

Technical Memorandum

December 8, 2003

To: File

From: William B. Kuykendal
Emission Factor and Inventory Group
Office of Air Quality Planning and Standards
Environmental Protection Agency

Subject: Decisions on Final AP-42 Section 13.2.2 Unpaved Roads

In October 2001, EPA published a draft Section 13.2.2 "Unpaved Roads" for AP-42 and requested comments. This memorandum documents the decisions that EPA has taken that have resulted in the November 2003 final Section 13.2.2 "Unpaved Roads" for AP-42.

EPA received a number of comments on the October 2001 draft section. EPA evaluated these comments and concluded that additional technical work was needed to resolve some of the issues raised by the commentors. Resource constraints have prevented EPA from doing the technical work; it is unlikely that resources will become available in the near future. Since there are two versions of the unpaved road section available (Final Section dated September 1998, Draft Section dated October 2001), EPA has been recommending that for most applications, the draft October 2001 section should be used. EPA has decided to finalize the October 2001 draft with currently available information, rather than continue with the ambiguous situation of having two sections. When resources become available, EPA will revise the unpaved road section in a more comprehensive manner.

EPA has made two changes to the October 2001 draft in the December 2003 final section:

1. The October 2001 draft had two options for the constants and exponents in the "Public Roads" equation, Equation 1b. A complete discussion of these options is included in the Technical Memorandum from G. Muleski to B. Kuykendal on Unpaved Roads, dated September 27, 2001. EPA has decided to select "Option 1" because it gives a somewhat better empirical correlation.
2. In the December 2003 final paved road section, EPA included a term in Equation 1 that subtracted the direct vehicle components of engine exhaust, brake wear and tire wear from the total emissions from the road. These components, engine exhaust, brake and tire wear are now estimated using MOBILE6.2. The result being that the AP-42 paved road equation now estimates reentrained road dust emissions only rather than all components emitted by vehicle activity on paved roads. A complete discussion is included in the Technical Memorandum from P. Hemmer, E.H. Pechan & Associates, Inc., to B. Kuykendal, U. S. Environmental Protection Agency, August, 21, 2003. The same logic also applies in the case of

unpaved roads and EPA has included the same term in the unpaved roads public road equation, Equation 1b. Users should note that the consequences in the unpaved road case are much less than with paved roads. In the case of unpaved roads, reentrained road dust dominates all of the other emission components, in most cases by at least two orders of magnitude. Thus the calculation of a negative value using the new unpaved road equation should never occur.