

FAMILIES FOR CLEAN AIR

May 5, 2014

Gina McCarthy, Administrator
EPA Docket Center/EPA West (Air Docket)
Attention Docket ID: EPA-HQ-OAR-2009-0734
U.S. Environmental Protection Agency
Mailcode: 2822T
1200 Pennsylvania Ave NW
Washington, DC 20004

Comments on the proposed EPA rule: Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces, and New Residential Masonry Heaters

I write today on behalf of Families for Clean Air and our supporters throughout the United States. We are generally in support of the proposed rule and welcome the chance to contribute to the discussion. Our comments and concerns are detailed below.

Changes to the EPA Test Method and Certification Process for Wood Heaters

It is widely acknowledged that the in-laboratory performance of residential wood heating devices is dramatically different from the performance in the real world.^{1,2} Improvements to the EPA certification process that narrow the gap between laboratory and real-world performance of these devices are long overdue.

The proposed rule makes incremental but welcome improvements to the EPA certification process. We commend the EPA for proposing to switch to the use of cordwood in the 2020 certification tests. Clearly this reflects the way wood heaters are operated in homes. Specifying the use of wood with 22.5% moisture content during testing is another welcome improvement that more closely approximates real-world conditions. Eliminating the “weighted average” of the previous rule and changing to a two burn rate category certification is an elegant simplification of the test methodology that should help make the certification values more in line with real-world performance.

However, the real world performance of wood heaters under the proposed rule will still be far too dependent on the operator’s diligence, skill level, and fuel choice. The proposed rule acknowledges these issues by stating, “It is not possible to specify the precision of the procedure in Draft Test because the appliance operation and fueling protocols and the appliances themselves produce variable amounts of emissions and cannot be used to determine reproducibility or repeatability of this measurement method” (p 298).

John Gulland, Manager of the Wood Heat Organization, a pro-wood heating organization states it more bluntly: "...people who don't care about the impacts of their actions on neighbours and are content to remain ignorant of good wood burning practice will make a lot of smoke, regardless of the emissions rating of the appliance they choose."³

Given this reality, we urge that future revisions of this rule require wood heater designs and certification methodology that ensure that wood heaters operate at certification values independent of the user's skill or diligence. Currently, the technology used in pellet stoves comes closest to this ideal, as the combustion air-to-fuel ratio and the fuel type cannot be changed by the operator. We would like to see all wood heaters move to a design that would prevent their emissions from varying depending on the operator and fuel choice.

Start-Up Emissions

Residential wood heaters produce large amounts of airborne pollutants during the start-up phase of their operation. Excluding these emissions from the certification process was a glaring shortcoming of the existing rule.

We appreciate that the EPA will now be collecting data during the start-up phase of wood heating devices, but we request that a timeline for inclusion of start-up emissions into overall emissions calculations be explicitly stated in the rule. This will give both industry and the public a clear understanding of when the levels of emissions from the entire wood burning process will be addressed.

Catalytic and Hybrid-Catalytic Devices

The performance of wood heating devices equipped with catalytic components degrades over time and the catalytic components must be replaced regularly to maintain low emissions. One study notes, "Structurally wood heaters and particularly catalysts degrade with use and emission factors increase...when a catalyst is fully degraded the particulate emissions of a catalyst heater generally is similar to that of an uncertified conventional heater."⁴ The current rule sets lower certification values for catalytic-equipped wood heating devices based on the premise that emissions values for these devices would increase with use.

Inexplicably, the proposed rule now states: "After 25 years of catalyst heater development experience, manufacturers have demonstrated that the performance of these heaters typically remains consistently good over the course of proper operation" (p. 103).

The proposed rule provides no evidence in support of this statement. The sole study cited by the EPA to make the case that catalytic components have a longer lifespan than previously believed was sponsored by the Catalytic Hearth Coalition, an industry group that promotes catalytic wood heater technology. Furthermore, this study used only two wood heaters.⁵

We are aware that some industry groups charged with promoting catalytic technology claim that catalytic components are longer-lasting than in the past, but we are not aware

of any robust independent studies that support their claims.

Unfortunately, the proposed rule does not address the issues of degradation or proper maintenance of catalytic components beyond requiring that the owner's manual for these devices state that, "This wood heater contains a catalytic combustor, which needs periodic inspection and replacement for proper operation" (p. 214).

Clearly there is no economic incentive for the user of the stove to replace the catalytic components. There is also no functional reason for the end user to replace the catalytic components: the negative consequences of degraded catalytic components, which are primarily increased emissions, occur *outside* the end user's home and have little effect on them while they are inside operating the device.

Thus, there is no reason to think that owners will replace the degraded catalytic components or expend the effort to maintain them properly. Even using the industry's most optimistic claims, the maximum lifespan of a wood heater's properly maintained catalytic components is 8–10 years, while the EPA states that the lifespan of a wood heater is greater than 20 years. Therefore, after a few years of use, wood smoke emissions from catalytic devices will potentially be as high as those from an uncertified conventional wood heater.

In addition, we fear that the proposed rule will drive manufacturers to more widely adopt catalytic or hybrid catalytic technology in an effort to meet the more stringent emissions standards of the proposed rule. Of the wood heaters currently in production, a much higher percentage of catalytic wood heaters already meet the proposed Step 2 BSER emission level of 1.3 g/hr. Specifically, 20% of catalytic models already meet the proposed Step 2 emissions level versus only 5% of non-catalytic models (p. 104).

