

December 1, 2014

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Ms. Amy Vasu, Sector Policies and Programs  
Division (D205-01), U.S. EPA, Research

Re:

Docket ID No. EPA-HQ-OAR-2013-0602  
Public Comments on the Proposed Emission Guidelines for Greenhouse Gas Emissions from  
Existing Stationary Sources: Electric Utility Generating Units (CPP) including the Regulatory  
Impact Analysis (RIA) for the Proposed Carbon Pollution Guidelines for Existing Power Plants  
and Emission Standards for Modified and Reconstructed Power Plants, EPA 542/R-14-002

I am an epidemiologist with substantial expertise in air pollution health effects, particularly the relationship between air pollution and mortality in California and the United States. I challenge the public health basis for the June 2, 2014 EPA Clean Power Plan (Cutting Carbon Pollution from Power Plants) (<http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule>). In particular, I have substantial evidence challenging the validity of the EPA Fact Sheet claim that “Americans will see billions of dollars in public health and climate benefits, now and for future generations. The Clean Power Plan will lead to climate and health benefits worth an estimated \$55 billion to \$93 billion in 2030, including avoiding 2,700 to 6,600 premature deaths and 140,000 to 150,000 asthma attacks in children.” (<http://www2.epa.gov/carbon-pollution-standards/fact-sheet-clean-power-plan-overview>).

The June 2, 2014 EPA “Regulatory Impact Analysis for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants” (EPA-452/R-14-002) (<http://www2.epa.gov/sites/production/files/2014-06/documents/20140602ria-clean-power-plan.pdf>) states in section 4.3.1.1 *Mortality Concentration-Response Functions for PM2.5* : “Considering a substantial body of published scientific literature and reflecting thousands of epidemiology, toxicology, and clinical studies, the PM ISA documents the association between elevated PM2.5 concentrations and adverse health effects, including increased premature mortality (U.S. EPA, 2009b). The PM ISA, which was twice reviewed by the Clean Air Scientific Advisory Committee of EPA’s Science Advisory Board (SAB-CASAC) (U.S. EPA-SAB, 2009b, 2009c), concluded that there is a causal relationship between mortality and both long-term and short-term exposure to PM2.5 based on the entire body of scientific evidence. . . . For adult PM-related mortality, we use the effect coefficients from the most recent epidemiology studies examining two large population cohorts: the American Cancer Society cohort (Krewski et al., 2009) and the Harvard Six Cities cohort (Lepeule et al., 2012). The PM ISA (U.S. EPA, 2009b) concluded that the ACS and Six Cities cohorts provide the strongest evidence of the association between long-term PM2.5 exposure and premature mortality with support from a number of additional cohort studies.”

In addition, this same document states in section 4.3.2 *Economic Valuation for Health Co-benefits* : “After quantifying the change in adverse health impacts, we estimate the economic value of these avoided impacts. Reductions in ambient concentrations of air pollution generally lower the risk of future adverse health effects by a small amount for a large population. . . . The unit values applied in this analysis are provided in Table 5-9 of the PM NAAQS RIA for each health endpoint (U.S. EPA, 2012a). . . . Avoided premature deaths account for 98 percent of monetized PM-related co-benefits and over 90 percent of monetized ozone-related co-benefits.” Thus, the monetized public health benefits of the Clean Power Plan (CPP) depend heavily upon the co-benefit of reducing PM2.5-related premature deaths. Without PM2.5-related premature deaths the monetized public health benefits of the CPP are far less than the costs of implementing the CPP.

I have assembled overwhelming evidence that challenges the validity of the relationship between PM2.5 and total mortality (“premature deaths”) as described in publications based on the American Cancer Society (ACS) Cancer Prevention Study II (CPS II) cohort, such as, Krewski et al., 2009. This evidence is detailed in my attached November 15, 2013 critique “Scientific Misconduct in Fine Particulate Matter Epidemiology by Dr. C. Arden Pope, III, in Collaboration with Drs. Daniel Krewski, Michael Jerrett, and Richard Burnett, with the Complete Cooperation of the American Cancer Society.” This 10-page, 5,000-word, 77-URL critique of the publications based upon the ACS CPS II cohort is on my Scientific Integrity Institute website (<http://www.scientificintegrityinstitute.org/Pope111513.pdf>). In addition, on March 19, 2014 this critique was submitted to the California Air Resources Board (CARB) ([http://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=truckbus14&comment\\_num=35&virt\\_num=33](http://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=truckbus14&comment_num=35&virt_num=33)), where it has been completely ignored by CARB staff and board members. My critique is supported by my attached November 7, 2013 email request to Dr. Alpa V. Patel of ACS Epidemiology describing my serious concerns about the use of CPS II data for examining PM2.5 and mortality (<http://www.scientificintegrityinstitute.org/Patel110713.pdf>). My critique is further supported by the 50 attached pages of January 6, 2010 to May 17, 2011 correspondence between an Ad Hoc Group of California businessmen and the UC President Mark G. Yudof regarding UC Berkeley Professor Michael Jerrett and his unethical use of ACS CPS II data in the analysis and characterization of the relationship between PM2.5 and mortality in California during 1982-2000 (<http://calcontrk.org/Jerrett051711.pdf>).

In conclusion, I challenge the use in the CPP of publications based upon the ACS CPS II cohort, such as, Krewski et al., 2009. EPA must investigate my evidence regarding the following issues regarding the CPS II cohort: unethical use of CPS II subjects’ home addresses for PM2.5 epidemiology, failure to fully disclose geographic variation in PM2.5 mortality risk, deliberate misrepresentation of the PM2.5 mortality risk in California, failure to present national PM2.5 mortality findings based on CPS II deaths since 2000, failure of ACS to allow independent and alternative analyses of the CPS II cohort, and other related scientific and ethical issues described in the attached pages.

Until my extensive evidence challenging the public health basis for the CPP is properly investigated the CPP should not be implemented.

Thank you very much for your consideration of my comments.

Sincerely yours,

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**Scientific Misconduct in Fine Particulate Matter Epidemiology by Dr. C. Arden Pope, III,  
in Collaboration with Drs. Daniel Krewski, Michael Jerrett, and Richard Burnett,  
with the Complete Cooperation of the American Cancer Society**

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November 15, 2013

This document presents detailed documented evidence of scientific misconduct in fine particulate matter epidemiology by Clive Arden Pope, III, Ph.D., Mary Lou Fulton Professor of Economics at Brigham Young University (<https://economics.byu.edu/Pages/Faculty/C-Arden-Pope.aspx>). This scientific misconduct has been conducted with the close collaboration of Daniel Krewski, Ph.D., Professor at the University of Ottawa Faculty of Medicine (<http://www.med.uottawa.ca/epid/eng/krewskibio.html>), Michael Jerrett, Ph.D., Professor and Chair of Environmental Health Sciences at the UC Berkeley School of Public Health (<http://ehs.sph.berkeley.edu/people/jerrett.htm>), Richard T. Burnett, Ph.D., Senior Research Scientist at Health Canada, Ottawa (<http://www.zoominfo.com/p/Rick-Burnett/52191135>). This collaboration has been made possible with the complete cooperation of the American Cancer Society during the past twenty years, involving Vice President of Epidemiology Emeritus Michael J. Thun, M.D. (<http://www.cancer.org/research/researchprograms/funding/epidemiology-cancerpreventionstudies/ourstaff/michael-j-thun>) and Vice President of Epidemiology Susan M. Gapstur, Ph.D. (<http://www.cancer.org/research/researchprograms/funding/epidemiology-cancerpreventionstudies/ourstaff/susan-m-gapstur>).

The focus here is on Dr. Pope because he is “The World’s Leading Expert on the Effects of Air Pollution on Health,” as stated at the beginning of his 64 minute February 15, 2007 lecture “Air Pollution and Health” to Sevier Citizens for Clean Air and Water in Richfield, Utah ([http://wn.com/arden\\_pope](http://wn.com/arden_pope)). This lecture used a PPT presentation that was similar to the one used in his June 19, 2007 lecture to Utah Moms for Clean Air in Salt Lake City, Utah ([http://www.utahmomsforcleanair.org/docs/Utah-Moms\\_Arden-Pope-presentation.pdf](http://www.utahmomsforcleanair.org/docs/Utah-Moms_Arden-Pope-presentation.pdf)). At the beginning of his February 15, 2007 lecture Dr. Pope twice stated he was speaking “the truth the best I know it” (<http://www.scientificintegrityinstitute.org/Pope021507.pdf>). As will be shown with the evidence below, Pope did not speak the truth as he knew it then and he has gotten progressively more dishonest since 2007. The primary form of scientific misconduct committed by Dr. Pope has been falsification (not properly describing results in the research record and willful perversion of facts).

The evidence here focuses on Dr. Pope’s scientific misconduct since I published my December 15, 2005 *Inhalation Toxicology (IT)* paper “Fine Particulate Air Pollution and Total Mortality Among Elderly Californians, 1973-2002” and submitted it to the California Air Resources Board

(CARB) ([http://www.arb.ca.gov/planning/gmerp/dec1plan/gmerp\\_comments/enstrom.pdf](http://www.arb.ca.gov/planning/gmerp/dec1plan/gmerp_comments/enstrom.pdf)). In particular, the evidence relates to fine particulate matter (PM2.5) epidemiology and diesel vehicle regulations in California (<http://www.forbes.com/2010/06/08/california-diesel-regulation-pollution-opinions-columnists-henry-i-miller-james-e-enstrom.html>) and to the August 1, 2013 US House Science Committee subpoena of US Environmental Protection Agency (EPA) “secret science” data from the American Cancer Society Cancer Prevention Study II (CPS II) (<http://science.house.gov/press-release/smith-subpoenas-epa-s-secret-science>). The focus of this document is on 1) Dr. Pope’s clear and consistent pattern of dishonesty and deception regarding his research, publications, and statements on PM2.5 mortality risk in California since 2006, while he participated in research on PM2.5 mortality risk in California funded by CARB and 2) Dr. Pope’s direct involvement with CARB during 2006-2009 as a “scientific advisor” on the key report that provided the public health justification for the passage in December 2008 of draconian diesel PM2.5 regulations that have harmed countless California businessmen.

