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Arthur N. Marin, Executive Director

August 31, 2012

Lisa P. Jackson, Administrator
U.S. Environmental Protection Agency
Mail Code 6102T
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460
Attention: Docket I.D. # EPA-HQ-OAR-2007-0492

Re: *Proposed Rule -- National Ambient Air Quality Standards for Particulate Matter*

Dear Administrator Jackson:

The Northeast States for Coordinated Air Use Management (NESCAUM) offer the following comments on the U.S. Environmental Protection Agency's (EPA's) proposal, published on June 29, 2012 in the Federal Register, entitled *National Ambient Air Quality Standards for Particulate Matter* (77 FR 38890-39055). NESCAUM is the regional association of air pollution control agencies representing Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont. These comments reflect the views of the majority of the NESCAUM states.

Primary Fine Particulate Matter ($PM_{2.5}$) National Ambient Air Quality Standard (NAAQS)

EPA proposes lowering the current annual $PM_{2.5}$ NAAQS from 15 micrograms per cubic meter ($\mu g/m^3$) to a level in the range of 12-13 $\mu g/m^3$ and solicits comments on an 11 $\mu g/m^3$ standard. EPA also proposes retaining the current 24-hour $PM_{2.5}$ NAAQS of 35 $\mu g/m^3$.

The Clean Air Scientific Advisory Committee (CASAC), which provides independent advice to EPA on the technical basis for the NAAQS, supports an annual primary NAAQS within the range of 11-13 $\mu g/m^3$:

> CASAC supports the EPA staff's conclusion in the *Second Draft Policy Assessment* that "currently available information clearly calls into question the adequacy of the current standards"… EPA staff also conclude that consideration should be given to alternative annual $PM_{2.5}$ standard levels in the range of 13 – 11 $\mu g/m^3$, in conjunction with retaining the current 24-hour $PM_{2.5}$ standard level of 35 $\mu g/m^3$, and that consideration could also be given to an alternative 24-hour $PM_{2.5}$ standard level of 30 $\mu g/m^3$ in conjunction with an annual standard level of 11 $\mu g/m^3$. CASAC concludes that the levels under consideration are supported by the epidemiological and toxicological evidence, as well as by the risk and air quality information compiled in the *Integrated Science Assessment* (December 2009), *Quantitative Health Risk Assessment for Particular Matter* (June 2010) and summarized in the *Second*

> *Draft Policy Assessment*. Although there is increasing uncertainty at lower levels, there is no evidence of a threshold (i.e., a level below which there is no risk for adverse health effects).[1]

Moreover, several recently published scientific studies add strong evidence to the body of the science that supports lowering the primary $PM_{2.5}$ NAAQS.[2] One study follows up on the Harvard Six Cities Study of chronic exposure to $PM_{2.5}$ and mortality:

> Including recent observations with $PM_{2.5}$ exposures well below the U.S. annual standard of 15 $\mu g/m^3$ and down to 8 $\mu g/m^3$, the relationship between chronic exposure to $PM_{2.5}$ and all-cause, cardiovascular, and lung-cancer mortality was found to be linear without a threshold. Our results were not sensitive to various model specifications. Furthermore, estimated effects of $PM_{2.5}$ did not change over time, suggesting a stable toxicity of $PM_{2.5}$, even at lower exposure levels and with a lower sulfates proportion. These results suggest that further public policy efforts that reduce fine particulate matter air pollution are likely to have continuing public health benefits.[3]

Given the significant health threat posed by $PM_{2.5}$, the preponderance of health studies supporting stringent standards, and the Clean Air Act's mandate to set standards that protect public health with an adequate margin of safety, we urge EPA to follow the science and lower the primary $PM_{2.5}$ NAAQS to values within the ranges suggested by CASAC in order to afford appropriate public health protection.

