

RESPONSIVENESS SUMMARY

PROPOSED AMENDMENTS TO VERMONT'S AIR POLLUTION CONTROL REGULATIONS

REGULATION OF AIR POLLUTION EMISSIONS FROM WOOD BURNING STOVES, CENTRAL HEATERS, AND BOILERS

November 1, 2022

List of Commenters:

1. Scott Nichols, Tarm USA, Inc., Orford NH
2. Barry Bernstein, former owner Better World Energy, LLC
3. Jim Van Valkenburgh, Froling Energy, Peterborough NH
4. Andy Boutin, Pellergy LLC, Montpelier

Summary of Comments and Responses:

1. Comment: Do the boilers that have been previously certified by the special Vermont process retain that certification if this rule goes forward?

We have one boiler that was approved under the alternate approval methodology, that is around 205,000 Btu, that couldn't be approved under the proposed regulation since it is under 350,000 Btu. Since it is already approved, would we still be able to install that particular boiler? For the European manufacturer's that we work with, individual models for which a certification might apply are only produced for about five years and then they are rolling over to new models. While I have four or five of the approved boilers in inventory, that specific model is no longer being manufactured. Because of this model turnover, a specified number of years, such as five or seven years from the date of certification, that a certification is good for would be appropriate.

Response:

The two models certified using the interim process allowed by Act 50 (2019) will retain the certification after the rule amendments are adopted, unless the Agency determines that recertification is necessary to avoid a nuisance or to protect the health, safety or comfort of the public. The Agency updated the proposed rule in §5-205(b)(1) to clarify this requirement as follows: "If the *wood fuel burning equipment* subject to this Section has been previously certified by the Secretary pursuant to Act 50 (2019), such certification will not expire, unless the *Air Pollution Control Officer* determines that recertification is necessary to avoid a nuisance or to protect the health, safety or comfort of the public."

2. Comment: It seems like the process for special Vermont certification going forward might be easier. Would we still be paying \$1000 and submitting all of the test results or would you simply take it on face value based on the actual results and the Class V rating? For a European boiler for instance?

Response:

The certification procedure for medium-sized units will be made available after rule adoption. All test results and supporting information will still be required to be submitted to the Agency, however the \$1000 fee included in Act 50 (2019) will not be applicable to the new registration process in the rule. If the Agency is authorized to collect a registration application fee in the future, a fee may apply. Units above 3 MMBtu/hr requiring a state permit will be subject to the fee schedule set out in 3 V.S.A. §2822(j), as described [on our website](#). The specific fees vary depending on the size and scale of the project. No changes were made in response to this comment.

3. Comment: The unseasoned wood definition is restricted to wood with <20% moisture content. The problem with the restriction and definition is that EPA test methods allow for greater wood moisture contents, up to 26% wood moisture content. It is difficult for consumers and manufactures when unusually restrictive and arbitrary thresholds are used. It is also practically impossible for Vermont to enforce the use of seasoned wood. Must we have a special section of our owner's manuals that proclaim that Vermont customers must use wood that is drier than what is required in every other state?

Response:

The definition of unseasoned wood in the APCR is identical to the definition in the federal regulations promulgated by the U.S. Environmental Protection Agency (US EPA) that apply to residential wood heaters (CFR Part 60, Subparts AAA and QQQQ). In the APCR, this definition only applies to wood heating units subject to §5-204 (units with a heat input of 350,000 Btu/hr or lower). Wood heaters subject to §5-204 are required to be certified by the US EPA and are also required to comply with the allowable fuel requirement in the APCR, including the prohibition on burning unseasoned wood. The prohibition on burning unseasoned wood is also found in CFR Part 60, Subparts AAA and QQQQ. The Agency made a minor edit to the definition of "unseasoned wood" in proposed rule §5-204(b)(14) which now reads as follows:
"*Unseasoned wood*" means wood with an average moisture content of 20 percent or more."

4. Comment: The definition of distribute or sell is quite broad "means to distribute, sell, advertise for sale, offer for sale, hold for sale, ship, deliver for shipment, release for shipment, or receive and (having so received) deliver or offer to deliver. This term also includes conditional sales and long-term leases." How do you propose that a company avoid advertising for sale when the internet is accessible worldwide? How can a company not run afoul when using other advertising and marketing media, which crosses state boundaries, such as magazines where a distributor can't possibly know where subscribers are located? What is the actual harm in a company like Tarm USA, Inc. taking deposits for a product pending EPA certification if the product is not actually delivered? How can Vermont enforce; why would Vermont enforce a reasonable transaction between two honest parties? Note that when it comes to mid-sized wood-fueled heating equipment, the definition of sale seems to change to be a more conventional definition involving a trade of money for equipment. For example, a letter is required before a sale is agreed upon or transacted. The language indicates that an agreement necessitates a letter. The original Vermont definition of distribution and sale is far broader than an agreement or a transaction.