Intense controversy regarding PM2.5 epidemiology dates back to Dr. Pope’s March 1, 1995 *AJRCCM* paper “Particulate Air Pollution as a Predictor of Mortality in a Prospective Study of U.S. Adults” based on ACS CPS II data with Dr. Thun of ACS Epidemiology as second author ([http://www.atsjournals.org/doi/abs/10.1164/ajrccm/151.3\\_Pt\\_1.669](http://www.atsjournals.org/doi/abs/10.1164/ajrccm/151.3_Pt_1.669)). The initial controversy was described in the July 25, 1997 *Science* article “Showdown Over Clean Air Science” (<http://www.sciencemag.org/content/277/5325/466.full>) and the August/September 1997 *Reason* article “Polluted Science” (<http://reason.com/archives/1997/08/01/polluted-science>).

The current controversy begins with my December 15, 2005 *IT* paper and the January 1, 2006 *IT* editorial about my paper by Dr. Suresh Moolgavkar “Fine Particles and Mortality” (<http://www.scientificintegrityinstitute.org/IT010106.pdf>). These papers were cited in Dr. Pope’s June 1, 2006 *JAWMA* “Critical Review—Health effects of fine particulate air pollution: Lines that connect” (<http://www.scientificintegrityinstitute.org/PopeDockery2006.pdf>). Then, in conjunction with CARB, Dr. Pope prepared a 47-slide PPT presentation of his PM2.5 review which included my 2005 *IT* paper and the 2006 *IT* editorial, as well as my picture (<http://www.scientificintegrityinstitute.org/PopePPT2006.pdf>). My 2005 *IT* paper is the first statewide examination of PM2.5 and total mortality in California and it is still the most detailed examination of this relationship published in a peer-reviewed journal. Since his 2006 *JAWMA* paper, Dr. Pope has not properly cited the evidence on PM2.5 mortality risk in California.

On August 21, 2006 CARB scientists conducted a “Public Workshop on Updating the Methodology for Estimating Premature Death Associated with PM2.5 Exposures.” The PPT presentation for this Workshop (<http://www.arb.ca.gov/research/health/pm-mort/ws-slides.pdf>) shows Dr. Pope as a CARB advisor and “Key Steps in ARB’s Update of Methodology” and “Tentative Timeline.” However, the 2005 Enstrom paper was not shown as one of the “New studies emerged since 2002.” Joel M. Schwartz of the American Enterprise Institute testified at the Workshop and then on August 29, 2006 submitted to CARB ten pages of formal comments and three of his AEI papers, including his May 2006 paper “Air Pollution and Health: Do Popular Portrayals Reflect the Scientific Evidence?” ([http://joelschwartz.com/pdfs/AirPoll\\_Health\\_EPO\\_0506.pdf](http://joelschwartz.com/pdfs/AirPoll_Health_EPO_0506.pdf)). His formal comments stated “The discussions and handouts at the August 21 workshop indicate that CARB’s approach to evaluating the association of PM2.5 and mortality tends to omit contrary evidence and to

uncritically accept supportive evidence. This would cause CARB to overstate the magnitude and certainty of the association of air pollution and premature mortality.”

(<http://www.scientificintegrityinstitute.org/Schwartz082906.pdf>).

During the latter part of 2006, Dr. Jerrett, serving as Principle Investigator, worked with Drs. Pope, Krewski, and Burnett and six other co-Investigators on preparing the CARB Interagency Proposal No. 2624-254 "Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort"

(<http://www.scientificintegrityinstitute.org/Jerrett012510.pdf>). Dr. Pope was included as a consultant to be paid \$14,997, with the justification "Dr. Pope will supply expert guidance on the interpretation and analysis of statistical modeling and air pollution epidemiology."

This proposal contains the following claims that Dr. Pope knew in 2006 were dishonest:

"California currently has no statewide studies assessing mortality resulting from air pollution in the general population." (page 3); "California has no state-wide estimates of mortality to support policymaking and regulatory activities. Extension of the ACS study to address scientific uncertainties and to derive estimates specific to California will assist the Air Resources Board and others to assess the benefits of policy interventions." (page 4); "*This study will derive the first California wide estimates of mortality associated with PM2.5 exposure and other criteria co-pollutants, thus supplying policymakers with a valuable resource for deriving benefit estimates.*" (page 5). Drs. Jerrett, Krewski, and Burnett also knew in 2006 that the above claims were dishonest because they became aware of my 2005 *IT* paper in January 2006 when Dr. Krewski granted me permission to reproduce Figure 21 of the 2000 Krewski Health Effects Institute (HEI) Reanalysis Report (<http://pubs.healtheffects.org/view.php?id=6>) and use it in my June 1, 2006 *IT* response paper (<http://www.scientificintegrityinstitute.org/IT060106.pdf>).

The Jerrett Proposal was reviewed by CARB Research Screening Committee on December 14, 2006 (<http://www.arb.ca.gov/research/rsc/12-14-06/dec06adv.pdf>) and was approved by CARB on January 25, 2007 and it became "ARB/UCB Agreement No. 06-332," with a three-year total budget of \$749,706 (<http://www.arb.ca.gov/board/books/2007/012507/07-1-4pres.pdf>). At both of these meetings false claims were made about no prior statewide studies of PM2.5 and mortality in California. If my paper had been cited in the Jerrett Proposal, the proposal would have had to acknowledge that a very large and detailed statewide study of PM2.5 and mortality in California had already been conducted and published. My study and its null findings would have influenced the specific aims and approval of the Jerrett Proposal by the CARB Research Screening Committee and CARB members. This scientific misconduct by Dr. Jerrett, Dr. Pope, and the other co-investigators was reported in a March 24, 2010 letter to UC President Mark G. Yudof by an Ad Hoc Group of California businessmen impacted by CARB diesel regulations (<http://www.calcontrk.org/CARBdocs/letters/AdHocGroupLettertoYudofReJerrettMisconduct032410.pdf>). Dr. Pope was involved with this project until 2013, as will be explained later.

On January 25, 2007, the exact same day that the Jerrett Proposal was approved, Drs. Scott L. Zeger, Francesca Dominici, Aidan McDermott, and Jonathan M. Samet posted their Johns Hopkins University Department of Biostatistics Working Paper 133 "Mortality in the Medicare Population and Chronic Exposure to Fine Particulate Air Pollution" (<http://biostats.bepress.com/jhubiostat/paper133>). These four JHU professors were major air pollution investigators at this time, all much more respected and better known than me, and they

cited my 2005 *IT* paper as being consistent with their finding “No positive association was found between county-level PM2.5 concentration and mortality rates for the 32 urban counties in the western U.S. [California, Oregon, and Washington] in the MCAPS [Medicare Cohort for Air Pollution Studies] cohort. The lack of association for the West is largely because the Los Angeles area counties have higher PM2.5 levels than other western counties, but not higher adjusted mortality rates. . . . In our initial analyses of the MCAPS data, we confirmed the association between PM2.5 and mortality found in other studies but find substantial and unexplained geographic heterogeneity in the effect of PM2.5 across the United States.” The null findings in my 2005 *IT* paper and the “substantial and unexplained geographic heterogeneity” findings in Zeger 2007 were completely ignored by Dr. Pope in his February 15, 2007 and June 19, 2007 public lectures. A revised and expanded version of Zeger 2007 was published online August 12, 2008 (<http://www.ncbi.nlm.nih.gov/pmc/?term=10.1289/ehp.11449>).

The content of his 2007 lectures and the 2007 Jerrett Project are highly relevant to the honesty of Dr. Pope because during 2006-2009 he served as a “scientific advisor” to CARB on PM2.5 health effects. In particular, he provided scientific advice on a 2007 CARB draft report entitled “Methodology for Estimating the Premature Deaths Associated with Long-term Exposures to Fine Airborne Particulate Matter in California.” The report was distributed to six peer reviewers with an August 27, 2007 CARB cover letter and the peer review comments were returned during September-October 2007. This draft based the dose-response relationship between PM2.5 and premature deaths (total mortality) in California on the national September 21, 2006 “Expanded Expert Judgment Assessment of the Concentration-Response Relationship Between PM2.5 Exposure and Mortality” ([http://www.epa.gov/ttn/ecas/regdata/Uncertainty/pm\\_ee\\_report.pdf](http://www.epa.gov/ttn/ecas/regdata/Uncertainty/pm_ee_report.pdf)). Drs. Pope and Krewski were two of the twelve experts used in this major PM2.5 risk assessment, constituting another conflict of interest for Dr. Pope in his role as a CARB scientific advisor.

The 2007 CARB draft report, including the comments of the six peer reviewers, was revised and released as the May 22, 2008 CARB Draft Report (<http://scientificintegrityinstitute.org/CARBPMDraft052208.pdf>). It was summarized at the May 22, 2008 CARB meeting in a PPT presentation “Revised Estimates of Premature Death Associated with PM2.5 Exposures in California,” which cited Dr. Pope as a Scientific Advisor (<http://www.arb.ca.gov/board/books/2008/052208/08-5-5pres.pdf>). Neither the report nor the PPT addressed my April 24, 2008 comments to CARB about the need to focus on California-specific evidence as the basis for estimating PM2.5-related premature deaths in California ([http://www.arb.ca.gov/lists/erplan08/2-carb\\_enstrom\\_comments\\_on\\_gmerp\\_042208.pdf](http://www.arb.ca.gov/lists/erplan08/2-carb_enstrom_comments_on_gmerp_042208.pdf)).

