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The Western States Air Resources (WESTAR) Council, an association of 15 western state air quality agencies is pleased to comment on the *Advance notice of proposed rulemaking* (ANPRM) for the *Standards of Performance* (NSPS) for *New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces*. The following comments represent the views of the WESTAR member states, except Wyoming.

In this ANPRM, EPA seeks comment on ten topic areas (labeled A thru J) affecting compliance and other related implementation facets of the NSPS. On January 14, 2019 WESTAR submitted comments in response to the *Notice of Proposed Rulemaking* (NPRM) on the same NSPS. In those comments, WESTAR addressed topics regarding the Step 2 compliance date (B) and emission limits for hydronic heaters (C), forced-air furnaces (D) and wood heaters (F). We refer EPA to those comments (attached). In brief, we believe EPA should implement the residential wood heating device NSPS as revised in 2015 and adhere to the compliance schedule and emission limits based on the Best System of Emission Reduction (BSER) determination at that time.

In future rulemaking related to this NSPS, EPA must accurately characterize all public health impacts, including impacts based on the expected operational life of these appliances, not limited as it was in scope and time, among other shortcomings in the Supplemental Regulatory Impact Analysis (SRIA) for the NPRM.¹ It is incumbent upon EPA to undertake a full BSER analysis should EPA propose changes to the compliance schedule or emission limits for residential wood heating devices. For reasons previously stated and further explained below, we believe that review should be undertaken at the next statutorily scheduled NSPS review in 2023.

¹ See WESTAR comments on the NPRM. See also NPRM docket for several critiques outlining the deficiencies of the SRIA and Clean Air Act section 307(d).

Emissions from residential wood heating continue to be a significant source of adverse public health outcomes, as characterized by EPA and in many comments on the NPRM. In consideration of the continuing pollution problem of residential wood heating nationally and in the western U.S., EPA should focus its efforts on reducing emissions from these sources. As noted in our comments on the NPRM, western states depend on new source controls from this program to complement their state and local efforts. States need the emission reductions from the 2015 NSPS to attain and maintain the National Ambient Air Quality Standards (NAAQS) for PM_{2.5}.

A. Test Methods-transition to cord wood

WESTAR, along with other interested states, regional air quality organizations, EPA and the regulated community participated in discussions to improve upon the current residential wood heater certification test method to bring it closer into alignment with ‘real world’ fueling and operational practices.^{2,3} These discussions have been valuable, but inconclusive. WESTAR remains committed to a process to develop, along with other stakeholders, a ‘consensus’ method that more closely represents in-home use practices and thereby more accurately characterizes ‘typical’ appliance air emissions. We continue to believe that EPA must take a leadership role in this effort by committing the necessary research funding and test method development focus and to act as an ‘honest broker’ as it is the ultimate authority for adoption and implementation of a new national cord wood test method that will serve as the basis for certification testing and characterization of BSER.

We learned during the stakeholder discussions surrounding ‘typical’ operating procedures that expert opinion is largely conjecture. There is no data set that is representative of actual in-use residential wood heating appliance operation and fueling practices. Neither manufacturers nor air quality regulators possess a comprehensive understanding of the range of appliance operation practices, let alone the ‘typical’ practices – that can or should be incorporated into a certification test protocol. More research is desperately needed, including in situ emissions testing of appliances in ‘real world’ situations to validate cord wood test methods of the future that will more accurately reflect actual emissions performance and to distinguish among appliances that are deemed to be BSER.

The ASTM cord wood method for residential wood heaters, approved for use by EPA, insufficiently characterizes emissions because of test method emissions variability. One such example is the allowance of the use of a wide range of cord wood fuel species that have been demonstrated to be a large source of emissions variability.⁴ In addition, given the lack of

² Consensus Positions of WESTAR, NESCAUM and HPBA, “Proposed Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced Air Furnaces, and New Residential Masonry Heaters.” August 18, 2014.

³ Process for Developing Improved Cordwood Test Methods for Wood Heaters. Discussion Paper. U.S. EPA Office of Air Quality Planning and Standards. March, 2016.

⁴ Wood Species Testing Using Crib and Cordwood in a Pre-NSPS Residential Wood Heater. Hearthlab Solutions, LLC, and SC&A. EPA Contract No. EP-D-12-001. August 9, 2017.

prescriptive operational protocols and the reliance on manufacturer's instruction, the method is subject to manipulation and 'gaming' to achieve a passing score.⁵ The simple fact is that this method has not been validated through reproducibility of emissions results which is of concern in light of the unspecified allowances for operational and fueling practices. These methodological weaknesses have serious implications for determining compliance consistently and most importantly, the emission reduction performance and potential to solve real air quality problems.