With respect to the interplay between the 24-hour and annual standards, we note that CASAC had questioned the adequacy of the EPA staff's recommendation of specific pairings of the 24-hour and annual standards:

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[1] CASAC Review of Policy Assessment for the Review of the PM NAAQS – Second External Review Draft (June 2010). *See* http://yosemite.epa.gov/sab/sabproduct.nsf/CCF9F4C0500C500F8525779D0073C593/$File/EPA-CASAC-10-015-unsigned.pdf.

[2] Crouse DL, Peters PA, Goldberg MS et al. (2012). Risk on non-accidental and cardiovascular mortality in relation to long-term exposure to low concentrations of fine particulate matter: A Canadian national-level cohort study. *Environ Health Perspectives* 120:708-714.

Weuve J, Peutt CR, Schwartz J, et al. (2012) Exposure to particulate air pollution and cognitive decline in older women. *Arch Intern Med* 172 (5):219-227.

Wellenius GA, Burger RM, Coull BA, Schwartz J, et al. (2012). Ambient air pollution and risk of acute ischemic stroke. *Arch Intern Med* 172 (3): 229-234.

[3] Lepeule J, Laden F, Dockery D, Schwartz J 2012. Chronic Exposure to Fine Particles and Mortality: An Extended Follow-up of the Harvard Six Cities Study from 1974 to 2009. *Environ Health Perspective* 120:965-970. http://dx.doi.org/10.1289/ehp.1104660.

> In addition, these combinations of annual/daily levels may not be adequately inclusive. It was not clear why, for example, a daily standard of 30 $\mu g/m^3$ should only be considered in combination with an annual level of 11 $\mu g/m^3$. The rationale for the 24-hour/annual combinations proposed for the Administrator's consideration (and the exclusion of other combinations within the ranges contemplated) should be more clearly explained.[1]

Figure 1 summarizes different combinations of daily (24-hour) and annual $PM_{2.5}$ standards, consistent with CASAC recommendations, relative to the percent of population covered by each combination based on design values for the period 2009 to 2011.[4] With respect to the national population, note the increased potential for public health protection with a tightening of the daily with respect to the annual standard. In light of the potential for variability in public health protection afforded by various combinations, we urge EPA to again follow the science and appropriately lower and pair the $PM_{2.5}$ NAAQS in a combination of 24-hour and annual values that better protect the nation's public health.

In addition, EPA should consider the feasibility of changing the *form* of the 24-hour $PM_{2.5}$ NAAQS from a midnight-to-midnight to an adjusted rolling 24-hour average. Doing so would be particularly helpful in providing better public health protection in areas where there is the potential for seasonal overnight $PM_{2.5}$ events (e.g., from woodsmoke). Figures 2 and 3 present monitored data from Keene, NH that shows how the current form of the 24-hour $PM_{2.5}$ NAAQS – based on a midnight-to-midnight record of monitored $PM_{2.5}$ concentrations – can underestimate actual 24-hour exposures.[5] If EPA were to modify the form to an adjusted rolling 24-hour average (shown as "Daily Max Rolling" averaging method in Figure 2), the 24-hour $PM_{2.5}$ NAAQS would provide a greater level of public health protection. As seen in Figure 3, the noon-to-noon 24- hour value is 50.8 $\mu g/m^3$ as compared with the preceding and following midnight-to-midnight values of 33.8 $\mu g/m^3$ and 35.8 $\mu g/m^3$.

[4] Based on a BenMAP analysis by NESCAUM using 2009-2011 $PM_{2.5}$ design values downloaded August 18, 2012 from U.S. EPA, *Design Values*, http://www.epa.gov/airtrends/values.html (last updated 7/26/2012).

[5] New Hampshire Department of Environmental Services (August 2012). Note: For the Daily Max Rolling 12 Hour Limit, when forward-rolling 24-hour averages occurred on consecutive days with start hours 12 or few hours apart, the second day's maximum rolling 24-hour average was recalculated, based on start hours more than 12 hours after the start hour of the previous day's exceedance period. This ensured that no two exceedance periods began within 12 hours each other, thus preventing multiple 24-hour exceedances from representing the same event.

