

**ALASKA DEPARTMENT OF  
ENVIRONMENTAL CONSERVATION**



**18 AAC 50 AIR QUALITY CONTROL**

Response to Comments on September 19, 2013 Proposed Regulations:

**Open Burning,  
Wood-Fired Heating Device Visible Emission Standards,  
Solid Fuel-Fired Heating Device Fuels,  
Wood-Fired Heating Device Standards,  
&  
Fine Particulate Matter (PM 2.5) Air Episodes and Advisories**

**November 14, 2014**

## INDEX

Introduction.....	1
Open Burning- 18 AAC 50.065(f).....	2
Prohibition of Wood-Fired Heating Device Operation- 18 AAC 50.075(b) .....	10
Solid Fuel Heating Device Fuel Requirements- 18 AAC 50.076.....	16
Wood-Fired Heating Device Emission Standards- 18 AAC 50.077.....	27
PM 2.5 Concentrations Triggering an Air Quality Episode (Table 6) - 18 AAC 50.245(a) .....	42
Authority to Declare Air Episodes and Advisories - 18 AAC 50.245 (a) (b) (c) .....	46
Definitions- 18 AAC 50.990.....	51
General Comments.....	59
Comments on Public Review Process.....	70
Justification Document and Peer Reviews.....	75

## Introduction

This document provides the Alaska Department of Environmental Conservation's (**DEC**) response to public comments received concerning its September 19, 2013 draft regulations pertaining to Wood-Fired Heating Device Emission Standards, Fuel Standards for Solid Fuel-Fired Heating Devices and fine particulate matter (**PM<sub>2.5</sub>**) Air Quality Index values for the Fairbanks North Star Borough (**FNSB**) non-attainment area as proposed in Title 18, Chapter 50 of the Alaska Administrative Code (**18 AAC 50**). The details describing the proposed regulation changes are presented in DEC's public notice dated September 19, 2013 and its three supplemental public notices dated: September 24, 2013; November 13, 2013 and December 13, 2013. DEC received comments in the form of emails; electronic comments submitted via DEC's webpage; hand written comments received at DEC's Open Houses; as well as oral and written testimony received at DEC's public hearings. For each section, this document summarizes the public comments received, summarizes and responds to some comments raised that were outside of the regulatory proposal, describes the regulatory options considered upon consideration of the comments, and provides the Department's response to comments and decisions with respect to the regulatory proposal.

### Open Burning- 18 AAC 50.065(f)

The proposed amendment to this regulation restricts wintertime outdoor open burning in PM 2.5 non-attainment area between November 1 and March 31. At this time only the Fairbanks North Star Borough (FNSB) is designated as a PM2.5 nonattainment area. The proposed amendment to 18 AAC 50.065(f) is as follows:

(f) **Wood Smoke Control and PM 2.5 Non-Attainment Areas**. Open burning is prohibited between November 1 and March 31 in **all [A] wood smoke control areas [AREA] identified in 18 AAC 50.025(b) and in all PM 2.5 non-attainment areas identified in 18 AAC 50.015(b)(3)**.

**Summary of Comments:** Comments on this section of the proposed regulation revisions expressed varying levels of support and concern for winter time open burning restrictions as a means of reducing emissions to help the FNSB Borough Nonattainment Area become compliant with the 2006 24-Hour PM 2.5 National Ambient Air Quality Standard (NAAQS). Some commenters felt that restricting open burning during the proposed period would positively impact air quality without affecting the ability of individuals to heat homes or businesses. Other commenters felt that open burning provided important benefits to individuals and questioned the extent and significance of open burning impacts to ambient air quality. Comments questioned the necessity of a blanket restriction, instead favoring an approach that restricts open burning on days with impaired air quality. Commenters noted that regulations already exist that use this approach by prohibiting open burning on days with declared air quality advisories. Comments addressed the impacts of open burning to air quality and human health, the need for open burning, the impacts of wintertime restrictions, the proposed beginning and end dates for seasonal restriction, and alternatives to the proposed restrictions.

#### • **Impacts of Open Burning in Winter**

Commenters noted impacts associated with open burning on ambient air quality and human health. These impacts included the release of visible plumes of harmful emissions from open burning practices, contributions of these emissions to poor air quality during inversions, and effects of human exposure to emissions. Comments cited increased medical costs due to aggravation of existing respiratory conditions, emergency room visits, and increased medication usage. Commenters noted that inversions can be prevalent during the proposed time period and that these impacts can be exacerbated by inversions which limit the dispersion of emissions. Commenters described open burning restriction in PM 2.5 nonattainment areas during the season of the highest ambient pollution concentrations as an appropriate, common sense measure.

#### • **Reasons for Open Burning During Winter**

Commenters expressed varying views of the importance and necessity of the opportunities for open burning during wintertime. Comments noted that open burning fulfilled a variety of needs and that wintertime burning opportunities were needed because of restrictions in other parts of the year by other agencies in response to wildfire

dangers. Other comments noted that regulating open burning will improve air quality in the interior of Alaska while having no impact on people's ability to heat their homes or businesses. The regulation will reduce particulates produced for no other purpose than to burn materials.

### Debris Burning

Commenters reported that open burning is a valuable method for disposing of debris. Commenters noted the use of burn barrels to dispose of refuse. Commenters also noted pile burning to dispose of debris such as slash created during wildfire suppression, landscaping, land clearing, fuel cutting, and firescaping. Commenters suggested frequently burning debris in smaller fires of pile sizes of 10' by 10' or smaller with 50' spacing in a manner that produces a hot and short lived fire with little visible emissions can produce fewer emissions than a larger, and longer lasting, fire that smolders.

Commenters noted that controlled burning of slash piles was preferable over leaving them in place to decompose due to the increased risk of decaying piles catching fire during a wildfire. Commenters noted that open burning during winter months with snow cover and cool temperatures is less likely to start a wildfire than during warmer months with conditions that are more conducive to wildfires and that agencies often restrict open burning because of this risk. Commenters argue that the proposed regulation would limit the opportunities to safely dispose of slash piles through open burning during winter and shift open burning to parts of the year with increased wildfire risks. Commenters noted that periods outside of the proposed restriction allow safe burning such as cool fall months including September and October or spring months beginning in April.

Other commenters felt that there were viable alternatives for outdoor burning and noted that the existence and accessibility of refuse stations provides year round disposal options and that disposing of refuse and slash wastes in a landfill is less polluting than disposing of the wastes into the airshed through combustion. Commenters also suggested creating biomass waste collection bins to accommodate slash refuse. Other commenters felt that refuse stations are not always a convenient or practicable alternative to open burning due to labor and transportation requirements that may be unattractive or unavailable to individuals. Commenters questioned the need for outdoor burning during periods of diminished air quality in the winter and mentioned occasions when they had witnessed outdoor open burning during periods of diminished air quality.

### Recreational

Comments expressed concern about the applicability of the law to outdoor fires used for warmth, ceremonial, or recreational purposes. There was varying support for restricting open burning from burn barrels, bonfires, campfires, and warming fires. Commenters suggested exceptions to the proposed restrictions for these types of open burning during periods of good air quality. Commenters also suggested

that exemptions be provided similar to those that had previously been included in the Borough's historical open burning program. Comments weighed the significance of traditional customs and events such as burn barrels at outdoor events, fireworks, and celebratory bonfires against their impacts to air quality. Some commenters argued that the magnitude of emissions from recreational fires was not great enough to justify restrictions. Other commenters held that some celebratory fires were significant sources of air pollution such as the annual UAF fall Starvation Gulch bonfire and other bonfire events and suggested those activities be regulated or that all nonessential open burning be restricted.

Commenters were also concerned about the types of fires that would be regulated and feared that the regulation would affect campfires, fireworks, cooking fires, barbeque grills, cigarette smoking, and other small fires. Commenters requested a clarification of the term "open burning" because of the perceived ambiguity in the term which could be used to broadly regulate activities that do not significantly contribute to air quality episodes.

- **Existing Regulations**

Commenters questioned the necessity of the proposed amendment and referenced existing regulations that govern open burning year round. Commenters felt that a blanket restriction would unnecessarily burden individuals that conduct open burning and instead suggested the restrictions only occur during days of poor air quality. Commenters referenced 18 AAC 50.065 (a) that specifies limitations on open burning meant to mitigate potential impacts and 18 AAC 50.065(e) that prohibits open burning on days in which an air quality advisory has been declared. Comments suggested these regulations would prevent open burning impacts on days that matter most. Commenters felt that, because of the existing regulations, the proposed amendment was unnecessary and burdensome.

- **Time Period**

Comments addressing the beginning and end dates of the wintertime season in the proposed amendment expressed varying support for either the proposed dates or for alternative dates suggested by commenters. Some commenters felt that open burning was unnecessary and should be restricted year round. Some comments addressing the proposed dates expressed concern that the period would leave little opportunity for open burning and would unnecessarily inconvenience individuals. Other commenters felt that the proposed dates would adequately protect air quality and human health while also leaving sufficient time to safely conduct open burning during times immediately preceding and following the proposed dates.

Comments also expressed a desire that the beginning and end dates be determined using an analysis of historical air quality advisories to ensure the restriction will have a significant impact on air quality without unnecessarily restricting open burning in periods with little historical air quality impairment. They noted that if exceedances of the 24-hour PM 2.5 NAAQS are common outside of the proposed range, the dates of the open burning prohibition should be extended to reflect the historic data. Comments cited open

burning impacts such as smoke, poor air quality, air quality alerts and advisories, and alleged open burning related exceedances of the PM 2.5 NAAQS during October as reason to change the start of the restriction to dates such as September 1<sup>st</sup>, October 1<sup>st</sup>, or October 15<sup>th</sup>. Other commenters felt that opportunities to burn during September and October were important due to a decreased risk of wildfires and limited chances to burn during the summer. Comments also proposed extending the time period to include April.

- **Enforcement of Proposed Amendment**

Commenters questioned the means by which the proposed regulation would be enforced. Commenters pointed out that the FNSB had removed regulations governing outdoor open burning during the winter in response to a local proposition restricting the Borough's ability to regulate home heating. Commenters also pointed out that DEC lacks the authority to issue citations to enforce the regulation. Commenters wanted to know what consequences would be associated with violating the regulation and what agency would enforce the regulation.

- **Alternatives**

Comments proposed different methods of mitigating impacts from open burning during the proposed time period. Several options were presented including restrictions based on ambient air quality similar to prohibition of woodstove operation, defining allowable open burning conditions, and a permitting system to regulate open burning.

Air Quality Dependent Restrictions

Comments expressed a desire to restrict open burning only on days when open burning would have the effect of causing ambient air quality to exceed or increase beyond the NAAQS or the thresholds used to limit wood burning devices used for home or business heating. Commenters further suggested that outdoor open burning bans should be avoided unless warranted by already diminished air quality. Essentially, restricting open burning only on days with air quality alerts or episodes. Comments questioned the need for new regulations, pointing to regulations that currently prohibit open burning on days that an air quality advisory has been declared. Some commenters question whether much open burning is occurring, whether it is a major contributor to the problem, and whether the ban might be an inconvenience to people unnecessarily.

Allowable Open Burning Conditions

Commenters suggested reducing emissions from open burning by prescribing methods that would allow for more efficient burning with fewer emissions. Commenters suggested that burn piles be no more than 10' x 10' and spaced no less than 50' apart in order to allow for fast, non-smoldering fires. Comments also suggested allowing only certain types of fuels to be burned. They suggested prohibiting open burning of putrescible wastes, garbage, animal carcasses, feces, diapers, treated lumber, plastics, carpet, styrene foam, and other materials that produce harmful or toxic compounds when burned.

### Permitting Open Burning

Commenters suggested regulating open burning with a permit process for planned burns or burning of burn piles. Suggestions for implementation included administration by the FNSB Air Quality (AQ) Program or a program coordinated between FNSB AQ and the Alaska Department of Environmental Conservation (ADEC) with permits available online, at the Borough building, Borough Air Quality office, and fire departments. Commenters supported substantial fines for violations of permits or failure to obtain permits.

Commenters suggested that permits regulate and consider some or all of the following:

- Appropriate weather conditions or air quality
- Time of year for burning
- Amount and substance to be burned
- How and when a pile can be burned.
- Maximum size of piles (10x10 foot)
- Public notice/notification ahead of time
- Call-in requirements before burning

**Comments Outside the Regulatory Proposal:** Comments and questions were received that were outside the specific regulatory proposal. Specifically, these comments suggest mechanisms for permitting of open burns, regulation of the size or timing of open burns, public education about regulations, and enforcement of regulations. Those comments and questions are summarized below.

#### 1) Permitting Open Burning

Comments proposed a permitting system as an alternative to a blanket restriction suggesting that such a program would more closely regulate open burning and provide adequate protections to public health while allowing for individuals to conduct open burning in a safe manner.

Response: Current state regulations require department approvals for large scale controlled burns and firefighter training. Those regulations can be found in 18 AAC 50.065 (g)-(i). The department also has general open burning regulations for smaller open burns, like backyard burning, but not specific permitting requirements.

With respect to open burning in the PM 2.5 non-attainment area, DEC is not moving forward to adopt the draft regulatory proposal as written at this time. After careful consideration, the department plans to re-propose revisions to 18 AAC 50.065(f) for public comment. DEC appreciates that a permit system is another means of controlling emissions from small scale burns, but the Division of Air Quality is not currently staffed at a level to implement an effective permit program for these activities occurring at individual households (ie. backyard burning). To avoid the need for additional state growth in this area, the department is considering, as part of a re-proposal, inclusion of provisions for local air quality programs to have open burn permit programs in lieu of the

department's proposed seasonal restriction. This would allow for a local air quality program to provide more flexible and tailored open burning requirements for a specific non-attainment area rather than just having a blanket wintertime restriction.

2) Need for enforcement and consequences of violations

Commenters pointed to a lack of information about consequences of violation. Commenters want to know how this regulation will be enforced, and if it will be enforced. Commenters ask who will enforce it because borough enforcement capability has been removed. Commenters ask whether violations will be illegal, and what punishments will be imposed.

Response: In addressing any violations of state air quality regulations, the Department of Environmental Conservation Division of Air Quality will use the compliance and enforcement tools for which it is allowed under state statute. The Division has not been given the authority in statute by the legislature to issue administrative penalties for violations of Alaska environmental laws. This means the Division cannot issue "tickets" and must use other tools like written notices of violation, compliance agreements, or in rare cases civil court actions. In most cases, the department finds compliance can be achieved through assisting businesses and individuals in understanding the regulatory requirements and how they can comply.

3) Need for outreach

Commenters pointed out needs for considerable public outreach to attain compliance with open burning restrictions.

Response: The Department agrees that public outreach is important and intends to conduct education and outreach to assist citizens in understanding open burning requirements and how to comply.

4) Summer and winter smoke impacts, health effects, and regulatory approach

Commenters questioned the difference between summertime health effects due to wildfire and winter PM 2.5 related health effects. Commenters also questioned the different regulatory approaches to the two: why summer wildfire smoke and associated health effects are not regulated, but less severe winter air pollution needs to be regulated.

Response: Regardless of the time of year, elevated levels of PM 2.5 from smoke can be a concern for public health. There are differences in how smoke from wildfires and smoke from wood-fired heating devices are addressed under the Clean Air Act. The federal "exceptional events" rule governs which air monitoring data can be waived in determining compliance with the National Ambient Air Quality Standards. In general terms, the federal rules allow exemptions for violations of the standards that are clearly caused by events that are singular/unusual or not controllable. This prevents extensive planning and mitigation from being required for one time unusual events or events that

are beyond our control. Even emissions from naturally occurring wildfires are not automatically exempted from the EPA air quality requirements; they may be ‘waived’ by the EPA, only if all the EPA criteria established in the exceptional event rule is met. Following is a link to the latest DEC Air Quality Exceptional Events Request to EPA for 2010: [http://dec.alaska.gov/air/am/exceptional\\_events.htm](http://dec.alaska.gov/air/am/exceptional_events.htm).

One of the main differences between summer wildfire events and wintertime pollution episodes during inversions is that it is human-caused pollution sources that result in violations of the ambient air quality standards in the winter. Human sources of pollution can be controlled and mitigated in a variety of ways to reduce air pollution. Many areas of the country experience air pollution episodes as a result of winter inversion conditions and they all, like Fairbanks, are required to lower their emissions to reduce air pollution to meet the air quality health standards.

5) Are wood emissions really worse than oil-fired heater emissions?

Commenters questioned whether wood smoke is really worse than emissions of oil-fired boilers. They note historic use of both coal and wood in Fairbanks. Commenters ask why oil boilers are not being regulated; some oil boilers are putting out black smoke.

Response: In looking at PM<sub>2.5</sub> emissions, on average wood is 500 times more polluting than fuel oil (from local and national wood device heat testing and EPA AP-42 research studies on wood devices). Even though a higher percentage of homes use fuel oil, the burning of wood as either a primary or supplemental heat source has a greater contribution to the area’s PM<sub>2.5</sub> than fuel oil. Measurement studies in the Fairbanks area have shown that more than 50% of the PM<sub>2.5</sub> measured on the filters at the monitor sites is from wood burning, with an even higher percentage contribution from wood burning at some monitor locations.

6) Ultimate Goals of DEC

Some commenters stated the expectation that ADEC will regulate the size of your campfire, hotdog and marshmallow fire, pig roast and that ADEC wants to regulate how you cook your food.

Response: After careful consideration, the department plans to re-propose revisions to 18 AAC 50.065(f) for public comment. To address these concerns, DEC plans in the new proposal to better define open burning terms providing additional clarification on what constitutes open burning and how campfires fit in.

**Fiscal Concerns:** Those comments specifically noting fiscal impacts are summarized here.

Commenters expressed that open burning regulations affect direct costs for resident’s health care and affect indirect costs related to wildfire suppression, land maintenance, residential firescaping, and nonattainment. Comments focused on the length of the seasonal prohibition noting impacts for the proposed season or a longer season.

Commenters suggested that the Department's proposed open burning season, which allows open burning in October and April, will contribute to failure to meet attainment, which may ultimately result in economic sanctions. Commenters that desired a longer open burning prohibition noted there would be reduced health effects due to open burning and it may reduce state costs for fire suppression during the prohibition period. Commenters noted that allowing open burning in October and April will result in higher health care costs for individuals affected by the smoke during those months. Health costs due to open burning cited by commenters included purchase of indoor and outdoor air monitors, advanced air filtration systems (HEPA and gaseous) for homes and cars, added electrical costs, respirator masks and filters for gases and particulates, doctor visits, emergency room visits, asthma medications, and asthma and cardiac medical costs. Fiscal impacts cited by commenters related to a lengthier open burning ban period also included reduced state costs for fire suppression since October is an increasingly hot, dry month. Open burning in those conditions could potentially lead to an increase in late season wildfire.

Other commenters noted that prohibiting open burning during the winter could increase fiscal costs of wildfires and firefighting if slash piles and wood waste are left in place, adding to ground level fuels that can ignite during summer wildfire season. Seasonal residential yard cleanup activities also result in piles of ground level fuels that would need to be removed to protect residences against fire. Fiscal impacts of banning public open burning could include costs of loading and transporting slash piles to dumps or public biomass waste bins, as well as the costs of expanding or creating, and maintaining public wood waste sites. These costs would affect businesses, residents, and governmental agencies. Commenters also expressed impacts related to longer bans (including additional months) which could reduce residential firescaping activities, ultimately leading to increased wildfire and economic losses due to wildfires.

Commenters suggested that a cost analysis for these regulations is needed.

**Regulatory Options:** Based on the comments received the department considered the following regulatory options.

- 1) Do not implement the proposed regulation (keep current regulation)
- 2) Implement regulation as proposed
- 3) Implement proposed regulation with amendments
  - a) Clarify definition of open burning (e.g. camp fires exempt, etc.)
- 4) Expand regulation
  - a) Expand time period for the seasonal restriction: October-March 31 or October-April or expand to include September as well.
  - b) Establish open burn permit program
    - i) Within nonattainment area
    - ii) During all or portion of the winter
    - iii) Allow small pile burning, etc. during periods of good dispersion.