Under development by NESCAUM, an "integrated duty cycle" method has several promising advantages over the current crib wood method. It includes emissions from the cold start, kindling phase, a period of potentially high emissions. By incorporating three replicate runs, the method accounts for potential variability inherent in burning cord wood in residential heating devices. The integration of the TEOM continuous emissions monitor into testing gives a clear indication of particulate emission peaks, which can be common in batch loaded wood combustion devices and could be a source of information for establishing BSER and a component of the compliance method for BSER to cap short term emissions peaks. It also provides manufacturers insight into the design elements that can result in better control of peak emissions during different phases of the fuel consumption. Finally, It could be possible for states seeking more stringent controls on appliance emissions to use the TEOM information gathered during testing to establish emission standards of their own.

B. Feasibility of Step 2 compliance date

See WESTAR comments on NPRM (attached)

C. Emission limits for forced-air furnaces

See WESTAR comments on NPRM (attached)

D. Emission limits for hydronic heaters

See WESTAR comments on NPRM (attached)

⁵ For example, see ASTM Method 3053-17, Section 3.2.10 "specific information regarding the fueling and operation procedures recommended by the heater and manufacturer and included with the heater at the time of testing. Discussion - These instructions may include specific kindling and fueling instructions and recommendations such as kindling dimensions and placement (including newspaper) and ignition, dimensions of start-up fuel pieces, addition and placement of the start-up fuel, addition and placement of the main fuel load, position of the load door(s) and setting heater controls (including bypass dampers, if applicable) during start-up and subsequent operation. Instructions for refueling a hot heater when residual fuel and charcoal are present in the firebox may also be included. These instructions must be consistent with information provided to the heater end-user in the owner's manual but may also include information that will be useful only during testing and not to the end-user." See also 40 CFR 60.534(h).

E. Emission limits based on weighted averages vs individual burn rates for hydronic heaters and forced-air furnaces

The discussion in the ANPRM lacks sufficient specificity and includes insufficient information and analysis on which to make an informed recommendation on E at this time. In our comments on the proposed revisions to the NSPS in 2014 we supported a g/hr cap for hydronic heaters "...to reduce emissions from oversized units operating below their optimum range and to capture emission spikes from cycling units."⁶ We also supported in-use visible emission limits for all NSPS certified appliances, including hydronic heaters and encouraged EPA through regulatory and non-regulatory approaches to ensure hydronic heaters are sized properly to the heat load.

The basis for our comment was that a g/hr cap is necessary due to the peak emissions that can occur in 'stand by' mode during which the forced air combustion fan is off and the fuel in the appliances have a tendency to smolder and thus produce higher emissions until the demand for heat triggers the forced air combustion fan to switch back on.

The determination of whether or not the emission limits are based on and applied to weighted averages of individual test runs, or as 'emission caps' on individual runs may not be mutually exclusive. Ultimately, the form of the emission limits or performance standards is the result of the BSER analysis and this assessment must be based, at least in part, on the demonstrated control technology to reduce emissions during these periods when the appliance is in 'stand by' mode.

F. Step 2 emission limits for wood heaters

See WESTAR comments on NPRM (attached)

In the ANPRM, EPA notes a concern regarding the use of g/hr for determining compliance because of potential bias introduced by long duration test runs under the current testing regimen. An assessment of the form of the standard, whether it be g/hr, g/kg, or lb/mm/Btu, is a matter that is intertwined, not only with other elements of the test method, but also with the evaluation of BSER. It is inappropriate to make a judgement upon the form of the standard in isolation of the many other aspects of the test procedure, especially in light of the interest in changing the fueling protocol, as well as other test method parameters. We reserve judgement until a new test method is under development in addition to an assessment of the compliance limit as determined by BSER. We do note that, as a practical matter, the use of g/hr is useful in defining the airshed impact of residential wood heating emissions, and for this reason some of our members will continue to support a g/hr standard.

⁶ WESTAR comments on the proposed NSPS for residential wood heating devices (Docket ID: EPA-HQ-OAR-2009-0734) attached.

G. EPA compliance audit testing

The principal that should guide EPA in managing this certification program is that the public health and the regulated communities have confidence that the certified products are fairly tested and meet strict emission limits. With responsibility for oversight of an independent, third party testing and certification program, EPA must demonstrate that it has a credible compliance effort given the impact of the emissions from residential wood heating devices on public health. That effort should include compliance checks on appliances at labs other than the lab that performed the original certification test. While there are differences of opinion about the test method variability⁷ we believe that EPA should take test method variability into account in its compliance audit actions. To that end, EPA should undertake a peer review process that assesses the intra- and inter-laboratory reproducibility of the certification test methods. EPA should also conduct a rigorous inter-laboratory compliance testing program as a routine component of its compliance oversight of this certification program. EPA also ought to explore more fully the option of establishing a ‘reference’ or ‘referee’ laboratory either operated by the federal government or operated under contract to the federal government. The establishment of such a ‘reference’ laboratory could also serve as a resource in the development of future test methods for residential wood heating devices and for future determinations of BSER.

