

July 31, 2014

Gina McCarthy, Administrator
U.S. Environmental Protection Agency
EPA Docket Center, WJC West Building (Air Docket)
Mail Code: 28221T
1200 Pennsylvania Avenue, NW
Washington, DC 20004
Attn: Docket ID No. EPA-HQ-OAR-2009-0734

Via Email: a-and-r-docket@epa.gov

Re: Notice of Data Availability for New Source Performance Standards for Residential Wood Heaters, et al.

Dear Administrator McCarthy:

The Northeast States for Coordinated Air Use Management (NESCAUM) offer the following comments on the U.S. Environmental Protection Agency's (EPA's) Notice of Data Availability (NODA) published on July 1, 2014 in the Federal Register (79 FR 37259-37261) in support of its previously proposed rule "Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces, and New Residential Masonry Heaters" published on February 3, 2014 (79 FR 6330-6416). NESCAUM is the regional association of air pollution control agencies representing Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont. These comments reflect the views of all NESCAUM member agencies except the Maine Department of Environmental Protection.

EPA Test Certification Data

In the NODA announcement, EPA is making available summaries of certification test results performed after January 1, 2010 for pellet stoves, catalytic stoves, and non-catalytic wood stoves submitted by manufacturers to demonstrate compliance with the device type's respective current (1988) new source performance standard (NSPS) (7.5 g/hr for non-catalytic heaters, 4.1 g/hr for catalytic heaters). NESCAUM requested these data prior to the original comment deadline but due to confidentiality issues, the data were not provided until after the comment deadline.

As EPA states in the NODA, model line certifications are based primarily on testing of representative stoves by EPA-accredited test laboratories using a standard EPA test procedure called Method 28. Method 28 consists of four burn rate categories with Category 1 being the minimum burn rate, Category 4 the maximum burn rate, and Categories 2 and 3 in between. Compliance with the 1988 NSPS is based upon the weighted average emission rates across all four burn categories.

NESCAUM reviewed the test summaries from 106 tests conducted by multiple laboratories since January 1, 2010. Our review found significant data issues, with many of the tests appearing to deviate from the standard procedures set forth in EPA's test procedure (Method 28). The NODA data show that 90% of the non-catalytic stoves did not have a Category 1 test (low burn rate test), and only 50% of the catalytic stoves conducted a test in this category. This is a serious omission for public health protection given the numerous studies that have shown low burn rates are typically seen in the field and result in high emission rates.¹

We are aware that the test method allows manufacturers to complete two test runs in Category 2, if testing in Category 1 is not achievable. The test method, however, requires that the testing laboratory attempt two runs in Category 1 before using this provision. The test summaries provide no data to indicate that two attempts at conducting a Category 1 burn rate had been completed. While the tests may be acceptable under the current test method procedures, allowing units to be sold without testing at their highest emission rates, the low burn rate, is troubling.

Even more troubling is that the tests were certified by the EPA Office of Enforcement and Compliance Assurance (OECA) without any documentation in the test summaries to explain why deviations were allowed. Given the significant number of units certified without Category 1 runs, NESCAUM recommends that EPA create mechanisms within the new rule to ensure units are tested at their lowest operational setting. For example, EPA could revise the test procedure for Category 1 to require emissions to be measured during the period that a device can burn at its lowest setting rather than requiring the burning of a full fuel charge. NESCAUM also requests that EPA OECA provide information as to why so many tests were accepted without Category 1 results.

Another issue identified in the certification data was the many tests having multiple runs within a burn category; many tests had 8 runs and 1 test had an astounding 16 runs (the equivalent of running 4 full tests). While use of multiple runs is allowed, the high number of units utilizing many multiple runs raises concerns about routinely averaging out poor test results. NESCAUM recommends that EPA limit the total number of runs to 6 runs.

The missing test data support NESCAUM's previous comments to EPA on the need to provide the states and the public with better access to emissions testing data. It also underscores our concerns about the capacity of laboratories to conduct and certify test results appropriately.²

¹ Houck, J.E., L.Y. Pitzman, and P. Tiegs. *Emission Factors for New Certified Residential Wood Heaters*, presentation at *17th Annual International Emission Inventory Conference "Inventory Evolution - Portal to Improved Air Quality"*, Portland, OR (June 4, 2008). Available at: <http://www.epa.gov/ttnchie1/conference/ei17/session4/houck.pdf>.

² NESCAUM comments submitted to EPA Docket ID No. EPA-HQ-OAR-2009-0734, *Re: New Source Performance Standards for Residential Wood Heaters* (May 5, 2014). Also available at <http://www.nescaum.org/documents/nescaum-comments-resid-wood-heaters-nsps-20140505.pdf>.

