

March 12, 2015

Gina McCarthy, Administrator  
U.S. Environmental Protection Agency  
EPA Docket Center  
Mail Code 28221T  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

Attn: Docket ID No. EPA-HQ-OAR-2008-0699

*Re: Proposed Rule – National Ambient Air Quality Standards for Ozone*

Dear Administrator McCarthy:

The Northeast States for Coordinated Air Use Management (NESCAUM) offer the following comments on the U.S. Environmental Protection Agency's (EPA's) proposed rule to revise the *National Ambient Air Quality Standards for Ozone* [79 FR 75234-75411 (December 17, 2014)]. NESCAUM is the regional association of state air pollution control agencies representing Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont. These comments reflect the majority views of NESCAUM as a state membership organization. Individual NESCAUM member states may submit separate comments regarding issues specific to that state's circumstances, which may differ from the NESCAUM states' majority consensus.

NESCAUM is supporting setting the primary and secondary ozone standards at levels that will protect public health and welfare and are based on the best available science. Our comments submitted today remain consistent with the levels and forms we have supported in previous EPA reviews of the ozone NAAQS dating back to 2007.<sup>1</sup> Ground-level ozone is a respiratory irritant that adversely affects people with respiratory disease as well as healthy children and adults. It can cause premature death. A primary standard in the range of 0.060 to 0.070 parts per million (ppm) is supported by the science, required by the Clean Air Act, and recommended by EPA's independent Clean Air Scientific Advisory Committee (CASAC). There is also strong science to support a secondary standard based on the "W126" form that is below 13 ppm-hours if using a multi-year seasonal average.

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<sup>1</sup> See: 1) Northeast States for Coordinated Air Use Management. *Comments to EPA on Proposed NAAQS for Ozone*, October 2007, [http://www.nescaum.org/documents/nesc\\_o3\\_naaqs\\_comments-final-20071004.pdf](http://www.nescaum.org/documents/nesc_o3_naaqs_comments-final-20071004.pdf); 2) Northeast States for Coordinated Air Use Management. *Comments to EPA on Proposed NAAQS for Ozone*. March 2010, [http://www.nescaum.org/documents/nesc\\_o3\\_naaqs\\_reconsid\\_comments\\_20100322-final-all.pdf](http://www.nescaum.org/documents/nesc_o3_naaqs_reconsid_comments_20100322-final-all.pdf). For additional comments and oral testimony from NESCAUM on the NAAQS for ozone, see: <http://www.nescaum.org/topics/ozone>.

NESCAUM's comments also emphasize the need for an Air Quality Index (AQI) that communicates critical health information to sensitive populations. The science increasingly demonstrates the risks of exposure for sensitive populations; it is important that the AQI breakpoint values (i.e., good/moderate, moderate/unhealthy-sensitive groups) reflect these exposure risks.

In addition, NESCAUM provides comments on and recommendations for improving EPA's proposed revisions to the Photochemical Assessment Monitoring Stations (PAMS) network, calculation of the daily eight-hour value, and data substitution procedures.

**1. EPA should adopt a primary ozone health standard consistent with the science, consistent with the requirements of the Clean Air Act, and consistent with the Clean Air Scientific Advisory Committee's recommendations.**

EPA is proposing to revise the primary ozone NAAQS to be between 0.065 and 0.070 ppm based on an 8-hour average concentration. NESCAUM supports a revised ozone NAAQS within the CASAC-recommended range of 0.060 – 0.070 ppm, also based on an 8-hour average, that would ensure an adequate margin of safety as directed by the Clean Air Act.

In CASAC's letter to EPA dated June 26, 2014, CASAC advised "that, based on the scientific evidence, a level of 0.070 ppm provides little margin of safety for the protection of public health, particularly for sensitive subpopulations."<sup>2</sup> Lung function changes in healthy adults have been demonstrated to occur in controlled chamber studies at ozone levels of 0.070 ppm for up to 6.6 hours, the upper bound of EPA's proposed range.<sup>3</sup> These data do not account for increased sensitivities due to age or pre-existing respiratory conditions such as asthma. They also do not account for exposures that can occur for longer than 6.6 hours. Ozone exposure at 0.070 ppm has also been linked to cardiovascular effects.<sup>4</sup> These factors militate against the 0.070 ppm level being protective with an adequate margin of safety.