Response:

The Agency amended the definition of “distribute or sell” in response to this comment to clarify that it does not apply to wood fuel heating equipment that is installed outside of Vermont. The Agency updated the proposed rule in §5-101 to clarify this definition as follows: “This term does not include distribution or sale of equipment that is installed outside of the State of Vermont.” The Agency also edited the proposed rule §5-205(d)(2)(i) to use the term “distribute or sell” instead of “sold or distributed.”

ANR has noted that companies advertising wood fuel burning equipment that is not eligible to be sold in Vermont tend to include such a disclaimer within the product’s information, either in online or written materials.

5. Comment: Why do tree sap evaporators get a pass from regulation? Does Vermont have any actual data that shows mid-sized boilers produce more particulate pollutants than evaporators? I’m a sugar maker too, but this exemption seems arbitrary and unsupported. If Vermont likes using wood for boiling sap, it should also like wood for heating its buildings.

Response:

The Agency does support using wood for heating buildings; the intent of these regulations is to minimize emissions and promote higher efficiency from wood heating units. Tree sap evaporators are exempt for several reasons. Evaporators operate over a much shorter annual duration than wood heating units. They are typically used intermittently over a period of approximately six weeks (based on the average date of season opening and closing) while wood heating units will likely operate 40 or more weeks per year. Evaporators are typically located in rural areas with low population density whereas wood heating units are often sited in more populated areas and at locations with sensitive populations such as schools or health care facilities. No changes were made in response to this comment.

6. Comment: I think there is a simpler and less expensive way than a stack test. Messersmith Mfg. Inc, believes that a data collection requirement provides a better guarantee of performance than a one time compliance stack test when the unit is new. Messersmith systems, when a stack test was required, where BACT , a ESP or Baghouse, has been installed as part of the installation, will exceed the Minimum Requirement of 0.10 lbs/MMBtu PM. Many states, do not require stack testing if BACT was part of the system. NH only requires a stack test if the owner wants to qualify for receiving and monetizing RECs, thru the NH program.

The stack test cost is approximately \$8 - 12,000, an added cost to the customer on top of installing, an already expensive, BACT i.e. ESP or a Baghouse. There are considerably less expensive ways to assure the installed BACT is operating efficiently and effectively, not just when installed but consistently through out its operation.

ESP - the control panel that operates the ESP, has two meters on the front of the panel, a Voltage meter (Kw) and an Amperage meter (mA). As long as the Voltage meter and Amp Meter needles remain between Manufacturer’s set points , the ESP will exceed the 0.10 lbs/MMBtu PM Minimum Requirement. When it is outside parameters, an alarm is send to the operator and

the wood chip system shuts down if operator does not respond to alarm with a programmed time.

Baghouse - The same is true of the Baghouse, as the ESP. However, the Baghouse parameters are set based on pressure change, caused by bag loading. When the pressure raises outside BACT manufacturer's parameters, an alarm is sent to operator, and wood chip system is shut down.

Messersmith Manufacturing, and other manufacturers of wood chip systems, are required by EPA for all systems 10 MMBtu and larger, to provide digital recording every 15 minutes of the BACT operation and this ability is part of Messersmith's OCS program on all systems, regardless of how small or large the system, and I assume the same is true for all manufacturers. The Air Pollution Division, can include as part of the Rule, that this information be furnished by the operator once a week for the first month, every quarter there after. The Rule can also require that the Division be informed when a malfunction alarm of the BACT occurs and what corrected action was taken, within 7 days of occurrence.

This should be far more effective, in insuring that the system is in compliance with the standard, at start up, and on an ongoing operational basis.

Response:

Because of the possible installation locations for many wood boilers subject to this rule such as schools and dense residential buildings, the Agency needs to ensure that the units are initially installed correctly and meeting regulatory limits. Source emissions testing is the standard tool used by the Agency for determining if a source's emissions comply with regulatory limits both during commissioning of a new source and in some instances continued testing over the life of the source. In several instances, the Agency has determined through source emissions commissioning tests that sources were not installed or tuned correctly and therefore not meeting regulatory emissions limits.