**Department Decision:** After careful consideration 18 AAC 50.065(f) will be re-proposed for public comment in conjunction with proposed revisions and additions to definitions in 18 AAC 50.990 related to open burning.

### Prohibition of Wood-Fired Heating Device Operation- 18 AAC 50.075(b)

DEC proposed to amend this regulation to give the Department the flexibility to prohibit operation of wood-fired heating devices in areas where an air quality episode has been declared under 18 AAC 50.245. The proposed amendment was as follows:

(b) **The department may prohibit operation of** [A PERSON MAY NOT OPERATE A] wood-fired heating **devices** [DEVICE] in an area for which the department has declared an air quality episode under 18 AAC 50.245.

**Summary of Comments:** Comments on this section of the proposed regulation revisions expressed varying levels of support for a regulatory pathway that included prohibition as a mitigating measure in cases of impaired air quality. Commenters opposed to prohibition felt that prohibiting the use of wood-fired heating devices during wintertime air quality episodes would interfere with lifestyle choices and would create an undue burden on individuals trying to heat interior spaces. Comments expressed fear that prohibiting sources of heat would negatively impact an individual's ability to provide heat to survive and prevent property damage in conditions of extreme cold. These comments suggested that prohibition should either not be implemented at all, that it should affect only highly polluting individuals, or should affect only specific classes of wood-fired heating devices. Comments supporting prohibition of wood-fired heating device use during air quality episodes argued that reducing or eliminating the emissions caused by wood-fired heating devices would help the nonattainment area to attain the National Ambient Air Quality Standards and protect public health by preventing worsening of air quality during episodes. Comments suggested providing exemptions to individuals in a variety of circumstances. Comments that supported prohibition of wood-fired heating devices during air episodes felt that the existing regulation prohibiting the use of wood-fired heating devices during air episodes was appropriate and would protect human health. Additional details related to comments on various aspects of the proposed regulation follow.

- **Include All Solid-Fuel Heating Devices**

Comments argued that limiting the scope of the prohibition to wood-fired devices would not lead to attainment of NAAQS and could have unintended consequences. Commenters listed a variety of solid-fuel heating devices that emit PM 2.5 that would not be affected by the proposed regulation. Commenters recommended that the wording "*wood-fired heating devices*" be changed in the final regulation to "*all solid-fuel heating devices*." to include pellet fuel devices, coal-fired heating devices, outdoor wood and coal hydronic heaters or boilers, open burning, waste oil burners, incinerators, wigwams and commercial size (non-permitted) solid-fuel heating devices. Comments argued that although studies have not found these devices to be significant contributors to PM 2.5 levels, the devices are readily available and the proposed regulation could drive a transition to these devices with unintended consequences. Comments noted localized air quality impacts of devices such as coal-fired heaters and expressed concern that the proposed regulations are currently and could further incentivize the purchase and use of coal-fired devices in order to circumvent curtailment actions. Commenters expressed fear that a shift away from solid fuel consumption to diesel fuel oil usage in the non-attainment area could increase SO<sub>x</sub> emissions, lead to air episodes due to SO<sub>x</sub>, and

possibly lead to an expensive requirement to use ULSD in heating devices. Some commenters suggested outright banning of certain classes of devices, such as wood-fired and coal fired outdoor hydronic heaters, from the non-attainment area altogether.

- **Provide Exemptions**

Commenters noted burdens of the proposed regulations on individuals who operate wood-fired heating devices and suggested those may be undue in certain circumstances. Comments noted that wood-fired heating devices are used as the primary heating device for a variety of reasons including lifestyle, economic factors, and necessity. The expense of alternative energy sources such as natural gas, fuel oil, and electricity was proposed to be a major contributing factor to the increasing use of wood-fired heating devices. Comments noted that the financial burden of using those more expensive energy sources would be too great on individuals that meet certain income thresholds. Commenters described being on a fixed income and were concerned that the proposed regulations would result in higher home heating costs if they had to heat with oil instead. Other citizens suggested that the FNSB or the State either subsidize their fuel costs or provide the option of heating with natural gas at a lower cost.

Commenters recommended that the final rule include exemptions for the following:

- 1) if the resident had a financial hardship; Comments suggested defining income limits for an exemption based on the federal poverty level income requirements.
- 2) if the wood-fired heating device was the resident's or commercial building's sole source of heat; Comments proposed defining "sole-source" of heat based on a lack of alternative devices or an inability to operate other devices due to a lack of electrical service and exempting these individuals due to the impact a prohibition would have on safety.
- 3) if the resident or commercial building was using an EPA certified wood/pellet stove or EPA voluntary Phase 2 approved pellet hydronic heater. Comments also expressed concern that cleaner burning devices such as EPA certified devices and masonry heaters would be affected by prohibition despite lower contributions to PM 2.5 levels. Comments suggested prohibiting these devices in the same manner as other devices would offer little reward to individuals that have replaced older devices with cleaner burning devices and lessen the incentive to replace older appliances with clean burning devices.
- 4) unforeseen emergency events; Commenters also expressed concern that exemptions should be made in cases of unforeseen emergency events such as power outages or device failure emergencies that would impact the ability to operate non-wood-fired heating devices.
- 5) extreme cold temperatures; Commenters expressed concern that wood-fired heating devices are needed to supplement other heating devices during periods of extreme cold and proposed that exemptions to any prohibitions be made during extremely cold periods.

Other commenters felt that no exemptions should be made or that individual exemptions should be permitted with the requirement that individuals take advantage of a device change-out program within a specified time frame.

- **Adding Discretion**

Comments addressing the inclusion of the phrase “the department may prohibit” expressed concern over discretion and the lack of detail about how that discretion would be used. Commenters wanted to know how the prohibition would be triggered, suggesting that the proposed wording is vague, and should be rewritten to define exactly when DEC would prohibit operation of wood-fired heating devices. Commenters expressed concern over the lack of specific curtailment action pathway and presented a variety of options for curtailment actions (see below). Commenters that indicated a lack of approval for the proposed amendment felt that no discretion should be given to the Department and that prohibition should be mandatory in the event of a declared air episode. Other comments expressed concern that without prescribed details, the Department could use discretion improperly in response to political or economic concerns. Comments also noted that since DEC proposed to add discretion to the existing approved regulation adopted and approved in the 1998 SIP, DEC must address the Clean Air Act Section 110 (l) requirements – an anti-backsliding provision.

- **Suggested Curtailment Strategies**

Commenters expressed concern over the lack of specific curtailment action pathway and presented a variety of options for curtailment actions. Commenters desired a clarification of potential curtailment actions including criteria, authority, implementation, and enforcement. Commenters suggested specific approaches to curtailment actions. Some comments suggested mandatory prohibitions while others suggested a multi-stage approach used in other areas, like Sacramento, CA or Washington state, that selectively prohibits certain classes of devices at certain pollution thresholds. The comments proposed curtailing the largest sources of PM 2.5 by first prohibiting operation of higher polluting devices that aren't EPA certified while allowing the operation of EPA certified devices. Commenters suggested this would provide an incentive to change out older devices and install newer EPA certified devices. Other commenters expressed concern that prohibiting by device class would unfairly affect device users that burn in a manner consistent with public education recommendations and instead proposed curtailments prescribing maximum emission opacity noting that device emissions are highly dependent on the manner in which they are operated. Commenters also noted a need for enforcement of prohibitions and felt the enforcement actions available to DEC and the FNSB were ineffective or too lengthy which could in effect make curtailment actions voluntary and ineffective.

- **Establish a Clear Regulatory Path**

Commenters stated that the proposed language in 18 AAC 50.075(b) was confusing when compared to the language proposed in 18 AAC 50.245 that would add local programs to

agencies that can prescribe curtailment actions. The commenters suggested that the regulations should be made clearer as to who will issue the curtailment, how the curtailment will be announced and enforced. Commenters wanted further clarification, written into the regulations, concerning who is responsible for announcing and enforcing the air quality episode. Some commenters wanted to see a strong local enforcement presence while other commenters wanted the State to take more of the responsibility, still other commenters wanted no new regulations or their enforcement at all.

**Comments Outside the Regulatory Proposal:** Comments and questions were received that were outside the regulatory proposal. Those comments and questions are summarized below.

Commenters wanted clarification on 18 AAC 50.075(b), stating that flexibility in the prohibition described is important, but how are such determinations to be made and enforced? Commenters suggested that without measures for enforcement, DEC's regulatory proposals will not have much of an effect. Commenters suggested that the flexibility of the language "may prohibit" opens up the potential for little or no enforcement, questioning how the proposed regulation will be enforced. Commenters wanted to know what agency will be responsible for enforcement when an air quality episode has been determined. Commenters opposed this amendment based on DEC's track record, because it took DEC 4.5 years to address the smoke at Wood River elementary school. Commenters suggested that the local DEC and/or police/state troopers be given the authority to write citations with financial penalties.

Commenters also expressed concerns that DEC may regulate heating oil and that DEC should not require the use of ultra-low sulfur diesel (ULSD) for home heating.

1) Enforcement Authority

DEC is responsible for enforcing these state regulations. In addressing any violations of state air quality regulations, the Department of Environmental Conservation Division of Air Quality will use the compliance and enforcement tools for which it is allowed under state statute. The Division has not been given the authority in statute by the legislature to issue administrative penalties for violations of Alaska environmental laws. This means the Division cannot write "tickets" and must use other tools like written notices of violation, compliance agreements, or in rare cases civil court actions. In most cases, the department finds compliance can be achieved through assisting businesses and individuals in understanding the regulatory requirements and how they can comply.

2) ULSD requirements should not be used for home heating

Concern for fuel switching and the potential to increase sulfur emissions was expressed. DEC's proposed regulations did not suggest any fuel switching for home heating oil nor any mandate for use ULSD.

**Fiscal concerns:** Those comments specifically noting fiscal impacts are summarized here.

Comments stated that the financial burden of using those more expensive energy sources would be too great on individuals that meet certain income thresholds. Commenters also described being on a fixed income and were concerned that the proposed curtailment regulations would impose restrictions on heating with wood or coal which could result in higher home heating costs if they had to heat with oil or electricity. Other comments suggested that more effort be put forth into providing a natural gas line to residents living in the FNSB while other citizens suggested that the FNSB or State either subsidize their fuel costs or provide the option of heating with natural gas at a lower cost. Additional suggestions to improve costs include continuing the wood-stove change-out program by a non-governmental agency and opening more state land so dry wood is more accessible. Commenters indicated concern that curtailment during extreme cold weather could lead to frozen pipes and property damage that would be costly to repair. Commenters also expressed concern regarding costs to upgrade non-compliant devices, especially items that were not covered by any change out programs such as chimneys, stove pipes, etc.

**Regulatory Options:** Based on the comments received the department considered the following regulatory options.

- 1) Do not implement the proposed regulation (keep current regulation)
- 2) Implement the regulations as proposed
- 3) Implement proposed regulation with amendments
  - a. Include language clarifying discretion,
    - i. Clarifying who will call curtailment and how announced/enforced
      1. In regulation, 18 AAC 50.075(b)
      2. In episode plan within SIP
    - ii. Ensure Clean Air Act anti-backsliding provisions are met
    - iii. Remove discretion
  - b. Provide for exemptions and their timing
    - i. Sole-source of heat
    - ii. Financial hardship
    - iii. Temperature
    - iv. Clean burning devices
    - v. Timing
      1. Unforeseen emergencies
      2. Two-stage trigger
- 4) Expand Regulation
  - a. Include all solid-fueled heating devices
  - b. Include units burn trash or waste oil
  - c. Ban certain types of devices

**Department Decision:** After careful consideration, 18 AAC 50.075(b) will not be amended as proposed. The current language will remain in effect. This addresses concerns raised about the Clean Air Act anti-backsliding provisions and the addition of discretion in applying the existing regulation.

To address the other concerns and suggestions associated with exemptions, timing, and other issues, DEC intends to issue a new regulatory proposal that will include a separate subsection addressing the use of solid fuel-fired heaters during PM 2.5 air episodes. That new proposal will be subject to additional public review and comment.

**Solid Fuel Heating Device Fuel Requirements- 18 AAC 50.076**

DEC proposed to amend 18 AAC 50 by adding a new section (18 AAC 50.076) to clarify the types of solid fuels that can be burned in heating devices operating within the FNSB PM 2.5 non-attainment area.

**18 AAC 50.076. Solid fuel-fired heating device fuel requirements.** (a) A person operating a solid fuel-fired heating device in areas identified in 18 AAC 50.015(b)(3) may only use the following fuels:

- (1) For wood burning devices:
  - (A) clean wood;
  - (B) wood pellets made from clean wood;
  - (C) manufacturer recommended starter fuels including home heating oil, propane, natural gas or wood-based material for dual-fired hydronic heaters; and
  - (D) biomass fuels approved by the manufacturer.
- (2) For coal burning devices:
  - (A) coal; and
  - (B) coal pellets.

**Summary of Comments:** Comments on the proposed regulations limiting the types of fuels that can be used in solid fuel-fired heating devices expressed a variety of levels of support for the proposed regulations. Some commenters articulated a desire for limitations on the types of allowable fuels for solid fuel-fired heating devices and felt that the public health and environmental impacts of certain types of fuels outweighed any economic benefits to individuals and warranted the proposed regulations. Commenters also proposed changes to the types of allowable fuels such as specifying allowable wood moisture content, adding locally manufactured fuels, and specifying allowable types of coal. Other commenters felt that the regulation should not be implemented because it may be duplicative of current regulations, would be counter to a local ballot proposition, could prevent the use of fuels derived from recycled materials, could prevent development of technologies to burn potentially prohibited fuels without impacting air quality, would place an undue constraint on individuals who are financially unable to heat using the specified fuels, or would be unenforceable. Comments addressed the types of fuels used by individuals; the impacts of those fuels, wood fuels, manufactured biomass fuels, coal, and coal pellets; the advantages and disadvantages of implementing the proposed regulation; and proposed altering the list.

**• Regulating Fuels**

Comments expressed a range of support for the proposed regulation that restricts the types of fuels that may be used in a solid fuel fired heating device. Some commenters expressed a desire that individuals cease burning highly polluting improper fuels in their heating devices due to the adverse impacts toxic emissions may have on the health of others and ambient air quality. They felt that the proposed regulation was needed to limit individuals to burning only the fuels that devices were designed to burn and prohibit the incorrect use of fuels and other burnable materials in ways that disproportionately degrade air quality and emit hazardous air pollutants. Commenters recognized that

burning highly polluting fuels provided economic savings to individuals but some countered that any savings realized by those individuals caused the public to incur disproportionately high costs. Other commenters felt that the proposed regulation would place a burden upon individuals that could not afford to heat using fuels specified in the proposed regulation. They felt that the state should not infringe on the ability of any individual to heat interior spaces using any means necessary and that the proposed regulation would be counter to citizen's wishes as expressed in local ballot propositions that removed the FNSB's ability to regulate fuel types. Other commenters noted that the consequences of using fuel for which a device was not designed can go beyond impacting air quality. They stated that device warranties may be voided by the use of incorrect fuels and mentioned increased risks of explosions, chimney fires, and structural fires. Commenters felt that these potential outcomes could pose safety and liability concerns, increase public emergency response costs, and unnecessarily place firefighters and other first responders at risk.

- **Currently Used Fuels**

Commenters mentioned a variety of fuels that they believe are or could be used in solid fuel-fired heating devices. Commenters noted the widespread use of the fuels included in the proposed regulation including wood, wood pellets, biomass fuels, coal, and coal pellets. Comments also alleged the use of a variety of highly polluting fuels not mentioned in the proposed regulation such as stained or painted wood, chemically treated lumber, wood treated with creosote, chromated copper arsenate, or pentachlorophenol, manufactured boards, tires, rubber, plastics, paint, solvents, styrene, foam, carpeting, trash, garbage, used or waste oil, diapers, animal carcasses, sewage, animal feces, lawn clippings, and supported prohibiting the use of these highly polluting fuels in solid fuel heating devices. Commenters also alleged that some individuals may burn any combustible materials regardless of potential impacts. Commenters reported being affected by emissions from neighbor's solid-fuel heating devices burning improper fuels including green and un-split wood. Commenters asserted that although most individuals using solid fuel-fired heating devices likely do so in a manner that minimizes emissions, air quality is negatively affected by individuals fueling solid fuel-fired devices using improper fuels.

- **Wood**

- Current Use

- Commenters described current wood burning practices in the nonattainment area. Commenters note that the use of wood is popular because it is more economical than using fuel oil or electricity to heat especially when harvested by the individual. Commenters also note that wood is an important supplemental heating fuel during periods of extreme cold, is a traditional lifestyle method of heating, is a renewable resource, and may be a building's sole source of heat. Comments noted that many individuals harvest their own wood fuels from private or state lands and process that wood themselves. Commenters cited study findings that 58% of Fairbanks residents supply all of their own wood and 22% supply at least

some of their own wood but that only 40% of wood burned is adequately cured. Commenters describe wood smoke as the source of 60-80 percent of winter PM 2.5. Some commenters suggested that burning wet wood contributes significantly to PM 2.5 levels and should be prohibited. Commenters described processing wood for fuel use and following the “Split, Stack, Store and Save” educational campaign. Some commenters indicated support for the educational program, adhere to its wood seasoning recommendations, and would like the program to continue or expand to reach younger audiences. Commenters also noted that individuals continue to burn wood that has not been split, has not been seasoned, or has become wet due to wet storage conditions. Commenters also said that individuals obtain processed wood fuel through commercial distributors and the moisture content of that wood is not regulated or typically advertised. Commenters also note the availability and use of treated lumber and manufactured boards that contain harmful chemicals and produce harmful emissions.

### Availability

Commenters described the availability of wood fuel. Individuals described cutting, processing, and seasoning wood fuel harvested from private and public lands open to wood cutting. Commenters suggested that additional state lands be opened to fuel cutting to increase the availability of dry wood. Commenters also propose that opening additional lands to the harvest of fuels would reduce wildfire fuel and allow for harvest and efficient combustion of wood that may otherwise burn inefficiently and produce pollutants in a wildfire. Commenters note the availability of commercially harvested firewood and cordwood. Commenters note that wood can be delivered to an individual’s home and is a source of wood that requires little advanced planning or effort to obtain and burn. Comments also note that commercially sold wood is not subject to any moisture requirements and businesses may be providing wet or unseasoned wood to consumers. Comments also noted the availability of treated wood that contains binders or preservatives such as chromated copper arsenate, creosote, and pentachlorophenol that give off toxic emissions when burned. Commenters reported the availability of chemically treated or preserved wood debris at landfill transfer sites that individuals sometimes scavenge to burn.

### Moisture Content

Commenters had various suggestions related to wood moisture content and offered ideas for moisture content requirements. Those comments that proposed restricting wood moisture levels to 20 or 25 percent wet weight or less, suggested adding such a requirement to either this proposed amendment or to the definition of “clean wood” in 18 AAC 50.990 (135). Commenters noted that burning un-split, unseasoned, green, or wet wood decreases efficiency, causes unsafe creosote buildup in chimneys, and creates excessive smoke and toxic particle pollution. Commenters noted that EPA certified woodstove emissions were highly

dependent on the manner in which they are operated and that the 2.5 gram per hour rating a woodstove receives is based on the burning of dry crib wood. Commenters said that a 2.5 gram per hour woodstove would burn dirty with the use of wet wood regardless of its emissions rating. Commenters felt that implementing emission limits for new woodstoves without requiring their correct operation by using dry and seasoned wood would do little to achieve meaningful woodstove emissions reductions.

Commenters suggested that seasoning and maintaining dry wood was easily done with advanced preparation and suggested continuing educational campaigns to educate the public about wood cutting, splitting, and seasoning to help individuals understand the benefits of burning properly seasoned wood. Other commenters felt that the supply of dry wood accessible to residents of the nonattainment area was insufficient and such a requirement could cause financial impacts to individuals who had not seasoned wood or could not commercially obtain dry wood. Commenters argued that that state should facilitate compliance with any regulations that require the use of dry, seasoned wood by increasing the availability of dry, seasoned wood to the public. To increase the public's access to dry wood commenters proposed opening additional state lands to fuel cutting to allow for access to dead standing fuel. Commenters also suggested a warehouse wood exchange program should be created, similar to the woodstove exchange program, to allow individuals to trade freshly cut wood for dry, seasoned wood.