By extension, the current ozone NAAQS of 0.075 ppm remains inadequate. Retaining this as a standard should not be an option. EPA has an obligation under the Clean Air Act, as underscored in 2001 by the Supreme Court in *Whitman v. American Trucking*,<sup>5</sup> to set a NAAQS based solely on what is requisite to protect public health, without considering the costs of attainment. We expect EPA to uphold its legal obligation and set the ozone NAAQS at an appropriate level not

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<sup>2</sup> Clean Air Scientific Advisory Committee. CASAC Review of the EPA's Second Draft Policy Assessment for the Review of the Ozone National Ambient Air Quality Standards. Letter to EPA dated June 26, 2014. See: [http://yosemite.epa.gov/sab/sabproduct.nsf/5EFA320CCAD326E885257D030071531C/\\$File/EPA-CASAC-14-004+unsigned.pdf](http://yosemite.epa.gov/sab/sabproduct.nsf/5EFA320CCAD326E885257D030071531C/$File/EPA-CASAC-14-004+unsigned.pdf).

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> *Whitman v. American Trucking Associations, Inc.*, 531 U.S. 457 (2001).

exceeding the CASAC-recommended range that will protect public health with an adequate margin of safety.

We recognize that Executive Order # 12866 requires EPA to conduct a regulatory impact analysis (RIA) for the proposed ozone NAAQS revisions. Such an analysis may include information about costs under various NAAQS scenarios, but must not come into play in EPA's decision on setting the level of the NAAQS. Only after the level of the NAAQS has been established should EPA consider issues on how to implement the standard efficiently in order to achieve health benefits as expeditiously as practicable. Implementation issues must not be considered in setting the level of the NAAQS.

**2. EPA should adopt a cumulative, seasonal standard in the form referred to as W126 for the secondary ozone NAAQS.**

NESCAUM supports a secondary ozone NAAQS of the "W126 index" form. If the standard is based on a 3-year averaging period, then the level of the secondary NAAQS should be set so that it does not exceed CASAC's recommended range of 7-15 ppm-hrs in an individual year.

EPA is proposing to revise the secondary ozone NAAQS to a level within a range of 13-17 ppm-hrs averaged over three years, but setting the standard in the 8-hour form within the 0.065-0.070 ppm range, which it asserts would provide equivalent protection.

As a threshold matter, EPA's proposed level is not entirely consistent with the existing science and CASAC's recommended range. Furthermore, a more protective revised secondary standard at a lower W126 level calls into question the use of an 8-hour form as providing equivalent protection.

The W126 basis of EPA's proposed secondary NAAQS is at and above the CASAC-recommended range of 7-15 ppm-hrs. In addition, with respect to EPA's proposed three-year averaging period, CASAC stated:

If, as a policy matter, the Administrator prefers to base the secondary standard on a three-year averaging period for the purpose of program stability, then the level of the standard should be revised downward such that the level for the highest three-month summation in any given year of the three-year period would not exceed the scientifically recommended range of 7 ppm-hrs to 15 ppm-hrs. For example, if in a three-year period the highest three-month summation during a one year period is 15 ppm-hrs, and the corresponding lowest value associated with a three-year average of the highest three-month summations in each year is

13 ppm-hrs, then the appropriate level for the three-year average would be 13 ppm-hrs to protect against a peak one year level of 15 ppm-hrs.<sup>6</sup>

As far back as 2001, ozone monitoring has indicated that much of the NESCAUM region may already be below 15 ppm-hours.<sup>7</sup> Forest damage, however, still occurs at these levels in this region. Trained observers in the national Forest Health Monitoring program routinely observed foliar ozone damage symptoms in sensitive tree species in sections of the NESCAUM region and elsewhere in the eastern U.S. at levels comparable to or below 15 ppm-hrs.<sup>8</sup> This indicates that a secondary ozone NAAQS of the W126 form towards the lower end of the CASAC-recommended range would provide better protection against current adverse impacts on forests in the NESCAUM region.

We also note that adverse vegetation damage occurs on an annual basis. Averaging over multiple years for NAAQS stability purposes can dilute the adverse effects of chronically high ozone occurring over a single year across a multi-year period where the other years may be relatively low. Research indicates that there can be significant year-to-year variations in the extent of observed vegetation damage due to ozone;<sup>9</sup> therefore the desire for a “stable” secondary NAAQS should not outweigh the need to set the NAAQS at a level protective of the welfare values at risk.

We agree with EPA’s previous position in 2010 that “An 8-hour form and averaging time is an indirect way to measure biologically relevant exposure patterns, is poorly correlated with such exposure patterns, and therefore is less likely to identify and protect against the kind of cumulative, seasonal exposure patterns that have been determined to be harmful.”<sup>10</sup> If EPA were to base a revised secondary standard at a lower W126 level consistent with the science and CASAC’s recommendations, we know of no mechanism for ensuring a comparable 8-hour “equivalency” that EPA asserts to find at its higher, less protective proposed level.