Figure 1. Estimated percent of total population in New England, New Jersey, and New York counties (Northeast) and total U.S. county-level population that would benefit from compliance with CASAC-recommended alternative 24-hour (98th percentile) and annual $PM_{2.5}$ standard ranges ($\mu g/m^3$) (2009-2011).

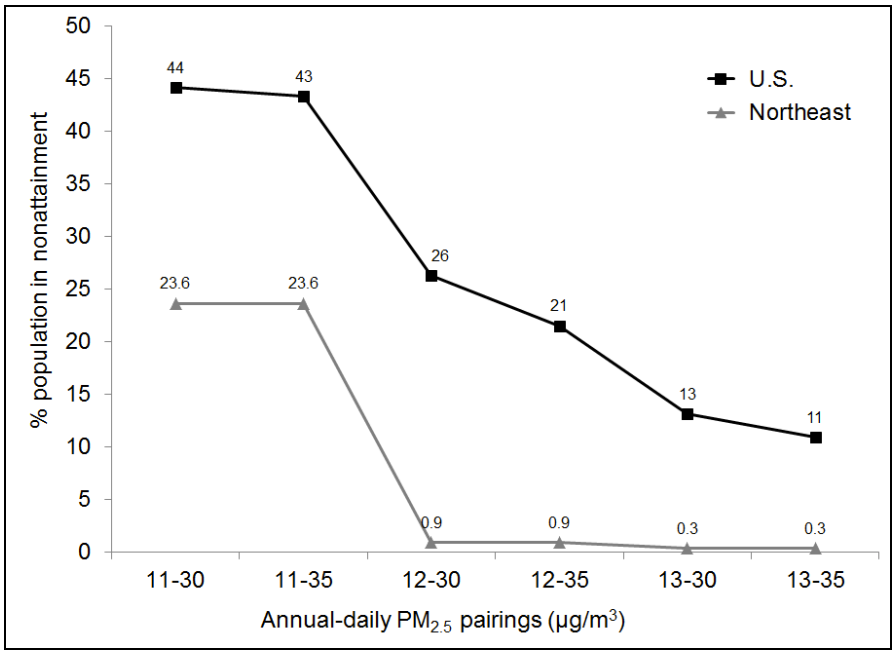


Figure 2. Comparing the Number of Potential 24-Hour $PM_{2.5}$ Exceedances ≥ 35.5 $\mu g/m^3$ in Keene, NH Based on Four Different Averaging Methods