A July 11, 2008 CARB teleconference was held because of my June 4, 2008 concerns stated to the CARB Chair Mary D. Nichols at her California Senate Rules Committee confirmation hearing in Sacramento (<http://scientificintegrityinstitute.org/Nichols060408.pdf>). I was very concerned that the May 22, 2008 CARB Draft Report had not properly focused on PM2.5 mortality risk in California (<http://scientificintegrityinstitute.org/AgendaSum071108.pdf>). During that teleconference I spoke directly with Drs. Pope, Jerrett, and Burnett about failure of the CARB report to properly present and use California-specific PM2.5 mortality risk evidence (<http://scientificintegrityinstitute.org/Enstrom071108.pdf>). Dr. Pope and the others evaded my repeated requests to them to clarify the Jerrett Project California PM2.5 mortality risk findings, as well as prior PM2.5 findings dating back to Figure 21 in the 2000 Krewski HEI Reanalysis Report. I stated “I’m very concerned that a number of these [CARB diesel vehicle] regulations

are going to move forward based on, well for instance, the Pope 2002 study when more studies are forth coming and I think that if there's an effort made by the ARB to slow down the regulatory process that would relieve a lot of my concerns." In response, Dr. Pope stated "That's something I wouldn't get involved with one way or the other. I'm interested in the science and I hope that the regulation is wise and uses the science in a reasonable way."  
(<http://scientificintegrityinstitute.org/CARB071108.pdf>). This was a disingenuous and dishonest statement by Dr. Pope because he has been clearly aware since at least 2006, when he began advising CARB, that his research and reviews on PM2.5 mortality risk were being used by CARB as public health justification for draconian diesel vehicle regulations in California.

When Pope failed to contact me, as per his comments during the teleconference, I sent him an August 20, 2008 email request asking for the same California-specific calculations that I had asked for during the teleconference (<http://www.scientificintegrityinstitute.org/Pope082008.pdf>). Pope never responded to my email request. During this period, a total of 148 pages of highly critical public comments were received by CARB regarding the May 22, 2008 Draft Staff Report ([http://www.arb.ca.gov/research/health/pm-mort/pm-mort\\_supp.pdf](http://www.arb.ca.gov/research/health/pm-mort/pm-mort_supp.pdf)). On October 24, 2008 CARB issued a Final Staff Report "Methodology for Estimating Premature Deaths Associated with Long-term Exposure to Fine Airborne Particulate Matter in California" (<http://www.scientificintegrityinstitute.org/CARBPMFinal102408.pdf>). In spite of the extensive detailed criticism that Dr. Pope must have seen, the Final Staff Report was essentially unchanged from Draft Staff Report. Both of these reports listed Dr. Pope as a Scientific Advisor and they reflect his failure to address serious criticism and null California-specific PM2.5 risk evidence.

I challenged the scientific integrity of the Final Staff Report with detailed December 10, 2008 CARB public comments regarding the proposed CARB Statewide Truck and Bus Regulation. I described six different sources showing geographic variation in PM2.5 mortality risk nationally and little or no PM2.5 mortality risk in California ([http://www.arb.ca.gov/lists/truckbus08/897-carb\\_enstrom\\_comments\\_on\\_statewide\\_truck\\_regulations\\_121008.pdf](http://www.arb.ca.gov/lists/truckbus08/897-carb_enstrom_comments_on_statewide_truck_regulations_121008.pdf)). In spite of the massive criticism of scientific, legal, and economic aspects of the CARB Truck and Bus Regulation received from hundreds of commenters, this multi-billion dollar diesel vehicle regulation was approved by CARB on December 12, 2008 (<http://www.arb.ca.gov/newsrel/nr121208.htm>).

Although we had engaged in direct discussion and correspondence about this issue in 2008, Dr. Pope did not address the issue of geographic variation in PM2.5 mortality risk in his January 22, 2009 NEJM paper "Fine Particulate Air Pollution and Life Expectancy in the United States" (<http://www.nejm.org/doi/full/10.1056/NEJMsa0805646>). This paper made no mention of the above evidence of geographic variation in PM2.5 mortality risk dating back to 2000. I submitted a February 11, 2009 NEJM letter with specific results showing no relationship in California based on data from me and the paper. Although my letter was rejected by the NEJM on March 16, 2009, it was forwarded to Dr. Pope for comment ([http://www.arb.ca.gov/lists/gmove09/1-carb\\_enstrom\\_comments\\_re\\_pm2.5\\_and\\_life\\_expectancy\\_052709.pdf](http://www.arb.ca.gov/lists/gmove09/1-carb_enstrom_comments_re_pm2.5_and_life_expectancy_052709.pdf)).

Dr. Pope has never acknowledged or addressed my null California results and my concerns about his conclusions regarding the relationship between PM2.5 and life expectancy. For instance, he failed to address any such criticism in his May 3, 2009 HEI PPT presentation on this relationship (<http://www.healtheffects.org/Slides/AnnConf2009/Pope.pdf>). Additional criticism of Pope



2009 is contained in the September 2012 paper of Goran Krstić, Ph.D., whose 2009 letter was also rejected by the NEJM. Reanalyzing Dr. Pope's publicly available data, Dr. Krstić found "The observed loss of statistical significance in the correlation between the reduction of ambient air PM2.5 concentrations and life expectancy in metropolitan areas of the United States, after removing one of the metropolitan areas [Topeka, KS] from the regression analysis, may raise concern for the policymakers in decisions regarding further reductions in permitted levels of air pollution emissions." (<http://www.ncbi.nlm.nih.gov/pubmed/23019812>). This same Pope 2009 data was reanalyzed in the August 2013 paper of Dr. S. Stanley Young, who concluded "Given the lack of effect in the West and the greater importance of other predictors, we agree with Krstić that this data set does not support the claim that decreasing PM2.5 will increase longevity." (<http://onlinelibrary.wiley.com/doi/10.1002/sam.11202/abstract>).

During 2002-2009 Dr. Pope worked with Dr. Krewski on an HEI project that resulted in the June 3, 2009 HEI Research Report 140 "Extended Follow-Up and Spatial Analysis of the American Cancer Society Study Linking Particulate Air Pollution and Mortality," which lists Dr. Pope as eighth author (<http://pubs.healtheffects.org/view.php?id=315>). HEI Health Review Committee Commentary states "Dr. Krewski's 4-year study, 'Extended Follow-Up and Spatial Analysis of the American Cancer Society Study Linking Particulate Air Pollution and Mortality,' began in May 2002. Total expenditures were \$425,000. The draft Investigators' Report from Krewski and colleagues was received for review in January 2007. A revised report, received in January 2008, was accepted for publication in June 2008." The final report results were summarized in a May 21, 2008 Krewski PPT (<http://www.scientificintegrityinstitute.org/Krewski052108.pdf>). This "spatial analysis" did not analyze or discuss the geographic variation in PM2.5 mortality risk that was found in Figures 5 and 21 of the 2000 Krewski HEI Reanalysis Report and it did not cite papers showing geographic variation like Enstrom 2005, Enstrom 2006, Zeger 2007, and Zeger 2008. As explained previously, the primary authors, including Drs. Pope, Krewski, Jerrett, and Burnett, were all well aware of evidence of national geographic variation dating back to the 2000 HEI Reanalysis Report. Yet they failed to address this issue in the 2009 HEI Research Report.

On November 16, 2009 CARB Member John B. Telles, M.D., raised serious concerns about the integrity of the October 24, 2008 CARB Final Staff Report because of the dishonesty of its lead author, Hien T. Tran (<http://www.scientificintegrityinstitute.org/Telles111609.pdf>). The dishonesty of Tran is described on a website that describes scientific and ethical misconduct by CARB (<http://killcarb.org/tranpage.html>). As a result of Dr. Telles' concerns, a February 26, 2010 CARB Symposium "Estimating Premature Deaths from Long-term Exposure to PM2.5" and organized and conducted in Sacramento. Dr. Pope and I participated, along with Drs. Krewski, Jerrett, Moolgavkar, and numerous other PM2.5 mortality risk experts ([http://www.arb.ca.gov/research/health/pm-mort/pm-mort-ws\\_02-26-10.htm](http://www.arb.ca.gov/research/health/pm-mort/pm-mort-ws_02-26-10.htm)). Several dozen California businessmen adversely impacted by the CARB diesel vehicle regulations approved on December 12, 2008 were in the audience of this Symposium. Along with Dr. Telles, they were very concerned about the integrity of the October 24, 2008 CARB Final Staff Report.

At the Symposium Dr. Pope made a 52-slide PPT presentation "Overview of PM2.5-Related Mortality Studies" (<http://www.arb.ca.gov/research/health/pm-mort/pope.pdf>). On slide 50 he posed the question "Then which health studies are relevant to California?" and followed this with an accurate statement "Some of the highest quality research on the health effects of air pollution

has been conducted in California” and a false statement “The results are similar to studies from elsewhere.” His slides 48 and 49 did not accurately reflect all of the existing null California-specific results. Particularly disturbing is the fact that Dr. Pope did not present any California-specific results that should have been in the June 3, 2009 Krewski HEI Research Report. Even more disturbing is the fact that he did not present any results from the ongoing Jerrett Project described earlier. When the Jerrett Project was approved on January 25, 2007, the agreement with CARB called for the California-wide results to be available in eighteen months (July 2008).

