. However, in light of the vacatur of EPA's Brick MACT rule in *Sierra Club v. EPA*,¹⁰ EPA is reportedly planning to establish numeric carbon monoxide limits for all source categories as a surrogate for organic HAPs. This change is significant because carbon monoxide emissions are indicative of incomplete combustion, which in turn bears direct relation to boiler type.

Given the innate differences in the operational and combustion efficiencies of spreader-stoker, pulverized-coal and fluidized-bed units, it is inappropriate to combine these three categories of coal-fired boilers for purposes of establishing MACT floors. Rather, a separate subcategory should be established for each of these three boiler designs. Small entities will benefit by having MACT floors for CO that reflect achievable combustion efficiencies for the types of boilers they operate. Orrville's stokers cannot be expected to achieve the combustion efficiency that its pulverized-coal units can achieve, and none of them can meet a MACT floor based on fluidized-bed technology. As detailed above, Congress vested EPA with the authority to subcategorize under CAA §112 in order to ensure that MACT standards are achievable for existing units. Subcategorization based on these different unit types would result in MACT floors that properly compare "apples-to-apples," thus establishing achievable limits based on control technology distinctions - not core differences in unit design.

C. Combined Subcategorization Chart for Coal-Fired Units

Combined application of the two subcategorization approaches described above would create six subcategories for coal-fired boilers based entirely on supportable technical and physical distinctions among units:

Boiler Design

Coal Type	Bituminous/ Spreader-stoker	Bituminous/ Pulverized Coal	Bituminous/ Fluidized Bed
	Sub-Bituminous/ Spreader-stoker	Sub-Bituminous/ Pulverized Coal	Sub-Bituminous/ Fluidized Bed

This more refined approach will allow EPA to establish MACT floors that truly account for the effectiveness of existing control technology while recognizing that limits must be achievable and must account for real design and operational differences among units.

⁹ C.B. OLAND, GUIDE TO LOW-EMISSION BOILER AND COMBUSTION EQUIPMENT SELECTION 6-3 (2002).

¹⁰ 479 F.3d 875, 883 (D.C. Cir. 2007) (holding that, subject to specific statutory exceptions, EPA must set emissions standards for all HAPs).

III. HARMONIZATION OF COMPLIANCE SCHEDULES FOR BOILER MACT AND UTILITY MACT IS NECESSARY TO PREVENT HARM TO SMALL MUNICIPAL UTILITIES.

If EPA adheres to the approach taken in the vacated rule, Boiler MACT would once again segregate Orrville and other small entity municipal utilities from their direct competitors - large investor-owned utilities. That is because the Boiler MACT rule would expressly exclude fossil fuel-fired electric utility steam generating units of more than 25 MW that produce electricity for sale in order to regulate those larger units separately under Utility MACT. Boiler MACT and Utility MACT appear to be on different schedules for promulgation, which will likely lead to different compliance schedules.

Disparate compliance schedules place small entity electric generators at grave danger of prolonged competitive disadvantage. In many respects, small electric utility boilers have more in common with other utility boilers than with ICI Boilers. In a deregulated electricity market, Orrville and other municipal utilities compete with investor-owned utilities for economical fuel sources and often for wholesale or retail customers. If Orrville has significant compliance expenditures under Boiler MACT before its competition is required to comply with the Utility MACT, Orrville faces a competitive disadvantage that, if prolonged, could cause significant harm. Indeed, the Utility MACT rules are apparently years behind Boiler MACT.¹¹ That would give large utilities a powerful competitive advantage that would threaten all small entity municipal utilities subject to Boiler MACT. Thus, the compliance schedule for small entity municipal utilities like Orrville under Boiler MACT should be extended to match the compliance schedule for Utility MACT.

We understand that EPA may confront statutory constraints regarding extending compliance schedules if the difference between the compliance dates remains significant. If confronted, this problem has a relatively simple solution - EPA can give small electric generators the opportunity to opt out of Boiler MACT and into Utility MACT prior to the Boiler MACT compliance date. By providing that additional flexibility, each small generator would be able to make an informed decision based on available cost and regulatory knowledge regarding whether to: (1) comply with CAA §112 limits under Boiler MACT even though their larger competitors will not yet be regulated under §112, or (2) opt to become subject to later regulation at the same time as its larger competing units under Utility MACT. This approach would mitigate some of the unfair economic pressure threatened by the disparate, early regulation of small entities under Boiler MACT while also comporting with EPA's longstanding policy that sources need only comply with one set of MACT standards.

IV. ACHIEVABLE MACT STANDARDS MUST FULLY CAPTURE VARIABILITY.

Properly capturing variability is central to establishing MACT standards that are achievable by all similarly situated units in a given subcategory. There are at least four aspects of variability that must be considered in setting MACT floors: (1) boiler operating variability (such as load swings and startup, shut-

¹¹ Although EPA recently reaffirmed its decision to regulate utilities distinctly under CAA §112, Orrville is unaware of any action yet taken to begin formulation of such regulations. See MOTION OF ENVIRONMENTAL PROTECTION AGENCY TO DISMISS its petition for writ of certiorari from the Supreme Court in the Clean Air Mercury Rule appeal. No. 08-512 (Feb. 6, 2009).

down and malfunction events), (2) variability in control device performance, (3) variability in the test methods used to generate emissions data, and (4) variability in the composition of fuels combusted. To adequately assess and account for variability in each of these areas, EPA will likely need to conduct supplemental data-gathering activities and/or establish conservative presumptions that reflect significant expected variability in order to ensure that small entities can comply with emissions limits on a continuing basis.

V. **EPA SHOULD FOCUS ON THE BEST PERFORMING ACTUAL SOURCES FOR ALL POLLUTANTS, NOT COMBINE THE BEST ACHIEVED INDIVIDUAL POLLUTANT EMISSION RATES FROM DIFFERENT SOURCES.**

The discussions to date suggest EPA may be planning to independently calculate MACT floors for each regulated pollutant without reference to those sources' emissions of other HAPs. Isolating pollutant-specific source performance without considering the emissions of other pollutants at those same sources would improperly ratchet down the standards to levels that *no existing source* ever actually achieved. Establishing such a hypothetical "super-unit" contradicts CAA §112(d) and would harm small entities like Orrville by making it even more difficult - and perhaps impossible - to comply. Section 112(d) requires the combined consideration of "best performing" source emissions - not the separate analysis of distinct sources on an individual pollutant basis. That result is confirmed by §112(d)(3)'s mandate that MACT floors be based on "the average emission limitation *achieved by* the best performing 12 percent *of the existing sources*. . . ." Thus, when assessing MACT floors, EPA should properly consider only those emission rates simultaneously achieved by the best performing existing sources.