Finally, if EPA promulgates a distinct secondary NAAQS that differs from the primary NAAQS, EPA should provide guidance to states regarding specific planning obligations required under Clean Air Act Sections 107(a) and 172(a)(2)(B). The development of an attainment plan satisfying the “expeditiously as practicable” attainment requirement for a distinct secondary standard could require the development of inventories and modeling analyses for years that differ

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<sup>6</sup> Letter from Dr. Rogene Henderson, Chair, CASAC, to EPA Administrator Stephen L. Johnson, “Clean Air Scientific Advisory Committee’s (CASAC) Peer Review of the Agency’s Final Ozone Staff Paper,” March 26, 2007 (p. 3).

<sup>7</sup> EPA OAQPS Staff Paper, “Review of the National Ambient Air Quality Standards for Ozone: Policy Assessment of Scientific and Technical Information,” EPA-452/R-07-003, January 2007 (Figure 7-6, p. 7-28).

<sup>8</sup> Smith G, Coulston J, Jepsen J, Prichard T. 2003. A national ozone biomonitoring program: Results from field surveys of ozone sensitive plants in northeastern forests (1994–2000), *Environ. Monit. Assess.* 87(3): 271–291.

<sup>9</sup> McLaughlin SB, Nosal M, Wullschlegler SD, Sun G. 2007. Interactive effects of ozone and climate on tree growth and water use in a southern Appalachian forest in the USA. *New Phytologist* 174: 109-124.

<sup>10</sup> 75 FR 2938, *Proposed Rule: National Ambient Air Quality Standards for Ozone* (January 19, 2010), at 3019; <http://www.gpo.gov/fdsys/pkg/FR-2010-01-19/pdf/2010-340.pdf>.

from those used for the primary NAAQS. As this exercise would be resource intensive, timely EPA guidance is critical. And while NESCAUM firmly believes that science must drive the standards, as state resources continue to be constrained it is incumbent upon EPA to ensure the continuation of our federal – state partnership through the provision of adequate resources that will enable states to successfully plan for and implement any new secondary standard.

**3. EPA should set the Air Quality Index breakpoint between good and moderate air quality near 0.050 ppm regardless of what level it sets for the primary NAAQS for ozone.**

The Air Quality Index (AQI) provides critical health information for sensitive populations. As proposed, EPA will set the AQI good/moderate breakpoint at 0.015 ppm below the primary ozone standard.<sup>11</sup> Under this approach, if EPA chooses an ozone standard at the upper end of the CASAC range, health messaging would not be triggered until ozone concentrations were projected to rise above 0.054 ppm. At EPA's current standard of 0.075 ppm of ozone, unusually sensitive populations would not be warned of health risks until ozone concentrations were projected to rise above 0.059 ppm.

The good/moderate breakpoint should not be based on what the proposed standard will be; setting the breakpoint 15 ppb below the primary level represents an arbitrary solution. It should instead be based on the available epidemiological data. There are some data that suggest very sensitive people may benefit from moderate messages below the level of the primary standard, down to perhaps as low as the upper end of the background range. A sliding scale, as proposed, would not accommodate the necessary level of protection. NESCAUM therefore supports a good/moderate breakpoint of 50 ppb. This breakpoint is also supported by the World Health Organization's guideline of 100 µg/m<sup>3</sup> (micrograms per cubic meter) for an 8-hour average of ozone, which is equivalent to an 8-hour average of 51 ppb.<sup>12</sup>

**4. EPA should address interstate transport of ozone pollution and its precursors in a timely manner.**

NESCAUM states are subject to significant ozone contributions from pollution sources in upwind states, in addition to pollution emitted within the NESCAUM region. Interstate transport must be addressed in order for the NESCAUM states to meet more protective ozone standards. The absence of regulation and guidance on interstate transport is already a detriment for

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<sup>11</sup> For moderate AQI messaging, the health effect statement is: "Unusually sensitive individuals may experience respiratory symptoms." The "Cautionary Statement" is: "Unusually sensitive people should consider reducing prolonged or heavy outdoor exertion." Source: <http://www.epa.gov/airnow/aqi-technical-assistance-document-sep2012.pdf>.