Although not shown by Dr. Pope, Dr. Jerrett did show in slide 12 of his Symposium presentation that the Jerrett Project found no relationship between PM2.5 and total mortality in California (RR = 1.00) (<http://www.scientificintegrityinstitute.org/JerrettTrans022610.pdf>). This null result is in exact agreement with the Enstrom 2005 result (RR = 1.00). An Ad Hoc Group of California businessmen who attended February 26, 2010 CARB Symposium were interested in seeing all the California evidence, particularly the California-specific results from the 2009 HEI Research Report. They submitted a request to HEI for these results and their request yielded an August 31, 2010 HEI letter containing California-specific results calculated by Dr. Krewski as a subset of the national results in the 2009 HEI Research Report. Dr. Krewski found no PM2.5 mortality risk in California: RR = 0.87 (0.81-0.94) during 1982-1989 and RR = 0.96 (0.92-1.00) during 1982-2000 ([http://www.arb.ca.gov/research/health/pm-mort/HEI\\_Correspondence.pdf](http://www.arb.ca.gov/research/health/pm-mort/HEI_Correspondence.pdf)).

The low PM2.5 mortality risk in California during 1982-1989 found by Dr. Krewski is consistent with my September 30, 2010 analysis of Figures 5 and 21 in the 2000 HEI Report (<http://www.scientificintegrityinstitute.org/HEIFigure5093010.pdf>). Based on my own analysis, Figure 5 showed PM2.5 mortality risk for 49 US cities (metropolitan areas) and Fresno, California ranked second lowest and Los Angeles, California ranked fifth lowest. Figures 5 and 21 were not mentioned in Dr. Pope’s Symposium PPT or in the 2009 HEI Report. It certainly should have been included in 2009 HEI Report if Dr. Pope had been honest in addressing Figures 5 and 21, my 2006 and 2008 submissions to CARB, and my 2008 requests to him. The null California results from the Jerrett Project could have been released in early 2008 and then incorporated into the CARB Draft Report and the CARB Final Report. Modified CARB reports that found few or no premature deaths in California due to PM2.5 would probably have changed the December 12, 2008 CARB vote on the Truck and Bus Regulation.

Because of my extensive concerns about the scientific integrity of PM2.5 epidemiology, as described above, I organized a symposium, "Ethical Aspects of Small Epidemiologic Risks," for the Third North American Congress of Epidemiology (CoE) in Montreal, Canada during June 21-24, 2011 (<http://www.epiresearch.org/archive/fall10news.pdf>). This symposium was sponsored by the American College of Epidemiology and at that time I was Chair of the ACE Ethics Committee (<http://acepidemiology.org/content/ethics>). I invited 18 experts in PM2.5 epidemiology who held views different than my own to debate me at this ethics symposium. All 18 of the experts declined my invitation, including six co-Investigators of the Jerrett Project: Drs. Jerrett, Pope, Krewski, Burnett, Thun, and Thurston (<http://www.scientificintegrityinstitute.org/COEEthics022311.pdf>). Because diverse points of view on PM2.5 epidemiology could not be presented at the Symposium, it was cancelled. This disappointing experience illustrates the difficulty of resolving ethical issues in PM2.5 epidemiology, like lack of access to underlying data and deliberate misrepresentation of results.

The June 9, 2011 Draft Jerrett Report, with Dr. Pope as the third author, presented null results from eight of the nine statistical models that they tested, adding to the single null finding presented by Dr. Jerrett on February 26, 2010. However, the Summary and Abstract of this report were heavily criticized by me and several others for stating conclusions that did not reflect the null findings in the report itself. This report was not approved and was deferred by the CARB Research Screening Committee. In spite of the criticism, the October 28, 2011 Final Jerrett Report was essentially unchanged from the June 9, 2011 Draft Jerrett Report. This led to further criticism that the final report continued to misrepresent and/or ignore its overwhelmingly null findings (<http://www.scientificintegrityinstitute.org/JerrettCriticism102811.pdf>).

Continuing misrepresentation of PM2.5 mortality risk in California is clearly evident in Dr. Pope's July 28, 2011 EPA Webinar PPT "Health Effects of Particulate Matter Air Pollution" (<http://www.epa.gov/burnwise/pdfs/PMHealthEffects-Pope.pdf>). He makes no mention of PM2.5 mortality risk in California found in Figure 5 and 21 from Krewski 2000, the February 26, 2010 CARB Symposium, the June 9, 2011 Jerrett Report, or the June 1, 2011 Erratum to Ostro 2009 paper, or the June 23, 2011 Lipsett 2011 paper, all of which were available before his EPA webinar (<http://www.scientificintegrityinstitute.org/Enstrom081512.pdf>).

The most recent summary of all California evidence is given in my August 1, 2012 American Statistical Association Joint Statistical Meeting 2012 PPT presentation "Are Fine Particulates Killing Californians?" (<http://www.scientificintegrityinstitute.org/ASA080112.pdf>) and in my subsequent ASA JSM 2012 Proceedings paper "Particulate Matter is Not Killing Californians" (<http://www.scientificintegrityinstitute.org/ASAS092812.pdf>). There is now overwhelming epidemiologic evidence from ten different analyses of five separate cohorts showing no relationship between PM2.5 and premature death (total mortality) in California. In spite of my many attempts since 2008, this overwhelming evidence has not yet been recognized by Dr. Pope.

The serious misuse of PM2.5 epidemiologic findings by EPA and CARB is reflected in the US House Science Committee criticism of EPA science and regulations dating back to a November 15, 2011 letter to the White House from Congressmen Andy Harris, M.D., and Paul Broun, M.D. (<http://science.house.gov/press-release/harris-and-broun-question-administration%E2%80%99s-environmental-cost-benefit-analyses>). This letter and numerous additional letters up to a July 22, 2013 letter have requested the Harvard Six Cities Study (H6CS) and ACS CPS II data used by EPA (<http://science.house.gov/press-release/committee-threatens-subpoena-epa-secret-science>). The basic issues are summarized in a July 30, 2013 Wall Street Journal commentary "The EPA's Game of Secret Science" by US House Science Committee Chairman Lamar Smith (<http://online.wsj.com/news/articles/SB10001424127887323829104578624562008231682>).

Because EPA did not comply with their prior requests, the US House Science Committee issued an August 1, 2013 subpoena on EPA to produce the "secret science" data from H6CS and ACS CPS II (<http://science.house.gov/press-release/smith-subpoenas-epa-s-secret-science>). Dr. Pope is co-author on four of the seven papers specifically cited in the subpoena. He is first author on "Pope et al. 2002. Lung Cancer, Cardiopulmonary Mortality, and Long-term Exposure to Fine Particulate Air Pollution." Journal of the American Medical Association 287: 1132-1141" and

“Pope et al. 2009. “Fine Particulate Air Pollution and Life Expectancy in the United States.” New England Journal of Medicine 360: 376-386.” He is third author on “Jerrett et al. 2009 “Long-term ozone exposure and mortality”, New England Journal of Medicine 360; 1085-1095” and eighth author on “Krewski et al. 2009. “Extended Follow-up and Spatial Analysis of the American Cancer Society Study Linking Particulate Air Pollution and Mortality, HEI Research Report 140, Health Effects Institute. Boston, MA.” A fifth study is “Krewski et al. 2000. ‘Reanalysis of the Harvard Six Cities Study and the American Cancer Society Study of Particulate Air Pollution and Mortality.’ Special Report to Health Effects Institute. Cambridge MA. July.” This 2000 HEI Reanalysis Report was conducted in order to check the accuracy of the highly controversial Pope 1995 paper, as described in the 1997 Science and Reason articles.

Instead of encouraging the other H6SC and ACS CPS II investigators to comply with the subpoena, Dr. Pope has made several patently false statements to the press that try to justify the investigators’ refusal to comply. However, of the 23 primary authors of the seven subpoenaed papers, only Dr. Pope has publicly challenged the appropriateness of the subpoena. The following are three of his most blatantly false public statements:

1) The August 2, 2013 Science *Insider* statement: “Economist C. Arden Pope of Brigham Young University in Provo, Utah, one of the authors on the Six Cities Study, says that turning over what Smith requests would undoubtedly violate the confidentiality agreement made with participants. ‘It’s extremely hard to give a data set that will allow you to replicate the results in these studies that doesn’t include information that then allows you—with an Internet search of obituaries—to quickly figure out who the people were,’ he says.”

(<http://news.sciencemag.org/environment/2013/08/house-panel-subpoenas-epa-air-pollution-data>)

2) The August 9, 2013 Science statement: “Thursday, Smith asserted the data would be shared with ‘various reputable entities and organizations’ and would be ‘deidentified’ so that no names would be made public. But because the six cities were small, it would be easy to quickly figure out who the participants were, according to Pope.”

(<http://www.sciencemag.org/content/341/6146/604.full.pdf>)

3) The September 7, 2013 Boston Globe statement: “C. Arden Pope III, an economics professor at Brigham Young University who also was lead author on the American Cancer Society study, said there was no attempt to hide information from Congress or the public. ‘Characterizing the ACS and Harvard Six-Cities studies as “secret science” is a misrepresentation of the truth,’ Pope said in remarks he e-mailed to the Globe. ‘We have continued to be actively involved in open, collaborative, extended analysis efforts,’ he added, ‘using the data and information in such a way that contributes to scientific understanding and that does not violate commitments to the privacy and confidentiality of research participants.’”

(<http://www.bostonglobe.com/news/nation/2013/09/06/landmark-harvard-study-health-effects-air-pollution-target-house-gop-subpoena/2K0jhfbJsZcfXqcQHc4jzL/story.html>).

The illustrate the dishonesty of Dr. Pope’s claim “it would be easy to quickly figure out who the participants were,” the first deceased H6CS subject is shown as Record 1259 of the H6CS Excel data file given to EPA in response the subpoena “[Lepeule2012\\_data\\_0713\\_final.xlsx](#)”:

“STU 409 0.74538 20.9 20.9 1 1 0 0 1”

Dr. Pope cannot possibly identify this H6CS subject using the information provided above. Furthermore, Dr. Pope has not engaged in meaningful collaboration with scientists other than several of the authors of the subpoenaed papers. Their refusal to comply with the subpoena is direct evidence that Dr. Pope and his colleagues have not engaged in “open, collaborative, extended analysis efforts.” The characterization of Dr. Pope’s research as “secret science” is not “a misrepresentation of the truth.”