- **Wood Pellets**

Commenters noted the availability and use of wood pellet fuels and supported their inclusion in the proposed amendment. Commenters said that pellet burning devices were economical, convenient, efficient, and clean burning. Commenters noted the availability of locally manufactured wood pellets and felt that pellets were an easier fuel source to obtain, handle, and store than cordwood.

- **Coal**

Commenters expressed varying levels of support for the regulations regarding coal in the proposed amendment. Commenters noted that coal is used as a fuel in certain heating devices and expressed differing opinions about the reasonableness of its use in the nonattainment area. Commenters pointed out that coal is currently used both in very rural areas and in urban areas including downtown Fairbanks and North Pole by individuals, businesses, and organizations. Some commenters felt that coal is a locally extracted resource that is more economical than fuel oil and should remain allowable in the proposed regulation. Other commenters felt that the impacts of coal emissions to air quality and human health were disproportionate to any fuel savings realized by coal burning individuals. Commenters described coal as being a dirty fuel and cited evidence that coal fueled appliances emit up to thousands of times more emissions than oil burning devices. Commenters reported decreased air quality from local coal burning appliances and related negative impressions of air quality gained through travel to other regions in

the country that predominantly use coal. Comments noted that as written, the regulation does not specify the types of coal that can be used. Comments cited manufacturer requirements for the use of anthracite or bituminous coal in appliances and characterized the local coal as consisting mainly of sub-bituminous coal and lignite. Commenters felt that requiring the use of anthracitic or manufacturer specified coal types would ensure safe and efficient operation of coal burning devices when compared to an increased risk of structural fire and increased emissions produced by burning lower grade sub-bituminous coal and lignite. Other commenters felt that coal use should be outright prohibited from either urban areas or the entire nonattainment area due to the high and disproportionate emissions of a coal-fired heating device when compared to other heating devices.

- **Geographic Area of Applicability**

Comments addressed the regional applicability of the proposed regulation. Comments proposed the area to which the proposed regulation apply encompass a greater area than the nonattainment area such as the entire Fairbanks North Star Borough or the entire State of Alaska. Comments mentioned instances of nuisance or hazardous smoke from solid fuel heating devices outside of the nonattainment area. Commenters argued that extending these regulations to other parts of the state would protect ambient air quality and human health throughout the state.

- **Current Regulations**

Commenters that addressed the need for the proposed state regulation either felt that current state regulations were sufficient or felt that the current regulation was insufficient and the proposed regulation would be more easily interpreted by the public. Commenters noted 18 AAC 50.110 that currently stipulates that “no person may permit any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property. (Eff. 5/26/72, Register 42)”. Commenters felt that this regulation prohibits the emissions produced by the combustion of materials restricted by the proposed regulation and that the proposed regulation was unnecessary. Other commenters felt that the current regulation was vague and did not help individuals to understand how to comply with the regulation. Those commenters argued that the proposed regulation would help individuals to comply by specifying allowable fuels instead of prohibiting actions based on subjective interpretations of impacts of which individuals may or may not be aware.

Commenters also addressed current FNSB regulations and recent ballot initiatives concerning solid fuel heating. Commenters either felt that the proposed state regulation was needed because ballot initiatives had removed the FNSB’s ability to regulate fuel types or that the proposed regulation could violate the will of voters to not have fuels regulated. Commenters that said the FNSB had insufficient protections argued that state regulations would help to protect public health and felt that public health issues should be decided by public health officials and not popular vote.

- **Enforcement**

Comments that addressed the enforceability of the proposed regulation questioned how the rules would be enforced. Some commenters suggested penalties while other commenters argued that authorities would be unable to determine what kinds of fuels were being burned in woodstoves without searching homes, properties, or sampling plumes and commenters vehemently opposed this possibility. Comments proposed that prima fascia evidence consisting of opacity readings, air sampling and monitoring, and citizen complaints could be used to determine compliance with the law. Commenters also addressed the possibility of placing restrictions on commercial sellers of fuels to ensure that the fuel sold in the nonattainment area met the characteristics described in the adopted regulations. Commenters noted that the availability of data to consumers was sparse concerning the moisture content of purchased cordwood. Commenters suggested that regulating the sale of fuels would help to ensure compliance with any possible regulation concerning wood moisture content. Comments expressed a desire for wood moisture content disclosure requirements on sellers to help consumers avoid purchasing inefficient and polluting unseasoned or wet wood. Commenters also proposed a restriction on sellers that allowed only the sale of wood that had been tested and labeled with a moisture content of 20% or less by weight and mentioned regulations in other states that make it illegal to advertise, sell, or supply wood that has a moisture content of greater than 20%. Commenters argued that these requirements on sellers would decrease the use of wet wood by allowing consumers to make informed choices or by preventing the sale of wet wood entirely. Commenters indicated that some wood sellers already work to provide only seasoned and dry wood while others felt that the industry's capacity to provide seasoned and dry wood could not sustain the community's demand for cordwood. Commenters also noted that consumers may season the wood they obtain from sellers themselves before burning and that adding a requirement for sellers to season wood could increase the cost of cordwood to consumers. However comments also suggested requiring the sale of dry wood directly before and during the heating season to prevent the burning of wet wood while also giving consumers the chance to season commercially purchased wood during the summer.

- **Proposed Changes**

Commenters proposed changes to the proposed regulations such as altering the required characteristics of allowable fuels, adding allowable fuels to the list, or explicitly prohibiting the use of certain fuels.

Altering Required Characteristics:

The comments that suggested altering the required characteristics of allowable fuels specifically mentioned wood and coal. Commenters proposed that wood be clean, split, have a moisture content of 20% by weight or less, and seasoned. Commenters felt that by burning clean, dry, and seasoned wood, individuals would be able to heat more efficiently, require less fuel, and cause fewer emissions when compared to burning dirty, wet, unseasoned wood. Commenters

suggested that these requirements could either be incorporated into this section or into definition 135. Other comments proposed adding language that would ensure the use of dry, seasoned wood by requiring that wood be seasoned for various lengths of time such as 6 months to a year.

Commenters that addressed coal characteristics sought to either implicitly allow or prohibit the use of regionally mined coal. Commenters that felt local coal should be an allowable fuel argued that it is a local resource that financially supports local industry and is less expensive to purchase than imported coal. Other commenters that felt local coal should not be allowed arguing that it predominantly consists of low grade sub-bituminous coal and lignite that contains moisture, burns less efficiently and produces more PM 2.5 emissions. Commenters noted that many coal-fueled devices specify the use of higher grade coal such as anthracite and that the use of local coal represented a risk to the individual operator and general public due to the possibility of explosions, the possibility of fires, and greater emissions.

#### Including Other Fuels as Allowable:

Commenters expressed a desire for the inclusion of other allowable fuels to the proposed regulation. Comments noted the development of new solid fuels in the nonattainment area and felt that the regulations could prevent the use of these forms of fuel such as pellets or logs made from recycled materials or biomass. Commenters expressed a desire that these locally manufactured fuels be added to the list to allow for sustainable local economic activity and to lessen fuel costs to individual consumers when compared to other fuel sources.

#### Prohibition of Fuels:

Commenters proposed alterations to the regulation that would explicitly prohibit certain fuels. Comments proposed adding language that would prohibit burning materials that are not specified by a device manufacturer; generate noxious, poisonous, or injurious fumes; or are contained in lists developed by NESCAUM or other states. Commenters noted that lists such as those developed by NESCAUM and other states could be adopted by reference.

**Comments Outside the Regulatory Proposal:** Comments and questions were received that were outside the specific regulatory proposal. Those comments and questions are summarized in more detail below. Commenters felt that the regulation should prohibit certain fuels instead of listing allowable fuels. Commenters also suggested mechanisms that would ensure availability of dry wood to individuals by either opening additional state lands to fuel harvest or placing regulatory restrictions on wood sellers. Commenters also expressed confusion and concern about how the proposed regulation would be enforced.

1) Reasons for Listing Allowable Fuels Instead of Prohibited Fuels

As noted above, commenters expressed belief that listing what is a prohibited fuel would better serve the community and didn't understand why just allowable fuels were listed. Response: The department recognizes the value of having a list of prohibited fuels included in the regulation to provide greater clarity to the public with respect to fuels that should and shouldn't be burned in solid fuel-fired heaters. In response to the concern that the proposed regulations do not have a list of prohibited fuels, DEC plans to re-propose a revised version of 18 AAC 50.076 for further public review and comment. The department plans to include a list of prohibited fuels along with the list of appropriate fuels in the new proposal.

2) Wood Exchange Program

Commenters support a wood exchange program by which wet firewood could be exchanged for dry wood. Commenters consider this warranted, as a stove exchange program already exists. Commenters note that regulations forbidding burning of wet wood would force adoption of wood exchange or other programs.

Response: A wood exchange program may be a viable option to promote additional dry wood supply in the community. There are a number of ways a wood exchange could be established, ranging from a private enterprise to a cooperative/non-profit operation to a government program. In considering such a program, there would be a number of practical, logistical, and operational challenges to address along with funding to initiate and operate the program. Exchanging wood means that wood is handled multiple times, which may be a practical deterrent to participation by some in the community. It is our understanding that the Fairbanks North Star Borough has explored this idea to some extent but has not opted to move forward with such a program to date. The Department will make the Borough aware of the comments of support that were received for this type of program.

3) Regulations on Wood Sellers

Commenters also addressed the possibility of placing restrictions on commercial sellers of fuels to ensure that the fuel sold in the nonattainment area met the characteristics described in the adopted regulations. Commenters noted that the availability of data to consumers was sparse concerning the moisture content of purchased cordwood. Commenters suggested that regulating the sale of fuels would help to ensure compliance with any possible regulation concerning wood moisture content. Comments expressed a desire for wood moisture content disclosure requirements on sellers to help consumers avoid purchasing inefficient and polluting unseasoned or wet wood. Commenters also proposed a restriction on sellers that allowed only the sale of wood that had been tested and labeled with a moisture content of 20% or less by weight and mentioned regulations in other states that make it illegal to advertise, sell, or supply wood that has a moisture content of greater than 20%. Commenters argued that these requirements on sellers would decrease the use of wet wood by allowing consumers to make informed choices or

by preventing the sale of wet wood entirely. Commenters indicated that some wood sellers already work to provide only seasoned and dry wood while others felt that the industry's capacity to provide seasoned and dry wood could not sustain the community's demand for cordwood. Commenters also noted that consumers may season the wood they obtain from sellers themselves before burning and that adding a requirement for sellers to season wood could increase the cost of cordwood to consumers. However comments also suggested requiring the sale of dry wood directly before and during the heating season to prevent the burning of wet wood while also giving consumers the chance to season commercially purchased wet wood during the summer.

Response: In response to concerns that the proposed regulations do not address commercial wood sellers, DEC plans to re-propose a revised version of 18 AAC 50.076 with a new section addressing some aspects of commercial wood sales. The new proposal will be subject to additional public review and comment. DEC also plans to initiate a voluntary program late in 2014 that would encourage commercial wood sellers to provide information on wood moisture content to their consumers when wood is sold. DEC also plans to establish a voluntary certification program for dry wood vendors. Wood sellers that agree to the moisture content disclosure and/or certified dry wood program requirements will be listed on the DEC Internet web site to assist consumer confidence in understanding the moisture content of the wood they purchase and in locating sources of dry wood.

#### 4) Enforcement Concerns

As noted above commenters had enforcement concerns and questions.

Response: DEC is responsible for enforcing and final regulations. In addressing any violations of state air quality regulations, the Department of Environmental Conservation Division of Air Quality will use the compliance and enforcement tools for which it is allowed under state statute. The Division has not been given the authority in statute by the legislature to issue administrative penalties for violations of Alaska environmental laws. This means the Division cannot write "tickets" and must use other tools like written notices of violation, compliance agreements, or in rare cases civil court actions. In most cases, the Department finds compliance can be achieved through assisting businesses and individuals in understanding the regulatory requirements and how they can comply.

**Fiscal Concerns:** Those comments specifically noting fiscal impacts are summarized here.

Commenters addressed the fiscal impacts to individuals heating spaces using fuels not allowable under the proposed regulation or in final regulations that may incorporate suggestions found in the comments. Commenters felt that individuals may need to burn any combustible material to heat spaces and that limiting those individuals to burning certain fuels would cause financial strain or hardship. Other commenters said that wood could be harvested and seasoned inexpensively or that the cost savings to individuals or businesses should be compared to costs incurred by the public. Commenters also felt that any regulation that explicitly or implicitly

prohibits the use of Healy coal would force coal burners to use more expensive coal types that are not locally extracted or would lead to expensive replacement of coal burning devices with devices that burn other fuels.

Commenters also addressed potential savings to individuals that heat with cleaner burning fuels such as seasoned and dry wood. Commenters noted increased heating efficiency and decreased maintenance costs associated with burning clean, split, dry, and seasoned wood.

Commenters addressed the costs associated with health issues caused by breathing pollution in part caused by burning of solid fuels that release harmful emissions. Commenters indicated having purchased and incurred expenses operating home and car filtration systems including particle counters, HEPA filters, masks and gaseous pollutant filters. Commenters reported incurring significant medical expenses from emergency room visits, specialist appointments, medications, treatments, and surgeries. Commenters also reported lost work, recreation, and schooling. Commenters were also concerned about decreased property values due to impaired ambient air quality.

Commenters that addressed financial impacts of increased risk of fires and explosions to building owners and occupants and to public services felt that the proposed regulation would lead to decreased cost and risk. Commenters noted the increased likelihood of chimney fires from creosote accumulation, house fires, and explosions resulting from the use of improper fuels in solid fuel heating devices. Commenters noted that firefighters and first responders must use financial resources to respond to these emergencies and that building owners and occupants are financially impacted by such emergencies. Commenters argued that encouraging the use of proper fuels in devices by implementing the proposed regulation would decrease the incidence of fires and lower risks and costs associated with responding to them.

**Regulatory Options:** Based on the comments received, the department considered the following regulatory options:

- 1) Do not implement the proposed regulation (keep current regulation)
- 2) Implement the regulations as proposed
- 3) Implement the proposed regulation with amendments
  - a. Include language:
    - i. Requiring the use of split and seasoned wood that meets moisture criteria
    - ii. Specifying lengths of time wood must dry
    - iii. Requiring the use of anthracitic or bituminous coal and coal pellets
    - iv. Allowing the use of fuels made of recycled or biomass materials
    - v. Requiring use of manufacturer or warranty specified fuels
  - b. Specifically prohibit fuels
    - i. List prohibited fuels
    - ii. Prohibit coal
    - iii. Prohibit fuels that release noxious, poisonous, or injurious emissions
    - iv. Incorporate NESCAUM or other lists by reference

- 4) Expand Regulation
  - a. Regulate wood moisture content through controls on suppliers and retailers
  - b. Make regulation apply statewide
  - c. Ban certain types of devices

**Department Decision:** DEC appreciates the many and varied comments received on this proposed regulation. After careful consideration, DEC is not planning to move forward with the proposed regulations as written. Instead, the department plans to make additional revisions to the draft requirements in 18 AAC 50.076, which will be re-proposed for additional public review and comment.

Wood-Fired Heating Device Emission Standards- 18 AAC 50.077

DEC proposed to amend 18 AAC 50 by adding a new section (**18 AAC 50.077**) to establish particulate matter emission limits for new wood-fired heating devices, including outdoor hydronic heaters and woodstoves, being manufactured, sold or installed within the FNSB PM 2.5 non-attainment area.

**18 AAC 50.077. Wood-fired heating device standards.**

- (a) **Applicability.** These regulations apply to
- (1) air quality and special protection areas identified in 18 AAC 50.015(b)(3);
  - (2) any manufacturer, supplier, distributor or person intending to sell, lease, distribute, market, or convey a new wood-fired heating device for use in areas listed in (a)(1) of this section; and
  - (3) any person who owns or operates a wood-fired heating device in areas listed in (a)(1) of this section.
- (b) **Prohibitions.** Except as provided in (4) of this subsection, no person subject to (a) of this section may supply, distribute, lease, sell, convey, or install
- (1) a new hydronic heater unless the model has been
    - (A) tested by an EPA-accredited lab to meet the particulate matter emission limit of 2.5 grams per hour using the EPA hydronic heater test procedure, “Test Method 28 WHH for Measurement of Particulate Emissions and Heating Efficiency of Wood-Fired Hydronic Heating Appliances”, approved by EPA as of October 12, 2011 and adopted by reference; or
    - (B) listed on EPA’s Phase II White Tag Model list, provided the unit meets the emission standard in (A) of this subsection and its rated size is under 300,000 BTU as of *{the effective date of regulation}*;
  - (2) a new woodstove unless the model has been
    - (A) tested by an EPA-accredited lab to meet the particulate matter emission limit of 2.5 grams per hour using the applicable EPA Test “Method 28” and appropriate emission concentration measurement procedures “5G” or “5H” found in Appendix A to Part 60, revised as of December 23, 1971 and adopted by reference; or
    - (B) listed on EPA’s certified woodstove list, provided the unit meets the emission standard in (A) of this subsection and its rated size is under 300,000 BTU, as of six months after the *{effective date of regulation}*.
  - (3) a new wood-fired heating device greater than 300,000 BTU unless the model has been
    - (A) tested by an EPA-accredited lab to meet the particulate matter emission limit of 2.5 grams per hour using ASTM test procedures E2515-11, approved as of November 1, 2011, and E2618-09, approved as of February 15, 2009, and adopted by reference.
  - (4) the prohibitions in subsection (b) do not apply to:
    - (A) the supply, distribution, lease, sale, conveyance or installation of a new wood-fired device by a person subject to (a) of this section where that person has confirmed in writing with the buyer or user of the device that they intend the device will be installed and used in an area other than one of the areas described in (a) (1) of this section.

(B) the sale, lease or conveyance of a wood-fired heating device where the device is being sold, leased or conveyed as part of a single or multifamily residence and the device was installed in that residence prior to {*effective date of regulation*}.

### Summary of Comments:

#### • Grandfathering

Commenters addressed the applicability of the proposed regulation to only devices sold and installed after the adoption of any regulations. Commenters argued that this would in effect grandfather older devices that would be noncompliant under new regulations and could have varying impacts. Commenters that felt that, by grandfathering older devices, any regulations would fail to have an appreciable impact on current air quality were countered by commenters that felt that not grandfathering older devices would have a significant negative impact on the local economy.

Comments expressed concern that the proposed regulations would not significantly improve air quality in the nonattainment area because they would grandfather devices that currently contribute significant emissions and could last for many years. Commenters felt that allowing currently operated highly polluting devices to continue to operate would not improve air quality. They said that allowing the worst polluters to continue polluting by grandfathering their devices was preposterous. However, commenters noted that 18 AAC 50.110 – Air Pollution Prohibited (Eff. 5/26/72, Register 42) would still govern the operation of any grandfathered device. Comments noted that solid-fuel heating devices can last for decades before needing to be replaced and that the proposed regulation would not be able to reduce pollution from such devices until many years into the future. Commenters argued that this would do nothing to resolve air quality issues in hotspot areas and would slow the change-out of older devices for efficient and clean new devices. In addition, commenters said that many potentially non-compliant devices were being installed in response to the proposed regulations. Commenters desired regulations that would require replacement of highly polluting devices either immediately or over a period of time.

Commenters expressed concern that not grandfathering heating devices would require individuals and businesses to purchase and install new heating devices at significant expense. Commenters suggested that these economic impacts could include lack of disposable income to spend at area businesses and undue financial costs to individuals unable to afford compliant heating devices. Other comments countered that individuals could take advantage of programs such as the borough change-out program to reduce any associated costs. Comments indicated, however, that individuals may be unwilling to participate in the government-run program or be unable to afford any upfront or other costs not covered by the FNSB change-out program. Comments suggested modifications to the FNSB change-out program to alleviate these and other challenges such as transferring the program to a non-government entity, eliminating required upfront costs, funding the entire cost of purchase and installation of a heating device, funding

inspection and modifications to flues and chimneys, and prioritizing low-income individuals and highly polluting devices.