While the Agency respects the value of emissions control monitoring systems for maintaining compliance with regulatory limits, the Agency has often found that facility staff monitoring the control device are unaware of the ranges the control device should operate in. Recently, Agency staff have repeatedly requested an ESP operating range requirements from a facility using an EPS monitoring device on a wood boiler, only to have the facility be unable to answer. When the facility forwarded the question to the manufacturer for response, they were told that no ESP manufacturer will provide an operating range as was requested. The manufacturer felt that there were too many factors that go into developing an operating range for an ESP on a wood boiler that they have no control over such as boiler load, fuel moisture content, dust inlet loading negative or positive pressure in the unit. Additionally, the manufacturer provided that ESP operating ranges are always established through a stack test.

A recent cost estimate reviewed by the Agency for a proposed wood boiler installation equated to \$350,000. The Agency feels the \$8,000-\$10,000 initial stack test cost, being a small percentage of the overall project cost, to be an acceptable burden to ensure correct installation and performance given the likelihood of installations in densely populated areas potentially containing children or the elderly. No changes were made in response to this comment.

7. Comment: In the report there was a projection of the number of wood chip boilers that would be coming in the next 10 years, something like 600. In the 30 some years that I've been involved in this, and we've put in most of the existing wood chip boilers in New England, we've reached 100 over a 20 something year active period. I don't see the number in the report happening, I don't think it's realistic. It doesn't take away from the fact I support the 0.1, I think there are other ways of clarifying meeting the goal besides a stack test. I hope there might be some state money to help commercial customers with the extra cost of the BACT technology.

Response:

The commenter did not provide the name of the specific report cited above. The data used in the Agency's technical support document was based in part on wood heating goals in the 2016 Vermont Comprehensive Energy Plan and the Final Report from the Climate Action Committee released on 7/31/2018. The goals represent a large consortium of stakeholders, including the wood heating industry. The Agency is also hopeful that future funding sources will be available to subsidize and support the installation and use of important emissions control technologies. No changes were made in response to this comment.

8. Comment: My question has to do with fuels and if the regulations have any reference point to fuels. Obviously, the output is everything, but the input is also important for consistency over time. You wouldn't want to approve a unit with one fuel and have another fuel used and some units can use multiple fuels such as a pellet boiler that could also do dried wood chips or a green chip system that might do multiple fuels. Is there anything in the regulations about this? Would someone seeking certification for more than one fuel need to submit test data for the different fuels?

Response:

The fuel to be burned by the unit to be certified must have been used in the emission test submitted for certification of the unit. As an example, if a unit was tested on semi-dried woodchips, and there was a desire to burn green chips, a test on green chips would also be required. The Agency updated the proposed rule in §5-205(d)(2)(ii) to clarify this requirement by adding the following text: "[i]f certification is being sought for equipment burning multiple wood fuels, then a test must be conducted for each fuel."

9. Comment: If I understand correctly, everything under 350,000 Btu must meet the EPA testing requirement only? There's no alternate certification process for anything lower than 350,000? How was that number chosen, was it an arbitrary figure or is there any flexibility? Pressure vessels of up to 250,000 Btu input are allowed to meet the EN 303-5 standard from a pressure vessel standpoint. This seems like a more appropriate crossover from residential to commercial. We're looking at a European manufacturer of an industrial boiler that goes down to about a 100 kW, that is just under the 350,000 Btu, it's around 341,000. This boiler is physically too large to put on most of the EPA test stands, definitely any that we have in the US. It's a wood chip boiler with EN 303 certification with ESPs. With only a Btu limit and not a physical size of the boiler or size of the pressure vessel or some other avenue, I think we're being a little limiting. This may explain the current systems that are approved, it's systems that are capable of being tested with the EPA method equipment. It may not be possible to test a physically large boiler with a smaller

output; it could meet the emissions standards but there is no way to prove it because it can't be tested. If I enter this kind of comment, is there anything we can do to open that up a little bit, maybe to follow the pressure vessel standard lowering that number down from 350,000 to the 250,000? Or could there be some kind of physical size limit for units that aren't practical to test using the EPA method?

Response:

The Agency chose 350,000 Btu/hr as the upper heat input for wood heating units subject to §5-204 because it represented a likely upper size limit for a heating unit that could be used in a residential setting where the unit might be heating a residence or multi-unit dwelling and meeting other heat demands such as domestic hot water and outbuildings such as a garage or workshop. This heat input is also in line with the largest units included in the US EPA certified wood stove database for central heaters. No changes were made in response to this comment.