The proposed rule may therefore have the unintended consequence of shifting the marketplace toward catalytic models. As the performance of these catalytic devices degrades over time, the net effect of the proposed rule will be to *increase* rather than decrease wood smoke pollution.

Unless independent studies show that the performance of catalytic components do not degrade throughout the entire life of the device, there must be a regulatory mechanism in place that requires change out and maintenance of the catalytic components at pre-specified intervals. If this is not feasible, we urge that catalytic devices not be certified as part of the proposed rule, since the preponderance of evidence demonstrates that these devices will only meet certification limits when new.

Toxic and Carcinogenic Pollutants Produced by Wood Heating Devices

Air inventories have shown that residential wood burning is a major contributor of toxic and carcinogenic air pollutants including, but not limited to, formaldehyde, polycyclic aromatic hydrocarbons (PAHs), benzene, and dioxin. The proposed rule itself notes that wood combustion products are carcinogenic and account for nearly 25 percent of all area source air toxics cancer risks (p. 9).

The proposed rule is flawed in that while it addresses particulates, it ignores toxins. There is an unqualified assumption in the proposed rule that presumes that toxins will decrease in parallel with particulates. However, most available evidence contradicts this assumption.

Although there has not been enough research into this subject, a small 2009 study compared the emissions of pollutants from an EPA-certified wood stove and a conventional wood stove. While the particulate emissions from the certified stove were lower than from the conventional stove, the combined dioxin/furan emissions were much higher from the certified stove (2–3 times higher, depending on whether maple or spruce was burned).⁶ Another EPA-funded study found that at a medium burn rate, a certified stove emitted higher levels (not lower levels) of organic compounds, including PAHs, than a non-certified stove.⁷ A third technical report prepared for the EPA looked at the long-term performance of phase-2 certified wood stoves and concluded, “The data demonstrate that particulate emissions cannot be used as a surrogate measurement for POM [polycyclic organic matter] emissions of woodstoves.”⁸

We acknowledge that it may not be feasible to certify wood heaters for emissions of toxics and carcinogens at this time and that more research is needed to determine the best way to reduce toxics as well as particulates in order to protect public health. We request that a timeline for certification of emissions levels for toxic compounds, including formaldehyde, PAHs, benzene, and dioxin, be explicitly stated in the rule so that the public and the environment will be adequately protected from all of the pollutants produced by wood heaters.

Certification of Hydronic Heaters and Forced-Air Wood Furnaces

Many areas of the country currently prohibit the sale and installation of hydronic heaters and forced-air wood furnaces, since they are not EPA-certified devices as set forth in Subpart AAA. We commend the EPA for certifying hydronic heaters and forced-air wood furnaces (as well as masonry heaters) under a discrete subpart so that such areas will not have to rewrite their rules to continue to prohibit the sale and installation of hydronic heaters and forced-air wood furnaces. It is critical to maintain this distinction in the final rule so that certification is not used to open the door to the sale of hydronic heaters and forced-air wood furnaces in areas of the country that currently prohibit them.

In areas of the country that do not currently prohibit the sale or installation of hydronic heaters and forced-air wood furnaces, we understand that it will be useful to have a certification process for these devices.

However, we are concerned about the potential unintended consequences of the certification of these devices. Specifically, it is possible that device manufacturers and retailers will tout and market the EPA certification as a "seal of approval." As a result of industry marketing, consumers may be given the idea that these devices are an environmentally wise home heating choice, when in fact they emit orders of magnitude more pollutants than heating devices that burn natural gas, propane, oil, or that use

electricity.

For example, the Alliance for Green Heat includes the following statement in the Policy Goals section of its website: “By 2014, indoor boilers and furnaces are expected to be regulated by the EPA, which will ensure that particulate levels are within set limits. Once that occurs, it will pave the way for programs to provide incentives for these whole house systems aimed at switching 100% of home heating needs from fossil fuels to renewable biomass.”⁹

If industry’s policy goals are realized, the proposed rule will result in much more air pollution, since these wood heating devices, even when equipped with state-of-the-art technology and measured under laboratory conditions, produce far more pollutants than heating devices that burn natural gas, propane, oil, or that use electricity.

We therefore urge that the final rule expressly prohibit the use of EPA certification in any marketing, advertising, merchandising, or point-of-sale materials for these devices. A provision should also be put in place to prohibit federal funds from being used to subsidize the sale of these devices.

Conclusion

In closing, Families for Clean Air thanks the EPA for addressing some of the shortcomings of the existing rule and for offering this opportunity to comment on the proposed final rule.

We appreciate the difficulty EPA faces in regulating wood heating devices and understand that there is pressure both from industry and from a public that is still mostly uninformed about the well-documented health and environmental hazards of wood smoke pollution.

The issues addressed by this proposed rule have grave and long-lasting public health implications. We hope that you will consider our suggestions and comments and that the adoption and implementation of the proposed rule will be just a first step toward protecting public health and the environment from wood smoke pollution.

Sincerely,

A handwritten signature in cursive script that reads "Susan Goldsborough".

Susan Goldsborough

Executive Director, Families for Clean Air

References

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7. **Wood Stove Emissions: Particle Size and Chemical Composition.** 2000. McCrillis (US EPA) National Risk Management Research Laboratory, Air Pollution Prevention and Control Division.
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<http://www.forgreenheat.org/goals/boilers.html>. Accessed April 15, 2014.