VI. **ADDITIONAL COMMENTS TO MITIGATE SMALL ENTITY IMPACTS.**

The following issues also merit attention to protect Orrville and other small entities from disproportionate costs under Boiler MACT and provide necessary added regulatory flexibility:


- EPA should retain the "limited use" subcategory that was established in the vacated rule. This option has significant value to small entities - many of which operate their boilers intermittently (*e.g.*, a church boiler that runs only on winter Sundays or a peaking unit used to supplement electric generation during particularly hot summer days). Such use creates distinct emissions and operational profiles that warrant their own representative MACT floors to ensure achievability.
- EPA should allow emissions averaging at sources with multiple regulated units to lessen the regulatory burden of complying with Boiler MACT. By allowing averaging, sources with multiple units will be able to comply with EPA's emissions limitations at lower overall cost. While such averaging promises the exact same environmental results as individual compliance requirements, the additional flexibility would both save money and incentivize owners to install innovative controls that will significantly beat regulatory limits, but which may be too costly to install on every unit.

Mr. Nathaniel Jutras
February 24, 2009
Page 12

- EPA should consider other ways to mitigate the cost of compliance for small entities, including relaxed monitoring, recordkeeping/reporting and testing obligations. For instance, periodic tune-ups can be a more effective way to spend limited resources than installing new emission monitoring equipment. Work practices can be relatively simple and far more cost effective for small entity boilers.

We look forward to working with you towards promulgation of a Boiler MACT rule that is properly tailored to ensure achievable limits and to minimize the impact on small entities. To that end, we would greatly appreciate a copy of the report prepared by the Panel as it is provided to Administrator Jackson in this matter in recognition of the time and resources we have volunteered to educate and inform the small business panel participants. Should you have any questions or if you would like to discuss these comments further, please feel free to call me at (330) 684-5101 or Doug McWilliams at (216) 479-8332.

Sincerely,


Jeff Brediger
Orrville Utilities

Enclosures

cc: James Eddinger, OAQPS
Bob Wayland, OAQPS
Keith Holman, SBA
Randy Meyer, AMP-Ohio
AMP-Ohio Generating Members
Douglas McWilliams, SS&D
Allen Kacencjar, SS&D

Comment Received from National School Board Association

February 24, 2009

Mr. Alex Cristofaro
Chairman, Small Business Advocacy Review Panel
Office of Policy, Economics and Innovation
United States Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: NSBA preliminary comments on forthcoming regulations for national emission standards for boilers and potential impact on local school districts

Dear Mr. Cristofaro:

The National School Boards Association (NSBA), representing 95,000 local school board members across the nation through our state school boards associations, appreciates the opportunity to provide preliminary comments regarding forthcoming regulations for national emission standards for boilers. We submit these comments as a “Small Entity Representative” through the agency’s “Combined Rulemaking for Industrial, Commercial, and Institutional Boilers and Process Heaters at Major Sources of HAP and Industrial, Commercial, and Institutional Boilers at Area Sources” process. We wish to emphasize that the following comments are preliminary as we will need time to survey local school districts regarding their use of boilers and the potential impacts new federal regulations would have on them.

It is our understanding that later this year the Environmental Protection Agency (EPA) will propose regulations under the Clean Air Act that set national emission standards for hazardous air pollutants (HAPs) related to industrial, commercial and institutional boilers, with a final regulation to be issued in 2010. The EPA indicates that schools are most likely to fall under the “area source” category for boilers.

Beginning with the current “Small Entity Representative” process, we understand that the EPA wishes to ascertain how significant the economic impact would be on entities, such as school districts, based on the requirements of the regulations. **While these comments are intended to be preliminary, we do wish to express concerns that, depending on the range of requirements, the regulations could be exceptionally costly or even outright unaffordable for local school districts to implement, and we urge you to fully and seriously weigh the ultimate consequences the regulations might have on the nation’s 15,000 school districts.**

For example, based on EPA-provided information, the regulations might require one of two options for compliance: 1) meeting a MACT (Maximum Achievable Control Technology) standard, or 2) meeting a “work practice” standard, which might otherwise be called an annual “tune-up” of the boilers. Based on EPA estimates of 2 boilers per school and implementation costs ranging from \$2,000 per boiler to meet the “work practice” standard to \$67,000 per boiler for the MACT standard, the costs of implementing either option for school districts could be devastating. Consider



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Office of Advocacy

- *Barbara L. Bolas
President*
- *Anne L. Bryant
Executive Director*
- *Michael A. Resnick
Associate
Executive Director*

for example a large school district of 200 buildings. In order to meet the less expensive option (“work practice”) a school district may be forced to spend \$800,000. The MACT standard however, based on these EPA estimates, could cost a school district under this example \$26.8 *million*.

Even in the best economic times, it is unlikely that a school district could absorb a new cost of that magnitude. Given the financial straits facing so many districts and states today, such a cost would be untenable. Would the federal government provide 100 percent of the funds in order to cover such expenses?

We also wish to draw your attention to this statement in a recent report prepared for the EPA: “we recognize that the rule may still require some facilities to take costly steps to further control emissions even though their emissions may not result in exposures...which exceed thresholds determined to provide an ample margin of safety for protecting public health and the environment from the effects of hazardous air pollutants.”ⁱ

In other words, the new regulations may simply attempt to solve a problem that does not even exist while causing significant problems for school districts in the form of extraordinarily high compliance costs, which may then force districts to make cuts in other areas, such as their instructional program, that would in fact be harmful to students and staff.

Local school districts continuously strive to provide a healthy learning environment, and we appreciate the EPA’s recognition of the potential impacts on entities such as school districts and for seeking our preliminary comments on this matter. As noted earlier, we wish to gather additional information from school districts so that we may develop a more complete assessment of the potential impact. However, based on the information currently available to us, we caution that the forthcoming regulations may be exceptionally costly – with unclear benefits – to local school districts to implement.

Thank you for considering our initial comments on this issue, and please contact Reginald Felton, director of federal relations, at (703) 838-6782 or rfelton@nsba.org, if you have any questions.

Sincerely,



Michael A. Resnick
Associate Executive Director

MAR: me/kc

cc: Mr. Nathaniel Jutras, U.S. Environmental Protection Agency

¹ “Revised Economic Impact Analysis of the Industrial Boilers and Process Heaters NESHAP,” U.S. Environmental Protection Agency, June 2007, p. 3-29.

Appendix C

Summaries of Outreach Meetings with SERs

November 13, 2008 Outreach Meeting Summary

The meeting focused on three main topics:

1. Regulatory Background
2. Discussion and Questions on Presentation
3. Introduction and Discussion of Directed Questions for SERs

EPA-OAQPS presented the history and background of the NESHAP standards for boilers and process heaters, estimated costs and impacts of pending regulations, and a summary of possible regulatory options for consideration by the SERs.