- **Geographic Area of Applicability**

Commenters that addressed the geographic area in which the proposed regulations would cover had a variety of opinions about the areas of the state this regulation should apply to. Commenters that argued that the regulations should apply to areas outside of the nonattainment area raised a variety of points. Some commenters argued that the air quality protections offered by these regulations could benefit air quality in other areas of the state or areas outside of the nonattainment area such as adjacent neighborhoods. Other commenters worried about the implications of only regulating device sales in the nonattainment area. Commenters argued that placing limitations on the supply, distribution, or sale of heating devices only in the nonattainment area would enable individuals to bypass the regulations and purchase appliances in other areas accessible by road. Commenters felt that individuals would travel to retailers on the road system that were not affected by the proposed regulation to skirt the proposed regulation and obtain an uncertified device. Commenters worried that this would put retailers in the nonattainment area at a competitive disadvantage and reduce the effectiveness of the proposed regulation. Other comments suggested that allowing retailers in the nonattainment area to sell noncompliant devices if the customer verifies in writing that they intend to install the device outside of the nonattainment area would allow for customers to easily subvert the regulation by providing a false verification. Comments suggested that customers should be required to provide a notarized verification specifying the physical address the appliance would be installed.

- **Coal-Fired Devices**

Commenters noted the proposed regulations do not place restrictions on the supply, distribution, lease, sale, conveyance, or installation of coal-fired heating appliances. Commenters indicated that coal-fired heating devices were currently used in the nonattainment area and had disproportionately negative impacts on air quality. They cited a study that found fuel oil to be 137 times cleaner burning than a coal stove and 2,328 times cleaner burning than a non-qualified coal-fired hydronic heater. Commenters also note that coal combustion emits more and different pollutants than wood combustion including potentially harmful metals. Commenters felt that a lack of regulations regarding coal-fired device supply, distribution, sale, lease, conveyance, or installation would incentivize consumers to switch to heating residences and buildings using coal-fired instead of wood-fire heating devices. Commenters noted that while studies have shown that coal currently contributes only a small fraction of the total PM 2.5 emissions, inadvertently increasing the usage of coal-fired heating devices could cause that contribution to grow to a significant enough percentage of overall emissions that it could require a time-consuming and controversial regulatory package proposal process for coal-fired devices similar to the current proposal for wood-fired heating devices. They suggested regulating coal-fired devices now would avoid the possibility of a similar effort in the future.

Commenters requested that emissions standards apply to coal-fired heating devices and that such emission standards should exist due to the inclusion of coal as an approved fuel type in the proposed regulations package. Commenters noted that no EPA emissions testing methods or standards currently exist for coal-fired heating devices. Comments suggested that Alaska create such testing methods and standards. Commenters noted that DEC had indicated that developing emission standards for coal-fired heating devices would require significant research, testing, time, and resources; regardless, commenters desired some form of emissions standards for coal-fired heating devices. Commenters suggested emissions standards based on opacity readings, such as emitting no visible emissions or allowing visible emissions for only 6 minutes of any 60 minute period, as an alternative to developing emissions standards through research and testing.

Other comments suggested that the fuel savings to individuals heating their homes or businesses using coal-fired heating devices were significantly outweighed by health and other costs incurred by the public as a result of the emissions of those devices. For this reason, commenters suggested coal-fired heating devices be banned altogether in the nonattainment area or in any populated area. They suggested prohibiting the installation of new coal-fired heating devices and either an immediate prohibition of their use or a phase out of coal-fired device use over a several year period.

#### • **Hydronic Heaters**

Commenters addressed hydronic heaters. Commenters indicated that there are an estimated 150 Outdoor Hydronic Heaters in the nonattainment area and expressed varying opinions about the reasonableness of their use in the nonattainment area, the reasonableness of the proposed regulation, and offered alternatives to the proposed regulation.

Some commenters felt that the use of outdoor hydronic heaters was an economical alternative to heating by more expensive means such as fuel oil or electricity. Commenters also noted that hydronic heaters provide greater benefits and safety to users when compared to woodstoves. Commenters said that hydronic heaters provide individuals with hot water and provide heat for an entire building whereas a woodstove may provide heat for only a single room. Commenters also said that outdoor hydronic heaters provided increased safety to individuals due to decreased risk of indoor CO poisoning, indoor smoke, and chimney or structural fires. Some commenters said that outdoor hydronic heaters, while economical, were inconvenient due to maintenance and fueling requirements. Commenters said that some outdoor hydronic heaters were operated only for economic reasons and users may switch to more convenient heating oil if it were less expensive.

Other commenters felt the use of hydronic heaters in the nonattainment area was unreasonable due to their impacts to ambient air quality and public health. Commenters suggested prohibiting the use of hydronic heaters either in the nonattainment area, the entire Fairbanks North Star Borough, or any populated area. While some commenters reported operating hydronic heaters in populated areas without complaints from neighbors, other commenters reported individual financial and health impacts from the

emissions of their neighbor's hydronic heaters and noted that hydronic heater emissions may have highly localized impacts that are not measured by air monitors. Commenters noted the two outdoor hydronic heaters near Woodriver Elementary School that were declared to be a public nuisance and had caused \$500,000 in documented expenses over a four year period. Commenters said that these boilers were EPA Phase 2 qualified devices but still had significant negative impacts on neighbors and school students and staff including missed days of school and or work, asthma attacks, discomfort, increased medical costs, and ongoing medical conditions. Commenters argued that the fuel savings to individuals were outweighed by the costs incurred by the individuals and the public. Commenters stated that those costs included absences from school, missed days of work, air filtration systems, increased health care, travel, relocating, and loss of future productivity.

- **Masonry Heaters**

Commenters that addressed masonry heaters and rocket stoves detailed their benefits when compared to other solid-fueled heating devices and argued for modifications to the proposed regulation to allow for their use and installation in the nonattainment area. Commenters said that masonry heaters and rocket stoves are highly efficient and clean burning wood-fired heating devices because of the ability to store and radiate heat stored from short, hot, and efficient fires rather than continuous, smoldering fires often required in other devices. Commenters reported that masonry stoves burned less wood and were clean burning but were a significant financial investment for individuals. Commenters said that, as written, the proposed regulation would not allow the installation of wood-fired masonry heaters. Commenters said that masonry heaters are locally manufactured and cannot be transported to EPA testing facilities to obtain certification and should be exempt from any emission standards. To ensure proper construction, commenters suggested requiring masonry heater installation by only certified heater masons according to ASTM E1602.

- **Device Installation**

Commenters addressed device installation and the effects of certain considerations on the impact of emissions on immediate neighbors and overall emissions. Commenters relayed experiences of working cooperatively with device owners to abate the effects of emissions on neighboring properties by raising the stack height or relocating stacks on the operator's property.

- Stack Height

- Commenters noted that the elevation at which device exhaust is emitted affects the dispersal of emissions and can help to lessen the impacts of emissions on neighbors. Comments suggested requiring that stack heights reach certain heights relative to the ground or relative to surrounding rooflines to ensure proper dispersion of emissions.

### Device Setback

Commenters noted that the position of stacks had an effect on the concentration of emissions reaching neighboring properties by promoting dispersion of emissions before reaching property lines. Commenters suggested requiring outdoor hydronic heating devices to be setback a minimum distance from a property's boundaries. Commenters suggested values such as 100 feet to allow proper dispersion of emissions or to prevent the installation of outdoor hydronic heating devices in urban areas where property lot sizes would likely be too small for an owner to install a device and meet setback requirements.

### Sole-Source

Commenters noted that a solid-fuel heating device may be the sole source of heat for a residence or business and that exemptions to any curtailment strategies should be made for individuals providing essential heating or operating a sole-source heating device. Comments noted building codes in Juneau that were implemented to help alleviate PM 10 pollution that prevent construction of new homes where a solid-fuel heating device is the sole source of heat. Commenters suggested similar strategies for the nonattainment area to prevent new homes from being constructed with a solid fuel fired heating device as the sole source of heat.

### • **Testing Methods**

Commenters argued that the results obtained from laboratory test methods may not accurately predict the emissions of appliances that operate using cordwood in the nonattainment area. Commenters said that, because of this, either emissions standards should not be implemented or that testing methods should be altered. Commenters noted that the EPA test methods required the use of crib wood which is dry dimensional lumber with spacers for air flow. Commenters pointed out that the species and preparation of cordwood burned in the nonattainment area has different characteristics than crib wood which may result in a device emitting more or less PM 2.5 during real-world operation than a controlled laboratory test predicts. Commenters suggested requiring wood-fired heating devices to be tested using cordwood to better predict real-world performance and to make the emission cap an absolute cap rather than averaging results over 24 hours which can hide emissions spikes. Commenters questioned the reliability of EPA's testing methods and results and cited a study that indicated many EPA hydronic heater tests had questionable results for efficiency or emission rates or were missing data necessary for their determination. These comments suggested strong emission standards using modified testing methods that predict real world emissions and efficiency would inform customers of device efficiency, protect customers from marketing hype, and prevent the installation of inefficient or highly polluting devices. Commenters said that device performance was highly dependent on factors such as the type of fuel used, the use of un-split or unseasoned wood, burn rate, heat requirements of a space compared to the BTU rating of the appliance used, whether a device is allowed to smolder or burn efficiently, the knowledge and skill level of the device operator, air temperature, device maintenance,

and device condition. Commenters also cited a field study testing real-world stove operation that found no statistically relevant difference in emissions between stoves with emissions ratings less than or equal to 2.5 g/hr and stoves rated between 2.5 and 4.5 g/hr.

Commenters desired the inclusion of additional testing methods in the proposed regulation. Commenters suggested that the regulation allow the use of devices tested using method ASTM E2618 – Standard Test Method for Measurement of Particulate Emissions and Heating Efficiency of Solid Fuel-Fired Hydronic Heating Appliances. Commenters also requested the inclusion of test method ASTM E2515 – Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel. Commenters noted the lack of available test methods for determining emissions from coal-fired heating appliances and desired testing of these devices to ensure an emission standard was met.

- **Device Standards**

- Hydronic Heaters

Commenters addressed the proposed device standards for hydronic heaters. Commenters felt that the proposed regulation would likely be inconsistent with potential future EPA NSPS for outdoor hydronic heaters. Comments detailed the efforts of manufacturers and the EPA to cooperatively develop the voluntary Phase 1 and Phase 2 Outdoor Hydronic Heater Programs. Commenters indicated that manufacturers have developed many appliances that meet the Phase 2 program limit of 0.32 lb/MMBtu for devices under 350,000 Btu/hour and that these efforts have yielded devices that emit 90% less particulate matter when compared to unqualified models, commenters noted that the white hangtags that indicate qualification are regulated by EPA. Comments suggested that aspects of the Phase 2 program standards should be incorporated into DEC's regulations such as changing the Btu threshold from 300,000 to 350,000 Btu/hour, the emissions standard units from g/hr to lb/MMBtu, and adopting the emission limit of 0.32 lb/MMBtu. Commenters said that a majority of states and EPA use 350,000 Btu/hour as the cutoff when regulating outdoor hydronic heaters and argued that units above 350,000 Btu/hour are generally considered commercial units that would be regulated by individual permits. Commenters also felt that limiting the choices of consumers available through the Phase 2 qualification program by only allowing devices under 300,000 Btu/hour would interfere with an individual's ability to choose a device that ideally suited their needs and may place limitations on manufacturer's ability to design and produce devices that best suit the needs of their customers. Commenters also felt that regulating hydronic heaters on a g/hr basis disregarded the relative utility and efficiency of outdoor hydronic heaters when compared to indoor woodstoves and ignored precedents both within the Phase 2 program and regulations adopted by other states. Some commenters suggested that the limit of 0.32 lb/MMBtu should be adopted instead of the proposed 2.5 g/hr limit, however, other commenters felt that an emissions limit of 2.5 g/hr should apply to all solid-fuel heating devices including hydronic heaters. Commenters also said that other states have requirements that solid-fuel

heating devices such as hydronic heaters must meet both EPA Phase 2 qualification standards and stricter state imposed emissions standards and suggested that Alaska adopt such a requirement.

### Woodstoves

Comments addressed emission standards for woodstoves. Commenters felt that emissions standards should be more stringent, less stringent, or that other factors should dictate which woodstoves are allowed in the nonattainment area.

Commenters noted that the 2014 proposed EPA NSPS included a two-step implementation scheme where the first step was 4.5 g/hr and the second step, five years later, was 1.3 g/hr. Commenters suggested adopting the 1.3 g/hr value to be consistent with the proposed NSPS and prevent having to amend regulations at a later date to reflect any adopted NSPS. Commenters noted that studies have shown that the emissions of 4.5 g/hr and <2.5 g/hr stoves had no statistically significant difference and recommended that the woodstove emissions standard be raised to 4.5 g/hr. Commenters also noted that device operation dictates emissions and that relying on EPA method test results to set standards may be counterproductive because either the methods were unreliable and should be modified to more accurately predict real-world emissions or that <2.5 g/hr stoves may actually produce more emissions than a 4.5 g/hr stove due to nonattainment area wintertime conditions. Other commenters felt that no emission standards should be adopted. Commenters suggested all woodstoves sold or installed in the nonattainment area should have a catalytic element to reduce device emissions. Commenters also suggested standards based on the presence or absence of a catalytic element such as 2.5 g/hr for catalytic stoves and 4.5 g/hr for non-catalytic stoves. Comments also suggested that instead of creating emissions standards, DEC could adopt an approach used in other states and only allow the sale of EPA certified or qualified devices.

### • **Solid Fuel-Fired Heating Device Sales**

Commenters addressed possible impacts of the proposed regulations on local businesses and individuals trying to sell solid fuel-fired heating devices.

Commenters noted that local businesses may be at a competitive disadvantage to businesses outside of the nonattainment area because the proposed regulation would limit the types of stoves that they were able to sell to local customers whereas other retailers on the road system could still offer non-compliant appliances. Comments indicated that individuals had preferences for both devices that would be compliant under the proposed regulation and devices that would not be compliant. Commenters reported that wood-fired heating devices with an EPA emissions rating of 2.5 g/hr or less were desirable due to their efficiency, reduced fuel consumption, and reduced pollution. Commenters noted and reiterated a finding in the peer review that numerous models of woodstoves with emissions less than 2.5 g/hr were available and were comparable in cost. Commenters said that even if a woodstove were more expensive than a less efficient model, a customer would recoup that cost over time as a result of increased fuel efficiency. Other

commenters felt that the peer review did not accurately assess the woodstove market. Commenters said that many customers purchase the least expensive stoves for economic reasons and that 2.5 g/hr woodstoves were only comparable in price to higher end or specialty woodstoves with emissions ratings greater than 2.5 g/hr. Commenters also expressed disappointment that regulations would prevent them from buying stoves they might otherwise have chosen. Commenters felt that these factors created an easily exploited loophole that would lead to individuals travelling to unregulated businesses on the road system to purchase a non-certified woodstove. Commenters suggested that the regulations should apply to all road-accessible retailers in Alaska or should not be implemented at all.

Commenters noted that there have been instances of retailers not abiding by previous borough regulations regarding the sale of woodstoves. These commenters feared that some businesses within the nonattainment area may choose not to follow the regulations and gain an unfair competitive advantage. Commenters suggested that to prevent this scenario, the regulation should either be enforced or should not be implemented at all. Commenters were concerned about potential paperwork that retailers could be required to have their customers sign to complete a sale. Commenters argued that this would put the enforcement burden on businesses who may lose sales to customers that refuse to sign any statements.

Commenters addressed a provision within (b)(2)(B) that stipulates a period of six months after the effective date of the regulation. Commenters viewed this as an opportunity for retailers to sell non-certified inventory and either felt that this was not a long enough period or that no such period should be allowed. Commenters that felt that the period should be longer than six months argued that excess inventory of non-compliant devices likely consisted of specialty woodstoves which were slow moving and would be unlikely to sell out before six months had elapsed, causing retailers to be stuck with those devices and incur financial losses. Other commenters felt that allowing a six month period was unproductive. They argued that allowing the sale of uncertified appliances after the effective date of the regulation would allow non-compliant devices with long effective lifespans to be sold, installed, and operated in the nonattainment area which would not help to reduce emissions. Commenters felt that retailers could have foreseen coming regulations and not risked losses by acquiring excess inventory of non-certified woodstoves. Commenters suggested retailers should either have or not have the opportunity to sell excess inventory and either receive or not receive reimbursement for financial losses incurred as a result of the proposed regulations.

Commenters noted that the proposed regulation would also impact woodstove sales between private parties. Comments suggested that the proposed regulation would wrongly deprive an individual of any financial gains an individual could realize through selling their used non-certified device to another individual after purchasing a new woodstove for their residence.

- **Home Sales**

Commenters that addressed 50.077(b)(4)(b) had varying levels of support for the provision.

Some commenters expressed a desire that the provision be removed from the regulation. These commenters felt that the regulations should not allow residences to be sold without requiring the replacement of non-certified devices and that requiring the replacement of a non-compliant device was a reasonable means of increasing the turnover of existing devices. Commenters noted that the cost of new certified devices was small in comparison to the average price of a residence in the nonattainment area. Commenters argued that these costs could be incorporated into mortgages and enforced by the real estate and mortgage industries similar to requirements that septic systems and other aspects of homes meet building codes before a bank will issue a loan. Commenters noted that replacing older devices with newer and more efficient models upon the sale of a home would speed the replacement of non-certified devices in the nonattainment area, provide fuel savings to new owners, and that homeowners could participate in the woodstove exchange program to help cover the cost of replacement. Commenters felt that, as proposed, the regulation would slow the change-out of older devices that may continue to pollute for decades due to long useful lifespans and that other states have successfully implemented requirements to change-out of non-certified devices upon the sale of a home.

Other commenters expressed support for the exemption or expressed concern that the exemption would only apply to single and multi-family residences. Commenters felt that not exempting woodstoves sold, leased, or conveyed as part of a residence would place a financial burden on individuals and businesses. Commenters noted that the regulation did not mention buildings other than residences such as businesses, garages, outbuildings, and others. They argued that requiring the replacement of a non-compliant device each time such a property is sold or leased would place an undue financial strain on individuals and businesses which would impact the local economy due to the large number of structures in the nonattainment area that use wood-fired heating devices but are not considered single or multi-family residences.

**Comments Outside the Regulatory Proposal:** Comments and questions were received that were outside the specific regulatory proposal. Those comments and questions are summarized below.

Commenters addressed a variety of air quality topics that are outside of the specific regulatory proposal. Commenters addressed existing EPA approved laboratory test methods that are used to determine the emissions of wood-fired heating devices. These comments suggested that the methods do not accurately predict device performance under real world conditions. Commenters proposed changes such as requiring the use of area-specific cordwood as fuel. Other comments indicated a desire that the regulation encompass coal-fired heating devices. Commenters noted that no EPA standards for coal-fired heating devices exist and suggested that DEC develop

standards or regulate emissions using opacity. Commenters also addressed installation of heating devices and factors that influence device emission dispersion.

1) Using Cord Wood Test Methods

Woodstoves are tested using EPA Reference Method 28 and sampling methods 5G or 5H by an accredited laboratory. EPA test methods for certifying wood heaters use standardized fuel to ensure results are repeatable and can be compared to results obtained by testing other devices. DEC appreciates that there is debate and discussion over the EPA test methods and that consideration is being given to revising them to a cord wood fuel standard in the future. However, those methods are not yet fully developed and vetted by EPA, the industry, and others. DEC proposed its wood heater emission standards so that they could rely on the testing already used in current EPA programs. These methods have been in place for many years and are used by EPA in certifying or approving heating devices. If Alaska mandated a different test method, manufacturers would then need to conduct separate laboratory tests to certify to both EPA and Alaska emission standards. To change fuel requirements in existing EPA methodologies and establish different test methods for Alaska, would require considerable time, expense, and may be less reliable than existing methods. Given the immediate need and efforts to improve heating devices in the nonattainment area, DEC decided to move forward using the test methods currently established and in use within the industry.

