

June 29, 2020

U.S. Environmental Protection Agency
Office of Air and Radiation
Washington, D.C. 20003

RE: Docket ID No. EPA-HQ-OAR-2015-0072

Review of the National Ambient Air Quality Standards for Particulate Matter

On behalf of the Urban Air Initiative (UAI), we appreciate the opportunity to comment on the above Proposed Rulemaking. UAI is a not for profit technical organization with a particular focus on automotive emissions and fuel composition.

We are disappointed that EPA fails to see the benefits of lowering PM standards. The Administrator's decision that current standards are adequate for primary and secondary PM emissions fails to recognize the growing body of evidence that both gaseous and particulate emissions, especially from motor vehicles, is a leading cause for chronic health issues in urban areas. EPA's Advisory Panel on Particulates, despite being disbanded, has continued to meet and has expressed great concern that current particulate controls are inadequate, which is in direct conflict with the findings of this proposed rule.

UAI has consistently noted via numerous comments filed over the years on many related issues that EPA's information and modeling is flawed related to motor vehicles. Even EPA's Office of Transportation and Air Quality's own vehicle testing is showing how particulate emissions are increasing from light duty vehicles. To make matters worse, Ultra-Fine Particulate (UFPs) emissions, smaller than PM 2.5, have shown a two to three fold increase in cold temperatures making this a year round problem, not just a summer time issue as we see with ozone.

Currently, EPA's models are not capable of modeling future reductions accurately since EPA is relying on flawed data. EPA's Motor Vehicle Emissions Simulator model, often referred to as MOVES, is based on data generated by studies we have repeatedly challenged as to their accuracy and reliance on test fuels that do not reflect real world fuel data. Additionally, the blending of test fuels that support the MOVES model were in part designed by representatives of the American Petroleum Institute and brings into question the objectivity of that work.

The Urban Air Initiative submitted a [Request for Correction](#) in January of 2017 to address these concerns. The response by EPA in August of 2018 failed to provide any meaningful responses or actionable corrections. As recently as February 4th, 2020, UAI presented concerns to EPA's OTAQ

staff and as of yet, have received no response by EPA. What is making matters worse is that based on EPA's own vehicle testing data, these emissions are likely to increase as a result of emerging light duty vehicle technology. As modern vehicles over the past 5 to 7 years have transitioned to Gasoline Direct Injection (GDI) engines from the older technology of Port Fuel Injection (PFI), the increase in UFP's emissions increased 2 to 4 fold. GDI engines are also prone to higher carbon build up on injector tips which also can increase UFP's and reduce vehicle durability. This [2015 study](#) by Carnegie Mellon University calculates that based on particulate number, gasoline powered vehicles contribute 40 percent to total particulate number.

As it relates to this rulemaking that takes no further action to control PM emissions, we believe this is a shortsighted and technically unsupportable position. In addition to the aforementioned recommendations of the disbanded Advisory Panel, experts throughout the health and scientific communities are consistent in their acknowledgement of the negative health impacts of both primary and secondary emissions that contribute to PM2.5 ambient measurements.

EPA has a long history of recognizing the health impacts of PM emissions and the benefits of tightening standards. Former EPA Administrator Lisa Jackson testified before Congress in 2011 that particulate matter is directly related to premature death and said *If we could reduce particulate matter to healthy levels, it would have the same impact as finding a cure for cancer in our country.*

This was confirmed as recently as last week when a new study by the highly respected Harvard T.H. Chan School of Public Health concluded that strengthening U.S. air quality standards for fine particulate pollution need to be in compliance with current World Health Association (WHO) guidelines and if so could save more than 140,000 lives over the course of a decade. The study, published June 26, 2020 in Sciences Advances, provides the most comprehensive evidence to date of the causal link between long-term exposure to fine particulate (PM2.5) air pollution and premature death, according to the authors.

EPA is also failing to recognize the contribution to mutagenic and toxic emissions formed during photooxidation primarily from aromatic emissions from gasoline vehicles. In this [2018 EPA study](#), the authors state that; *"Although many volatile organic compounds (VOCs) are regulated to limit air pollution and the consequent health effects, the photooxidation products generally are not."* The authors also state that; *"The mutagenicity was due exclusively to direct-acting late-generation products of the photooxidation reactions."*

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EPA's failure to not only recognize the overall health effects of what makes up PM2.5 is compounded by failing to identify aromatics as a key contributor to PM2.5. In this [2017 research paper](#), the author notes that: *"Our findings indicate that gasoline aromatics significantly influence ambient PM2.5 concentration in urban areas and emphasize that more stringent regulation of gasoline aromatic content will lead to considerable benefits for urban air quality."*

One missing link that is identified in several recent studies is the contribution from unidentified NMOG emissions from motor vehicles. This 2014 study by the University of Carnegie Mellon points to this issue that unidentified NMOG emissions, primarily from aromatics in gasoline are not only more reactive for SOA formation, but also not included in emission models.

About 10–20% of NMOG emissions from these major combustion sources are not routinely speciated and therefore are currently misclassified in emission inventories and chemical transport models. The smog chamber data demonstrate that this misclassification biases model predictions of SOA production low because the unspciated NMOG produce more SOA per unit mass than the speciated NMOG.

In order for EPA to properly model cause and effects of various sources that contribute to PM2.5, EPA must first address the deficiencies in EPA's model. Since so many research studies are now recognizing the contribution of aromatics and unidentified NMOG emissions that are also influenced by the fuels aromatic content, EPA must address the accuracy of their vehicle emission models.

Former OTAQ Director Chrisopher Grundler has acknowledged EPA models only recognize primary organic aerosols and that secondary organic aerosols are significant contributors to urban PM and associated emissions. The first step in correcting EPA's MOVES model is to actually blend test fuels that represent real world fuels

In conclusion we urge EPA to include the importance of regulating mobile source air toxics as a key consideration in setting ambient particulate standards. Coupling standards with enforcement of existing provisions such as section 202 (I) of the CAAA, i.e. the toxics provision, is critical if we are to provide maximum public health protection.

Sincerely,

Steven VanderGriend, Urban Air Initiative Technical Director