The final and most glaring example of Dr. Pope’s dishonesty is the September 1, 2013 *AJRCCM* paper “Spatial Analysis of Air Pollution and Mortality in California” that he co-authored with Drs. Jerrett, Krewski, Burnett, and Thun and eight other Jerrett Project investigators (<http://www.atsjournals.org/doi/abs/10.1164/rccm.201303-0609OC>). This paper was published exactly one month after the subpoena was issued for the CPS II data used in the paper. The paper is highly misleading and completely ignores the overwhelming null evidence in the October 28, 2011 Jerrett Final Report (<http://www.arb.ca.gov/research/apr/past/06-332.pdf>). The positive relationship that it does report is based on a “conurbation” land use regression model that normalizes out the low death rates in the urban areas of California. This ad hoc model was not even mentioned in the original proposal. Furthermore, the paper does not cite the overwhelming null California PM2.5 mortality evidence that is summarized in my September 28, 2012 ASA JSM 2012 paper (<http://www.scientificintegrityinstitute.org/ASAS092812.pdf>). The serious flaws in the *AJRCCM* paper are discussed in detail by Dr. William Briggs in his blogs of August 6, 2013 (<http://wmbriggs.com/blog/?p=8720>) and September 11, 2013 (<http://wmbriggs.com/blog/?p=8990>). The *AJRCCM* paper and the defiance of its authors reinforces the importance of the subpoena of EPA “secret science” data and the urgent need for independent reanalysis of the ACS CPS II data that underlies this paper and the subpoenaed papers, as explained by Dr. Briggs on September 25, 2013 (<http://wmbriggs.com/blog/?p=9241>).

In conclusion, Dr. Pope, in collaboration with Drs. Krewski, Jerrett, Burnett, and Thun, has engaged in serious scientific misconduct (falsification) in his PM2.5 epidemiology research and reviews, particularly as it relates to geographic variation in PM2.5 mortality risk and lack of risk in California. The dishonest claim of Dr. Pope and his collaborators that there is a current substantial PM2.5 mortality risk in California has been used by EPA and CARB to justify draconian regulations designed to reduce alleged premature deaths in California due to PM2.5 when there is overwhelming epidemiologic evidence that these deaths do not actually exist.

Date: Thu, 07 Nov 2013 08:23:34 -0800  
To: "Alpa V. Patel" <alpa.patel@cancer.org>  
From: "James E. Enstrom" <jenstrom@ucla.edu>  
Subject: Request Regarding ACS CPS II Data Use & Access

November 7, 2013

Alpa V. Patel, Ph.D.  
Epidemiology Research Program  
American Cancer Society  
National Home Office  
250 Williams Street NW  
Atlanta, Georgia, 30303  
[alpa.patel@cancer.org](mailto:alpa.patel@cancer.org)

Dear Dr. Patel,

I am writing to request your response to five conclusions below regarding the use of ACS CPS II cohort data to analyze the relationship of fine particulate air pollution (PM2.5) and mortality in California. Based on the ACS Cancer Prevention Studies Data Access Policies and Procedures (<http://www.cancer.org/acs/groups/content/@research/documents/document/acspc-039148.pdf>), you are the most appropriate Epidemiology Research Program team member to respond to my specific concerns (<http://www.cancer.org/research/acresearchers/alpa-patel-phd>).

## Background

I have substantial direct evidence that the relationship between PM2.5 and total mortality, particularly in California, has been improperly calculated and improperly characterized in the following six publications that are based on ACS CPS II cohort data: 1995 Pope *AJRCCM* paper (<http://www.atsjournals.org/doi/abs/10.1164/ajrccm.151.3.7881654>), 2000 Krewski HEI Reanalysis Report (<http://pubs.healtheffects.org/view.php?id=6>), 2002 Pope *JAMA* paper (<http://jama.jamanetwork.com/article.aspx?articleid=194704>), 2009 Krewski HEI Research Report 140 (<http://pubs.healtheffects.org/view.php?id=315>), October 28, 2011 Jerrett Report (<http://www.scientificintegrityinstitute.org/JerrettCriticism102811.pdf>), and September 1, 2013 Jerrett *AJRCCM* paper (<http://www.atsjournals.org/doi/abs/10.1164/rccm.201303-0609OC>).

This CPS II data has been the major part of an August 1, 2013 US House Science Committee subpoena of EPA (<http://science.house.gov/press-release/smith-subpoenas-epa-s-secret-science>). EPA currently stands in default of the subpoena in major part because the requested CPS II data has not been delivered (<http://science.house.gov/press-release/smith-epa-stands-default-subpoena>). Consequently, EPA Administrator Gina McCarthy is scheduled to be questioned at a November 14, 2013 US House Science Committee hearing about EPA compliance with the subpoena.

## Request

Because of my long involvement with epidemiologic research, ACS epidemiologists, CPS I and CPS II data, and ACS procedures regarding the use of these data, I have come to the following five conclusions:

- 1) The September 1, 2013 Jerrett *AJRCCM* paper seriously misrepresents the relationship between PM2.5 and total mortality in California, based on comparison with the overwhelmingly null findings in the October 28, 2011 Jerrett Report and numerous other null findings.
- 2) ACS must make public all computer programs, outputs, and tabulations based on CPS II data that were used in the preparation of the 2000 Krewski HEI Reanalysis Report and the 2009 Krewski HEI Research Report, particularly as they relate to Figures 5 and 21 in the 2000 Report.
- 3) ACS must fully comply with the US House Science Committee subpoena of EPA by providing to EPA the requested de-identified CPS II data, particularly since the prior release of similar de-identified CPS II data to investigators outside of ACS over the past 20+ years has never compromised CSP II subject confidentiality.
- 4) ACS violated its 1982 agreement with CPS II subjects to keep their personal questionnaire data confidential (“We will **never** release information about any particular person and will not release addresses to any agency for any purpose, whatsoever.”) when it provided home address data on CPS II subjects to the 2011 Jerrett Report investigators beginning in 2007 or 2008.
- 5) ACS enrollment of subjects in CPS 3 must be suspended until the above four conclusions, particularly conclusion 4), have been properly addressed and satisfactorily resolved by ACS.

Please let me know if you agree with any or all of my five conclusions and if you will cooperate with me or anyone else outside of ACS in resolving the above five conclusions. If you are more comfortable responding to someone other than me, I strongly recommend that you contact the chair of your Ph.D. dissertation committee, who is quite familiar with me, PM2.5 epidemiology, and most of my conclusions.

Until I receive direct confirmation that you agree with some or all of my conclusions, I will assume that you agree with none of them and that you will not cooperate in addressing and resolving them.

Thank you very much for your prompt consideration of this very important request.

Sincerely yours,

James E. Enstrom, Ph.D., M.P.H.  
UCLA School of Public Health and  
Scientific Integrity Institute  
914 Westwood Boulevard #577  
Los Angeles, CA 90024  
<http://www.scientificintegrityinstitute.org/>  
[jenstrom@ucla.edu](mailto:jenstrom@ucla.edu)  
(310) 472-4274



334 N. Euclid Avenue  
Upland CA 91786  
(909) 982-9898

January 6, 2010

President Mark G. Yudof  
Office of the President  
University of California  
1111 Franklin Street, 12<sup>th</sup> Floor  
Oakland, CA 94607  
[president@ucop.edu](mailto:president@ucop.edu)

RE: Urgent Request for Calculations of California-specific Relationship Between PM2.5 and Premature Deaths by Michael L. Jerrett, Ph.D.

Dear President Yudof:

On December 9, 2009 the California Air Resources Board (CARB) voted to redo the October 24, 2008 CARB Final Staff Report, "Methodology for Estimating Premature Deaths Associated with Long-term Exposure to Fine Airborne Particulate Matter in California" (Tran Report), because of concerns about its scientific integrity, including the confirmed dishonesty and fraud of its lead author Hien T. Tran.

This report found that diesel particulate matter (PM), the diesel portion of fine particulate matter (PM2.5), contributes to 3,500 annual premature deaths in California. This finding is the primary scientific justification for the Statewide On-road Truck and Bus Regulation (Truck Rule) that were approved by the CARB on December 12, 2008.

The Truck Rule is the most expensive regulation ever approved by CARB, by the agency's own admission (\$5 billion) and our industry estimates, based on our real-world experience in purchasing new trucks are at least four times as much (\$20 billion). This regulation will have a devastating impact on the California economy that relies upon diesel trucks and buses, including California's cash-strapped school districts, and could destroy thousands of California businesses that cannot afford to comply with these regulations. This will only add to California's unemployment and reduce tax revenue when California can least afford it.

The Truck Rule is the culmination of a process that began after diesel exhaust was identified as a Toxic Air Contaminant by the CARB Scientific Review Panel in 1998. The University of California (UC) is directly involved in this matter because four CARB members are senior UC professors, two peer reviewers of the Tran Report are UC professors, the Research Screening Committee includes six senior UC professors, and the Scientific Review Panel on Toxic Air Contaminants has included six senior UC professors since 1998. In addition, the UC President is obligated by state law to regularly nominate candidates to the SRP (California Health & Safety Code §39670), although the record indicates that very few nominations have been made during the past 20 years. Furthermore, UC Berkeley Professor Michael L. Jerrett has published extensively since 2000 on the relationship between PM2.5 and premature deaths and has been under contract with CARB for the last two years to produce California-specific results on this relationship.



There is serious disagreement among the scientific community regarding the relationship between PM2.5 and premature deaths. Evidence from six independent sources indicates that there is NO current relationship between PM2.5 and premature deaths in California. Three of these sources originate from the 2000 and 2009 Health Effects Institute (HEI) reports that Dr. Jerrett co-authored.