For more information on the EPA testing methods, please visit:

<http://www.epa.gov/Compliance/monitoring/programs/caa/whlabs.html>

2) Developing Emission Standards for Coal-Fired Devices

As part of the air quality planning effort, studies have been conducted to determine the specific sources of the pollution found on the monitor filters from within the non-attainment area. The studies found that the portion of particulate coming from coal burning is small compared to the particulate on the filters from wood burning. This is consistent with surveys of residents' home heating devices which show wood heaters are much more prevalent than coal heaters. Given that the majority of the problem, area wide, is wood smoke, the current proposed regulations are focused there. However, the department is very aware of citizen concerns regarding smoke from coal-fired heaters. Unfortunately, the U.S. EPA has not developed any emission standards for new residential coal-fired indoor stoves or outdoor boilers nor has EPA established any specific test methods or program to certify residential coal heating devices. As a result, DEC does not have an existing federal program or framework to use to make a regulatory decision on an emission standard for coal heaters. For DEC to regulate coal-fired heating devices, significant research is needed to establish standards for these devices. DEC would need to work with a testing laboratory to test and develop a method for certifying coal-fired heating devices and then use that method to test many types of coal-fired devices. This research, testing, and development would take time and resources.

DEC continues to evaluate the need for and the options to address emissions from residential coal-fired heating devices. DEC plans to propose additional revisions to state regulations that would help to address emissions from these devices. Given the time and resource constraints discussed above, that proposal will focus on reducing smoke from coal heaters during operation rather than through a new heater emission standard. The public will have opportunity to review and comment on that new proposal.

### 3) Device Installation

The proposed regulations, while specifying installation, are not intended to dictate how a device is installed, only whether a device can be installed. Regulating stack height, setbacks, and presence of non-solid-fuel-fired heating devices is outside the proposed regulation. Local building codes may be a more appropriate place to regulate how devices are installed in a community.

**Fiscal Concerns:** Those comments specifically noting fiscal impacts are summarized here.

Commenters felt that grandfathering currently installed devices would have both negative and positive fiscal impacts on individuals and the public. Commenters noted that the regulation does not affect currently installed devices that can be highly polluting and are currently contributing to the problem. Commenters said that requiring devices to be replaced would have a negative impact on the local economy and to the individuals that must change their devices. Other commenters noted that those individuals could take advantage of the change-out program. Commenters also suggested that allowing devices to be grandfathered would force the public to incur greater health costs.

Commenters indicated that devices that emit less than 2.5 g/hr may cost more than higher polluting stoves in contrast to the findings in the peer-review. Commenters feared that purchasing compliant devices would limit the available selection of devices and raise costs to the consumer. Other commenters suggested that any additional costs of purchasing a <2.5 g/hr device would be recouped over time due to increased device efficiency.

Commenters felt that there could be fiscal impacts on retailers and resellers. Commenters said that retailers may lose business to retailers outside of the nonattainment area or even businesses within the nonattainment area that do not follow any adopted regulations. Comments also said that retailers would likely be stuck with inventory they could not sell under the proposed regulation. Comments were also received that suggested the proposed regulation would wrongly take the resale value of a non-compliant device from private individuals who could have sold their device after purchasing a new device.

**Regulatory Options:** Based on the comments received the department considered the following regulatory options.

1. Do not implement the proposed regulation
2. Implement the regulations as proposed
3. Implement proposed regulation with amendments
  - a. Technical edits
    - i. Consider using lb/MMBTU as opposed to just g/hr for Outdoor Hydronic Heaters
    - ii. Large unit break point should be 350,000 BTU heat output
    - iii. Consider scaling standards for larger units
    - iv. Consider stack height and set back provisions for OHH/larger units
    - v. Clarify masonry heater provisions
    - vi. Remove the term “installation” in 50.077(b)(4)(A) and strengthen to require more than just confirmation in writing that the device will be installed in another area (e.g. address and notarization)
    - vii. Consider other test methods for certifying some devices
    - viii. Consider using a cordwood test method
  - b. Clarify grandfathering exemption to include existing buildings that are not homes
4. Modify regulation
  - a. Expand emission standards to cover all wood-fired heating devices, not just those currently in an EPA program (single burn rate stoves, pellet stoves, masonry heaters, forced air heaters, fireplace inserts, etc.)
    - i. Align more with EPA proposed NSPS
    - ii. Consider moving to the more stringent (out year) levels from the NSPS now
  - b. Prohibit installation of coal heaters and outdoor wood hydronic heaters (OWHH) within populated areas
  - c. Remove grandfathering provision— upon resell seller required to upgrade to 2.5 g/hr implementation.
  - d. Exempt masonry heaters from the regulations
  - e. Make emission standards statewide
  - f. Include emission standards for coal-fired heaters

**Department Decision:** The department appreciated the feedback received on the proposed emission standards for wood heating devices. DEC thinks it is important to move forward with regulations specifying the emission standards for new wood stoves, hydronic heaters, and larger heating devices within the nonattainment area. Significant efforts and resources are being expended to upgrade wood heating devices in the nonattainment area through incentive programs. It is critical that the heaters used in this air quality problem area be as clean as possible in order to reduce the impacts of air pollution while maintaining the option for residents to use wood as an affordable source of heat. The department’s analysis contained in the peer review indicated that there are affordable heating device options in various sizes that can meet the emission standards.

In response to comments received the department agreed that a number of technical revisions were warranted based on the comments received. Therefore, after careful consideration, 18 AAC 50.077 will be adopted with changes.

- Subsection (a) is being adopted without changes, as proposed.
- Changes to Subsection (b) will include:
  - Increasing the maximum BTU/hr rating from 300,000 to 350,000 in categorizing wood heating devices;
  - Referring to EPA’s Phase 2 Hydronic Heater Program as “Phase 2” instead of “Phase II”;
  - Adopting hydronic heater emissions standards that are more consistent with the EPA’s Voluntary Phase 2 Hydronic Heater Program by expanding beyond a simple 2.5 gram per hour requirement. The adopted provisions would include an annual average emission level of 0.32 pound per million BTU of heat output, a maximum individual test run of 18.0 grams per hour, and a particulate matter annual average emission rate of 2.5 grams per hour;
  - Incorporating ASTM Method E2618, “Standard Test Method for Measurement of Particulate Emissions and Heating Efficiency of Outdoor Solid Fuel-fired Hydronic Heating Appliances,” and ASTM Method E2515, “Standard Test Method for Determination of Particulate Matter Emissions Collected in a Dilution Tunnel,” as methods for demonstrating device compliance with relevant emissions standards;
  - Requiring submission of proof of EPA certification or test results demonstrating compliance with the final state emissions standards limits in (b)(1)-(3) for departmental approval before inclusion on a publicly available list of approved devices;
  - Clarifying “wood-fired device” in (5) as “wood-fired heating device”; and
  - Changing “single or multi-family residence” in (5) to “an existing building or other property.”

These changes address a number of issues raised by commenters on this proposal. The program has been better aligned with EPA’s programs and industry standards with respect to the size classes of heaters, the requirements for hydronic heaters, and relevant test methods. DEC also clarified the masonry heater requirements within the definition section. These emission standards would not apply to masonry heaters unless they are sized over 350,000 BTU per hour.

DEC did not move ahead, as suggested by some commenters, to adopt EPA’s proposed wood heater emission standards at this time. Should EPA finalize those standards in the future, they

would ultimately result in more stringent requirements than the regulations being adopted and the state could revisit its requirements.

DEC also maintained the nonattainment area as the geographic area covered by these requirements. DEC recognizes an immediate need to reduce air pollution in this area that does not exist in all parts of the state. With EPA working to update its emission standards for wood heaters, future federal requirements will likely help in maintaining and improving air quality in other areas of the state. Further, the proposed rules do not prevent a retailer from selling wood heating devices that do not meet these emission standards to residents located outside the nonattainment area. This should address retailer concerns about existing inventory of heating devices that do not meet the proposed emission standards as there is still a market for these units. Also, to address concerns about sales from retailers outside the nonattainment area, DEC plans during implementation of this regulation to contact retailers throughout the state, not just those located within the nonattainment area, to ensure the requirements related to the nonattainment area are known and complied with. In addition, DEC will assist retailers as needed to address concerns with implementation.

With respect to clarifying the exemption grandfathering existing heaters from emission standard requirements, DEC did make changes to the exemption language to expand from “residences” to “existing buildings or property”. This should better capture the universe of devices already existing in the community. However, in response to concerns that grandfathering should not be allowed due to the need to significantly improve air quality in the nonattainment area, DEC is planning to propose revisions to the adopted regulations that would seek to provide additional requirements in the future if the area fails to attain the air quality standards. The new proposal would require the replacement of wood heaters that do not meet emission standards upon the sale of a property inside the nonattainment area. This new proposal will be available for public review and comment.

As discussed previously, DEC did not revise its regulations to alter the testing methods to rely on cordwood or to add specific device installation requirements, such as setbacks or stack heights. DEC thinks that these specific installation requirements would fit better within the structure of any local building codes rather than in an environmental regulation. DEC also did not extend the emission standards to residential coal heaters, but will be proposing other requirements that will help to address smoke for these units during operation.

[PM 2.5 Concentrations Triggering an Air Quality Episode \(Table 6\) - 18 AAC 50.245\(a\)](#)

DEC proposed to amend 18 AAC 50.245 (a) to establish PM 2.5 concentrations in **Table 6** that will be used to trigger air quality alert, air quality warning, or air quality emergency episodes.

The proposed PM 2.5 concentrations for Table 6 are as follows:

<u>Episode Type</u>	<u>Pollutant</u>	<u>Concentration in <math>\mu\text{g}/\text{m}^3</math></u>
Air Alert	PM 2.5	56 (24-hour average)
Air Warning	PM 2.5	251 (24-hour average)
Air Emergency	PM 2.5	351 (24-hour average)

**Summary of Comments:** Comments on the proposed changes to 18 AAC 50.245(a) and Table 6 suggested the proposed concentrations were arbitrarily derived, not stringent enough, or too stringent. Others suggested altering the format of Table 6 or adding other pollutant criteria to Table 6.

- **Air Alerts**

Comments focused primarily on the first episode level, the air alert, with varying degrees of support or concern. Commenters felt the value of  $56 \mu\text{g}/\text{m}^3$  was arbitrarily derived and was either too stringent or not attainable, not likely to lead to attainment of the National Ambient Air Quality Standard (NAAQS), or not protective enough of public health. Some comments proposed a higher value or suggested a higher value that could be reduced over time as the situation within the nonattainment area improved. Other commenters suggested the proposed PM 2.5 alert level in Table 6 should be consistent with the 24-hour PM 2.5 NAAQS of  $35 \mu\text{g}/\text{m}^3$  to be protective of public health and to help achieve the NAAQS. Some commenters suggested that DEC's proposed PM 2.5 concentrations are not protective for sensitive individuals such as children and the elderly. Commenters noted that other communities and states use a lower PM 2.5 concentration for curtailment programs, for example: Juneau, AK uses  $30 \mu\text{g}/\text{m}^3$ ; Washington State uses  $25 \mu\text{g}/\text{m}^3$  and  $35 \mu\text{g}/\text{m}^3$ ; Sacramento, CA uses  $31 \mu\text{g}/\text{m}^3$  and  $35 \mu\text{g}/\text{m}^3$ ; and Utah's nonattainment areas use  $25 \mu\text{g}/\text{m}^3$ .

Comments noted that the proposed alert level of  $56 \mu\text{g}/\text{m}^3$  would interfere with attainment of the NAAQS because it was above the NAAQS level of  $35 \mu\text{g}/\text{m}^3$ . They indicated this would not comply with Clean Air Act provisions. These comments proposed values at or below the NAAQS to prevent exceedances by curtailing emissions. Comments also cited scientific studies that show negative health effects impact children, the elderly, and sensitive groups at levels equal to or below the NAAQS. These comments proposed setting the value to  $35 \mu\text{g}/\text{m}^3$  or lower to be more protective of public health. Other comments argued that the value should be lowered because an air alert should serve the purpose of alerting sensitive groups to unhealthy conditions and allowing those individuals to protect their health by minimizing their exposure to polluted air.

- **Air Warnings and Air Emergencies**

Comments addressing the thresholds for warning and emergency episodes suggested they be lowered to 55 and 150  $\mu\text{g}/\text{m}^3$  respectively or eliminated altogether in favor of a single threshold for air quality episodes and curtailment actions.

- **Other Comments**

Commenters suggested creating an episode level below the air alert level that would be publicized in the same manner as other episodes but would not involve any curtailment actions to alert the public of the potential for a declaration of an air alert. Comments suggested adding other pollutants to Table 6 or altering existing thresholds within the table. Comments also suggested considering weather and inversion forecasts as criteria when declaring air episodes as is done for air quality advisories.

**Comments Outside the Regulatory Proposal:** Comments and questions were received that were outside the specific regulatory proposal. Those comments and questions are summarized below.

- 1) Coarse particulate matter (PM 10) should be added to the statewide curtailment regulations.

Comments indicated a desire to add PM10 to the statewide air quality episode regulations.

Response: DEC has already established air quality episode thresholds for a number of criteria air pollutants as required by the Clean Air Act and is not proposing to revise these thresholds at this time. The pollutants already included in state regulations at 18 AAC 50.245(a) are: carbon monoxide (CO), PM 10, and sulfur dioxide (SO<sub>2</sub>). The thresholds established for these pollutants have been approved by the EPA as part of Alaska's State Implementation Plan.

- 2) Adding other contaminants or altering existing thresholds

Commenters suggested adding other air pollutants or changes to existing thresholds in Table 6.

Response: DEC has already established air quality episode thresholds for other criteria air pollutants as required by the Clean Air Act and is not proposing to revise these thresholds at this time. The pollutants already included in state regulations are: CO, PM 10, and SO<sub>2</sub>. The thresholds established for these pollutants have been approved by the EPA as part of Alaska's State Implementation Plan. This regulation was meant to add PM 2.5 to this existing table of pollutant episode thresholds. EPA established a NAAQS for PM 2.5 in 1997 and this regulation amendment was proposed to allow the state to meet Clean Air Act requirements for this pollutant.

3) Altering design of Table 6 to remove air warnings and air emergencies.

Comments suggested that Table 6 should be altered to have just one triggering level for air episodes for the pollutants listed.

Response: DEC is not proposing to change existing episode thresholds and levels. The episode thresholds included in Table 6 are a required element of the Clean Air Act and part of the existing EPA-approved State Implementation Plan for Alaska. The framework was established to allow DEC or a local air quality program to implement progressive actions reflecting the severity of unique air pollution events.

4) Explain the NAAQS attainment calculations.

Questions were raised about the calculations used to demonstrate attainment with the NAAQS.

Response: The 24-hour NAAQS for PM 2.5 is  $35 \mu\text{g}/\text{m}^3$ . To comply with this, 24-hour measurements taken every third day within the non-attainment area are statistically analyzed. The 98<sup>th</sup> percentile values for each year over a period of three consecutive years are averaged and rounded to the nearest whole number. If this result is less than or equal to the NAAQS 24-hour standard of  $35 \mu\text{g}/\text{m}^3$  then the area is determined to be in attainment. Further information on determining compliance with the NAAQS can be found in the Code of Federal Regulations.

5) How are NAAQS values obtained (every third day, long analysis times) and how is continuous monitoring data used to declare real-time advisories and episodes?

Questions were raised about how the data used to demonstrate attainment with the NAAQS is obtained.

Response: Compliance with NAAQS is determined using 24-hour measurements from federal reference method monitors. In Fairbanks, those monitors operate every third day. Each filter is sent to Juneau for analysis. To monitor PM 2.5 levels in near real time, continuous monitors are employed that take hourly measurements and report the values to the officials responsible for declaring air quality advisories.

**Fiscal Concerns:** Those comments specifically noting fiscal impacts are summarized here

## 1) Healthcare costs from health issues exacerbated by PM 2.5.

Commenters cited scientific studies that have indicated negative health effects may occur in some segments of the population at PM 2.5 concentrations below the proposed thresholds for Table 6. Commenters suggested that these negative health impacts would cause individuals in sensitive groups to incur additional health care costs if emissions were not curtailed at thresholds that prevented concentration of PM 2.5 to reach levels equal to or below the NAAQS value of  $35 \mu\text{g}/\text{m}^3$ .

- 2) Costs of complying with more episodes if thresholds are too low.

Commenters noted that potential curtailment actions that include prohibition of wood burning heating devices would require individuals to heat spaces using other more expensive energy sources. Comments suggested that low episode thresholds would increase the number of days an individual would incur additional expenses associated with heating spaces without using wood as a primary or supplemental source of heat.

**Regulatory Options:** Based on the comments received the department considered the following regulatory options.

- 1) Do not implement the proposed regulation (keep current regulation)
- 2) Implement the regulations as proposed
- 3) Implement the proposed regulation with amendments:
  - a) Lower initial air alert episode threshold to  $45 \mu\text{g}/\text{m}^3$ ,  $35 \mu\text{g}/\text{m}^3$  or lower to prevent NAAQS violations
  - b) Lower air alert, warning and emergency thresholds to  $35 \mu\text{g}/\text{m}^3$ ,  $56 \mu\text{g}/\text{m}^3$  and  $150 \mu\text{g}/\text{m}^3$ , respectively.
  - c) Raise the thresholds to higher levels
  - d) Add another level before an air alert is triggered

**Department Decision:** After careful consideration, only the amendment to the title of 18 AAC 50.245(a) Table 6 will be adopted. The remainder of Table 6 will not be amended as proposed and the current language will remain in effect.

DEC intends to issue a new regulatory proposal to address PM 2.5 episode thresholds. This new proposal will be subject to additional public review and comment.

**Authority to Declare Air Episodes and Advisories - 18 AAC 50.245 (a) (b) (c)**

The proposed amendment to this regulation would clarify that, in addition to the Department, authorized local air quality control programs may declare air quality episodes and air quality advisories and prescribe and publicize emissions curtailment action in the event that the air pollutant concentrations in Table 6 (18 AAC 50.245 (a)) are exceeded.

18 AAC 50.245 is amended to read:

(a) The department **or a local air quality control program authorized by the department under AS 46.14.400** may declare an air **quality** episode and prescribe and publicize curtailment action if the concentration of an air pollutant in the ambient air has reached, or is likely in the immediate future to reach, any of the concentrations established in Table 6 in this subsection.

(b) The department **or a local air quality control program authorized by the department under AS 46.14.400** will declare an air quality advisory if, in its judgment, air quality or atmospheric dispersion conditions exist that might threaten public health.

(c) If the department **or a local air quality control program authorized by the department under AS 46.14.400** declares an air quality advisory under (b) of this section, the department **or a local air quality control program authorized by the department under AS 46.14.400** will...

**Summary of Comments:** Commenters expressed varying opinions on the proposed regulatory changes that clarify the role of authorized local air quality programs in declaring air quality episodes and advisories and managing air pollution during events.

With respect to the delegation of authority to local programs, comments voiced a number of opinions including a lack of support for any regulations and lack of support for delegation to local programs. A number of comments focused on the delegation of authority specific to the FNSB. Commenters cited the passage of the Home Heating Proposition #3 (2012) in FNSB as a wish by citizens to not be regulated by anyone and as a perception by the public of the FNSB abusing powers related to the regulation of solid fuel heating devices. Commenters felt these proposed changes ignored the intentions of Proposition #3 by giving authority to the Borough to declare episodes and prescribe curtailment actions or declare air advisories.

Comments also raised a concern that within the regulation there is no specific designation of which entity would be responsible for declaring air episodes or advisories and prescribing curtailment actions. Commenters wanted further clarification written into the regulations concerning who is responsible for announcing and enforcing the air quality episode. Commenters suggested that the proposed amendment does not specify a single authority responsible for air alerts and that without a single, designated authority there is potential for confusion and inaction.

