

**AQMS Draft Report (dated August 26, 2010) to Assist Meeting Deliberations**

--Do not Cite or Quote--

This draft is a work in progress, does not reflect consensus advice or recommendations, has not been reviewed or approved by the Council, and does not represent EPA policy.

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EPA-COUNCIL -10-xxx

10 The Honorable Lisa P. Jackson  
11 Administrator  
12 U.S. Environmental Protection Agency  
13 1200 Pennsylvania Avenue, N.W.  
14 Washington, D.C. 20460  
15

16 Subject: Review of Revised PM<sub>2.5</sub> Emissions and Modeling Estimates for the  
17 Second Prospective Study of Benefits and Costs of the Clean Air Act  
18

19 Dear Administrator Jackson:  
20

21 The Air Quality Modeling Subcommittee (AQMS) of the Advisory Council on Clean Air  
22 Compliance Analysis (Council) held a public teleconference on August 11, 2010 to further evaluate  
23 the Agency's estimates of atmospheric fine particulate matter (PM<sub>2.5</sub>) concentrations corresponding  
24 to scenarios prepared for the Second Section 812 Prospective Study of costs and benefits of the Clean  
25 Air Act. During previous meetings, the AQMS learned of potential biases in the estimates of  
26 primary PM<sub>2.5</sub> and was briefed on the Agency's plans to correct processing errors in the PM<sub>2.5</sub>  
27 emissions inventories and to adjust modeled PM<sub>2.5</sub> concentrations. Our previous reviews also  
28 suggested that the use and application of the Modeled Attainment Test Software (MATS) should be  
29 more transparent and comprehensively described. In response to the Council's request, the Agency  
30 prepared additional documentation on the adjustment procedures and results. The purpose of the  
31 August 11<sup>th</sup> teleconference was to evaluate this additional information and offer advice on its clarity  
32 and appropriateness for the Second Prospective Study.  
33

34 The AQMS was provided a memorandum (dated June 14, 2010) that described the  
35 process used to adjust the primary PM<sub>2.5</sub> estimates and the outputs from the Community Scale  
36 Air Quality Model (CMAQ), as well as application of MATS to adjust CMAQ outputs using  
37 monitoring data. In addition, the memorandum included 3 attachments showing adjustments to  
38 underlying data (from the 1990 National Emissions Inventory), and stacked bar graphs showing  
39 total and speciated PM<sub>2.5</sub> concentrations estimated by CMAQ and after application of MATS.  
40

41 The AQMS found the set of four memoranda to be a clear and concise description of the  
42 PM<sub>2.5</sub> adjustments, and provided the desired information. We compliment the Agency on the  
43 approaches taken to deal with the data processing issues identified previously, and their  
44 responsiveness to our concerns. Given the significant contribution of PM<sub>2.5</sub> to the overall  
45 estimates of benefits from the Clean Air Act, it is especially important to clearly document the  
46 steps leading up to the estimates of PM<sub>2.5</sub> concentrations in the various scenarios. These

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1 memoranda are a valuable contribution to the record, and will provide the Council with a more  
2 complete foundation for their review of the Second Prospective Study.  
3

4 Two issues were identified during the August 11 teleconference. First, AQMS members  
5 identified some results from the MATS-processed CMAQ particulate matter concentration  
6 simulations (e.g., crustal material concentrations for Tucson, Miami, and Philadelphia) that were  
7 not readily explained, and could use further discussion. Second, the air quality modeling-MATS  
8 system is very complex, and its application introduces a number of uncertainties. The Section  
9 812 report should provide a comprehensive explanation of such uncertainties, with particular  
10 attention to the air quality modeling results for PM<sub>2.5</sub>. In particular, the stacked bar charts should  
11 provide a sense of which PM<sub>2.5</sub> components are more/less certain, and this sense of uncertainty  
12 should be carried over to the discussion of benefits. For example, the crustal material has a  
13 relatively large uncertainty compared to sulfate, but if the health impacts are more associated  
14 with non-crustal components, this should be noted in the 812 report.  
15

16 The AQMS appreciates the information contained in the set of 4 memoranda from  
17 Agency contractors, but recommends that a single cover memorandum be prepared by the  
18 Agency to summarize the content of the four memoranda, explain why they were prepared, and  
19 discuss the related uncertainties in the process and results. This Agency cover memorandum  
20 (and the four contractor memoranda reviewed here) should be referenced in the integrated 812  
21 report, as well as linked to the CMAQ air quality modeling report that was reviewed previously  
22 by the AQMS. These steps would ensure that future readers of the 812 technical reports have a  
23 more comprehensive understanding of the air quality modeling process and the results. Further,  
24 it would document the emissions processing error and how it was corrected.  
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26  
27 Sincerely,  
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33 Dr. James K. Hammitt, Chair  
34 Advisory Council on Clean Air  
35 Compliance Analysis  
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Dr. Armistead Russell, Chair  
Air Quality Modeling Subcommittee

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**NOTICE**

This report has been written as part of the activities of the EPA’s Advisory Council on Clean Air Compliance Analysis (Council), a federal advisory committee administratively located under the EPA Science Advisory Board (SAB) Staff Office. The Council is chartered to provide extramural scientific information and advice to the Administrator and other officials of the EPA. The Council is structured to provide balanced, expert assessment of scientific matters related to issues and problems facing the Agency. This report has not been reviewed for approval by the Agency and, hence, the contents of this report do not necessarily represent the views and policies of the EPA, nor of other agencies in the Executive Branch of the Federal government, nor does mention of trade names or commercial products constitute a recommendation for use. Council reports are posted on the Council Web site at: <http://www.epa.gov/advisorycouncilcaa>.

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Advisory Council on Clean Air Compliance Analysis  
Air Quality Modeling Subcommittee, Augmented  
with Members of the Council**

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Advisory Council on Clean Air Compliance Analysis**

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3 **Mr. Michael Walsh**<sup>1</sup>, Independent Consultant, Arlington, VA

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<sup>1</sup> Did not participate in this review.