

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Office of Air Quality Planning and Standards  
Research Triangle Park, North Carolina 27711

MEMORANDUM

DATE: March 31, 1989

SUBJECT: Applicability of Building Downwash in Prevention of Significant Deterioration (PSD) Permit Analyses

FROM: John Calcagni, Director  
Air Quality Management Division (MD-15)

TO: William B. Hathaway, Director  
Air, Pesticides, and Toxics Division (6T)  
Region VI

Thank you for your memorandum of March 8, 1989 in which you urge consideration of changes to EPA's current policy of applying building downwash to background sources in PSD modeling. Your memorandum describes problems associated with the collection of building dimension data necessary for downwash modeling, and you suggest that EPA might issue rules and provide funding to collect this building data. Alternatively, you believe that downwash modeling should not be required for any background sources.

Members of my staff are currently analyzing several approaches for handling background sources. This will be the subject of a future conference call with the Regional Offices. In the interim, some of our concerns regarding this issue and your specific suggestions are discussed below.

The Guideline on Air Quality Models notes that background concentrations are an essential part of the total air quality concentration to be considered in determining source impacts and therefore requires certain background sources to be fully modeled. The Guideline indicates that ". . . all sources expected to cause a significant concentration gradient in the vicinity of the source or sources under consideration for emission limit(s) should be explicitly modeled." This guidance provides considerable flexibility and requires judgment to be exercised by the reviewing agency in identifying which background sources should be fully modeled. The burden of collecting building dimension data may be mitigated somewhat by application of this judgment. We are exploring the development of additional guidance to better assist in this judgment. However, I caution that it may not be possible to establish many objective "bright line" tests that will eliminate the need for Regional Office judgment in individual cases.

I realize that information needed to model background sources is frequently not contained in the State's existing emission inventory. In some cases the applicant will need the reviewing agency to assist in collecting the data. However, I am not convinced that we must undertake a national effort to issue regulations or to fund the States/Regional Offices to collect the data. It is important to note that the PSD rules place this burden primarily on the proposed source, not the regulatory agencies.

Your memorandum suggests that the PSD analyses could ignore building downwash effects. I do not believe that the PSD rules and the Guideline allow this alternative. Further, since it is not unusual to find a national ambient air quality standards (NAAQS) violation caused by downwash, the PSD analysis must carefully consider that possibility. If a proposed source contributes to a NAAQS violation caused by downwash from a background source, the permit cannot be issued. On the other hand, not every source potentially subject to downwash must be evaluated. Therefore, we are pursuing alternatives to better define the range within which detailed modeling should be required.

In summary, please be assured that we are sensitive to the issues raised in your memorandum and that we will coordinate with Region VI in this effort. If you have any questions, please contact me or have your staff contact Doug Grano at 629-5255.

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