

MEMORANDUM

TO: Board of Environmental Protection

FROM: Ron Severance, Bureau of Air Quality

DATE: March 19, 2009

RE: Adoption: Chapter 150, Control of Emissions from Outdoor Wood Boilers

Statutory and Regulatory Reference:

A. Statutory authority.

38 MRSA Section 585-A provides that the Board of Environmental Protection "may establish and amend regulations to implement ambient air quality standards and emission standards. These regulations shall be designed to achieve and maintain ambient air quality standards and emission standards within any region and prevent air pollution."

B. Specific legal mandates requiring adoption.

Resolve 2007, Chapter 190, *Regarding Legislative Review of Portions of Chapter 150: Control of Emissions from Outdoor Wood Boilers, a Major Substantive Rule of the Department of Environmental Protection, Bureau of Air Quality Control* requires the Board of Environmental Protection to adopt rules by April 1, 2009 to control the sale, installation, use and siting at residences and businesses of outdoor wood boilers that combust biomass pellets as a fuel source.

Location/Applicability:

The proposed regulation will apply statewide.

Description:

Background: In June 2007, the Maine Legislature adopted the EPA Phase 1 particulate emission limit of 0.60 lbs/MMBtu heat input as the standard for new outdoor wood-fired hydronic heaters (OWHH), also known as outdoor wood boilers, sold in Maine beginning April 1, 2008. Beginning April 1, 2010 new OWHH sold in Maine are required to meet a more stringent Phase 2 particulate emission standard of 0.32 lbs/MMBtu heat output.

Chapter 150 Control of Emissions from Outdoor Wood Boilers, which incorporated the OWHH particulate emission standards adopted by the Legislature, became effective November 1, 2007.

Chapter 150 also established setback, stack height, particulate emission limits, and fuel requirements for outdoor wood boilers.

In April 2008, the Maine Legislature enacted Resolve 2007, Chapter 190, *Regarding Legislative Review of Portions of Chapter 150: Control of Emissions from Outdoor Wood Boilers, a Major Substantive Rule of the Department of Environmental Protection, Bureau of Air Quality Control*. The resolve requires Chapter 150 be amended in several areas. In particular, the resolve directs the BEP to adopt a rule by April 1, 2009 to control the sale, installation, use, and siting at residences and businesses of outdoor wood boilers that combust biomass pellets as fuel.

The BEP held a public hearing on October 16, 2008 with a written comment period until October 27, 2008. The Chapter 150 proposed amendments required the installation of outdoor pellet boilers 20 feet from the nearest property line or at least 40 feet from the nearest dwelling. Outdoor pellet boilers are also subject to stack height, visible emission standard, EPA certification, fuel, notice to buyer, nuisance condition and third party sales requirements.

The Department received comments from EPA that outdoor pellet boilers should not have less stringent setback requirements than outdoor wood boilers just by definition. EPA believes the distinction the Department proposed between unit types is artificial because it gives the impression that pellet boilers are inherently less polluting than other types of outdoor wood heaters and as a general statement, this has not been demonstrated to be true for all models. EPA recommends the Department consider including a specific emission limit of 0.06 lbs/MMBtu heat output for establishing a reduced setback requirement if the Department's intent is that a lesser minimum setback would encourage consumers to choose lower emitting models. The emission limit of 0.06 lbs/MMBtu heat output suggested by EPA is the cleanest emission limit for outdoor pellet boilers that EPA has currently certified under its certification program.

Based on EPA's comment, the Department proposed to amend the rule in two areas:

- **Outdoor pellet boilers Phase 1 and Phase 2 standards siting criteria.** Those outdoor pellet boilers meeting a Phase 1 particulate emission limit of 0.60 lbs/MMBtu heat input and a Phase 2 particulate emission limit of 0.32 lbs/MMBtu heat output will be required to meet the corresponding Phase 1 and Phase 2 outdoor wood boiler setback and stack height requirements in the existing rule.
- **Outdoor pellet boiler emission standard provision.** As an incentive to manufacturers to produce cleaner burning units and consumers to purchase those units, the Department recommended a lower emission limit corresponding to reduced setbacks. This limit is difficult to determine based on available data, but is between the Phase 2 emission limit of 0.32 lbs/MMBtu heat output and the EPA recommended 0.06 lbs/MMBtu heat output which is currently met by one outdoor pellet boiler on the market. The Department suggested a limit of 0.20 lbs/MMBtu heat output, but requested comments on this limit. Only outdoor pellet boilers certified to meet this lower emission limit could be installed at least 20 feet from the nearest property line or 40 feet from the nearest dwelling.