Clarification of the California-specific evidence from these sources would definitively resolve this issue. Dr. Jerrett is the California scientist in the best position to clarify these results. A detailed request for California-specific results was made to Dr. Jerrett as part of a July 11, 2008 CARB teleconference and this request was repeated and expanded upon in December 10, 2008 public comments to CARB. In addition, Dr. Jerrett was invited to present these results at the August 1, 2009 Forum on CARB Diesel Science in Ontario, California. Dr. Jerrett has failed to respond to these requests, in spite of the fact that the underlying data used in his research for HEI is subject minimally to the disclosure requirements of the Federal Data Access Act.

We are sending this letter to you, with a copy to Dr. Jerrett, in the hope that he will understand the urgent need for California-specific results and will voluntarily make them public as soon as possible. If these results do not already exist in the format previously requested, they can be produced within one week by simply rerunning the national analyses contained in the two HEI reports and restricting them to California subjects only. Thus, we request that Dr. Jerrett provide us with the California-specific results described above by January 15, 2010. This deadline is requested because Dr. Jerrett has had since July 11, 2008 to prepare a response and because sufficient time is needed to prepare formal comments for the January 28, 2010 CARB meeting.

In addition, given the scientific and economic importance of this issue, the underlying 1982 American Cancer Society Cancer Prevention Study (CPS II) data should be made publicly available as soon as possible. This data is needed for independent and transparent analysis and interpretation of the California-specific results. If Dr. Jerrett fails to respond by January 15, 2010, then we request that you compel him to comply in a manner that is consistent with the Federal Data Access Act, the California Public Records Act (California Government Code §§6250-6276.48), the California Health & Safety Code §39601.5 (AB 1085), and the UC Standards of Ethical Conduct.

Thank you very much for your consideration regarding this important request.

Sincerely yours,



Lee Brown, Executive Director  
California Dump Truck Owners Association  
(CDTOA)



Bill Davis, Executive Vice President  
Southern California Contractors Association  
(SCCA)



Skip Brown, Owner  
Delta Construction

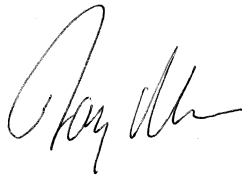
Of interest signatories,



Bryan Bloom, Owner  
Priority Moving, Inc.



Steve Weitekamp, President  
The California Moving & Storage Association  
(CMSA)



Jay McKeeman, VP Government Relations  
California Independent Oil Marketers Association  
(CIOMA)



Mike Lewis, Senior Vice President,  
Construction Industry Air Quality Coalition  
(CIAQC)

cc: Michael L. Jerrett, Ph.D.  
School of Public Health  
University of California  
Berkeley, CA 94720  
jerrett@berkeley.edu  
(510) 642-3960



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Fax: (510) 987-9086  
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January 26, 2010

Mr. Lee Brown  
Mr. Bill Davis  
Mr. Skip Brown  
Mr. Bryan Bloom  
Mr. Steve Weitekamp  
Mr. Jay McKeeman  
Mr. Mike Lewis  
Delta Construction  
c/o California Dump Truck Owners Association  
334 N. Euclid Avenue  
Upland, California 91786

Gentlemen:

I am responding to your letter of January 6 requesting California-specific results from research undertaken by Michael Jerrett, Associate Professor in the University of California, Berkeley School of Public Health's Division of Environmental Health Sciences. You noted your belief that Professor Jerrett is a scientist in a good position to clarify what you believe is a disagreement in the scientific community regarding the relationship between fine particulate matter (PM2.5) and premature deaths, and that you, therefore, would like him to make public California-specific results of his research on this matter.

In response to your letter, my staff has been in touch with Professor Jerrett, who will be responding to you directly. My understanding is that Professor Jerrett is, in fact, in the midst of conducting research to establish definitive estimates of mortality risks associated with particulate matter in California, and plans to publish the results of that research after it has been completed, in the next 6 – 12 months. Professor Jerrett reported that the work he is conducting under an award from the California Air Resources Board in this area was delayed in part to the State's suspension of contracts due to the budget crisis, but that it is now under way. He indicated that he will happy to speak to you and others about the findings after the results become available and have been vetted through the normal peer review process.

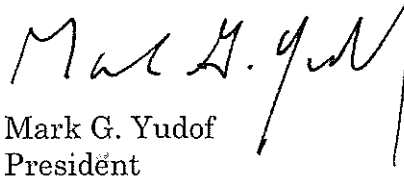
Mr. Lee Brown, et al.  
January 26, 2009  
Page 2

I appreciate your interest in the research being conducted at the University in the area of environmental science, and support the publication and dissemination of results to increase knowledge and inform public policy in this area. As I mentioned, Professor Jerrett will be responding to you directly, and can provide more specific information about the status and nature of his research.

Thank you for taking the time to write to share your concerns.

With best wishes, I am,

Sincerely yours,

A handwritten signature in black ink, appearing to read "Mark G. Yudof". The signature is fluid and cursive, with a long, sweeping tail on the final letter.

Mark G. Yudof  
President

cc: Chancellor Birgeneau  
Interim Provost Pitts  
Vice President Beckwith  
Associate Professor Jerrett



# California Dump Truck Owners Association

334 N. Euclid Avenue, Upland, California 91786

(909) 982-9898 Fax (909) 985-2348

email: leebrown@cdtoa.org

web: cdtoa.org

January 27, 2010

Richard F. Celeste, Chair  
Daniel Greenbaum, President  
The Health Effects Institute  
101 Federal Street, Suite 500  
Boston, MA 02110-1817  
dgreenbaum@healtheffects.org

VIA REGULAR MAIL AND EMAIL

**RE: Request for Underlying Data Used in Two HEI Reports:**

- 1) Research Report Number 140: Extended Follow-Up and Spatial Analysis of the American Cancer Society Study Linking Particulate Air Pollution and Mortality (May 2009)**
- 2) Special Report: Reanalysis of the Harvard Six Cities Study and the American Cancer Society Study of Particulate Air Pollution and Mortality (July 2000)**

Dear Mr. Celeste and Mr. Greenbaum:

On behalf of the California Dump Truck Owners Association (CDTOA), I am requesting access to all underlying data utilized in the two Health Effects Institute (HEI) reports cited above, pursuant to HEI's "Policy on the Provision of Access to Data Underlying HEI-funded Studies" (Appendix D).

Our Association represents 1,000 members of the construction trucking industry who are being directly impacted by the California Air Resources Board (CARB) Statewide On-road Truck and Bus Regulation ("Truck Rule"). On December 9, 2009 CARB members voted to redo the October 24, 2008 CARB Final Staff Report, "Methodology for Estimating Premature Deaths Associated with Long-term Exposure to Fine Airborne Particulate Matter in California" ("Tran Report"), because of concerns about its scientific integrity, including the confirmed dishonesty and fraud of its lead author Hien T. Tran. This report found that diesel particulate matter (PM), the diesel portion of fine particulate matter (PM2.5), contributes to 3,500 annual premature deaths in California. This finding is the primary scientific justification for the Truck Rule that was approved by the CARB on December 12, 2008.

As you can imagine, this act of scientific fraud has only further inflamed the disagreement among the scientific community regarding the relationship between PM2.5 and premature deaths. It is

our understanding that evidence from six independent sources indicates that there is no current relationship between PM2.5 and premature deaths in California.

The two HEI reports identified above play a predominant role in this debate, and it is our belief that clarification of the California-specific evidence from these sources would definitively resolve this issue. Therefore, I am requesting the underlying data used in those two reports. As you are well aware, the open and free exchange of data is an essential part of the scientific process. This data would be utilized for an independent and transparent analysis and interpretation of the California-specific results. This request is consistent with the HEI policy to facilitate the open exchange of data. Specifically, the policy reads, in pertinent part:

“The open and free exchange of data is also an essential part of the scientific process. Therefore, it is the policy of the Health Effects Institute to provide access expeditiously to data for studies that it has funded and to provide that data in a manner that facilitates review and validation of the work but also protects the confidentiality of any subjects who may have participated in the study and respects the intellectual interests of the investigator in the work.”

It is certainly worthy to note that the Truck Rule is the most expensive regulation ever approved by CARB. By the agency’s own admission it will cost the industry \$5 billion. Our industry estimates, based on our real-world experience in purchasing new trucks, that the cost could be at least four times as much (\$20 billion). This regulation will have a devastating impact on the California economy that relies upon diesel trucks and buses, including California’s cash-strapped school districts, and could destroy thousands of California businesses that cannot afford to comply with these regulations. This will only add to California’s unemployment and reduce tax revenue when California can least afford it.

Thank you very much for your consideration regarding this important request. Please contact me at your earliest convenience to confirm receipt of this request. Also please let me know if you need additional information to comply with this request or have any follow-up questions or comments.

Sincerely,

A handwritten signature in cursive script, appearing to read "Lee Brown". The signature is written in dark ink and is positioned above the typed name.

Lee Brown, Executive Director  
California Dump Truck Owners Association (CDTOA)

Of interest signatories,



Mike Lewis, Senior Vice President,  
Construction Industry Air Quality  
Coalition (CIAQC)



Bill Davis, Executive Vice President  
Southern California Contractors Association

CC: Board of Directors, Health Effects Institute  
Mark Utell, Chair, Health Research Committee, Health Effects Institute  
Board Members, California Air Resources Board  
James Goldstene, Executive Officer, California Air Resources Board  
Daniel Krewski, Lead Author of Requested HEI Reports  
Michael L. Jerrett, University of California, Berkeley  
C. Arden Pope, III, Brigham Young University

Ad Hoc Industry Working Group  
CARB On-Road Diesel Truck Regulations

March 11, 2010

Members of the Air Resources Board:

Ms. Mary D. Nichols, Chair

Dr. John Balmes

Ms. Sandra Berg

Ms. Dede D'Adamo

Ms. Lydia H. Kennard

Mr. Ron Loveridge

Executive Officer James Goldstene

California Air Resources Board

P.O. Box 2815

1001 "I" Street

Sacramento, CA 95812

Mrs. Barbara Riordan

Mr. Ron Roberts

Dr. Dan Sperling

Dr. John Telles

Dr. Ken Yeager

Subject: CARB On-Road Diesel Truck Regulation; Follow-up to CARB Science Symposium.