Discussion began with questions from the potential SERs on the regulatory background. One potential SER asked how EPA estimated the area source boiler population to be 1 million units. EPA stated that it extrapolated this inventory nationally using boiler safety inspector inventories from 13 states. Another SER asked if EPA is obligated to evaluate all 30 HAP or just mercury (Hg) and polycyclic organic matter (POM). EPA indicated that EPA is obligated under section 112 (c)(6) of the Clean Air Act to consider MACT for Hg and POM and added that EPA is also required to focus on the 30 urban HAP that is specifically listed for the area sources.

The question was asked if EPA has the authority to exclude certain sectors from its rulemaking. EPA indicated that it was not aware of any authority or precedence for excluding certain sectors that have combustion units. The question was also asked if EPA has any discretion on establishing a minimum threshold for the size of boilers subject to the standard. EPA replied that the rules will regulate all boilers, regardless of size, included in the source categories. One potential SER asked why gas units needed to be regulated if they are not on the 112 (c)(6) list. EPA responded that gas units are not regulated for Hg or POM, but they are regulated under 112(k) for the other HAP associated with the boiler category. The asked how many of the affected area source facilities are expected to be small entities. EPA estimated that 80 percent of area source facilities were expected to be small entities.

Several potential SERs had questions on subcategories for the proposed rulemakings. One potential SER suggested that these new rulemakings present significant opportunity to re-define the subcategories in order to provide for regulatory flexibility. EPA responded that in order to subcategorize, you have to have enough data to assess variability and performance for units assigned to that subcategory. Another SER asked if EPA could subcategorize on facility-level differences as opposed to technical differences in the unit size and design. For example, could a separate subcategory be developed for units at small entities. Alternately, would it be possible for EPA to subcategorize based on whether the facility was in the public or private sector? EPA noted that the statute says EPA can subcategorize based on the process, class, type, and size. EPA has not historically looked at subcategorizing based on facility-level factors other than unit-level technical differences. EPA will investigate what types of sub categorization are statutorily appropriate for this rulemaking.

SERs asked the group to summarize the major benefits of the Health Based Compliance Alternatives (HBCA). EPA responded that the biggest benefit, from a compliance cost perspective, was that the HBCA substantially reduced the number of boilers subject to a numerical emission limit. There were two HBCAs in the vacated standard that could be used if the facility could demonstrate it was a low health risk to the surrounding community. In the first alternative, a facility could demonstrate compliance with a health-based facility-wide HCl equivalent allowable emission limit instead of a unit-level emission limit. In the second alternative, in lieu of complying with the emission standard for total selected metals (TSM), (arsenic, cadmium, chromium, mercury, manganese, nickel, and lead) you may demonstrate eligibility for complying with the TSM standard based on excluding manganese emissions from the summation of TSM emissions for the affected source unit. The SERs were asked if they have any data on the cost effectiveness of the HBCAs. If this data is available, it was requested they submit it in their written comments by November 26, 2008.

EPA directed the focus of the meeting to the list of directed questions EPA has prepared for SERs (actual questions shown below). The purpose of these questions is for EPA to collect information on how small entities will have to absorb the costs of compliance with the proposed rulemakings. The SERs were encouraged to provide comment on the specific questions in addition to other metrics of absorbing costs of the regulation. SBA added that a regulatory approach to improve combustion efficiency is favorable from the SBA perspective since efficiency based standards can have multiple positive impacts for the facility with respect to the environment, energy use, and saved revenues for the affected facility. SBA would be specifically interested in data on the costs and efficiency improvements of various combustion improvements.

Directed Questions for SERs

Questions on Management Practices

Tune-ups and boiler operator requirements:

1. Does your state or local authority require an annual or periodic tune-up of the boiler?
2. If not, do you perform an annual or periodic tune-up as part of routine maintenance, and what is your estimate of the cost to perform it? What percentage of the cost of performing routine maintenance is the annual tune-up?
3. Does your state or local authority require any training or certification (licensing) of the boiler operator?
4. If so (a certified (licensed) boiler operator is required), what is your estimate of the cost of either certifying the current boiler operator or adding a certified (licensed) boiler operator? What percentage of your facility's or organization's budget will this cost be?

Energy audit (assessment):

1. Does your state or local electric power company offer any assistance, incentive, or discount in conducting an energy audit (assessment) for your facility?

2. If a requirement for implementation of the energy conservation measures identified by the energy audit is imposed, what rate-of-return (in percent terms, not payback period) would be the minimum required for you to implement any identified energy conservation measures for your type of operation?

Good Combustion Practices:

1. Do you use any monitors, emissions parameters, or process parameters to monitor the operation of the boiler?
2. If you use monitors, what kind and how many? If monitors are used, are these monitors in place for environmental regulatory reasons? Insurance reasons? Are there other reasons, and if so, what are they?

Questions on Compliance Demonstration

1. Does your state require any continuous monitoring of emissions or process parameter(s)? If so, what are the costs to the facility? What percentage of overall facility costs do these represent?
2. Does your state require any periodic testing or monitoring of emissions or process parameter(s)? If so, what are the costs to the facility? What percentage of overall facility costs do these represent?
3. Do your boilers have testing ports available for conducting compliance tests? If not, what do you estimate the costs to be of modifying the stack for testing?
4. If your boilers were subject to emission limits, are there alternatives to monitoring emissions or to stack testing that would be less costly to demonstrate compliance? How much less costly are these alternatives?

Permitting:

1. Are your boilers required to be permitted by the state or a local authority? If so, what is the cost for permitting? If not, what would you estimate the burden to be in terms of costs and hours if the boilers are required to be permitted? What is the size of these costs compared to the costs of boiler operation and the facility as a whole? If your boilers require permitting, are your permitting activities done by in-house staff or by outside contractors?
2. Are your boilers required to be inspected for safety, insurance or other reasons? If so, how often is this performed? What is the cost of these inspections? What is the size of these costs compared to the cost of boiler operation and the facility as a whole?

Compliance:

1. How do you know if your boilers are properly operated and maintained, and how do you ensure good combustion?
2. How much burden (in terms of cost and hours) would it be for you to maintain a file with daily operation and each inspection and maintenance conducted?
3. If your boiler was subject to an emission limitation would you consider switching to a less polluting fuel and how much additional burden (in terms of cost and hours) would it add? What fuel would your facility switch to (or blends of fuels), and what benefits outside of reduced emissions could your facility experience?

Capital Availability and Regulatory Impact:

1. Are your firm's or organization's expenses for the activities listed above largely paid for out of equity, earnings, or debt?
2. Considered together, how much of your firm's or organization's revenues or budget are the costs of the activities listed above in percentage terms?