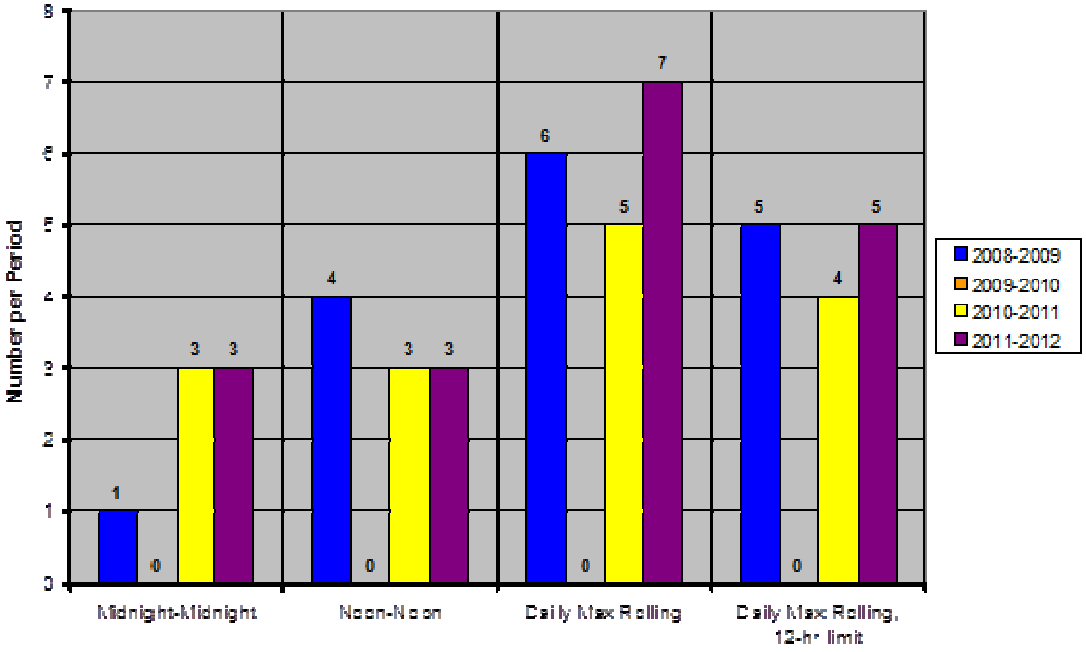
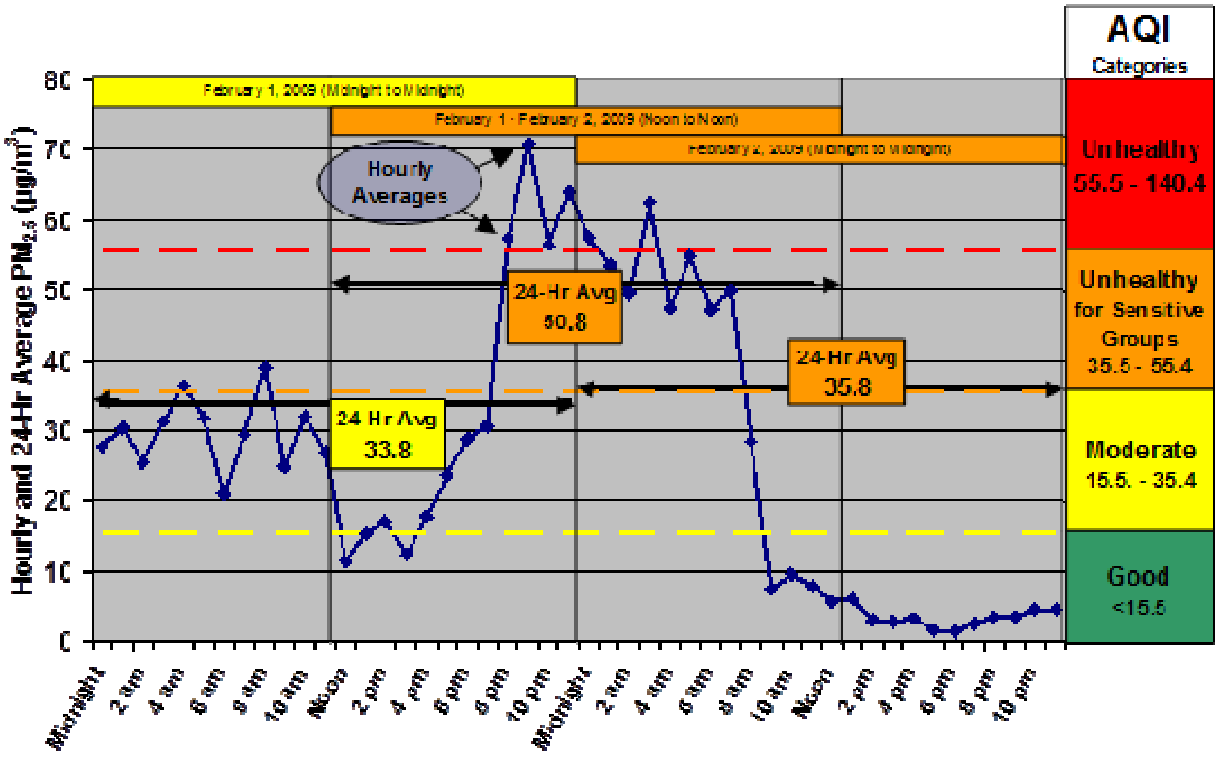