Members of the Board and Executive Officer Goldstene:

This letter, co-authored by a number of affected trucking firms and trade associations, is provided to continue dialogue with the Board on the important issues regarding the evolution of options to be considered by the Board to the On-Road Diesel Truck regulations.

First we wish to thank Chair Mary Nichols and CARB staff for organizing and hosting the Symposium. We believe this was one of the few opportunities for Board members to understand, first-hand, legitimate debate and concerns regarding science being used to motivate/bolster the recent diesel emission regulation packages. We hope that this is but a first of several such discussions – openness and transparency of the science being used as a basis for huge public policy decisions are more important than they have ever been.

It is our conclusion that the Symposium generated significant questions regarding the estimates of premature deaths, and health effects, stemming from diesel emissions. We noted the following areas of controversy and debated outcomes:

- When using California-only data, some diesel health effects estimates show no significant adverse health problems arising from diesel emissions.
- The observation of Professor Jerrett that high levels of PM<sub>2.5</sub> in California were associated with low levels of human cancer should be followed up. He should make his data set public.
- Many, if not most, of the studies evaluated health effects from PM<sub>2.5</sub>, a much larger pollutant category than narrowly defined diesel exhaust components.
- The science is very thin on identifying “bad actor” diesel exhaust components, and their relationship to many other components that may be part of fine-particle air contamination.



- The research used/funded by CARB has never evaluated the health risk of their regulations on the regulated community, including loss of jobs, benefits and elevated stress.
- Relative contribution of PM 2.5 from natural or unregulated sources has not been evaluated/disclosed in the CARB-utilized research.
- A number of the PM 2.5 studies showed a strong relationship between sulfur content and more serious health effect problems. California motor fuel is nearly sulfur free and this state does not use coal or heating oil, likely sources of increased sulfur in eastern areas of the country.

As such we contend that the Board, in good faith, needs to set aside the On-Road regulations until a better harmony is reached regarding the causes and effects diesel emissions have on public health. Basing the most expensive CARB regulatory proposal ever on information that is under active debate in the scientific community is not a wise direction, especially when economic conditions create convincing further doubt about the rules' ultimate efficacy.

We suggest additional discussions be organized in the near future to fine tune the dialogue/debate on the following issues, which will assist in determining design and funding of appropriate studies to better garner reliable and statistically defensible conclusions.

- Review of studies using California-only data sets to determine if there is a more consistent finding on fine PM health effects using state-specific data. Make these data sets public.
- Review of the science on PM 2.5 and its constituents with further discussion on identification of diesel emission components and their relative risk related to other PM 2.5 constituents – this may be an area of need for further research.
- Evaluation of an “East Coast” bias on PM 2.5 health effects, and the role sulfur plays on elevated health risks.
- Development of CARB research proposals regarding the off-setting health effects of regulatory proposals on regulated parties including loss of jobs, benefits and elevated stress.

Again, we thank you for helping organize the Symposium and we eagerly await further announcements of such activities.

Sincerely, Members of the Ad Hoc Working Group:



Jay McKeeman, VP of Government Relations & Communications  
California Independent Oil Marketers Association



Julie Sauls, Vice President Legislative Affairs  
California Trucking Association



Becky Stolberg, Vice President  
California Beer and Beverage Distributors



Bryan Bloom, President  
Priority Moving, Inc.



Sean Edgar, Executive Director  
Clean Fleets Coalition



Steve Weitekamp, President  
The California Moving & Storage Association



Mike Lewis, Senior Vice President,  
Construction Industry Air Quality Coalition  
(CIAQC)



Lee Brown, President  
Calif. Dump Truck Owners Association  
(CDTOA)



Skip Brown, Owner  
Delta Construction



Bill Davis, Executive Vice President  
Southern California Contractors Association

Cc: Linda Adams, Secretary Cal/EPA  
Fred Aguirre, Governor's Office  
Ad Hoc Working Group  
LaRonda Bowen, CARB Ombudsperson

To respond to this letter, please address correspondence to:  
Jay McKeeman, CIOMA VP of Government Relations &  
Communications  
3831 N. Freeway Blvd. #130  
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916-646-5999 (offc)  
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P.O. Box 277517  
Sacramento, CA 95827  
CLN 257024

CONSTRUCTION CO., INC.

March 24, 2010

President Mark G. Yudof  
Office of the President  
University of California  
1111 Franklin Street, 12<sup>th</sup> Floor  
Oakland, CA 94607  
[president@ucop.edu](mailto:president@ucop.edu)

Re: Alleged Research Misconduct (Falsification) by UC Berkeley Professor Michael L. Jerrett

Dear President Yudof:

Thank you for your January 26, 2010 response to our January 6, 2010 letter regarding UC Berkeley Professor Michael L. Jerrett. In addition, we received the February 5, 2010 email response from Dr. Jerrett shown below. We are writing you again because we believe that Dr. Jerrett has seriously misled both your staff and us regarding his knowledge about the relationship between fine particulate air pollution (PM2.5) and mortality in California. At the February 26, 2010 CARB Symposium on PM2.5 and Premature Deaths, Dr. Jerrett revealed that his research using the ACS CPS II cohort shows NO relationship between PM2.5 and all cause mortality in California, consistent with the findings discussed in our January 6, 2010 letter. Based on this revelation and other evidence that we have gathered, we allege that since 2006, when he became a UC Berkeley faculty member, Dr. Jerrett has engaged in clearly documented falsification related to the relationship between PM2.5 and total mortality in California.

In particular, we allege that Dr. Jerrett has violated the *UC Standards of Ethical Conduct*, which states "Members of the University community engaged in research are not to . . . knowingly omit data or results to misrepresent results in the research record . . . . All those engaged in research are expected to pursue the advancement of knowledge while meeting the highest standards of honesty, accuracy, and objectivity." Also, we allege that Dr. Jerrett has violated the *UC Berkeley Updated Summary Statement of University Policy Related to Conduct of Research*, which "applies to all individuals engaged in University research whatever the funding source." This policy states "*Research misconduct* means fabrication, falsification, or plagiarism, in proposing, performing, or reviewing research, or in reporting research results" and "*Falsification* is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record."

To document our allegation of research misconduct (falsification) by Dr. Jerrett, we provide the essential details below, which we believe are sufficient to initiate a formal investigation. During

your formal investigation, we can provide you with any or all of the underlying documents discussed below, most of which can also be obtained from the Internet or from Dr. Jerrett.

The evidence begins when Dr. Jerrett co-authored the 2000 HEI Reanalysis Report (Krewski 2000) that confirmed a national relationship between PM<sub>2.5</sub> and total mortality based on the ACS CPS II cohort. Included in this report is Figure 21, a U.S. map of “Fine Particulates and Mortality Risk” that indicates no excess mortality risk in California, as best as can be interpreted from the information on the map and from a slide presented at the July 23, 2001 US EPA CASAC meeting. Then Dr. Jerrett co-authored a November 2005 *Epidemiology* paper “Spatial Analysis of Air Pollution and Mortality in Los Angeles,” which found an unusually large relationship between PM<sub>2.5</sub> and mortality in the Los Angeles basin during 1982-2000 (Jerrett 2005). Then Dr. James E. Enstrom authored a December 15, 2005 *Inhalation Toxicology* paper “Fine Particulate Air Pollution and Total Mortality Among Elderly Californians, 1973–2002” (Enstrom 2005), which found no relationship between PM<sub>2.5</sub> and mortality in California during 1983-2002. Dr. Enstrom’s paper is the first, largest, and most detailed peer reviewed publication that focuses on the relationship between PM<sub>2.5</sub> and total mortality in California.

At the March 23, 2006 CARB meeting a staff Power Point (PPT) presentation gave extensive details on Jerrett 2005 and cited numerous other studies, including Krewski 2000, Pope 2002, and Laden 2006. In addition, Abbey 1999 and Chen 2005 were cited as key papers from the Adventist Health Study of Smog (AHSMOG), which has been conducted at Loma Linda University and has been largely funded by CARB. AHSMOG is the first study of air pollution and mortality in California, dating back to Abbey 1991, but it is a small study that has published no findings on PM<sub>2.5</sub> and total mortality. The CARB PPT presentation made no mention of Enstrom 2005, in spite of the fact that it was published the same month as Chen 2005 and one month before Laden 2006 appeared online. Because Enstrom 2005 was submitted directly to CARB scientist Linda Smith on January 9, 2006, we believe that the CARB staff members who prepared the PPT presentation knew about the highly relevant statewide results in this paper and knowingly omitted them from the PPT presentation.

Our view is supported by Joel M. Schwartz in his May 2006 AEI paper “*Air Pollution and Health: Do Popular Portrayals Reflect the Scientific Evidence?*” Schwartz stated “At the March meeting of the California Air Resources Board, staff members gave a detailed presentation on Jerrett et al. (2005)—a new epidemiological study of the Los Angeles region that reported a stronger link between PM<sub>2.5</sub> and mortality than suggested in previous research regulators have used to support tougher PM<sub>2.5</sub> standards.<sup>46</sup> What CARB’s staff did not tell its board is that right around the same time that Jerrett et al. was published, another study of PM<sub>2.5</sub> risks in California by Enstrom (2005) concluded that PM<sub>2.5</sub> was having no effect on mortality.<sup>47</sup> Several California papers, including the *Los Angeles Times*, covered the alarming findings of Jerrett et al. but none covered the benign results reported by Enstrom.”

