



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF THE ADMINISTRATOR
SCIENCE ADVISORY BOARD

May 28, 2001

EPA-SAB-CASAC-COM-01-003

Honorable Christine Todd Whitman
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Subject: Exploring Opportunities for Accommodating Emerging Technologies for Continuous Monitoring in Routine Air Monitoring Networks - A Commentary Stemming from a CASAC/Agency Workshop

Dear Governor Whitman:

The Subcommittee on Particle Monitoring (hereafter, the "Subcommittee") of the Clean Air Scientific Advisory Committee (CASAC) held a public workshop at EPA's Environmental Research Center in Research Triangle Park, NC on Monday, January 22, 2001. The purpose of this workshop was to explore opportunities for accommodating emerging technologies into routine air monitoring networks. The workshop was advertised and convened to provide states and associations of states, vendors and manufacturers of monitoring equipment, and EPA staff with an opportunity to share information and discuss emerging technologies and the implications of considering continuous monitoring in EPA's regulatory monitoring program.

To help set the stage for this workshop, staff of the Agency's Office of Air Quality Planning and Standards (OAQPS) produced a brief "white paper" entitled *Particulate Matter Monitoring Technology: Revisiting method equivalency and accommodating continuous and other advanced methods*. This discussion paper, along with invited presentations and public comments were the starting point for discussions at the workshop. The Subcommittee's role was twofold. First, to serve as an agent for convening the workshop and attracting appropriate experts; and, secondly, to provide a sounding board and source of advice to the Agency on whether it should consider continuous monitoring as part of its regulatory program.

After listening to the presentations and the extensive discussion at the workshop, the Subcommittee concluded that EPA should move aggressively forward to bring continuous

monitoring into the regulatory monitoring program. To do so we make the following recommendations to EPA:

- a) Perform a statistical analysis following a Data Quality Objectives (DQO) type process to ascertain what level of precision will be required in the continuous monitors to yield the same information on area-wide average concentrations as a minimum Federal Reference Sample (FRM) PM_{2.5} sampler network because greater data completeness for lower precision measurements can provide the same level of confidence as a smaller number of more precise measurements.
- b) Develop an approach to empower and encourage states or associations of states to qualify continuous samples on a local to regional basis. It is probably best to start with an expanded Correlated Acceptable Continuous (CAC) monitor process that would justify a significant reduction in the amount of concurrent FRM PM_{2.5} monitoring for sites well above or below the regulatory standard concentration. There is again a statistical question concerning whether the relationship between continuous monitors and FRM values could be checked by periodically rotating an FRM around the network or whether there would need to be an FRM at each site but operating at a lower frequency than 1 day in 3.
- c) Involve the states/local agencies in the determination of the cost savings for various options while ensuring that the data quality is appropriate for making critical management decisions.
- d) Whenever possible, site the continuous monitor/FRM pairs at speciation sites, so that there will be chemical composition data available to help interpret and understand differences between sampler values that may be observed.
- e) Because there are strong possibilities that future changes to the PM national ambient air quality standards (NAAQS) will occur, consideration needs to be made such that the outcome of these analyses can be appropriately applied to future monitoring needs (e.g., PM coarse).
- f) The current monitor testing that is part of the on-going supersite activities can be expected to provide a much better characterization of the recently developed continuous mass and chemical species monitors. The Subcommittee urges the Agency to make full use of these results as they become available to modify their approach to obtain maximal utility and efficiency in the PM monitoring program through the use of continuous monitors.

By this summer (2001), the Subcommittee would like EPA staff to prepare a work-in-progress document that provides preliminary ideas for implementation of these recommendations. The Subcommittee would then be available to review the progress attained, and provide further advice, as appropriate.

This Subcommittee report was reviewed and approved by the statutory CASAC at a public teleconference meeting held on May 14, 2001. We look forward to working with the OAQPS staff on this important process of making the Particulate Matter (PM) monitoring network more cost effective while maintaining the quality of data for decision making purposes.

Sincerely,

/S/

Dr. Philip Hopke, Chair
Clean Air Scientific Advisory
Committee

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Clean Air Scientific Advisory Committee
CASAC Subcommittee on Particle Monitoring***

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