February 10, 2009 Panel SER Outreach Meeting Summary

Alex Christopher, EPA Small Business Chair, opened the outreach meeting and provided a brief background on the Regulatory Flexibility Act. He added that previous discussions and discussions held today will help inform the SBREFA panel on recommendations for these two rulemakings. He reminded all participants that written comments are due to the panel by February 24, 2009. The panel will then prepare a report by March 19, 2009 to document suggestions for the Administrator with respect to regulatory flexibility options for small businesses. It is EPA policy that the report will be made available to the public at the same time the rules are proposed.

EPA-OAQPS presented briefly on regulatory history and the types of comments received by the SERs to date on the area and major source boiler rulemakings. The main areas for comment received in previous panel meetings covered the following topics:

- Subcategorization of units - Previous comments had asked whether or not it was feasible to subcategorize based on whether or not the unit was located at a small entity. EPA Office of General Counsel reiterated that while EPA has some flexibility in developing subcategories, the subcategories must be based on technical differences between the units in the categories (e.g., unit design, operations, fuel types). Subcategories cannot be based on small entity status or sectors at which the unit is located.

- Health-Based Compliance Alternatives: Previous comments have emphasized the need for using the health-based compliance alternatives, as were included in the vacated boiler MACT rulemaking as a way to reduce the burden on small entities.

- Emission Averaging: Previous comments have emphasized that the emission-averaging clause included in the vacated rulemaking would provide another mechanism to provide regulatory flexibility to small entities.

A SER commented on the costs of the area source rulemaking under regulatory option 1, and emphasized his concern over the magnitude of a rulemaking with a cost of \$27 billion. He added that most of those costs are monitoring and testing costs, which do not achieve environmental benefits. He strongly suggested that a work practice standard would be justified and necessary for area sources to comply with the rule.

Several SERs asked about the significance of the 3% cost-to-sales ratio threshold. The Agency explained that the 3% threshold is used as an indicator to determine whether or not a rulemaking has a substantial impact on a significant number of small entities (SISNOSE). If a rulemaking is considered to trigger a SISNOSE, a SBREFA panel must be convened in order for the Agency to provide ample opportunity for small entities to learn and provide input about the rulemakings impact. Several EPA representatives emphasized that the 3 percent threshold is not used from this point going forward as a determination of whether or not a standard is economically feasible. The Administrator must consider certain statutory required technology minimums, if complying with the MACT standard. However, the Administrator has more flexibility to consider economically feasible regulatory options, in combination with corresponding emission reduction potentials, if a GACT standard is adopted.

A SER mentioned that municipalities must borrow money through bond funds, and he added that the interest rates for these funds are very high in today's economic climate. The SER suggested that by providing small entities with a longer compliance timeframe, the small entities could stretch the compliance costs out over a longer period of time. A longer compliance window would significantly help cities needing to borrow capital. Several SERs emphasized that large capital expenses for environmental controls would present a very difficult challenge in this economic environment. Many of the affected companies would have to borrow money in order to finance this equipment during a period of evermore stringent credit. One SER added that they done a lot of work in anticipation of the Boiler MACT and that that costs should also be included in determining the cost of compliance.

Several SER noted that recordkeeping activities, as written in the vacated boiler MACT would be especially challenging for small entities that do not have a dedicated environmental affairs department. They estimate that 1 hour per day would be devoted to recordkeeping activities mentioned in the regulatory options.

One SER emphasized the limited use of church boilers, which operate only a few hours per week. These operating schedules minimize the pollutants emitted thereby increasing the cost per ton of pollutant removed, assuming these units would be subject to the same controls as other more frequently operated units. The SER requested a charitable exemption from the rules for all non-profit organizations. The Agency reiterated here that the Act does not allow for an exemption based on the sector the combustion unit is located.

Several SERs expressed concerns of not incorporating unit design into the regulatory subcategories. One SER suggested that location be considered when creating subcategories for coal-fired units. The SER provided a map of coal regions with recent emission test data summaries for mercury emissions. He noted that mercury emission factors range from 2 to 20 lb/trillion Btu.

The SERs were concerned with work practice standards that would require repetitive energy audits, implementation of audit suggestions, or boiler operator certifications. A SER noted that even if an energy audit finding has a short payback, there is no guarantee that there are available funds to implement a particular audit's findings. In conclusion, perhaps payback period should not be the only criteria for determining whether or not a facility would be required to implement the audit's suggestions. In summary, the SER advocates for the most efficient way to get reductions in HAP and requested that the Panel consider all available alternatives to reduce to a bare minimum any extraneous requirements that require a lot of paperwork, certification of operators, etc... that do not contribute to emission reductions.

A SER suggested that longer averaging periods, especially for a pollutant like CO where there is a lot of variability, would help SERs comply with the standard.

In closing, the Panel Members elaborated on specific information needed from the SERs that will help in their report to the Administrator. The Panel summarized the following needs:

- Specific Ideas for making compliance with both the major source boilers and process heaters rule and the area source rule more flexible to small entities. Ideas emphasized to date have included:

- a. Health-based Compliance Alternatives
- b. Increased subcategorization (considering unit design, fuels, operations)
- c. Energy Audits, and how they can be made most effective

- Emission variability issues to the extent there is data to support the variability of emissions across a certain subcategory, and/or intra-unit variability.

Appendix D

Preliminary Small Entity Cost and Emission Impacts



EASTERN RESEARCH GROUP, INC.

To: Jim Eddinger, EPA SPPD
From: Amanda Singleton, ERG
Subject: Preliminary Small Entity Cost and Emission Impacts for Boiler and Process Heater Rulemakings
Date: January 2, 2008

This memo summarizes the preliminary cost estimates for add-on control devices, work practice standards; and testing and monitoring requirements anticipated for boilers and process heaters subject to the hazardous air pollutants (HAP) emission standards. All costs are presented in year 2007\$. This memo also discusses the emission reductions corresponding to the regulatory options for various hazardous air pollutants (HAP) and HAP surrogates that are targeted under the emission standards. The memo is separated into two sections to separately summarize the cost and emission impacts for units at area and major sources of HAP.

1.0 Summary of Cost and Emission Impacts for Boilers at Area Sources of HAP

Model units were created to represent approximately 1.37 million boiler area source population database so that an impacts analysis could be performed on a reasonable number of units and could be conducted in a practical and timely manner. The development of model units involved reviewing parameters that distinguish and characterize unit characteristics, such as the materials combusted, existing (baseline) air pollution control devices and heat input capacity (in million British thermal units per hour (MMBtu/hr)). Model units were defined based on various combinations of the parameters so that the boiler population would be accurately represented by the models.

