

4/3/14 Additional Preliminary Draft Comments for Deliberations of the CASAC Air Monitoring and Methods Subcommittee Subcommittee Review of EPA's Federal Reference Method for Ozone: Nitric Oxide (NO)-Chemiluminescence. Please Do not Cite or Quote. These comments are preliminary and do not represent CASAC consensus comments nor EPA Policy.

Additional Preliminary Comments from Eric S. Edgerton
Member of the CASAC Air Monitoring and Methods Subcommittee (AMMS)
Review of EPA's Federal Reference Method for Ozone: Nitric Oxide (NO)-Chemiluminescence
Received as of April 3, 2014

Purpose: These are Additional Preliminary Comments from Eric Edgerton, a member of the CASAC Air Monitoring and Methods Subcommittee (AMMS), related to the AMMS's review of EPA's Ozone National Ambient Air Quality Standard (NAAQS) documentation that focuses on the EPA Office of Research and Development's recommended second Federal Reference Method for Ozone (Recommended Method: NO-Chemiluminescence).

Eric S. Edgerton

Charge Question 1. What is the AMMS view on adding an additional O₃ FRM (as Appendix D-1 of the 40 CFR Part 50 Federal Regulation) for the purpose of establishing a new FRM that is implemented in analyzers currently in production status? This new O₃ FRM will serve as an additional FRM to supplement the current Ethylene-Chemiluminescence method, which is no longer being produced or supported.

Response: This makes sense, given the status of the of the ethylene-chemiluminescence method.

Charge Question #2: What is the AMMS views on establishing the Nitric Oxide-Chemiluminescence (NO-CL) method (currently an FEM) as the new, additional O₃ FRM?

Response: NO-CL is a good choice for a new FRM. The reaction has long been used to measure NO and other components of NO_y at sub-ppb concentrations with minimal interference and good linearity over a broad dynamic range. Measurement of ozone at ppb levels should be very straightforward. The one significant issue with NO-CL is variable water vapor (quenching). I believe the instrument design avoids this by drying sample air upstream of the reaction chamber.

Charge Question #3: Do any other ozone measurement methods exist that the AMMS recommends for consideration of possible promulgation as a new (additional) O₃ FRM?

Response: Other chemical and spectroscopic methods exist for the measurement of ozone, such as cavity ringdown, but I see no reason to designate these as FRM as opposed to FEM.

4/3/14 Additional Preliminary Draft Comments for Deliberations of the CASAC Air Monitoring and Methods Subcommittee Subcommittee Review of EPA's Federal Reference Method for Ozone: Nitric Oxide (NO)-Chemiluminescence. Please Do not Cite or Quote. These comments are preliminary and do not represent CASAC consensus comments nor EPA Policy.

Charge Question #4: What are the AMMS views on the use of low-cost sensor technology to supplement regulatory ozone monitoring (i.e., in rural areas)?

Response: Given current capabilities, I see little value in the use of low-cost sensors to supplement regulatory ozone monitoring, except possibly when it comes to questions of site selection. In this case, screening with low-cost sensors might assist in locating appropriate sites for regulatory monitoring purposes.