<sup>12</sup> World Health Organization. Ambient (outdoor) air quality and health. Fact sheet Number: 313. Updated March 2014. See: <http://www.who.int/mediacentre/factsheets/fs313/en/>.

Northeast states at the current 0.075 ppm ozone standard. A more protective standard necessitates immediate action by EPA to address interstate transport.

**5. EPA should consider ozone's contribution to climate change and methane's influence on ozone concentrations.**

NESCAUM encourages EPA to consider ozone as a short-lived greenhouse gas (GHG). Ozone is a recognized contributor to atmospheric warming, and its global background levels have been rising due to increased anthropogenic precursor emissions. Addressing short-lived GHGs helps mitigate near term climate change as ongoing deliberative processes proceed to address the longer-lived GHGs like carbon dioxide.

As an added co-benefit, an ozone NAAQS that addresses its impact on climate change (as well as air quality) would include methane reduction strategies. Methane is a GHG in its own right, but is not typically considered in current ozone attainment strategies due to its relatively low chemical reactivity in the context of shorter term episodic peak ozone levels (e.g., 8-hour averages). In the global background context, however, methane can have a significant influence on ozone levels.<sup>13</sup> In our 2010 comments on the NAAQS for ozone, NESCAUM provided a preliminary modeling assessment of methane's influence on broad regional ozone concentrations in the eastern United States. Our modeling indicated that elevated methane concentrations above pre-industrial levels are contributing to increased long-term ozone in our region.<sup>14</sup> This suggests that a methane reduction strategy will have "triple" benefits by reducing ozone as a GHG, reducing ozone as a criteria air pollutant, and reducing methane both as a GHG and ozone precursor.

**6. EPA should be forward-looking in addressing mobile sources.**

Mobile sources remain an important emissions sector for ozone-forming pollution, and EPA needs to be forward-looking in addressing these as the full benefits of their emissions reductions take time to be realized due to fleet turnover rates and other factors. Mobile NOx reduction strategies, such as lower emission standards for heavy-duty diesel vehicles, updated federal aftermarket catalytic converter policies, diesel inspection and maintenance programs, and idling reduction measures are existing strategies in California and other states that need to be included and analyzed in the menu of options provided in EPA's final RIA.

**7. EPA should issue implementation rules and guidance at the same time as the revised ozone NAAQS.**

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<sup>13</sup> Fiore AM, Jacob DJ, Field BD, Streets DG, Fernandes SD, Jang C. 2002. Linking ozone pollution and climate change: The case for controlling methane. *Geophys. Res. Lett.* 29: 1919, doi: 10.1029/2002GL015601.

<sup>14</sup> Northeast States for Coordinated Air Use Management. *Comments to EPA on Proposed NAAQS for Ozone*. March 2010. [http://www.nescaum.org/documents/nesc\\_o3\\_naaqs\\_reconsid\\_comments\\_20100322-final-all.pdf](http://www.nescaum.org/documents/nesc_o3_naaqs_reconsid_comments_20100322-final-all.pdf).

Timing is important. NESCAUM states request that EPA issue implementation rules and guidance at the same time as the revised ozone NAAQS. Guidance should cover infrastructure SIPs, Reasonably Available Control Technology (RACT), and attainment demonstration requirements. Without this additional guidance, states will have difficulty meeting Clean Air Act obligations on time and with all necessary elements. Releasing implementation rules and guidance at the same time as the new ozone NAAQS will also help states to better capture the full economic value of the revised standards.

**8. EPA should retain PAMS sites with a history of serious non-attainment and consider the likelihood of attainment/non-attainment in future years for the siting of additional PAMS.**

As proposed, EPA would drastically reduce the PAMS network and associated Section 105 grant funding in the Northeast. This is not acceptable for the Northeast and Mid-Atlantic Corridor, which requires monitoring of the complex transport from multiple large metropolitan areas in the region.

EPA should instead use historical and projected attainment and non-attainment to less drastically reduce the number of PAMS sites in a redesigned PAMS network. We agree that the original type 1-2-3-4 PAMS siting design is no longer needed. However, PAMS sites associated with a history of serious non-attainment should remain.<sup>15</sup> The Clean Air Act requires states in the Ozone Transport Region (OTR) to perform non-attainment New Source Permit Review and RACT reviews for NO<sub>x</sub> and VOC sources. Clean Air Act Section 184 contains plan requirements for all states in the OTR that are the same as if the states were classified as moderate non-attainment areas.<sup>16</sup> A state could petition EPA for a waiver of some of those requirements. Data from PAMS sites have been useful in getting the waiver approved. EPA should therefore consider the entire OTR when designing a PAMS network, rather than pockets of non-attainment areas in the region.