1.1. Model Units for Area Source Boilers

Table A-1 presents the estimated population of 1.37 million boilers at area sources of HAP. These estimates were derived from boiler inspector inventories from 13 states. These inventories were then extrapolated nationally using a ratio of boiler heat input to state population. The distribution of boiler fuels was assigned based on a state-specific distribution of fuels used in industrial and commercial applications.¹ The distribution of unit size and baseline control was assigned based on the distribution of boiler sizes in the 13-state boiler inspector inventory.

As shown in table A-1, 90 percent of the area source boiler population is gas-fired without any type of air pollution control device or monitoring equipment. These units have only trace emissions of PM, mercury, and metallic HAP. However, gas-fired units do produce organic HAP during the combustion process. Since emission factors at units of a similar fuel and control device are expected to be similar for units regardless of whether or not they are located at area or major sources of HAP, the baseline emission rates shown in the summary table are based on data collected during the vacated industrial, commercial and institutional boiler NESHAP (40 CFR Part 63 Subpart DDDDD).

1.2 Preliminary Emission Limits for Boilers at Area Sources

Section 112(d)(5) of the Clean Air Act (CAA) allows for area source standards to be based on GACT (Generally Available Control Technology). GACT may consider costs and economic impacts. However, since solid and liquid fuel industrial boilers and institutional/commercial boilers at area sources are on list of CAA 112(c)(6) source categories for Mercury (Hg) and polycyclic organic matter (POM), EPA is required to make these source categories subject to a MACT (Maximum Achievable Control Technology) for Hg and POM. EPA can use GACT for other HAP.

¹ 2001 EIA State Fuel Consumption Data by Sector. Accessed online at:
http://www.eia.doe.gov/emeu/states/sep_sum/html/sum_btu_res.html
http://www.eia.doe.gov/emeu/states/sep_sum/html/sum_btu_com.html

Table A-2 summarizes preliminary numerical MACT floor emission limits for the best controlled 12 percent of units for CO (as a surrogate to organic HAP) and mercury (Hg) at solid and liquid fuel boilers. Table A-2 also summarizes preliminary numerical GACT emission limits for PM and metallic HAP at all boilers as well as GACT limits for CO and Hg at gas-fired boilers.

MACT Floor for Mercury (Hg)

No air pollution control devices were installed to reduce Hg at area sources. The Hg limits in Table A-2 were based on the average coal mercury contents in the 13 states with boiler inspector inventories. The lowest 12 percent of boiler coal mercury contents were comprised of Nebraska boilers (assumed to be firing Wyoming coal), Colorado boilers, and Utah boilers. Mercury limits at biomass units were based on Hg contents of wood fuels from five of the 13 states with boiler inspector inventories. The lowest 12 percent of boiler wood mercury contents were based on Hg contents for New York and North Carolina boilers. Variability factors were applied to these floors to account for the standard deviations of each fuel's mercury content.² Hg limits at liquid fuel units were based on AP-42 emission factors for distillate oil boilers.

MACT Floor for Carbon Monoxide (CO)

No control devices were installed to reduce organic HAP and CO emissions. The MACT floors for CO at coal and liquid fuel boilers were based on available state permit limits for CO. Coal boiler permit limits consisted of 11 coal boilers in Illinois and Ohio while liquid boiler permit limits were comprised of limits from 46 boilers in Vermont, New Hampshire, Maine, and Rhode Island. The MACT floor for CO at biomass boilers was based on 27 state permit limits in Vermont, New Hampshire, Maine, and Rhode Island as well as actual CO emission data (with variability factors) from 14 boilers under the Department of Forestry Fuels for Schools program.²

GACT for Particulate Matter (PM) and non-Mercury Metallic HAP

Based on a review of available information and state regulations, GACT for the boiler source category was set to be an annual tune-up work practice standard. PM and non-mercury metallic HAP emissions are expected to decrease 5 to 10 percent below baseline levels as a result of implementing an annual tune-up.

1.3 National Impacts for Area Source Boilers

Table A-3 presents per boiler costs for fabric filters (if necessary), work practice standards (tune-ups, linkageless boiler management systems (LBMS), and energy audits) and testing and monitoring costs to demonstrate compliance with the numerical limits. Fabric filter costs are specific to each model boiler, because the control costs are based on exhaust flows, and required pollutant removal efficiencies. The costs for work practice standards, testing, and monitoring are constant across all model boilers.

The national costs and emission impacts are summarized in Tables A-4a, b, and c. To estimate the national costs of each regulatory option, the per boiler costs in Table A-3 were multiplied by the number of boilers represented by the model unit. In order to avoid double counting the control costs in the cost effectiveness summaries, the cost of the control is only assigned to the targeted pollutant of each regulatory option. The cost of a fabric filter was assigned to mercury reductions while the cost of an annual tune-up was assigned to polycyclic aromatic hydrocarbon (PAH) reductions.

Regulatory Option 1 – MACT for Hg and CO and Work Practice Standard for PM and Metallic HAP (Table A-4a)

² Draft Memo. Eddinger, Jim. Approach for determining MACT floors for existing area source boilers. August 22, 2008.

Based on the distribution of coal and wood Hg contents, this preliminary analysis assumes that 12 percent of coal fired units and 14 percent of biomass fired units will fire fuels with mercury contents above the MACT floor emission limits. Since AP-42 emission factors represent an average of all available information, this analysis assumes 50 percent of liquid units are expected to have mercury contents higher than the MACT floor. A fabric filter will be required on units with fuels with Hg contents higher than the MACT floor. A fabric filter is expected to achieve 75 percent reduction in Hg and 99 percent reduction in PM and non-Hg metallic HAP. Based on the distribution of state permit limits and CO stack test data 27 percent of coal units, 68 percent of biomass units, and 4 percent of liquid fuel units will need to install enhanced combustion control equipment, such as a LBMS, to meet the CO MACT floor. The remaining coal, biomass, and liquid fuel units were assumed to conduct an annual tune-up and achieve 5 to 10 percent reduction in CO, Hg, non-Hg metallic HAP, and PAH. Gas units do not have testing and monitoring costs to meet GACT CO limit, all other boilers have PM and Hg testing costs, and monitoring costs for opacity, mercury content and CO, O2 levels. Table 1 summarizes the national costs of option 1.