The proposed particulate emission standard limit of 0.20 lbs/MMBtu heat output for outdoor pellet boilers is for determining a reduced setback and stacks height only and is not a standard for controlling or limiting the sale of outdoor pellet boilers.

Because the proposed new setback standard for the outdoor pellet boilers and the clarification that outdoor pellet boilers not achieving that standard are subject to the existing setback limits was “substantially different from the proposed rule” the Board posted this rule to an additional 30-day comment period. The Board modified the Department’s amendment by proposing reduced setback and stack height for outdoor pellet boilers meeting a 0.06 lbs/MMBtu heat output emissions limit. The Board was especially interested in comment on the 0.06 lbs/MMBtu heat output emissions limit, and whether an alternative emission limit is more appropriate.

Discussion: During the comment period which ended February 20, 2009, the Department received comments from six interested parties concerning the proposed changes. After reviewing the comments, the Department recommends the following changes:

- **Outdoor pellet boiler sale restriction.** The proposed amendments applied the same setbacks and stack height requirements to outdoor pellet boilers as are applied to outdoor wood boilers in Section 3(B) and 3(C); however, no emission limits were set for outdoor pellet boilers under Section 3(A). The Department has added language to Section 3(A) that prohibits the sale of outdoor pellet boilers after April 1, 2009 unless they meet the Phase 1 limit and after April 1, 2010 unless they meet the Phase 2 limit (which corresponds to the outdoor wood boiler sale/installation deadlines).
- **Outdoor pellet boiler and outdoor wood boiler setback reduction.** The Department received comments from three commenters regarding the provision for a reduction in setbacks for units achieving 0.06 lbs/MMBtu output. Two commenters believe that further reductions beyond the already established EPA Phase 2 levels have not been shown to provide any significant returns. Unlike units meeting the Phase 2 limit, the outdoor pellet boiler meeting the 0.06 level is very new and has not met the long term reliability test that has been shown with current units. In addition, one of the commenters suggests that with a method (EPA Method 28) now in place, the free enterprise system will provide an incentive for ongoing improvements to these units and the 0.06 provision is not necessary. One commenter states that if the Department’s intent is to encourage consumers to purchase lower emitting models then perhaps adding a Phase 3 emission level can accomplish that.

The Department originally proposed that all outdoor pellet boilers receive a 20/40 setback provision based on the inherent cleanliness of outdoor pellet boiler technology and type of fuel. In general the outdoor pellet boiler technology allows for a more controlled burn through a metered feed than a typical OWB. In addition, the pellet fuel has lower moisture content and more surface area for a cleaner burn than the “cord wood” fuel for OWBs. The likelihood of startup problems is also reduced significantly compared to OWBs.

The Department recommends a 20/40 setback provision for those outdoor pellet boilers achieving an emission level of 0.20 lbs/MMBtu heat output for the following reasons:

1. The Department agrees that not all outdoor pellet boilers “are created equally”. Some outdoor pellet boilers emit less particulates than others as demonstrated by their EPA certifications.
2. The Department does not believe that establishing a more stringent limit will necessarily be “technology forcing” since one manufacturer already has a unit achieving the 0.06 lbs/MMBtu output.
3. The Department agrees that outdoor pellet boilers that are achieving levels below the Phase 2 limit of 0.32 lbs/MMBtu output should be recognized/rewarded with a reduced setback requirement. The Department recommends a limit of 0.20 lbs/MMBtu heat output as a limit which is between the Phase 2 limit of 0.32 lbs/MMBtu and the cleanest currently certified outdoor pellet boiler of 0.06 lbs/MMBtu output. The advantage of a less stringent setback, while not technology forcing, may provide some incentive for manufacturers to produce, and homeowners to utilize, cleaner outdoor pellet boilers.

Environmental Issues:

In addition to fine particulates, wood combustion emissions contain sulfur oxides, nitrogen oxides, carbon monoxide and potentially cancer-causing compounds including formaldehyde, polycyclic aromatic hydrocarbons, benzene and dioxins. Fine particulates can aggravate lung diseases such as asthma, emphysema and bronchitis. Children, the elderly and those with respiratory problems are most at risk from exposure to wood smoke.

Departmental Recommendation:

The Department recommends that the Board adopt the rule as presented.

Estimated Time of Presentation:

20 minutes