Additional considerations for PAMS network redesign should include continuing data collection from sites with a long history of trend data, the start-up time required for new PAMS sites, and the need to site PAMS both upwind and downwind of metropolitan areas. EPA should not consider the proposed option of a population threshold for PAMS sites.

A preferred design for the proposed PAMS Enhanced Ozone Monitoring requirement could be achieved by managing funds regionally and making funding and siting more flexible. A process

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<sup>15</sup> Some non-Northeast sites currently out of attainment are modeled to be in attainment within the next 5-6 years; see the recently released "Air Quality Modeling Technical Support Document for the 2008 Ozone NAAQS Transport Assessment" at <http://www.epa.gov/airtransport/O3TransportAQModelingTSD.pdf>.

<sup>16</sup> Clean Air Act Section 184, in the portion pertaining to states in ozone transport regions, states, "...any stationary source that emits or has the potential to emit at least 50 tons per year of volatile organic compounds shall be considered a major stationary source and subject to the requirements which would be applicable to major stationary sources if the area were classified as a moderate nonattainment area."

driven by a regional planning organization could help achieve this. The proposed revision allows for enhanced ozone monitoring only in non-attainment areas greater than marginal. NESCAUM requests that these funds also be available for marginal and attainment areas that were historically non-attainment.

As proposed, state plans for enhanced ozone monitoring would be included in the annual network plan. Because this type of monitoring network design is not a year-to-year process, detailed monitoring plans should be included in the 5-year network assessment, with updates addressed in the annual plan.

NESCAUM finds the requirement for 3-hour carbonyl sampling at all PAMS sites for the entire PAMS 3-month season to be excessive. This requirement (DNPH cartridge TO-11A sampling, 8 per day plus quality control (QC) samples) would require 800 samples per season at each PAMS site. This schedule was required at the inception of the PAMS program in the 1990s, and was found to be prohibitively expensive, technically unsustainable, and qualitatively compromised. NESCAUM recommends a third-day 8-hour duration (3 samples per day) schedule, which would result in about 100 samples per season per PAMS site with QC. We support EPA's ongoing efforts to develop a continuous carbonyl monitoring method that could replace the existing TO-11A manual method.

**9. NESCAUM supports the proposed new NO-chemiluminescence ozone Federal Reference Method (FRM).**

EPA is proposing to modify the existing ozone FRM to include NO-chemiluminescence in addition to the existing ethylene-chemiluminescence measurement principle. EPA is also revising the CFR Part 53 ozone Federal Reference Methods/Federal Equivalent Methods (FRM/FEM) test specifications. We support updating these test specifications to reflect performance of current measurement technologies.

**10. Requirement for trace level ozone monitoring.**

There is no need for trace level monitoring at ozone monitoring stations. There is no scientific basis for requiring trace level monitoring, and it is resource intensive.

**11. EPA should not exclude 8-hour averages for hours 00 through 06 in its calculation of the daily 8-hour maximum.**

It is appropriate to revise calculation of the 8-hour standard to avoid the same high overnight ozone level from counting towards two exceedances. However, EPA's proposed revision to how the daily 8-hour maximum is calculated, which excludes 8-hour averages for hours 00 through 06, could result in under-counting of exceedance days, and also increases the sensitivity of results to missing data.

EPA should consider all available 8-hour averaging periods during the year to determine the fourth highest daily maximum 8-hour average. A top to bottom approach could be used to eliminate “double hits” as follows:

1. The maximum 8-hour average should be identified and the 8 hours associated with that average should be removed from the dataset and then the next highest 8-hour average should be identified.
2. The 8 hours associated with the second highest 8-hour average should be removed from the data set and the process should be repeated for the third and fourth highest average and so on, making sure that the top four highest do not occur on the same day.

This process avoids the use of the same data in multiple daily maximum averages and allows the daily maximum to occur for any 8-hour period of the day.

**12. EPA should only allow for data substitutions for sites with two ozone monitors if identical methods are used.**

EPA should revise the proposed language allowing data substitutions when two or more ozone monitors serve a particular site. Data substitutions should only be allowed when identical methods are used, including identical manufacturer and model of monitoring equipment, identical method code, and operation by the same agency.

If you would like any additional information or have questions regarding these comments, please contact Allison Guerette (617-259-2012 or [aguerette@nescaum.org](mailto:aguerette@nescaum.org)) at NESCAUM.

Sincerely,



Arthur N. Marin  
Executive Director

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