Table 1 National Annualized Control Costs for Regulatory Option 1 (2007 million\$)

Add-On Control Costs	Combustion Control Costs	Testing Costs	Monitoring Costs	Total Costs
222	4,099	2,962	16,386	\$ 23,669

Regulatory Option 2 – Work Practice Standard for All Pollutants (Table A-4b)

Section 112(h) of the CAA allows EPA to promulgate a work practice standard, if it is not feasible to enforce an emission standard. *Not feasible* means the application of measurement methodology is not practicable due to technological and economic limitations. Given the high costs associated with testing and monitoring associated with the MACT floor under regulatory option 1, regulatory option 2 summarizes the costs associated with conducting an annual tune-up work practice standard on all units that are not already assumed to be conducting tune-ups in order to comply with existing state emission standards. This option considers the cost of a tune-up only (annualized costs of \$2,219 per boiler) and it does not incorporate any costs for add-on controls, testing, or monitoring. A tune-up is expected to achieve 5 to 10 percent reductions in all pollutants. Table 2 summarizes the national costs of regulatory option 2.

Table 2 National Annualized Control Costs for Option 2 (2007 million\$)

Add-On Control Costs	Combustion Control Costs	Testing Costs	Monitoring Costs	Total Costs
0	2,906	0	0	\$ 2,906

Regulatory Option 3 – Energy Audit on All Solid Fuel Boilers with Tune-up on all Other Units (Table A-4b)

Regulatory Option 3 analyzes work practice standards more stringent than the tune-ups analyzed under option 2. The cost to conduct an energy audit and implement any audit findings with less than a 3-year payback was analyzed for all solid units. The one-time cost of an energy audit was estimated as \$245. Costs associated with implementing the findings of the energy audit were not included in this analysis, because it was assumed that the cost for implementation would be offset by fuel savings. Table 3 summarizes the national costs of regulatory option 3.

Table 3 National Annualized Control Costs for Option 3 (2007 million\$)

Add-On Control Costs	Combustion Control Costs	Testing Costs	Monitoring Costs	Total Costs
0	2,909	0	0	\$ 2,909

1.4 Example Small Entity Costs for Area Source Facilities with Boilers

Tables A-5a, b, c present example facility costs for typical area source facilities to comply with regulatory options 1, 2, and 3 outlined above. The example costs are based on actual area source facilities that responded to the 2008 combustion survey. According to table A-6 there is an average of two boilers per area source facility. The types of controls necessary and corresponding emission reduction potentials will depend on the blend of fuels and boiler sizes at each facility.

Regulatory Option 1

Under option 1, the annualized costs for the example facilities are \$2,200 for a church with one small gas boiler, and \$399,100 for a public sector training facility with two coal and two liquid fuel boilers.

Regulatory Option 2

Under option 2, the annualized costs for the example facilities are \$2,200 for a church with one small gas boiler, and \$11,100 for a not-for profit hospital with five gas boilers.

Regulatory Option 3

Under option 3, the annualized costs for the example facilities are \$2,200 for a church with one small gas boiler, and \$101,000 for a public sector training facility with two coal and two liquid fuel boilers.

2.0 Summary of Cost and Emission Impacts for Boilers and Process Heaters at Major Sources of HAP

Similar to the discussion in Section 1.0 model units were created to represent the boiler major source population database so that an impacts analysis could be performed on a reasonable number of units and could be conducted in a practical and timely manner. Table M-1 summarizes the distribution of small entity facilities to various types of facilities. On average there are 3.2 boilers per major source facility, compared with 2 boilers per area source facility. The majority of small entity major sources are located in private industries; however there are some small entities in the public and non-profit sectors.

2.1 Model Units for Major Source Boilers and Process Heaters

Table M-2 presents the estimated population of boilers at major sources of HAP. These estimates are based on the estimates in the vacated boiler MACT rulemaking. The actual population of units will be modified to reflect the results of the 2008 combustion survey. At this time, model units were not yet developed based on the recent survey. Based on preliminary screening of the survey results, the total population of units is much less. There are approximately 12,000 boilers and process heaters at major sources, compared to the 58,200 boilers summarized in Table M-2. However, the distribution of units in the survey contains proportionately much less coal-fired units than what is shown in Table M-2. The baseline emission rates shown in the summary table are based on data collected during the vacated boiler maximum achievable control technology (MACT) standard. Only baseline PAH emission rates are summarized for gas units.

2.2. MACT Floor Emission Limits for Boilers and Process Heaters at Major Sources

Based on the current status of data from the 2008 combustion survey, it is premature to estimate numerical emission limits (and corresponding emission reductions) based on the best performing 12 percent of units. Despite the lack of a numerical limit, it is expected the level of control technology required to meet the emission limits of the new MACT standard will be comparable to the controls analyzed in the vacated boiler MACT standard.

2.3 National Impacts for Major Source Boilers and Process Heaters

The control, testing, and monitoring costs shown in table M-3 represent the controls analyzed under the vacated standard. Tables M-4a and b present the national costs for regulatory options 1 and 2. To estimate the national costs of each regulatory option, the per unit costs in Table M-3 were multiplied by the number of boilers and process heaters represented by the model unit.

Regulatory Option 1 – National Cost to Achieve MACT Floor for Hg, HCl, Metallic HAP and POM (CO) Emissions (Table M-4a)

The costs in regulatory option 1 include control costs for fabric filter, venturi scrubber, and ESP, as needed. These costs also include monitoring costs such as process monitors for control devices if a control device is installed otherwise fuel content monitoring. Costs also include monitoring opacity and CO, O2 levels as well as testing for HCl, PM, and Hg. Table 4 summarizes the national costs of regulatory option 1.

Table 4 National Annualized Control Costs for Option 1 (2007 million\$)

Add-On Control Costs (TAC)	Testing Costs (TAC)	Monitoring Costs (TAC)	Total
1,878	208	1,558	3,644

Regulatory Option 2 – National Cost to Achieve MACT Floor Assuming Certain Coal and Wood-Fired Units Comply with the HCl and Manganese Exclusion Health-Based Compliance Alternatives (HBCA) (Table M-4b)

If a facility can demonstrate that facility-wide emissions of HCl and Cl2 do not pose significant risks, the facility does not have to comply with the HCl MACT floor limit on individual boiler basis. To analyze the reduce costs of compliance for facilities estimated to comply the the HCl HBCA, the HCl (scrubber) control costs on approximately 220 boilers and process heaters were removed. These units were assumed to comply with the HCl emission standard using the facility-wide HCl health-based compliance alternative.

Similarly, if a facility can demonstrate that facility-wide emissions of manganese do not pose significant risks, the facility can exclude manganese emissions when determining compliance with the total selected metals (TSM) limit on an individual boiler basis. To analyze the reduce costs of compliance for facilities estimated to comply the TSM HBCA, the PM (fabric filter or ESP) control costs on an additional 202 boilers and process heaters were removed. These units were assumed to qualify for exempting their Manganese emissions from the TSM emission limit and thus avoid the need to install controls to comply with the TSM standard.