Figure 3. Comparing Alternative 24-Hour Averages and Hourly Details for $PM_{2.5}$ Monitored Levels in Keene, NH: Feb 1 (Midnight- Midnight); Feb 2 (Midnight-Midnight); Feb 1- Feb 2 (Noon-Noon)



We understand, however, that this form would only work for sites with continuous Federal Equivalent Method (FEM) monitors, and not with 24-hour Federal Reference Method (FRM) samplers. This underscores the need, over time, to transition to FEMs that can provide a more accurate assessment of health impact under a 24-hour NAAQS. To help with that transition, EPA should work with the states to resolve technical and operational issues identified with continuous monitoring and ensure that adequate funding is provided to support such a network.

Secondary $PM_{2.5}$ NAAQS

EPA proposes to retain the current secondary NAAQS for $PM_{2.5}$ and PM_{10} NAAQS for non-visibility welfare effects, and issue a new 24-hour secondary $PM_{2.5}$ NAAQS, measured in deciviews, in order to protect visibility in urban areas. NESCAUM has commented to EPA in the past, most recently during the reconsideration of the 2008 ozone NAAQS revision, that the Clean Air Act requires a separate and independent secondary NAAQS to protect public welfare values that is not tied on a *pro forma* basis to the same form and level of the primary standard.

We generally support the concept of a secondary visibility NAAQS. A secondary standard of a different form from the primary may be a helpful air quality management tool as a complement

to the primary PM NAAQS and the regional haze rule. We note, however, that CASAC has previously stated a sub-daily secondary standard based on daylight hours better reflects visibility impairment.[6] Presently, however, there is no direct method to determine temporal and geographic representation of such a standard, nor any funding for developing such a method.

In light of these measurement and monitoring challenges, we support the CASAC Ambient Air Monitoring & Methods Subcommittee's recommendation[7] to develop a pilot study to field test and evaluate direct measurement instrumentation in several areas across the country. We recommend that the pilot study be collocated with the National Weather Service's Automated Surface Observing System monitors and visibility cameras used in networks such as CAMNET, as well as with continuous $PM_{2.5}$ and filter based $PM_{2.5}$ speciation measurements. We request that EPA work in partnership with the states as it designs and implements the pilot program. More details are provided in Attachment A.

Air Quality Index

The Air Quality Index (AQI) is a critical communication tool for alerting the public as to the potential for exposure to unhealthy air. Given the data analysis presented in Figures 2 and 3 above, we recommend that EPA consider using an adjusted rolling 24-hour average for the form of the 24-hour $PM_{2.5}$ NAAQS for the AQI. The adjusted rolling average would provide a greater level of public health protection through AQI messaging than with the proposed midnight-to-midnight form.

Moreover, we recommend that EPA consider carefully how to set the 24-hour $PM_{2.5}$ NAAQS AQI cut point for the "unhealthy for sensitive group," or orange category. If EPA were to retain the 24-hour $PM_{2.5}$ NAAQS at 35 $\mu g/m^3$, then the annual NAAQS would be the controlling standard and a 24-hour AQI orange cut point at that level would not be very effective for purposes of public health episodic messaging.

Monitoring

Detailed comments on technical aspects of the proposed monitoring requirements are presented in Attachment A.

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[6] CASAC Peer Review of EPA's *Review of the National Ambient Air Quality Standards for Particulate Matter: Policy Assessment of Scientific and Technical Information* (Second Draft PM Staff Paper, January 2005); and *Particulate Matter Health Risk Assessment for Selected Urban Areas: Second Draft Report* (Second Draft PM Risk Assessment, January 2005), EPA-SAB-CASAC-05-007 (June 6, 2005).

