Dear Amalia,

I am writing this letter in response to the proposed wildfire regulation, section 5141.1. Protection from Wildfire Smoke. My comments are below:

The use of direct reading measurements should be encouraged in addition to utilizing EPA's ambient air quality monitoring network. Due to the spatiotemporal variability, ambient air quality networks may not provide enough spatial resolution on exposures.[1]

If direct reading instruments are used, care should also be taken in interpreting the air quality data, since factory calibrations on direct reading instruments may not be accurate.[2] Instrument manufacturers should be able to provide real-time support and evidence on calibration to ensure that the instrument is providing accurate data, utilizing real time comparisons with EPA reference monitors during wildfire events.

In appendix A, section b, the proposed standard suggests the following:

The monitor shall be designed and manufactured to measure the concentration of airborne particle sizes ranging from an aerodynamic diameter of 0.1 micrometers up to and including 2.5 micrometers. The employer may use a monitor that measures a particle size range beyond these limits, if the employer treats the results as the PM2.5 levels.

Issues with this include the following:

A lower range of 0.1 micrometers should be omitted, since different optical sensing technologies can still provide adequate and accurate monitoring data. Certain types of instruments may be able to measure below 0.1 micrometers, and certain types may have slightly higher aerodynamic diameter cutoffs. As long as the instrument manufacturer provides data with comparison to reference monitors, then the lower limit should not be necessary.

If the instrument does not have a size cutoff at 2.5 microns, and measure higher concentrations, then treating the results as PM2.5 levels would be incorrect. The employer should be encouraged not to use such a device, or make appropriate modifications, since most instrument manufacturers should be able to provide someway to differentiate PM2.5 from higher size ranges.

Citations:

1. Reid, Colleen E., et al. "Spatiotemporal prediction of fine particulate matter during the 2008 Northern California wildfires using machine learning." *Environmental science & technology* 49.6 (2015): 3887-3896.

2. (Ahmed Mehadi, Hans Moosmüller, David E. Campbell, Walter Ham, Donald Schweizer, Leland Tarnay & Julie Hunter (2019) Laboratory and Field Evaluation of Real-time and Near Real-time $PM_{2.5}$ Smoke Monitors, Journal of the Air & Waste Management Association, DOI: 10.1080/10962247.2019.1654036)

Thank you for the consideration.

Regards
Jiaxi

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