

## Critique for CARB Research Screening Committee

”Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort: Final Report (Revised October 28, 2011)” by Michael Jerrett, Richard T. Burnett, Arden Pope III, Daniel Krewski, George Thurston, George Christakos, Edward Hughes, Zev Ross, Yuanli Shi, Michael Thun, et al.

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Several commenters at the June 9, 2011 CARB Research Screening Committee meeting noted that the June 9, 2011 Draft Final Report by Jerrett et al. has Abstract, Key Results, Key Findings, and Conclusion sections which do not accurately reflect, and are even contradicted by, the actual data analysis presented in this report. These serious errors were unfortunately not corrected in the revised October 28, 2011 version. Until they are, the report remains fatally flawed, and could not pass a peer review.

The bottom line conclusion, since it controls CARB policymaking, is that “There is NO SIGNIFICANT CORRELATION OF PM2.5 WITH PREMATURE (ALL CAUSE) DEATHS in CALIFORNIA.” This must be stated as Key Result #1 (pages 6-7) and Key Finding #1 (pages 111-112). This should replace the current Key Result #2 and Key Finding #2, which gets the actual results almost backwards. Nearly all of the different model assumptions tried overwhelmingly found NO SIGNIFICANT CORRELATION. This is plainly what the weight of the data say, and therefore what the Conclusion must say, also. This corrected statement should be the first sentence in the Conclusion (pages 8 and 116). The current second sentence, which turns the actual results almost upside down, must be removed.

The second, less important, Key Result/Key Finding must be re-written to eliminate the arbitrary special privileging of CVD deaths. There is no reason for any part of the Conclusion to place different emphasis on the roughly one third of deaths attributed to heart disease, than the one third of deaths attributed to cancers, or the one third of deaths attributed to Respiratory, or Other causes. Since the Hazard Ratios of all of these deaths are equally important, all of them need to be included equally. Thus the second Conclusion should be re-written to state: “PM2.5 shows a weak but marginally significant positive correlation with cardiovascular deaths, but an inverse correlation with deaths due to cancers, or respiratory or other causes.”

The third most important Key Result/Key Finding, currently #6 (pages 8 and 113), needs to be more explicit. A corrected, accurate wording would be: “Given the extremely high correlation between PM2.5 and other combustion products, it is not possible to determine whether the weak association of PM2.5 with CVD mortality is causative, or merely produced by other air pollutants such as NO2 and sulfate, which go along with PM2.5. The data give no basis for singling out PM2.5 for special treatment, since it does not produce special adverse health effects that differ from other pollutants.”