Comments also expressed concern that the regulations may go unimplemented by potentially unwilling local programs affected by local political climates. Therefore, comments suggested no ability for local discretion and instead suggested that the regulation use terms such as *will* instead

of *may declare*. Other comments expressed doubt that the FNSB could effectively prescribe curtailment actions citing failures to attain the NAAQS despite the State's 2010 delegation of authority to the Borough for PM 2.5 air pollution planning and given the language of Proposition #3 that resulted in the removal of local PM 2.5 regulations by removing the Borough's authority and enforcement related to home heating and fuel use.

Commenters also felt the delegation of authority to implement the program would constitute an unfunded mandate that should be funded by the state. Some comments expressed a desire for state regulation or a state partnership with a local program. Other commenters interpreted Proposition #3 as a mandate by the citizens of the FNSB that the state take over the authority previously held by the FNSB. Commenters felt state implementation would be less prone to local political volatility and be more able to ensure NAAQS compliance. Other commenters desired a partnership between local and state programs or even a citizen's advisory panel to ensure transparent and constructive discourse between citizens, local government, and state government.

Commenters supportive of delegating authority to local programs favored local authority in general and felt that local programs would have a greater ability to react quickly and to allow for enforcement actions not available to the state. Comments expressed a desire for a clear description of how a local program would use discretion in declaring an advisory or episode. Other comments suggested that discretion be eliminated and curtailment actions be mandatory. Comments also suggested a comprehensive alert system.

**Comments Outside the Regulatory Proposal:** Comments and questions were received that were outside the regulatory proposal. Those comments and questions are summarized below.

1) Regulation Enforcement

Some comments focused on the need for a strong local enforcement presence. Commenters felt that advisories had limited value if local authorities did not have the power to enforce through fines and the threat of legal action. Comments received indicated the belief that the proposed regulations were illegal as they would give the Fairbanks North Star Borough authority that is contrary to or in violation of the enacted local ballot Proposition #3.

Response: The proposed regulations do not empower the Borough or any other local government to act outside the authority of its duly-authorized local air quality program, which is established by enabling ordinance. In other words, these proposed regulations do not give the Borough new powers unless there is a local ordinance already in place. The proposed regulations are statewide regulations.

With respect to addressing any violations of the state air quality regulations, the Department of Environmental Conservation Division of Air Quality is responsible and will use the compliance and enforcement tools for which it is allowed under state statute. The Division has not been given the authority in statute by the legislature to issue administrative penalties for violations of Alaska environmental laws. This means the

Division cannot write “tickets” and must use other tools like written notices of violation, compliance agreements, or in rare cases civil court actions. In most cases, the department finds compliance can be achieved through assisting businesses and individuals in understanding the regulatory requirements and how they can comply.

2) Improving State and Local Discourse

Commenters suggested that a partnership between local and state programs or a citizen’s advisory panel to ensure transparent and constructive discourse between citizens, local government, and state government was needed.

Response: The Department does enter into partnerships with local governments to address air quality issues in communities. These partnerships are generally outlined through the use of Memorandum of Understanding between the Department and a local government. In the case of the Municipality of Anchorage and the Fairbanks North Star Borough, more formal partnerships have been established under Alaska Statute 46.14.400-410 delegating authorities to the local governments for air pollution activities in lieu of the Department administering all aspects of the air quality program in these areas. The Department has found these local partnerships to be critical in addressing air quality concerns within communities and gaining local input and perspectives on approaches to improve air quality. The Department has not formed a formal citizen’s advisory panel to address statewide air quality concerns, however both the Municipality of Anchorage and the Fairbanks North Star Borough have air quality related committees whose members include local citizens representing the public and various stakeholder groups within the community. These committees provide input and recommendations to the local air quality planning process in these communities.

3) Specify which party is responsible for calling episodes and advisories

Comments were received that requested the regulations be more specific as to who is responsible for calling episodes and advisories.

Response: These particular regulation sections apply statewide and to other possible local air quality programs beyond the Fairbanks North Star Borough. Local governments derive their authorities from their citizens. The Department may delegate state authority to the local air quality program. In order for a local air quality program to have the authority to call an episode under these proposed regulations, two things must occur. First, the department and the local program must enter into a Memorandum of Understanding (MOU) that delegates authority to the program and outlines the roles and responsibilities for each agency (DEC and local program) including how advisory and episodes will be addressed. Second, the local governing body, such as an Assembly, must concur with or approve of the MOU and its delegation of authority.

**Fiscal Concerns:** Those comments specifically noting fiscal impacts are summarized here.

Commenters addressed possible costs to local air quality programs identified under the proposed regulations. Commenters suggested that programs would incur costs implementing the regulations and that those costs would be borne by local tax payers instead of the State. Commenters felt that requiring local programs to implement or enforce the regulations would constitute an unfunded mandate and that the State should either fund those programs or not delegate to local programs.

**Regulatory Options:** Based on the comments received the department considered the following regulatory options.

- 1) Do not implement the proposed regulations (keep current regulation)
- 2) Implement the regulations as proposed
- 3) Implement proposed regulations with amendments
  - a. Rephrase to replace "...may declare an air **quality** episode and prescribe and publicize curtailment action..." with "...will declare an air **quality** episode and prescribe and publicize curtailment action..."
  - b. Rephrase to replace "...may declare an air **quality** episode and prescribe and publicize curtailment action..." with "...will declare and publicize an air **quality** episode and may prescribe and publicize curtailment action..."
  - c. Specify which party is responsible
  - d. Clarify regulation to remove the confusion over whether the regulations provide additional authority to a local government beyond that provided by its citizens

**Department Decision:** One concern expressed by the public with this regulatory revision was a perception that it granted a power to the local air quality program that was in conflict with the authorities provided by citizens to their local government. Legal review on this point clarified that this perception was not correct and the wording does not provide additional authorities to a local government beyond that provided by its citizens.

DEC's statutory authority to implement regulations and enter into agreements with local programs is contained in AS 46.03.010, AS 46.03.020, AS 46.14.010, AS 46.14.030, and AS 46.14.400. 18 AAC 50.245 is a statewide regulation. The proposed regulations do not empower the Fairbanks North Star Borough to act outside the authority of its duly-authorized air quality program and enabling ordinances. This regulation recognizes that some communities may give their local program more duties and authorities than other communities. Further, this regulation does not change the local air quality Memorandum of Understanding (MOU) between DEC and the Fairbanks North Star Borough. The MOU may only be changed by joint agreement of both parties. The finalization of the proposed regulations provides an opportunity for the Department and the Borough to further clarify their respective roles, responsibilities, and the Borough's delegated authorities related to air quality activities, but only through a separate process to update the MOU.

However, to alleviate this concern overall, the department is clarifying this point in the final adopted regulation. Therefore, DEC is adopting the amendments to 18 AAC 50.245 with changes.

- The amendment to (a) will be adopted with a clarification stating that the regulation does not alter a local government's powers or obligations under a local air quality control program or other applicable laws.
- The amendments to (b) and (c) will be adopted as proposed.

The department is not changing the remainder of paragraph 18 AAC 50.245(a) in response to public comments seeking less discretion on the declaration of air episodes. Because of the many types of situations that could lead to an air pollution event, DEC thinks it is important to maintain flexibility to address and respond to unique situations and circumstances.

**Definitions- 18 AAC 50.990**

DEC proposed to amend this regulation to clarify the definition of a wood-fired heating device and to add the definitions for “wood heater/wood stove”, “clean wood”, “hydronic heater”, and “solid fuel-fired heating device”.

The proposed amendment to 19 AAC 50.990(123) is as follows:

(123) "wood-fired heating device" means a device designed **or used** for wood combustion so that usable heat is derived for the interior of a building; “wood-fired heating device” includes wood-fired **or pellet-fired** stoves, fireplaces, **wood-fired forced air furnaces**, wood-fired **or pellet-fired** cooking stoves, **hydronic heaters** and combination fuel furnaces or boilers that burn wood; “wood-fired heating device” does not include a device that is primarily a part of an industrial process and incidentally provides usable heat for the interior of a building.

The proposed additions to 18 AAC 50.990 are as follows:

(135) “clean wood” means wood that has no paint, stains, or other types of coatings, and wood that has not been treated with preservatives including copper chromium arsenate, creosote, or pentachlorophenol.

(136) “hydronic heater” means a fuel burning device, including wood boilers and pellet boilers, designed to

- (A) burn wood, biomass or other solid fuels;
- (B) that the manufacturer specifies for installation in structures not normally occupied by humans (e.g., garages); and
- (C) heats building space or water via the distribution, typically through pipes, of a fluid heated in the device, typically water or a water/antifreeze mixture.

(137) "solid fuel-fired heating device" means a device designed or used for wood or coal combustion so that usable heat is derived for the interior of a building; “solid fuel-fired heating device” includes wood-fired heating devices, coal stoves, coal forced air furnaces, coal-fired cooking stoves, coal-fired hydronic heaters and combination fuel furnaces or boilers that burn wood and coal; “solid fuel-fired heating device” does not include a device that is primarily a part of an industrial process and incidentally provides usable heat for the interior of a building

(138) “woodstove” or “wood heater” has the meaning given to “wood heater” in 40 C.F.R. 60.531, revised as of October 17, 2000 and adopted by reference.

**Summary of Comments:** Comments on this section of the proposed regulation revisions expressed varying levels of support for the proposed definitions amendment and additions. Some commenters expressed support for the proposed revisions saying that they included most devices in common usage today while others proposed alterations to the proposed definitions or adding definitions of additional terminology.

- **(123) “wood-fired heating device”**

Commenters expressed support for this amendment but also proposed several changes. Commenters felt that it was appropriate to add devices not designed for but used for wood combustion, wood-fired forced air furnaces, and hydronic heaters. Other commenters noted that the listed devices may use either cordwood or pellets and argued that pellet fuels were dry and cleaner burning. For this reason, they requested that pellet-fired devices be separated from cordwood burning devices. Commenters also requested that additions be made to the list including masonry heaters and rocket stoves but similarly suggested that they are cleaner burning than other devices and should not be included in any curtailment actions.

- **(135) “clean wood”**

Comments expressed support for defining “clean wood” and for the list of contaminants in the definition but also made several suggestions to strengthen the definition. Commenters noted that additional contaminants can be found in wood in addition to those listed in the proposed definition. They said that often burned plywood and particle board contains glues and binders that produce toxic emissions. Comments suggested adding a requirement that “clean wood” be required to have a moisture content of less than or equal to 20% by weight but other commenters desired a separate definition of dry, seasoned, and split wood for use in defining allowable fuels. Other commenters suggested expanding the definition to define not only clean wood but all clean fuels.

- **(136) “hydronic heater”**

Comments expressed support for defining hydronic heaters but made suggestions to make the definition more representative of the types of hydronic heaters currently used and available on the market. Commenters noted that some hydronic heaters are designed and rated for standalone installation outdoors. Commenters suggested changing (B) to “that the manufacturer specifies for installation **outdoors or** in structures not normally occupied by humans (e.g., garages)” so that it is more inclusive. Other commenters noted that many hydronic heaters use coal as fuel and supported the addition of coal boilers to the definition of hydronic heaters.

- **(137) “solid fuel-fired heating device”**

Commenters expressed support for the proposed definition and desired that other sections in the regulations proposal refer to “solid fuel-fired heating devices” instead of the less inclusive “wood-fired heating device” as a way to ensure that the regulations also applied to coal burning devices.

- **Commenter Proposed Additions**

“Essential Residential Heating”

Commenters proposed defining “essential residential heating” to clarify the term in the event that 18 AAC 50.075(b) provides exemptions to curtailment actions for “essential residential heating” in any finalized regulations. Commenters suggested defining “essential residential heating” as instances when a potentially curtailed device is the sole-source of heat, i.e., the only available heat source for an entire residence not including small portable heaters.

“Curtailment Actions and Flexibility”

Commenters proposed defining the actions the department would take and the flexibility the department would have in the event of a curtailment action described by 18 AAC 50.075(b). Commenters said that without such a definition, the regulation was vague and possibly ineffective. Commenters suggested listing the devices that would be affected and the type of evidence that could prove a violation. Comments listed solid fuel-fired heating devices including coal burning devices, incinerators, and waste oil burners as devices that should be affected by any curtailment action and that smoke or visible emissions should be prima facie evidence of a violation. Commenters note that other states have defined curtailment actions and strategies.

“Dry Wood”

Commenters suggested incorporating a definition of “dry wood.” Commenters proposed that by defining dry wood and using that definition in 18 AAC 50.076, excess emissions caused by the combustion of wet, unsplit, or unseasoned wood could be avoided. Comments suggested defining dry wood as having dried to a moisture content of less than or equal to 20% by weight. Other comments suggested requiring specific amounts of time wood must season before being an allowable fuel or requiring wood to be split and seasoned before being considered an allowable fuel.

“Pellet Fuels”

Commenters proposed adding a definition of pellet fuels that includes pellets manufactured from clean wood and from materials other than clean wood such as recycled paper products, grass, and other biomass.

“Petroleum and Used Oil Products”

Comments proposed defining petroleum and used oil products that are commonly burned in waste oil burners or in other devices to produce heat.

“Open Burning”

Commenters requested clarification on the types of burning that are considered “open-burning” and would be regulated by 18 AAC 50.065(f). Commenters worried that the regulation would affect campfires, cooking fires, fireworks, and other instances where open flame meets the current definition of open burning in 18 AAC 50.990(65) but is not a significant contributor to ambient air quality degradation.

**Comments Outside the Regulatory Proposal:** Comments and questions were received that were outside the specific regulatory proposal. Those comments and questions are summarized below.

Commenters proposed specific definitions that are outside of this portion of the regulatory proposal. Commenters desired a definition detailing the actions DEC would take in the event an air quality episode warranted a curtailment action and what kind of flexibility would be allowed. Commenters also requested definitions pertaining to petroleum and used oil fuels as well as clarification of what types of burning constitute “open burning”.

1) Essential Residential Heating

Commenters felt this term could be useful in any changes to 18 AAC 50.075(b). As DEC is not moving forward with revisions to that section and the term is not included in the final regulations proposed for adoption, it was not added to the definitions in 18 AAC 990.

2) Curtailment Actions and Flexibility

The regulation definition section is meant to clarify terms used in the chapter. While curtailment is a term used, it can take different forms for different air pollutants and pollution sources. DEC has decided that curtailment action plans and flexibilities cannot be readily incorporated into a definition term in 18 AAC 50.990. The department thinks that this type of action plan and its detail would need to appear in either 18 AAC 50.075, another section of the state regulation, or in the Alaska Air Quality Control Plan adopted by reference in 18 AAC 50.030; this would require a new regulatory proposal.

3) Dry Wood

Commenters suggested adding a definition for the term “dry wood” in conjunction with the regulatory proposal for a new section 18 AAC 50.076 dealing with fuels that can be burned in solid fuel-fired heating devices. Since the department plans to make additional revisions to the draft requirements in 18 AAC 50.076 and release a new proposal for additional public review, there is no need to adopt a definition of “dry wood” at this time. Should this or any other definition changes be needed to address

terms referenced in the new proposal for 18 AAC 50.076 they will be included in that subsequent proposal.

4) Pellet Fuels

Commenters proposed adding a definition of pellet fuels that includes pellets manufactured from clean wood and from materials other than clean wood such as recycled paper products, grass, and other biomass. Again, this suggestion would be coupled with a new section 18 AAC 50.076 dealing with fuels that can be burned in solid fuel-fired heating devices. Since the department plans to make additional revisions to the draft requirements in 18 AAC 50.076 and release a new proposal for additional public review, there is no need to adopt a definition of “pellet fuels” at this time. Should this or any other definition changes be needed to address terms referenced in the new proposal for 18 AAC 50.076 they will be included in that subsequent proposal.

5) Petroleum and Used Oil Fuels

These regulation revisions do not propose to regulate non solid fuel-fired heating devices. While comments indicate that these substances may be used as fuel in solid fuel-fired heating devices by some individuals, DEC had proposed that 18 AAC 50.076 would stipulate what types of fuel can be used in solid fuel-fired heating devices rather than what cannot be burned in a solid fuel-fired heater. As the proposed 18 AAC 50.076 did not refer to petroleum and used oil products there was not a need to define them in the chapter.

However, the department plans to make further revisions to the draft requirements in 18 AAC 50.076 and release a new proposal for additional public review. Should any definition changes be needed to address terms referenced in the new proposal, they will be included in the revised proposal.

6) Open Burning

Commenters proposed that open burning definitions be clarified. Open Burning is already defined in 50.990(65) as:

“Open Burning” means the burning of a material that results in the products of combustion being emitted directly into the ambient air without passing through a stack, flare, vent, or other opening of an emission unit from which an air pollutant could be emitted;

In reviewing the comments received on the open burning requirements at 18 AAC 50.065(f) and after careful consideration, DEC plans to revise and re-propose changes for additional public review including proposed revisions and additions to the definitions in 18 AAC 50.990 related to open burning.

**Fiscal Concerns:** DEC did not receive any comments specifically addressing fiscal concerns associated with the definitions proposed in this section.

**Regulatory Options:** Based on the comment received the department considered the following regulatory options.

- 1) Do not implement the proposed regulations (keep current definitions in regulation)
- 2) Implement the regulations as proposed
- 3) Implement proposed regulations with amendments to definitions as needed to address the comments received in other sections of the proposed regulations

**Department Decision:** Definition of terms rely on their use within the final regulations. Given the comments received on the definitions in conjunction with the action being taken on the other regulation provisions, DEC proposes to move ahead with amendments to 18 AAC 50.990. The final definitions adopted were changed as a result of both the comment process and the finalization of certain aspects of the regulation proposal as described below.

The amendment to definition paragraph (123) “wood-fired heating device” is being adopted with a change to add “masonry heater” to the list of devices. This change reflects DEC’s agreement with commenters that masonry heaters were not clearly identified as wood-fired heating devices in the regulation. Because masonry heaters burn wood, it is appropriate to include them specifically in this definition. With respect to additional comments received on this definition, the department responds as follows:

- With respect to comments that suggested the department should split out devices like pellet-fired heaters and masonry heaters from the wood-fired heater definition because they are cleaner burning, DEC decided to keep them in this definition to ensure that general regulatory provisions apply equally to all wood-fired heating devices. The primary operational requirements that relate to all wood-fired heating devices are the visible emission standards found in 18 AAC 50.075. While the department agrees that pellet units generally burn cleanly, DEC thinks that all units should be operated to burn cleanly with low visible emissions.

These concerns can also be viewed in the context of the wood-fired heating device emission standards being adopted in 18 AAC 50.077. In this case the emission standards apply to specific types of new wood-fired heaters, which have their own definitions, including: woodstoves and, hydronic heaters. New wood-fired heating units over 350,000 BTU/hour do have to meet emission requirements, but these are larger units that are not typically installed in homes and few comments were received on this category of heaters.

- Regarding comments on allowing cleaner burning wood-fired heating devices to operate during any curtailment, DEC plans to propose a new regulatory approach to address the use of wood-fired heating devices during fine particulate matter air quality episodes. That new proposal will be released for public review and comment.

The regulatory proposal also included the addition of several definitions relevant to the new provisions under consideration. DEC's actions in response to comments on these new definitions are detailed below:

- The definition of "clean wood," listed as (135) in the proposal, is not being adopted at this time. This definition was defined to support the proposed revisions to add a new section 18 AAC 50.076. Since the department plans to make additional revisions to the draft requirements in 18 AAC 50.076 and release a new proposal for additional public review, there is no need to adopt a definition of "clean wood" at this time. Should this or any other definition changes be needed to address terms referenced in the new proposal for 18 AAC 50.076 they will be included in that subsequent proposal.
- Because the definition for "clean wood" is not being proposed for adoption, the remaining definition paragraphs that are being adopted will be re-numbered in the final regulations as follows: (135) "hydronic heater", (136) "solid fuel-fired heating device", and (137) "woodstove" or "wood heater".
- Proposed paragraph (136) "hydronic heater" is being adopted with changes. The department agreed with commenters that the definition could be clearer with respect to outdoor installations. However, hydronic heating units may also be indoors. As a result, DEC is broadening the definition to clearly include both indoor and outdoor units that may or may not have heat storage units. The adopted definition also clarifies that forced air furnaces are not considered hydronic heaters. This definition will be re-numbered as (135).