H. ISO-accredited third-party review

The same principles that applies to G above regarding the audit program, applies to third-party review. EPA is responsible to both the public health and regulated communities for maintaining a credible independent laboratory-based certification program. As long as EPA maintains this model, approval of certification testing results by a testing laboratory that performed the certification testing presents an inherent conflict of interest and should not be allowed. Ultimately, the responsibility for making compliance determinations and insuring the independence of certification testing without undue influence from manufacturers whose appliances are subject to a compliance assessment through the certification testing process rests with EPA. EPA needs to demonstrate through appropriate oversight and a rigorous audit test program that the certification testing process is truly independent. These steps are necessary to ensure that the emission reductions are achieved, and that EPA has a credible compliance effort to ensure that the regulatory process functions in a transparent and equitable manner. EPA should examine if the ISO-accredited third-party review accomplishes these purposes.

⁷ EPA Wood Heater Test Method Variability Study: Analysis of Uncertainty, Repeatability and Reproducibility Based on the EPA Accredited Laboratory Proficiency Test Database, 2010. Rick Curkeet and Robert Ferbuson, October 6, 2010. See also: “Preliminary Review of Analysis of NSPS Test Method Variability (Curkeet, 2010)” December 15, 2012 letter to Stephan Page, OAQPS. (Dr. Phil Swartzendruber, 2012); and, Recommendations For Improving Method 28 and For Making the New NSPS More Effective: Version 2, Paul Tiegs, OMNI-Test Laboratories. April 6, 2010.

I. Electronic reporting tool

We support the use of electronic reporting tool as long as the goal is to provide better public access to certification compliance test data. EPA publishes lists of certified appliances on an irregular schedule.⁸ Access to certification data, including the results of individual test runs should be made easier by EPA. The use of Confidential Business Information (CBI) to restrict access to compliance data must be avoided so that the public has access to the full range of certification test results in order to perform independent assessments of the data to aid in responses to rulemaking changes such as this ANPRM. Without access to current information, the public cannot fully participate or be fully responsive to the queries raised in this ANPRM or other regulatory actions by EPA.

J. Warranty requirements for certified appliances

Technological solutions to controlling emissions from residential wood heating appliances require some consideration of the emission reduction effectiveness over time, particularly in light of the fact that these appliances may be in use for twenty or more years. EPA should closely examine its current operating instruction/warranty requirements with a focus of ensuring that the integrity of the emission control effectiveness is maintained over time.

For example, with the application by more manufacturers of catalysts in residential wood heaters and other devices, catalyst warranties can create an incentive for manufacturers to design appliances that integrate the catalyst in such a way as to protect the catalyst from flame impingement that can be destructive to the catalyst substrate or proper catalyst functioning. If the longevity of control technology incorporated into these appliances cannot be maintained through warranty requirements or reasonable owner's manual directions, then perhaps the appliance certification protocol should contain a demonstration, possibly through additional testing, that the emission reduction integrity is maintained over time and degradation is kept to a minimum. EPA should examine the consumer protection in the mobile source program and mirror those requirements to the greatest extent possible.⁹

⁸ Most current published USAEPA List of certified stoves, October 2018; List of certified hydronic heaters, June, 2018; List of certified forced-air furnaces, June 2018.

⁹ Emissions Warranties for 1995 and Newer Light-duty Cars and Trucks under 8,500 Pounds Gross Vehicle Weight Rating (GVWR). Office of Transportation and Air Quality, U.S. Environmental Protection Agency. EPA-420-F-15-035, October, 2015.

In conclusion, consistent with our comments on the NPRM, we believe EPA should implement the residential wood heating device NSPS in accordance with the emission limits and compliance timeframes as revised in 2015. Changes to the emission limits and dates for which EPA is seeking comment in this ANPRM are most appropriately determined in the broader context of a review of BSER, which we believe should be undertaken in 2023.

Sincerely,

A handwritten signature in cursive script that reads "Mary A. Uhl".

Mary Uhl, Executive Director
WESTAR Council

Attachments

WESTAR January 14, 2019 comments to EPA on the NPRM

WESTAR May 1, 2014 comments to EPA on the proposed revisions to the NSPS