Although these 400 units were exempt from control costs under the HCl and TSM HBCA, costs for testing and monitoring are still applicable in order to demonstrate compliance with the standard. The portion of units eligible for the HCl and TSM HBCA standards was based on a memorandum prepared for the vacated Boiler MACT standard.³ Table 5 summarizes the national costs of regulatory option 2.

Table 5 National Annualized Control Costs for Option 2 (2007 million\$)

Add-On Control Costs (TAC)	Testing Costs (TAC)	Monitoring Costs (TAC)	Total
1,687	208	1,520	3,415

2.4 Example Small Entity Costs for Major Source Facilities with Boilers and Process Heaters

³ Eddinger, J. Estimating Impact on Control Costs and Emissions Reductions of the Health-Based Compliance Alternatives. February 2004.

Tables M-5a and b present example facility costs for typical major source type facilities that were identified as small entities to comply with regulatory options 1 and 2 outlined above. The example costs are based on actual major source facilities that responded to the 2008 combustion survey. The types of controls necessary at each unique facility will depend on the blend of fuels and boiler and process heater subcategories at each facility.

Regulatory Option 1

Under option 1, the annualized costs for the example facilities are \$148,000 for a small wood products facility with one biomass boiler and one gas-fired boiler, and \$1 million for a facility with three boilers firing a blend of coal, biomass and non-fossil solid fuels.

Regulatory Option 2

Assuming the two facilities mentioned above could comply with the HBCA, the annualized costs for the small wood products facility decreased from \$148,000 to \$64,200. The cost for the facility with three solid fuel boilers decreased from \$1 million to \$451,400.

Appendix E

Draft Small Entity Screening Analysis

TO: Tom Walton

FROM: Brooks Depro
Dallas Wood

DATE: January 26, 2009

SUBJECT: Draft Small Entity Screening Analysis: Industrial Boilers and Process Heaters

The Regulatory Flexibility Act as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute, unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small governmental jurisdictions, and small not-for-profit enterprises.

We performed a preliminary screening analysis to assess small entity impacts. The initial screening analysis suggests a large number of small entities (business and governments) have sales and revenue tests that exceed 3 percent.

1. Small Business Screening Analysis

The industry sectors covered by the rule were identified through lists of small entities at major and area sources included in the survey database provided to RTI (ERG, 2008). A listing of the sectors affected (3-Digit NAICS) and the range of SBA size definitions are provided for major and area sources in Tables 1 and 2.

1.1 Representative Small Business Analysis Using Census Statistics of U.S. Businesses

For each 3-Digit NAICS code, the Statistics of U.S. Businesses (SUSB) provides national information on the distribution of economic variables by industry and enterprise size (U.S. Census, 2008a and b).⁴ The Census Bureau and the Office of Advocacy of the Small Business Administration (SBA) supported and developed these files for use in a broad range of economic analyses.⁵ Statistics include the total number of establishments and receipts for all entities in an industry; however, many of these entities may not

⁴The SUSB data do not provide establishment information for the national security North American Industry Classification System (NAICS) code (92811) or irrigated farms. Since most national security installations are owned by the federal government (e.g., military bases), the U.S. Environmental Protection Agency (EPA) assumes these entities would not be considered small. For irrigated farms, we relied on receipt data provided in the 2003 Farm and Irrigation Survey (USDA, 2004).

⁵ See <http://www.census.gov/csd/susb/> and <http://www.sba.gov/advo/research/data.html> for additional details.

necessarily be covered by the proposed rule. SUSB also provides statistics by enterprise employment and receipt size.

Table 1. Major Sources: Affected Sectors and Size Standards

Industry Description	Corresponding NAICS	SBA Size Standard for Businesses (effective March 11, 2008)
Oil & gas extraction	211	500 employees
Mining (except oil & gas)	212	500 employees
Utilities	221	^a
Food mfg	311	500 to 1,000 employees
Textile mills	313	500 to 1,000 employees
Leather & allied product mfg	316	500 to 1,000 employees
Wood product mfg	321	500 employees
Paper mfg	322	500 to 750 employees
Printing & related support activities	323	500 employees
Petroleum & coal products mfg	324	Typically 500 to 1,500 employees
Chemical mfg	325	500 to 1,000 employees
Plastics & rubber products mfg	326	Typically 500 to 1,000 employees
Nonmetallic mineral product mfg	327	500 to 1,000 employees
Primary metal mfg	331	500 to 1,000 employees
Fabricated metal product mfg	332	500 to 1,500 employees
Transportation equipment mfg	336	500 to 1,000 employees
Furniture & related product mfg	337	500 employees
Warehousing & storage	493	\$25.5 Million in Annual Receipts
Waste management & remediation services	562	Typically \$7 to \$14 Million in Annual Receipts
Educational services	611	Typically \$7 to \$35.5 Million in Annual Receipts

^a NAICS codes 221111, 221112, 221113, 221119, 221121, 221122—A firm is small if, including its affiliates, it is primarily engaged in the generation, transmission, and/or distribution of electric energy for sale and its total electric output for the preceding fiscal year did not exceed 4 million megawatt hours.

Table 2. Area Sources: Affected Sectors and Size Standards

Industry Description	Corresponding NAICS	SBA Size Standard for Businesses (effective March 11, 2008)
Utilities	221	^a
Food mfg	311	500 to 1,000 employees
Beverage & tobacco product mfg	312	500 to 1,000 employees
Textile mills	313	500 to 1,000 employees
Textile product mills	314	500 to 1,000 employees
Wood product mfg	321	500 employees
Paper mfg	322	500 to 750 employees
Printing & related support activities	323	500 employees
Petroleum & coal products mfg	324	500 to 1,500 employees
Chemical mfg	325	500 to 1,000 employees
Plastics & rubber products mfg	326	500 to 1,000 employees
Nonmetallic mineral product mfg	327	500 to 1,000 employees
Fabricated metal product mfg	332	500 to 1,500 employees
Computer & electronic product mfg	334	500 to 1,000 employees
Electrical equipment, appliance, & component mfg	335	500 to 1,000 employees
Transportation equipment mfg	336	500 to 1,000 employees
Furniture & related product mfg	337	500 employees
Miscellaneous mfg	339	500 employees
Hospitals	622	\$34.5 Million in Annual Receipts

^aNAICS codes 221111, 221112, 221113, 221119, 221121, 221122—A firm is small if, including its affiliates, it is primarily engaged in the generation, transmission, and/or distribution of electric energy for sale and its total electric output for the preceding fiscal year did not exceed 4 million megawatt hours.