Commenters also noted that many hydronic heaters use coal as fuel and supported the addition of coal boilers to the definition of hydronic heaters. No change was made to the definition because the proposed hydronic heater definition notes the burning of "other solid fuels," which would include coal. As a practical matter, DEC's regulations may specify whether a provision applies to all solid fuel-fired hydronic heaters or just to those that burn wood products.

- Proposed paragraph (137) "solid fuel-fired heating device" is being adopted as proposed but will be re-numbered as (136). No comments suggesting specific changes were received on this definition.
- Proposed paragraph (138) "woodstove" or "wood heater" is also being adopted as proposed but will be re-numbered as (137). No comments suggesting specific changes were received on this definition.

- A new paragraph (138) “masonry heater” is being added to define masonry heaters based on their function and design or as otherwise described in the International Building Code, ASTM E1602, or UL1482. DEC added this definition in response to concerns raised that masonry heaters were not included in the wood-fired heating device definition in section (123). When the term “masonry heater” was added to (123), DEC decided that it would also warrant its own definition to further ensure clarity for this type of heating device within the regulations.

## General Comments

**Summary of Comments:** Comments received in response to the proposals for changes to regulations governing the nonattainment area for the PM 2.5 NAAQS standards in the Fairbanks North Star Borough (FNSB) represented the views of the public, businesses, and special interest groups. Comments were submitted via oral testimony and in writing. General comments are categorized and summarized as follows:

### • **Efficacy of Proposed Regulations**

Commenters identified Clean Air Act State Implementation Plan (SIP) requirements and expressed opinions about the effectiveness of the proposed regulations at bringing the nonattainment area into attainment for the 2006 PM 2.5 24-hour NAAQS. Commenters noted that DEC's SIP must demonstrate a 22% reduction in EPA's designated ambient design value concentration of  $44.7 \mu\text{g}/\text{m}^3$  which would constitute an approximately  $9.7 \mu\text{g}/\text{m}^3$  decrease. Commenters felt that the materials and evidence DEC provided to the public as part of the review process did not demonstrate the potential for the proposed regulations to achieve a 22% reduction and either argued that stronger regulations were needed to protect public health and attain the NAAQS or that certain proposed regulations should not be implemented because they would only provide insignificant improvements. Commenters also noted that the DEC did not release a proposed SIP for examination during the public review process. Commenters felt that this made it impossible to determine the overall role of the proposed regulations in achieving attainment and their possible efficacy.

### • **Air Quality/Health**

Commenters reported experiencing impaired air quality as a result of the operation of solid fuel-fired heating devices including wood and coal burning devices. Commenters reported a visible layer of smoke, impaired visibility, smells of smoke, and physical reactions attributed to the smoke including: stinging eyes, coughing, asthma, and other acute or chronic health conditions. Commenters reported sometimes substantial or staggering medical expenses as high as one million dollars that they had accumulated due to treatment of conditions caused by air pollution including prescriptions, doctor and specialist appointments, emergency room visits, surgeries, out of state treatments, treatment of acute conditions such as heart attacks, stroke, and asthma attacks, and treatment of chronic conditions such as emphysema, asthma in children, and atrial fibrillation. Some commenters felt that the proposed regulations were not protective enough of human health and wanted DEC to consider the health costs borne by these individuals and the public as a result of implementing or not implementing the regulations as proposed. Comments identified scientific materials that demonstrate a causal relationship between PM 2.5 and effects on human health. Other commenters questioned the validity of the results of researchers and denied assertions that the burning of solid fuels by individuals heating their homes or businesses had caused the physical reactions experienced by others in the community. A sentiment was expressed that individuals affected by smoke should voluntarily relocate instead of insisting on the imposition of new regulations.

- **Impacts of Pollution on Community**

Comments identified further impacts of air pollution on the community within the nonattainment area. In addition to medical expenses, commenters reported declines in property values, inability to sell property, expenses incurred relocating to cleaner areas within the nonattainment area or outside of the nonattainment area, travel, lost wages due to work absences, absences from school, loss of outdoor recreation opportunities, and installing air filtration units. Commenters also pointed to hypothetical impacts such as loss of tourism revenue and potential loss of jobs as companies or even government agencies either relocate or choose not to operate in the nonattainment area due to health concerns.

- **Use of Airshed**

Comments addressed the use of exterior air during periods of high pollution levels. Commenters noted that pollution events occurred year round and sometimes coincided with conditions that otherwise would limit outdoor activity and exposure to air such as extreme cold. Comments also noted the persistence of wildfire smoke during summer months when outdoor activities would not otherwise be limited by natural conditions. Commenters expressed doubt that the airshed is used during extreme cold weather events while other comments cited multiple uses of the airshed that would benefit from the reduction of PM 2.5. Commenters noted that all indoor air within confined spaces such as households, public buildings, schools, businesses, and automobiles ultimately comes from the outside and that while the presence of pollution could be mitigated through the installation and operation of expensive filtration units, laser particle counters, or masks, this option was unavailable to many affected citizens due to financial constraints. Commenters listed outdoor activities that require individuals to breathe polluted air such as bicycling, walking, running, jogging, skiing, dog mushing, and other recreational activities. It was proposed that PM 2.5 pollution limited access to clean air and outdoor activities that promote positive impacts on physical and mental health during winter months.

- **Sources of PM 2.5**

Comments showed acceptance that the combustion of solid fuels in solid fuel-fired heating devices and through open burning during winter contributed to the formation of PM 2.5 but also identified other contributing sources of PM 2.5. Commenters pointed to major and minor permitted sources, idling vehicles and construction equipment, aircraft, coal fired power plants, refineries, local industries, forest fires, diesel engines, and regional haze as sources of PM 2.5 and argued that the proposed regulations unfairly burdened solid fuel heating device users and open burning practices. Commenters identified coal fired power plants as emitting visible plumes and causing deposition of contamination outside the boundaries of the facilities. Comments suggested curtailing other sources of PM 2.5 and offered mitigation technologies and strategies that could be used to reduce the pollution caused by those other sources. Commenters suggested promotion of renewable, non-biomass, energy sources such as wind, solar, geothermal,

and hydroelectric. Commenters also felt that natural gas would be a clean energy source but may take too long to have an effect or may not be adopted by residents due to upgrade costs or higher fuel cost compared to wood or coal.

- **Causes of Air Quality Episodes**

Commenters noted two scenarios under which PM 2.5 exceedances occurred, wildfires during the summer months and inversions during the winter. It was suggested that efforts would be better spent on the prevention and fighting of wildfires during the summer to reduce the intense wood smoke experienced in the nonattainment area during wildfires; however, other comments pointed out that wildfires do not cause the majority of exceedances. Commenters noted that wildfires were a natural occurrence that could not be regulated. Comments said that the inversions that lead to episodes in the winter are also a natural occurrence that cannot be controlled and that exceedances resulting from inversions either should or should not be addressed through regulation. It was noted that inversions occur during extremely cold temperatures that necessitate the burning of fuels to maintain safe interior environments and prevent property damage such as burst pipes.

- **Monitoring**

Commenters made note of the current monitoring efforts and expressed concerns on the use of the current model of using only several monitors to regulate the entirety of the non-attainment area. Comments suggested the installation of additional monitoring stations or subdividing the nonattainment area to allow regulators to target specific areas for curtailment. Other comments expressed concern with this strategy pointing out that even areas outside of the nonattainment area contributed to the PM 2.5 levels and that exempting certain sources within the nonattainment area during curtailment periods would unfairly penalize the residents of areas where PM pollution from other areas tends to accumulate. Comments expressed concern over the timeliness of changes to curtailment action levels in response to the real time improvement of air quality or conditions and suggested that regulators would update information or curtailment actions during non-business hours. Commenters also desired an explanation of how the monitoring data would be used in calling an air episode.

- **Need for Solid Fuel Heating Devices (SFHDs)**

Commenters expressed need for SFHDs. They noted that exceedances typically occur during extreme cold weather conditions when SFHDs are used to heat spaces to maintain safe, survivable, and habitable environments and to prevent property damage. Commenters addressed the types of heating options available to residents including electric heaters; hydrocarbon based systems such as fuel oil, propane, natural gas, and kerosene fueled devices; and solid fuel burning devices such as biomass, wood, pellets, and coal. Commenters noted that fuel sources that produce significantly less PM 2.5 can be significantly more expensive than their alternatives. Comments suggested that economic factors influences the need for the use of cheaper solid fuels and that the use of wood as a fuel source contributes less to greenhouse gas emissions. Commenters proposed fuel oil subsidies as a solution to the use of solid fuels due to the use of SFHDs

for economic reasons. Other commenters noted that SFHDs were the sole source of heat for their homes or businesses citing a lack of electricity or lack of any other heating device. Commenters expressed concern over the need for electricity to operate devices other than woodstoves and worried about curtailment actions at times when power outages prevented usage of alternative heating devices. Other commenters noted that their woodstoves were needed as supplements to other heat sources during extreme cold weather events or in the event of non SFHD inoperability or failure.

- **Need for Regulations**

Commenters expressed both a desire for and rejected a regulatory approach to the air pollution problem. Those that rejected the need for regulations offered multiple explanations including: a perceived adequacy of current regulations, alleged political and economic motivations behind the regulations, a desire for legislative action on the issue, disapproval of government involvement, a local ballot proposition that voiced a desire to not be regulated, enhanced access to natural gas or improved technology developed by the free market would solve the problem, or preferred a community based approach that emphasized cooperation and education. Other commenters expressed dissatisfaction with current regulations, felt the proposed regulations would not be effective, pointed to a need to curtail PM 2.5 emissions to protect public health in the nonattainment area, desired state regulations due to an impotency of the FNSB caused by the local ballot initiative, maintained that waiting for access to natural gas would not solve the problem quickly enough and that effective technologies already existed, or pointed out that a community and education based approach had already been tried and was not working to a satisfactory extent. Commenters felt that the proposed regulations may fail to establish federally required enforceable control measures or contingency measures.

- **Possible Regulatory Options**

Industry experts offered the results of an informal survey of local chimney sweeps that found that the number of non EPA certified woodstoves in residences approached 50% and surmised that a majority of pollution was caused by non-certified stoves. Citing a low turnover rate of woodstoves due to the long lifespan of wood stoves and the current availability of cleaner burning appliances, commenters offered several options for incentivizing or requiring replacement. Commenters expressed need for an expanded change-out program that is less financially burdensome and less intrusive that would cover the entire cost of a stove installation to incentivize the installation of devices that could provide users with greater economy through increased efficiency. Comments also sought a provision requiring the replacement of non-certified devices upon the sale or transfer of property suggesting the cost of upgrades could be included in a mortgage and could be enforced by the real estate industry. Commenters suggested that upgrades would be more attractive if they could be incentivized through an exception to curtailment under certain conditions that would curtail the use of non-certified appliances. Commenters also suggested citations or imposition of fines for highly polluting appliances to further incentivize replacement or compliance with regulations. Comments questioned the effectiveness of the results of EPA testing labs in predicting the real world performance of devices in the nonattainment area. Comments also

expressed concern that a regulation that expressly required EPA-certified devices could stifle local technological innovation due to a lack of a local EPA-certified testing facility. Comments also stated a need for increased insulation of buildings through building codes applicable to new structures suggesting that increased insulation would decrease the energy needed to heat a space and result in less PM 2.5 emissions. Commenters also felt that regulations could protect the most vulnerable portions of the population by placing more strict restrictions in areas directly surrounding public places and schools.

- **Regional Applicability of Regulations**

Commenters suggested various alternatives for the extent to which regulations applied throughout the state. Some comments sought the imposition of the proposed regulations on the entire state of Alaska, the entire FNSB, the entire nonattainment area, or subdivisions of the nonattainment area. Comments reasoned that expanded impositions would reduce instances of purchasing non-certified appliances outside of the nonattainment area for installation within and reduce or possibly allow enforcement in cases of localized nuisance problems elsewhere in the state.

**Fiscal Concerns Summary:** Comments listed a variety of ways in which the current conditions have fiscal impacts and ways in which the proposed regulations would have fiscal impacts on individuals and businesses within the non-attainment area

Commenters noted a variety of costs including those associated with the present pollution patterns, costs predicted if the area is not brought into attainment, and costs associated with compliance with the proposed regulations. Commenters said current and past costs associated with the pollution problem in Fairbanks included increased healthcare costs associated with an increase of emergency room visits during exceedances, increased doctor and specialist visits, medication costs, surgery costs, and travel expenses. Commenters reported having missed days of work or school due to health effects associated with pollution or to prevent exposure to pollution. Commenters experienced losses in property values in highly polluted locations impacting an individual's ability to relocate to less polluted areas. Commenters who were able to move and moved due to pollution levels reported costs associated with selling old homes, purchasing new homes, and moving. Other commenters reported costs associated with purchasing and installing and operating home air monitoring and filtration systems. Commenters addressed financial impacts that could possibly continue or arise if pollution control measures are not adopted. Comments suggested continuation of the pollution problem would cause a continuation of currently reported expenses. Comments also suggested that impacts to the FNSB economy could occur due to pollution levels. These impacts included the loss of productivity, loss of employers, loss of residents, and loss of potential tourism. Comments addressed the potential costs associated with complying with the proposed regulations. Commenters stated that the costs of complying with a burn ban by using other fuels or energy sources would be financially unfeasible for residents of the nonattainment area. Commenters listed a variety of financial impacts including the costs of upgrading heating devices, switching to different heating fuels, and purchasing certified devices.

**Responses to Comments:**

- **CAA Requirements for Attainment of NAAQS and Efficacy of Proposed Regulations**

The U.S. Environmental Protection Agency has determined that a portion of the Fairbanks North Star Borough is in nonattainment for the health-based National Ambient Air Quality Standard for fine particulate matter. As a result, Alaska is required under the Federal Clean Air Act to develop and implement a State Implementation Plan (SIP) that commits to implement measures that will provide for timely attainment and comprise the SIP.

These proposed regulations are being developed in an effort to reduce PM 2.5 emissions in the Fairbanks nonattainment area. These regulations coupled with other programs and requirements will help to bring the Fairbanks nonattainment area into compliance with the NAAQS. The full suite of measures will be incorporated into Alaska's SIP, which is being released for public review and comment along with the re-proposal of certain aspects of this regulation package and new regulatory proposals.

- **Public Health Impacts**

One of ADEC's primary objectives is the protection of human health and welfare via the safeguarding of air quality. At the same time, DEC recognizes that citizens of Alaska face extreme winter temperatures and high energy costs. The PM 2.5 and PM 10 NAAQS are health-based standards, and the health effects due to inhalation of particulate matter are well documented. Particles smaller than 2.5 microns in aerodynamic diameter tend to diffuse across the alveoli of the lung. This diffusion allows for systemic distribution of the particles and their contents throughout the body via the circulatory system. In addition to asthma and lung-related irritation, research indicates that exposure to PM 2.5 can cause premature death in individuals with heart and lung diseases and it can increase the risk of nonfatal heart attacks, irregular heartbeat, and decreased lung function. Children, older adults, and those with heart and lung issues are affected more commonly than healthy adults. PM 2.5 monitoring data collected during the 2008-2009, 2009-2010, and 2010-2011 winters in the FNSB suggest that the 24-hour PM 2.5 NAAQS is being exceeded about 25% of the days during the winter months. These regulatory proposals are meant to address the public health impacts from poor air quality within the nonattainment area.

- **The Airshed and How it is Used**

The Clean Air Act (CAA) regulates ambient air pollution. This includes the outside air that people breathe. While indoor air quality is very important, it is not regulated by the CAA. However, it is important to note that indoor air comes from the outdoor airshed and that outdoor air pollution can enter indoor spaces. People use the outdoor air when they do any outdoor activity including transportation and recreation. People can encounter and breathe polluted air that may affect their health. People are also affected by polluted air entering vehicles or the buildings in which they visit, work, go to school, or live.

The Fairbanks North Star Borough nonattainment area can be considered an airshed, although there are some distinct sub-areas within the nonattainment area boundary. The boundary was determined in 2009 by the Environmental Protection Agency through the designation process. The Borough and State provided information to EPA and made recommendations on a boundary. EPA considered the recommendations but also used additional analytical tools, and other relevant information, to make final decisions on nonattainment area boundaries including: emission data, air quality data, population density and degree of urbanization (including commercial development), traffic and commuting patterns, growth rates and patterns, meteorology (weather/transport patterns), geography/topography (mountain ranges or other air basin boundaries), jurisdictional boundaries (e.g., counties, , metropolitan planning organizations), and the level of control of emission sources. Additional information on the area designation process is available on EPA's web site at:

<http://www.epa.gov/airquality/particlepollution/designations/2006standards/index.htm>

- Sources of PM 2.5

Studies have consistently shown that space-heating by wood-fired devices is the largest single category of PM 2.5 emissions in the nonattainment area during the period of wintertime PM 2.5 exceedances. The 2008 Baseline Episode average daily emission estimates for the air quality plan indicates that space heating devices are responsible for approximately 2.76 tons of PM 2.5 emissions per day as compared to the nonattainment area total emissions from all sources of 4.93 tons per day. Thus, all space heat represents an estimated 56% of total emissions during winter episodes of high PM 2.5 concentrations and 96% (2.66 tons per day) of those PM 2.5 space heating emissions are attributed to wood burning. Other winter episode sources include power and industrial plants, commercial sources, vehicles, coal burning devices, and non-road equipment.

- Causes of Air Quality Episodes: Wildfires and Winter Emissions

The FNSB experiences PM 2.5 exceedances caused by wildfires and by anthropogenic emissions. Fairbanks is regularly impacted by wildland fire smoke in the summer months. While some wildfires are caused by the actions of humans, others are naturally occurring. The Federal, State, and Local firefighting agencies cannot control or extinguish every wildfire that may impact air quality in the FNSB nonattainment area. EPA allows states to apply for exemptions to exclude the data affected by exceptional events such as wildfires from the calculations used to determine attainment or nonattainment. Alaska applies to EPA for exemptions for exceedances caused by wildfire smoke. These events are considered natural phenomenon that have effects on pollution levels that human activity cannot fully mitigate.

Inversions are periods when air is trapped close to the ground and is often paired with stagnation events that prevent dispersion of atmospheric pollutants. While these events are a natural phenomenon, they do not directly cause the emissions of pollutant as

wildfires do, they simply alter the dispersion of the pollutants and cause them to accumulate. Human actions can mitigate emissions to lower the level of pollutants in the air trapped under an inversion. EPA's definition of 'exceptional event' in 40 CFR 50.1 (j) specifically excludes stagnation of air masses and meteorological inversions. EPA will not exclude any exceedances that cannot be attributed to exceptional events that occurred during an inversion or stagnation event.

Anthropogenic emissions within the nonattainment area have been identified as the cause of wintertime exceedances. These proposed regulations are part of a suite of actions proposed to be taken by local, state, and federal regulators in an effort to reduce emissions and improve air quality within the Fairbanks nonattainment area.

- Air Monitoring Program

The Fairbanks non-attainment area was designated based on the State Office Building (SOB) PM<sub>2.5</sub> air monitoring site using the data from 2006- 2008. At the time there only existed one PM<sub>2.5</sub> monitoring site in Fairbanks. Only one official site is required by federal rules for a metropolitan area the size of the Fairbanks/North Pole non-attainment area. (40 CFR 50 Appendix D 4.7)

Since 2008 DEC and FNSB have established numerous short term monitoring sites to determine the extent of the PM<sub>2.5</sub> impacted areas within the non-attainment area and the various levels of PM<sub>2.5</sub> in the community. Monitoring is resource intensive and efforts are made to find sites that generally represent certain parts of the community, whether at a broader neighborhood scale or on a micro-scale.