[7] CASAC AAMMS Review of White Paper on PM Extinction Measurements (March 2010). See: http://yosemite.epa.gov/sab/sabproduct.nsf/0/09117973BDB93B3B852576F000724A45/$File/24March2010+Draft+CASAC+AAMMS+Report.pdf.

Significant Impact Levels

NESCAUM has previously supported a $PM_{2.5}$ Significant Impact Levels (SILs) approach. We support the current $PM_{2.5}$ SILs and encourage EPA to provide immediate – and much anticipated – guidance on continued use of the $PM_{2.5}$ SILs that were established in the October 20, 2010 final rule. EPA had asked the court to vacate the two $PM_{2.5}$ SILs provisions in the October 20, 2010 regulations in the course of litigation of EPA's Prevention of Significant Deterioration PSD) regulations.[8] Such guidance would be very useful until the PSD regulations are revised.

If you or your staff has any questions regarding the issues raised in this letter, please contact Leah Weiss at NESCAUM (ph: 617-259-2094).

Sincerely,

Arthur N. Marin
Executive Director

Attachment A: Detailed Comments on Monitoring Aspects of the Primary $PM_{2.5}$ National Ambient Air Quality Standards

Cc: NESCAUM Directors
Lydia Wegman, U.S. EPA
Beth M. Hassett-Sipple, U.S. EPA

[8] *Sierra Club v. EPA*, Case No. 10-1413, D.C. Circuit.

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ATTACHMENT A:
Detailed Comments on Monitoring-Related Aspects of the Proposed PM NAAQS

Near-Road Monitoring (77 FR 39009-11)

While NESCAUM states are not opposed to adding $PM_{2.5}$ monitoring to the near-road network, as EPA proposes, there is no funding for this new network objective. Some states would not have continuous $PM_{2.5}$ sites in the specific core-based statistical areas (CBSAs) where they would be required that could be moved. Under this proposal, it would be necessary to co-locate Federal Reference Method (FRM) and continuous sampling at the near-road site, as these sites may be the highest in an urban area and would need to be used for compliance purposes.

EPA's suggested measurements, such as particle number concentration and black carbon, might be more useful than $PM_{2.5}$ in better understanding the near-road environment. Of all NAAQS pollutant measurements planned for the near-road network, the $PM_{2.5}$ 24-hour means usually have the weakest gradient away from the road. Furthermore, it may be problematic in cases where near-road $PM_{2.5}$ sites may drive the Air Quality Index (AQI) in an urban area, as AQI messaging based on micro-scale monitoring has not been done before.

Recommended Changes to Appendix D to Part 58—Network Design Criteria for Ambient Air Quality Monitoring (77 FR 39053)

The proposed language for Section 4.7.1(b)(1), Specific Design Criteria for $PM_{2.5}$, states:

> At least one monitoring station is to be sited in an area of expected maximum concentration.

This is a critical criterion. For those CBSAs with just one monitor, that monitor should be at a neighborhood scale. If it is not, then the network would not be providing a representative dataset. We recommend the following highlighted change.

> At least one **neighborhood scale** monitoring station is to be sited in an area of expected maximum concentration.

The proposed language requiring a third SLAMS monitor, in Section 4.7.1(b)(3), Specific Design Criteria for $PM_{2.5}$, states:

> For areas with additional required SLAMS, a monitoring station is to be sited in an area of poor air quality.

This additional (third) $PM_{2.5}$ site in an urban area would only be required for CBSAs greater than 2.5 million that are also within 15% of the NAAQS. These areas are likely already dealing with non-attainment issues, and could use the flexibility to install a monitor where it would be helpful to ascertain the effectiveness of control strategies. We recommend the following highlighted changes.