EPA needs to put in place clear safeguards and methods to assure valid and complete certification testing. If this widespread poor performance of testing laboratories continues, EPA must take back complete oversight of the program. Finally, EPA OECA needs to improve its capacity and practices surrounding review of this critical source category in light of the omissions allowed to occur in the EPA certification approvals.

Furthermore, NESCAUM recommends that EPA OECA develop a common test reporting form that cannot be submitted as confidential business information (CBI). This is needed for the following reasons: (1) to ensure consistent and complete data reporting, (2) to ensure that emission data and key test parameters are available for public review, and (3) to reduce the review burden on EPA due to the large number of tests associated with this source category. NESCAUM believes that these objectives can be met by developing an Electronic Reporting Tool (ERT).

Additional Testing Data

The NODA also contained information on cordwood testing conducted by manufacturers and Brookhaven National Laboratory (BNL). An initial review of the BNL data raises questions about the accuracy of that data, specifically:

- Tables 3, 4, and 5 in the BNL report all have lower total mass filter measurements for the cordwood tests with similar test run times to the crib test but the final mass over time emission rates for cordwood are higher.
- Category 3 test runs show large variations in the stack temperatures without any rationale for this variation.
- Average percent carbon monoxide (CO) levels were an order of magnitude lower in the BNL test, as shown in Table 1, without any explanation for the cause.

Table 1. Comparison of %CO Levels between Certification Test and BNL Test

Burn Category	Certification Test	BNL Test
Category 2	1.11%	0.03-0.09%
Category 3	0.87%	0.03-0.04%
Category 4	0.58%	0.03%

The BNL data also show significant variation in how the non-catalytic stove operated in the BNL laboratory versus the certified test laboratory in all burn rates. Operational parameters of the device in the BNL laboratory differed significantly from the certified test laboratory, as shown in Table 2. EPA must assess if these differences are due to changes in fueling procedures, differences in stove design, or differences in test implementation procedures before drawing conclusions about the results.

Table 2. Comparison of Average Stove Temperatures between Certification Test (Cert.) and BNL Test³

Stove Temperature Location	Category 2 (°F)		Category 3 (°F)		Category 4 (°F)	
	Cert.	BNL	Cert.	BNL	Cert.	BNL
Top	268	205-219	334	240-399	311	420-459
Left	306	330-357	370	417-450	404	548-604
Back	251	88-92	313	81-88	232	86
Right	316	271-295	376	318-355	424	363-410

Both issues highlighted above make thorough analysis of the BNL results impossible given the lack of access to underlying data for both the certification crib test and BNL test.

The testing data contained in the NODA highlight a critical question that EPA must consider: Is emissions variability due to the test method or the heating device design? The data submitted by manufacturers for catalytic and hybrid stoves⁴ suggest that their control technologies' emission levels are not susceptible to changes in fuel types and burn practices. The BNL data, if accurate, suggest that cordwood emission levels may be greater with non-catalytic stoves, which may be a result of some device manufacturers' fine tuning their units to pass a crib test. While some may use this information to support moving to a less stringent standard with cordwood, we question whether this increase in emissions is due to moving to a new fuel or due to an inability of this design to adapt to different fueling patterns. Without a more in-depth study, however, it is difficult to draw clear conclusions. The non-catalytic stove data highlight the issue of variability and the need to ensure that when properly operated a unit can burn cleanly under a variety of fueling conditions. NESCAUM recommends that EPA create mechanisms and procedures to ensure that a technology is robust enough to burn clean in the laboratory and in the field, regardless of the fueling procedures.

Summary

Our review of the NODA data supports many of the issues raised in earlier NESCAUM comments on the proposed NSPS for wood heaters, including testing laboratories' lack of capacity to independently conduct and certify results, EPA OECA's ineffective role in reviewing and certifying results, and the demonstrated ability of more robust stove technologies to achieve consistent emissions performance across fuel changes and burn practices.

³ BNL conducted multiple runs in each burn category hence the range of numbers, while the certification test only conducted one run in each burn category.

⁴ A hybrid stove is a device that employs both catalytic and non-catalytic emission reduction control technologies.

If you have questions or would like more detail on NESCAUM's review of the test data summaries, please contact Lisa Rector of NESCAUM at 617-259-2095.

Sincerely,

A handwritten signature in cursive script, appearing to read "Arthur Marin".

Arthur Marin
Executive Director

Cc: NESCAUM directors
Mike Koerber, US EPA OAQPS
Gregory Green, US EPA OAQPS
Gil Wood, US EPA OAQPS
Cynthia Giles, US EPA OECA
Lisa Lund, US EPA OECA
Ed Messina, US EPA OECA