Compliance with the NAAQS is determined using a testing method that differs from the method that would be used to call air quality episodes. The NAAQS is based on a 24-hour average taken using equipment that passes ambient air through a filter for a period of 24 hours every third day. Each filter is then analyzed for the amount of PM 2.5 and for other characteristics. Using this method to call advisories and episodes would be ineffective and slow. As a result, advisories are called using continuous monitoring technology that measures the amount of PM 2.5 in the air hourly, giving regulators an up to date picture of air quality to use to call advisories. This same technology would be used to call PM 2.5 episodes in the future.

Concerns continue to be raised about the extent of the air monitoring network in the nonattainment area. Community discussions and the programs developed under the SIP may result in changes to the monitoring network in the months and years to come.

- Need for Solid Fuel Heating Devices and Economical Heating Options

Commenters expressed concern about maintaining economical heating options within the nonattainment area and that wood was the most economic choice for heating their homes. DEC recognizes that individuals gather wood for fuel as part of their lifestyles. DEC also understands the shift away from cleaner burning fuel oil and electricity towards wood, biomass, and coal as fuels for heating as costs for fuel oil and electricity have risen. The portion of the regulation package that DEC has finalized does not prevent the use of wood as a heating option within the nonattainment area.

Some commenters proposed a fuel oil subsidy to help address the high costs of heating and reduce dependence on more affordable wood. DEC understands these comments about high heating oil costs in the Interior driving the use of more solid fuels for home heating in the nonattainment area and the desire to lower those costs for the primary base heating fuel, which is fuel oil. There are a number of ways to address the air quality impact of solid fuel use in lieu of and in addition to fuel oil. Given the work and priorities identified by the local community through the air planning process to date, the state is currently focused on a project to enhance the availability of natural gas in the community as well as providing funding to subsidize the replacement of high emitting wood heaters with of cleaner burning stoves.

While switching from solid fuels to a less polluting fuel source such a fuel oil would have an effect on air quality, the department has heard that many homes that have heating oil systems require supplemental wood heat during extreme cold periods. This is why the department has focused on finding economical cleaner burning fuel options and reducing emissions from wood heaters by ensuring the cleanest burning devices are installed and operated correctly. The regulations being adopted would ensure that only clean burning wood heaters are installed when residents upgrade or put in new devices inside the nonattainment area. The department plans to release additional regulation options and the overall air quality plan for the nonattainment area for further public review and comment. A fuel oil subsidy would require additional resources beyond those currently available to DEC and identified to date. As a result, this option would need to be addressed through either the local government process or through the state legislative process.

In discussing sources of PM 2.5 and the need for affordable heating options in the nonattainment area, commenters noted that the enhanced availability of natural gas and other energy alternatives would provide air quality benefits. While promoting these types of activities is not specific to this regulatory action, the State of Alaska is involved in a variety of efforts to provide additional energy sources to the FNSB including a natural gas pipeline, natural gas trucking, hydroelectric power, and the Healy coal-fired power plant. Of particular significance for the nonattainment area is the effort by the State of Alaska in expanding the availability and use of natural gas in the nonattainment area through the implementation of the Interior Energy Project. The Interior Energy Project provides the financial tools needed to bring natural gas to the Fairbanks and North Pole area. The project was established through Senate Bill 23 which passed the Alaska

Legislature unanimously in April 2013. The legislation authorizes the Alaska Industrial Development and Export Authority (AIDEA) to provide the financing package to partner with the private sector to build a liquefied natural gas (LNG) plant on the North Slope and natural gas distribution system in Fairbanks and North Pole. The current projections indicate that the earliest this project will provide additional natural gas into the community is 2016.

- Need for Regulations

Commenters expressed both a general desire for regulations to address air pollution or rejected regulatory approaches. Responses related to these general comments are contained in the sections of this Response to Comments dedicated to the specific sections of the regulatory proposal.

- Possible Regulatory Options

Commenters provided ideas and options to revise the proposed regulations and for potential regulations and programs beyond those proposals identified in this regulatory proposal. Many of the options raised as general comments are included in the sections of this Response to Comment specific to various aspects of the proposal.

In terms of some of the general comments received, DEC's Justification Document and Peer Review demonstrated the economic feasibility of establishing wood-fired heating device regulations. With respect to incentivizing additional upgrades to wood-fired heating devices, the FNSB wood heater change-out program provides such an opportunity to individuals living in the nonattainment area. Individuals who upgrade to more efficient devices will not only help to lessen the air quality problems in the nonattainment area, they will enjoy increased efficiency that will save them time and money by using less fuel to provide heat.

With respect to energy efficiency, there are many ways of reducing PM 2.5 emissions by increasing efficiency. As noted in the comments, one example is increasing the amount of insulation in a building. Increased insulation leads to less heat loss and a reduced need for fuel to heat a space. Newly constructed homes usually incorporate features that reduce heat loss, however energy efficiency improvements can also be made to older homes. Programs exist to help homeowners improve the energy efficiency of their homes such as programs administered by the Alaska Housing Finance Company. While there are many benefits to increasing home energy efficiency to both the individual and community, DEC has not proposed to implement regulations regarding home insulation requirements as there are other non-regulatory programs and building codes where this issue could be addressed.

- Regional Applicability of Regulations

Portions of the proposed regulatory package apply to all of Alaska and others apply only to PM 2.5 nonattainment areas, current and future. The regulations were crafted to give the state flexibility to consider the circumstances and causes of non-attainment in specific areas to best address the root cause and bring the area into attainment. As a result, the department has focused some regulations to the nonattainment area while others are being proposed to take effect statewide. For example, wood heater fuel requirements and emission standards and winter open burning restrictions were proposed for the nonattainment area to assist with addressing the specific air quality problem. Air episode levels and changes to visible emission requirements were already statewide regulations and were proposed for revision statewide.

### Comments on Public Review Process

DEC provided an extended 120 day public review opportunity for the public and interested stakeholders to evaluate and comment on the proposed regulations. During this process open houses and public hearings were held. The public was able to provide oral testimony at public hearings or submit written comments in person, through mail, by email, and through DEC's online comment form.

**Summary of Comments:** Comments on the public review process included general comments about the process, reports of experiences of individuals participating in the process, aspects of the process that could be improved, and suggestions for improving the process. DEC tracked these comments as they were received and adjusted its approach and process, in some cases during the comment period.

- **General Comments**

Commenters made general comments about the public review process including the effectiveness of the process in conveying information and providing opportunities for public comment, the length of time of the public review and comment period, and the responsiveness of DEC during the public review process. Some commenters said that DEC did a reasonable job of conveying information and providing opportunities for public comment but other commenters indicated areas that DEC could have improved. Some commenters felt that the amount of advertising done by DEC was inadequate and that proposed regulations should be printed or made available in other formats than newspaper legal notices and that public hearings should have been better publicized. Comments also addressed the length of the public review process. Some commenters felt that the 120 day length was excessive and served only to delay the implementation of any regulations until after the end of winter. Other commenters felt that the 120 day public review period was necessary to provide adequate time for the public to review, understand, and comment on the proposed regulations. Commenters also felt that it was difficult to get responses from DEC during the process about how comments were being answered and what changes to the proposed regulations were being considered as a result of the comments. Commenters suggested that posting comments online like other states have done and responding to those comments during the comment period would promote a more constructive discourse between the public and DEC. Commenters also felt the public review process could have benefited if the regulations had been more specific about curtailment actions, enforcement, and delegation to local authorities. Commenters suggest that the process could have been more focused if the public were aware of these aspects of the proposed regulations.

- **Electronic Comment Submission**

Commenters used the online Air Quality Electronic Comment Submission form to submit comments on the proposed regulations and noted several characteristics of the process that they found either helpful or not helpful. Commenters felt that the online comment form was a valuable tool for promoting public involvement. Comments were submitted on personal computers and on computers provided for public use during DEC's open

houses. Commenters noted that they were able to conveniently make comments without needing to attend a public hearing which individuals may have found unattractive or impossible due to work, school, or out of state travel. Commenters indicated that they liked being able to comment on each issue individually on the comment form.

Commenters expressed confusion about whether comments would be emailed to them after they were submitted and felt that a confirmation email would allow them to retain their comments and confirm that DEC had successfully received their comments. Other commenters noted that if they had not clicked a box indicating the presence of fiscal impacts for each section that DEC's automatically generated email confirmation would say "FALSE" in the fiscal impacts category. Commenters felt that this did not accurately represent their comments and chose to resubmit their comments with the fiscal impact box checked to ensure DEC understood that they felt the regulations would have fiscal impacts.

### • Public Hearings and Open Houses

#### Timing and Frequency

Commenters addressed the timing and frequency of public hearings. Commenters felt that public hearings were an important venue for individuals to provide comments. Commenters reported difficulty in attending hearings due to timing. Commenters felt that the public hearing that were scheduled during the day time made it difficult for individuals attending school or work to be present.

Comments suggested possible motivations for holding hearings during the daytime including convenience for DEC employees or as an attempt to avoid or limit public comment opportunities. Commenters suggested the addition of evening hearings to better suit the needs of individuals who must attend school or work during the daytime to strengthen the public hearing process. Commenters appreciated DEC's responsiveness and subsequent addition of an evening public hearing. Commenters also expressed disappointment that testimony was limited to three minutes for each private individual testifying at the Fairbanks hearings. Some commenters were unable to finish their testimony in their allotted time. Commenters suggested alleviating this problem by adding additional hearing opportunities.

#### Facilities

Commenters addressed the facilities used by DEC for the public review process. Commenters felt that the rooms used were too small and resulted in overcrowding, that microphone and speaker systems were not used effectively, and that it was sometimes smoky in the venues which impacted sensitive individual's ability to participate. Commenters suggested that these issues be remedied at future events. Commenters also relayed difficulty locating meeting rooms for public hearings.

### Advertising

Commenters addressed the amount and types of advertising done as part of the public review process. Commenters noted that the draft regulations were available online and in newspaper legal sections. Commenters felt that these forms of advertisement were not sufficient. Commenters described adequate advertisement for open houses but felt that, by comparison, public hearings were less advertised. Commenters viewed this as an attempt to avoid public participation through comment. Some commenters said that they were unaware of public hearings until seeing or hearing advertisements by private parties.

### Outside Parties Accepting Comments

Comments were received that expressed concerns about an outside party who was soliciting comments from the public on the regulatory proposal which were to be forwarded on to DEC.

### Public Hearing Decorum

Commenters addressed participant decorum at the public hearings by describing inappropriate behaviors, speculating on the causes, suggesting corrective measures, and reacting to actions taken by DEC. Commenters mentioned inappropriate participant behaviors at public hearings including booing, making “raspberries”, speaking out of turn, interruptions, threatening and intimidating behaviors, disrespectful testimony, open display of firearms, and suggested there was a mob mentality. Commenters speculated that the facilities contributed to the negative decorum demonstrated. Commenters said that the spaces rented for the hearings were too small which resulted in overcrowding and that audience members were unable to hear testimony due to a lack of or proper use of a microphone and speaker system. Commenters felt that these factors helped lead to the lack of decorum observed. Commenters suggested that the observed lack of decorum prevented a respectful environment where individuals can freely voice their opinions and suggested measures to improve decorum at hearings.

Commenters suggested laying out ground rules for behavior and consequences for breaking those rules. Commenters suggested that violations of ground rules be met with consequences such as being warned to comply with rules, being asked to leave, being removed, losing the opportunity to provide oral testimony, or extending the time allotment of the specific individual whose testimony is affected by inappropriate behaviors. Commenters suggested that DEC staff should have called for interruptions to cease during testimony or should use a professional facilitator to run the hearings. Other commenters complimented DEC staff performance during difficult circumstances. Some commenters suggested that DEC Commissioner Larry Hartig attend the hearings to prevent intimidation of DEC staff. Commenters also addressed the presence of a uniformed police officer at one hearing in response to the behaviors at the previous hearing. Some commenters said that the officer’s presence was welcome

and helped to ensure proper behavior during the hearing. Other commenters, however, interpreted the officer's presence as an intimidation tactic by DEC to wrongly influence individuals present at the hearing.

### **Response to Comments:**

DEC appreciated receiving comments on the public review process. These comments are helpful because they allowed DEC to actively modify its public review process for these proposed regulations and will help DEC plan future public review processes. Comments on the public process help DEC facilitate more effective public involvement for issues that are important to our communities.

During this public review process DEC responded to several concerns addressed in these comments. DEC responded to concerns about the timing of the first public hearing by adding a second hearing scheduled in the evening. DEC also requested the presence of a local police officer at the second hearing in response to comments about safety/security concerns and the decorum demonstrated at the first hearing.

DEC met and in some areas exceeded the regulatory advertising requirements of the Administrative Procedures Act found in Alaska Statutes Title 44 Chapter 62 and the Alaska Department of Law 20<sup>th</sup> Edition Drafting Manual for Administrative Regulations. "AS 44.62.190 Notice of Proposed Action" requires agencies to give notice of a proposed action at least 30 days prior to the adoption, amendment, or repeal of a regulation. The agency must publish a notice in a newspaper of general circulation or trade or industry publication, distribute the notice to interested persons, and may publish the notice in an additional form prescribed by the agency. If the agency decides to hold public hearings, the date, time, and location of the hearing must be published as part of the public notice.

DEC published its first public notice on September 20, 2013 in three newspapers for three days each which fulfilled the minimum requirements. DEC also posted the public notice on the State of Alaska online public notice portal and on the Division's public notice webpage. In addition, all those individuals who were signed up with the Division to receive electronic notices received an email notification.

In addition to the public notice, DEC held four open houses and advertised for these open houses to provide additional opportunities to learn about the issues. At each of these open houses, DEC prominently displayed "How to Comment" which listed out both open houses and hearings in addition to providing addresses, websites as well as comment forms. Ultimately, DEC issued 4 more public notices (9/25, 11/14, 12/13, and 1/10/14) to fix a notice issue, announce the availability of the justification document for wood heater emission standards, to announce the addition of an evening public hearing (as requested by commenters), and to clarify the public comment end date.

With respect to process comments about an individual soliciting and gathering public comments to be submitted to the department, DEC notes that it has no control over individuals who wish to collect and provide comments to the department on a regulatory proposal. However, DEC can only consider comments it receives during the public comment period, so the best way to ensure

that comments are received and considered is to submit them directly to the department following the methods provided and announced in the public notice. The primary goal of a public review period is to obtain feedback and comments from the public to allow for full consideration of all aspects of the proposal. In this case, DEC did receive a number of batches of public comments during the comment period that had been collected in the community and those comments were considered and are summarized in this Response to Comments. Overall, the comments received regarding the public comment review process have been very helpful as DEC looks toward making improvements to future public comment processes.

## Wood Heater Emission Standard Justification Document and Peer Reviews

Alaska Statute 46.14.010 requires DEC to develop a peer reviewed written finding when it intends to adopt an emission standard more stringent than those set by EPA. The standards proposed in 18 AAC 50.077 for wood-fired heating devices are more stringent than current EPA standards. In November 2013, DEC released “Department Findings: The Need and Basis for More Stringent Wood-fired Heating Device Emission Standards” and contracted with three independent consultants to conduct a peer review of the findings in DEC’s justification document. The justification document and the findings of the three peer reviewers were made available for public review as part of the public review process and DEC solicited public comment.

**Summary of Comments:** Comments received addressing the justification document and peer reviews expressed varying degrees of support for the scope and findings of the analysis.

### • **Scope of Analysis**

Commenters mentioned topics that had not been covered in the justification document or peer reviews that they felt should have been considered. Some commenters felt that the peer review should have encompassed all of the proposed regulations and included a peer review of the evidence and causes of the PM 2.5 nonattainment. Other commenters felt that the analysis should have, but did not, fully considered all of the potential financial impacts of the proposed regulation. Commenters said that the analysis focused on the cost to consumers of needing to purchase 2.5 g/hr woodstoves. Commenters felt that the analysis should have considered the fiscal impacts of the proposed standards on public health. Commenters felt that although these costs may be difficult to quantify, they are important to consider when deciding to adopt or not adopt the proposed standards. These commenters suggested that an analysis of the public health costs in comparison to the costs of cleaner burning woodstoves would show that adopting the proposed standards would have a greater financial benefit than not adopting the proposed standards. Commenters also felt that the analysis should have included a peer review by a public or respiratory health expert of the physical health impacts of PM 2.5 on the health of individuals including sensitive groups such as children and other vulnerable populations.

### • **Analysis Findings**

Commenters indicated that they agreed with or didn’t agree with certain findings of the analysis and peer reviews. Some commenters agreed with the finding in the justification document and the peer review comment by Steve Colt, UAA Institute of Social and Economic Research that the standards that require the purchase of cleaner burning woodstoves were unlikely to increase costs to the public because cleaner burning devices, Btu for Btu, were not more expensive than less clean burning stoves. Commenters said that the finding justified holding new devices to the highest attainable standards under current technology and proposed that the standards be updated periodically. Other commenters took issue with this finding. These commenters said that a majority of stoves sold would not meet the proposed standards and that these stoves were popular

because of their lower costs compared to 2.5 g/hr stoves. Commenters said that the 2.5 g/hr stoves were similarly priced with more expensive woodstoves, purchased for their aesthetic appeal rather than their cost, but were more expensive than the most popular non-certified woodstoves that are purchased because of their lower price.

Commenters also addressed findings in the peer review about the effectiveness of the new standards in helping to attain the 2006 24-hr PM 2.5 NAAQS. Commenters felt that there was a lack of verifiable evidence supporting the proposed standards. Commenters also noted that the emissions reduction resulting from the proposed standards would not bring the nonattainment area into attainment. Commenters suggested that this was because the proposed standard only applies to new devices and that the standards could have a greater effect if they targeted older, currently installed, highly polluting devices.

Commenters desired a more inclusive justification document and peer review that analyzed the impacts and effects of the entire regulatory proposal package and suggested topics they felt should have been included in the review.

**Fiscal Concerns:** Those comments specifically noting fiscal impacts are summarized here.

Commenters addressed the finding that PM 2.5 stoves were not more expensive than uncertified stoves. Some commenters agreed with the finding or felt that even if a PM 2.5 stove happened to be more expensive upfront, any increased costs would be regained through efficiency and fuel savings. Other commenters felt that the review did not consider the different price ranges within each category and incorrectly compared the least expensive PM 2.5 stoves with more expensive stoves purchased primarily for aesthetic appeal instead of more popular lower cost non-certified stoves.

Commenters noted that the review did not include a more comprehensive analysis of the costs associated with operating non-certified heating devices. Commenters felt that the analysis focused only on the costs to the purchasers of woodstoves while it should have also included the costs associated with increased emissions by non-certified stoves such as healthcare costs.

### **Response to Comments:**

Alaska Statute 46.14.010 requires DEC to develop a peer reviewed written finding when it intends to adopt an emission standard more stringent than those set by EPA. The standards proposed in 18 AAC 50.077 for wood-fired heating devices are more stringent than current EPA standards and DEC therefore focused its analysis on this portion of the regulatory proposal. The statutes in place at the time did not require an additional peer review analysis for the remainder of DEC's regulatory proposals. As a result, DEC did not expend the additional resources to prepare a similar peer reviewed justification for the remainder of the package. In future packages, new state statute provisions will require that additional information, particularly related to the estimated cost to private parties, be provided to the public for each regulation package.

Commenters that asserted that cleaner burning wood heaters were similarly priced with more expensive woodstoves and were more expensive than the most popular non-certified woodstoves being purchased did not provide data to support their claim. DEC's analysis as presented in the peer-reviewed document did not find such a result.

With respect to comments about the effectiveness of new standards in helping to attain the PM2.5 NAAQS, DEC notes that the wood heater emission standards are just one of a number of strategies designed to work together to reduce PM2.5 air pollution in the nonattainment area. It is being adopted to support and backstop the local, voluntary incentive program to change out old, high-emitting wood heaters with cleaner burning units. This regulation, in combination with other programs and control strategies, will improve air quality over time. This is demonstrated in the air quality plan or SIP that is being made available for public review and comment.