> For areas with additional required SLAMs, a **monitor should be installed to provide additional information necessary for one of the following objectives: source characterization, health studies, selection of control strategies or SIP implementation.**

PM-coarse speciation requirement at NCore sites (77 FR 39012)

We support removing the existing requirement for PM-coarse speciation. After identifying practical methodologies, EPA should allow for flexibility in speciation network design, considering that not all NCore site are appropriate for coarse speciation monitoring

Data Substitution (77 FR 39042)
The EPA proposes to include two additional data substitution tests (77 FR 39001). One of these tests uses collocated PM10 data to fill in "slightly incomplete" data records, and the other uses quarter-specific maximum values to fill in "slightly incomplete" data records. We are concerned that the proposed changes to the current requirement will allow for calculating design values that are not valid for comparison to the NAAQS under other EPA criteria. If missing data must be substituted in a large urban area, then same day data from other sites in the same urban airshed should be used before other tests are considered.

Federal Equivalent Method (FEM) One-Year Proof of Performance (77 FR 390011-12)

The frequently observed poor field performance of FEM $PM_{2.5}$ samplers was created by inadequate FEM testing requirements. These must be addressed first before States have to purchase more equipment which would be unlikely to meet the specifications in some areas.

EPA is proposing to allow the sale of FEMs that do not meet the FEM performance criteria at many locations in routine field use. The proposal is unclear as to what recourse, if any, an agency would have with the supplier of the FEM. It would be more helpful if EPA instead addressed the fundamental problem behind the need for the FEM testing requirement. Reported FRM $PM_{2.5}$ concentrations can vary substantially with post-sample filter handling protocols. FEM testing should require the FRM to be run as it is in routine network operations, instead of removing the filter at 10 am immediately after sampling ends, followed by immediate cold storage.

Storing $PM_{2.5}$ Filters (77 FR 39016)

NESCAUM supports EPA's proposal to store FRM and Chemical Speciation Network (CSN) filters for one year cold and then at least for another four years at room temperature. CSN filters sent to contract laboratories for non-destructive analysis should be subject to the same storage requirements.

Use of Non-Certified Data (77 FR 390016)

NESCAUM does not support EPA' proposed use of non-certified data and data not submitted to EPA for comparison with the NAAQS. This proposed approach is inconsistent with EPA's data QA requirements. There may be valid reasons why a state agency has delayed data certification beyond the deadline. EPA should not use data until it has been certified. NESCAUM also requests that the certification period for lead data be extended to be consistent with CSN data.

Allow Agency Recommendation to not use FEM data for Comparison with the NAAQS (77 FR 39011-12)

EPA proposes to allow agencies to prospectively recommend that EPA not use FEM data for NAAQS comparison purposes. NESCAUM supports this more flexible approach given the highly variable quality of FEM data. However, the option to not use FEM $PM_{2.5}$ data for comparison to the NAAQS should also be allowed retrospectively. Due to the complexity of the continuous instrumentation, there could be periods when seemingly valid data are later found to be invalid (e.g., instrumental issues such as filter relative humidity and dryer dew point). States do not want to be put in the position of having to invalidate high concentration data that have already caused a concern with the public. If EPA were to promulgate the prospective approach, it must provide an acceptable range for each instrument parameter that is associated with the ambient concentration data. Over the last several years, EPA has provided minimal guidance on how to determine when the FEM instruments are satisfactorily performing. The recent availability of the "$PM_{2.5}$ Continuous Monitor Comparability Assessment" web-based tool is a valuable addition, and provides States with a uniform approach to FEM data quality assessment.

Secondary NAAQS for PM-Related Visibility (77 FR 38984-99)

Developing a pilot study to field test and evaluate direct measurement instrumentation is a critical first step towards promulgating and implementing a sub-daily secondary NAAQS for PM-related visibility. We request that, as EPA proceeds in its testing and evaluation, it work in partnership with states to develop and examine possible methods. We further request that EPA allow states access to the raw current and archived hourly National Weather Service's Automated Surface Observing System visibility (and relative humidity) data, in a form that is neither censored nor binned. EPA previously funded a contractor to process and deliver such data from approximately 200 sites nationally, but has discontinued that support. These data could assist in methods development.