The Census Bureau's definitions used in the SUSB are as follows:

- *establishment*: An establishment is a single physical location where business is conducted or where services or industrial operations are performed.
- *receipts*: Receipts (net of taxes) are defined as the revenue for goods produced, distributed, or services provided, including revenue earned from premiums, commissions and fees, rents, interest, dividends, and royalties. Receipts exclude all revenue collected for local, state, and federal taxes.
- *enterprise*: An enterprise is a business organization consisting of one or more domestic establishments that were specified under common ownership or control. The enterprise and the establishment are the same for single-establishment firms. Each multi-establishment company forms one enterprise—the enterprise employment and annual payroll are summed from

the associated establishments. Enterprise size designations are determined by the summed employment of all associated establishments.

Because the SBA's business size definitions (SBA, 2008) apply to an establishment's "ultimate parent company," we assumed in this analysis that the "enterprise" definition above is consistent with the concept of ultimate parent company that is typically used for SBREFA screening analyses and the terms are used interchangeably.

The analysis generated a set of establishment sales tests (represented as cost-to-receipt ratios) for NAICS codes associated with sectors listed in Tables 1 and 2. Although the appropriate SBA size definition should be applied at the parent company (enterprise) level, we can only compute and compare ratios for a model establishment owned by an enterprise within an SUSB size range (employment or receipts). Using the SUSB size range helps us account for receipt differences between establishments owned by large and small enterprises and also allows us to consider the variation in small business definitions across affected industries. Using establishment receipts is also a conservative approach, because an establishment's parent company (the "enterprise") may have other economic resources that could be used to cover the costs of the regulatory program.

The engineering costs analysis developed compliance costs estimates for facilities reported to be owned by small businesses. There were four estimates for private enterprise major sources and two estimates for private enterprise area sources. Within each group, the initial screening uses the highest value as the numerator for the cost-to-receipt ratio. This assumption does not significantly influence the conclusions in this memo unless EPA determines the lowest facility cost data is more likely representative of small facility costs.

Major Sources:

- *Option 1:* \$1 million (highest cost small facility)
 - *4 facility range:* \$148K to \$1 million
- *Option 2:* \$1 million (highest cost small facility)
 - *4 facility range:* \$64K to \$1 million

Area Sources:

- *Option 1:* \$195K (highest cost small facility)
 - *2 facility range:* \$163K to \$195K
- *Option 2:* \$4K (RTI estimate using 2 boilers × average cost per boiler in cost spreadsheet (\$2K))
 - *2 facility range:* Not available/reported

- *Option 3:* \$7K(highest cost small facility)
 - *2 facility range:* \$2K to \$7K

A large number of sources within SUSB NAICS/enterprise categories had ratios exceeding 3 percent. We have provided details on the cost-to-receipt ratios generated using the SUSB in the attached MS Excel workbook (3-67 SUSB Small Entity Screen Tables 1-26-2009.xls)⁶. A summary of results by source type shows:

Major Sources:

- *Option 1:* 75 percent the NAICS/enterprise categories had ratios exceeding 3 percent.
- *Option 2:* 73 percent the NAICS/enterprise categories had ratios exceeding 3 percent.

Area Sources:

- *Option 1:* 25 percent the NAICS/enterprise categories had ratios exceeding 3 percent.
- *Option 2:* No NAICS/enterprise categories had ratios exceeding 3 percent.
- *Option 3:* No NAICS/enterprise categories had ratios exceeding 3 percent.

1.2 Additional Small Business Analysis Using Sample of Small Businesses Identified in Combustion Facility Survey

Next, we performed a more detailed analysis that compares the Census SUSB representative small entity results with a firm-specific sample of major and area small private enterprises. In this approach, we identified the survey facility names listed as small, traced the ultimate parent company name in order to verify the facility was owned by a small business, and collected the most recent parent company sales and employment figures. As Tables 5 shows, the average cost-to-sales ratios for small major source companies are above 5 percent. The median ratios are similarly high (approximately 3 percent). Average cost-to-sales ratios for small area sources are smaller; the average and median values are less than one and a half percent.

Table 5. Major Sources: Sales Tests Using Small Companies Identified in the Combustion Survey

Sample Statistic	Option 1	Option 2
Minimum	<0.1%	<0.1%

⁶ Prior to computing the cost-to-receipt ratios reported in the tables presented in the spreadsheet, we adjusted the engineering compliance costs to reflect 2002 dollars using the implicit price deflators for gross domestic product (GDP). The values used are: 2002 = 104.187 and 2007 = 119.816 (U.S. BEA, 2008).

Maximum	32.4%	32.2%
Median	2.9%	2.7%
Average	5.1%	5.0%
Ultimate Parent Company Observations:	62	62

Table 6. Area Sources: Sales Tests Using Small Companies Identified in the Combustion Survey

Sample Statistic	Option 1	Option 2	Option 3
Minimum	<0.1%	<0.1%	<0.1%
Maximum	6.1%	0.1%	2.3%
Median	0.8%	<0.1%	0.3%
Average	1.5%	<0.1%	0.6%
Ultimate Parent Company Observations:	45	45	45

2. Small Government and Non-Profit Screening Analysis

In addition to the private sector, this rule also covers sectors that include entities owned by small and large governments. Given the uncertainty and data limitations associated with identifying and appropriately classifying these entities, we computed a “revenue” test for a model small government, where the annualized compliance cost is a percentage of annual government revenues (U.S. Census, 2005a and b).

As before, compliance costs were estimated for model facilities for major and area sources for multiple options. When there were multiple model facilities, the model facility with the highest cost was chosen as representative. A summary of the compliance costs used follows:

Major Sources:

- *Option 1&2*: \$1.3 million (highest cost public facility)

Area Sources:

- *Option 1*: \$399K (highest cost public facility)
 - *Schools* \$67K
 - *Churches* \$2K
- *Option 2*: \$9K (highest cost public facility)
 - *Schools* \$2K
 - *Churches* \$2K
- *Option 3*: \$9K (highest cost public facility)
 - *Schools* \$5K

○ Churches \$2K

From the 2002 Census (in 2007 dollars), the average revenue for small governments (counties and municipalities with populations fewer than 10,000) are \$3 million per entity, and the average revenue for local governments with populations fewer than 50,000 is \$7 million per entity.

Highest Cost Public Facility: for major sources, the cost-to-revenue ratio would be 43% for the smallest group of local governments (<10,000 people) and 19% for the larger group of governments (<50,000). For area sources, the cost-to-revenue ratio would range from 0.3% to 13.3% for the smallest group of local governments (<10,000 people) and would range from 0.1% to 5.7% for the larger group of governments (<50,000 people).

Schools: For area sources, the cost-to-revenue ratio would range from 0.1% to 2.2% for the smallest group of local governments (<10,000 people) and would range from <0.1% to 1.0% for the larger group of governments (<50,000 people).

Churches: Assuming an annual operating budget of \$150,000, the ratio of cost-to-expenditures is approximately 1.3 percent.

3. References

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