The 1041-word March 25, 2006 Los Angeles Times article “Study Doubles Estimates of Smog Deaths” described Jerrett 2005 in detail, quoted Dr. Jerrett extensively, and discussed Chen 2005 and Laden 2006. However, there was no mention of Enstrom 2005 or its null results. The March 30, 2006 Health & Clean Air Newsletter No 8 “An Inconvenient Reality” presented seven pages on Jerrett 2005 and strongly praised the paper and its results. However, the Newsletter

completely ignored the null California results in Enstrom 2005 and used ad hominem comments to impugn the null results in a major national study (Lipfert 2000). In spite of substantial evidence to the contrary, the Newsletter concluded “In short, any remaining doubt that fine particles cause death and illness—and are not merely associated with these outcomes—is a scintilla.” We allege that Dr. Jerrett was aware of the CARB PPT presentation, the Los Angeles Times article, and the Newsletter and the fact that all three of these items about Jerrett 2005 omitted any mention of Enstrom 2005.

The June 1, 2006 *Inhalation Toxicology* contains criticism by Drs. Brunekreef and Hoek of Enstrom 2005 (Brunekreef 2006), as well as Dr. Enstrom’s response to this criticism (Enstrom 2006). Enstrom 2006 included Figure 21 from Krewski 2000 and permission to reproduce Figure 21 was obtained from Dr. Krewski via a January 22, 2006 email message to Dr. Enstrom. In addition, Dr. Krewski sent a January 30, 2006 email message to Dr. Enstrom, with cc’s to Drs. Burnett and Jerrett, regarding Dr. Enstrom’s January 29, 2006 email query requesting clarification of the California-specific results contained in Figure 21. Dr. Enstrom’s direct contact with Dr. Jerrett goes back to December 2003 when they exchanged email messages and had a telephone conversation about their respective ongoing epidemiologic studies on PM2.5 and mortality in California. These email messages are shown below and they clearly document that Dr. Jerrett has been aware of Dr. Enstrom’s research on PM2.5 and mortality for over six years.

On August 21, 2006 CARB scientists Richard Bode, Linda Smith, and Hien T. Tran conducted a “Public Workshop on Updating the Methodology for Estimating Premature Death Associated with PM2.5 Exposures.” The PPT presentation for this Workshop specifically shows Jerrett 2005 and Laden 2006, but not Enstrom 2005, as “New studies emerged since 2002.” In addition, Dr. Arden Pope is shown as a CARB advisor and Drs. Pope, Krewski, and Thurston are shown as members of the EPA expert elicitation panel assessing the relationship between PM2.5 and all-cause mortality. Joel M. Schwartz testified at the Workshop and then on August 29, 2006 submitted to CARB ten pages of formal comments and three of his AEI papers, including his May 2006 paper cited above. His formal comments stated “The discussions and handouts at the August 21 workshop indicate that CARB’s approach to evaluating the association of PM2.5 and mortality tends to omit contrary evidence and to uncritically accept supportive evidence. This would cause CARB to overstate the magnitude and certainty of the association of air pollution and premature mortality.” This statement also describes the approach used in the three March 2006 items about Jerrett 2005 discussed earlier.

During 2006 Dr. Jerrett prepared and submitted to CARB, as a Principal Investigator from UC Berkeley, Proposal No. 2624-254 “Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort.” The proposal listed eight co-investigators, including Drs. Pope, Krewski, Burnett, and Thurston. This three-year project for \$749,706 was approved at the January 25, 2007 CARB meeting, where Board Members were told “California currently has no statewide studies assessing mortality resulting from air pollution in the general population.” This approved project, which became “ARB/UCB Agreement No. 06-332,” contains the following statements relevant to our allegation of falsification: “California currently has no statewide studies assessing mortality resulting from air pollution in the general population.” (page 3); “California has no state-wide estimates of mortality to support policymaking and regulatory activities. Extension of the ACS study to

address scientific uncertainties and to derive estimates specific to California will assist the Air Resources Board and others to assess the benefits of policy interventions.” (page 4); “*This study will derive the first California wide estimates of mortality associated with PM2.5 exposure and other criteria co-pollutants, thus supplying policymakers with a valuable resource for deriving benefit estimates.*” (page 5); “We recognize the urgent need for statewide estimates of mortality effects. We will therefore put as our highest priority delivery of California-wide estimates . . . .” (page 27); and “We will also submit an interim progress report after the first 18 months of the contract documenting the results of our statewide analysis . . . .” (page 31).

The Agreement does not mention AHSMOG or its publications on air pollution and mortality in California, dating from August 1991 (Abbey 1991) to December 2005 (Chen 2005), and does not mention Dr. Enstrom’s California study (Enstrom 2005) or its related publications (Moolgavkar 2006 and Enstrom 2006). However, the Agreement contains reference 4 on page 35: “Pope CA III, Dockery DW. 2006. Critical Review—Health effects of fine particulate air pollution: Lines that connect. *Journal of the Air & Waste Management Association* 56:709-742.” In this June 2006 review article Drs. Pope and Dockery list and discuss Enstrom 2005 and Moolgavkar 2006 among a total of 502 references. Given the fact that the Agreement contains a detailed and up-to-date citation of the relevant scientific literature, including 20 references from 2006, one of which is the review by co-investigator Pope, we allege that Dr. Jerrett engaged in falsification by omitting Enstrom 2005. If Enstrom 2005 had been cited, the Agreement would have had to acknowledge that a very large and detailed study of PM2.5 and mortality in California had already been conducted and published. Enstrom 2005 and its null findings should have been revealed to the CARB Research Screening Committee during the development of the proposal in 2006 and to CARB members at the January 25, 2007 CARB meeting, because this information could have influenced the specific aims and approval of the Jerrett proposal.

On May 25, 2007 the CARB members discussed the public health justification for the “in-use off-road diesel vehicle regulation.” CARB staff members made statements about the dangers of diesel that included “Diesel PM is responsible for 70 percent of the known risk from air toxics and causes thousands of deaths each year in California. . . . In 2005, emissions from the off-road diesel vehicles covered by this proposed regulation caused 1100 premature deaths as well as tens of thousands of cases of asthma and other effects.” The estimate for premature deaths was based on a March 21, 2006 CARB report by Hien T. Tran that relied primarily on the nationwide results in the Pope 2002 paper and the Krewski 2000 report. On July 26, 2007 CARB members voted unanimously to approve the “in-use off-road diesel vehicle regulation.”

The May 22, 2008 Draft CARB Staff Report by Hien T. Tran states that PM2.5 contributes to as many as 24,000 annual premature deaths in California, with 3,900 of these deaths due to diesel PM. The most important studies used to calculate these numbers of premature deaths were Pope 2002 and Jerrett 2005, with no consideration given to Enstrom 2005. These estimates of premature deaths provided the primary public health justification for new on-road diesel vehicle regulations being proposed by CARB. However, because of public concerns that had been raised about the relationship of PM2.5 and mortality in California, CARB hosted a July 11, 2008 teleconference that included Drs. Enstrom, Jerrett, and Pope, as well as CARB scientists Hien T. Tran and Linda Smith (see December 10, 2008 CARB public comments). Dr. Enstrom repeatedly requested California-specific results from the Krewski 2000 report, the Pope 2002

paper, and the above Jerrett research project. However, Drs. Jerrett and Pope refused to provide any California-specific results, although these results should have been available for Dr. Jerrett's interim progress report due in July 2008. Given that Dr. Jerrett and the project co-investigators recognized "the urgent need for statewide estimates of mortality effect," we allege that Dr. Jerrett had findings available in July 2008 and may have included them in his interim progress report.

On October 24, 2008 the final CARB Staff Report by Hien T. Tran (Tran Report) was released with no changes in the studies used to calculate the number of premature deaths and with the slightly revised conclusion that diesel PM contributes to 3,500 premature deaths in California annually. The Tran Report did not properly address the extensive criticism contained in 148 pages of July 11, 2008 public comments submitted to CARB, particularly the criticism regarding California-specific results. On December 12, 2008 CARB members unanimously approved the on-road diesel vehicle regulations, with the primary public health justification being the premature deaths claimed to be due to diesel PM. CARB members were not properly informed of the ongoing scientific controversy regarding relationship between PM<sub>2.5</sub> and mortality in California and other issues regarding the scientific integrity of Hien T. Tran and the Tran Report.

On June 3, 2009 the HEI Research Report No.140 "Extended Follow-Up and Spatial Analysis of the American Cancer Society Study Linking Particulate Air Pollution and Mortality," with Drs. Krewski and Jerrett as the first two authors, was released but it did not cite Enstrom 2005, did not include a U.S. map of "Fine Particulates and Mortality Risk" (the equivalent of Figure 21 in Krewski 2000), and did not present any California-specific results. The report did present the Los Angeles basin results contained in Jerrett 2005. Because of his ongoing ARB/UCB project and the July 11, 2008 request from Dr. Enstrom, Dr. Jerrett was well aware of importance of California-specific results but he did not include any such results in the 2009 HEI report. Thus, we allege that Dr. Jerrett engaged in falsification by omitting from this report California-specific results and mention of Enstrom 2005.

On November 19, 2009 CARB Member John G. Telles read his November 16, 2009 letter requesting that the Tran Report be redone and the diesel regulations be suspended because of the fraud committed by lead author Hien T. Tran. CARB Chair Mary D. Nichols agreed to host an open symposium on the Tran Report science. In addition, she acknowledged that four Board members, including herself, knew of the fraud perpetrated by Tran about his Ph.D. degree and knew that this information was withheld from other Board members before the December 12, 2008 vote to approve the on-road diesel truck regulations.

The resulting February 26, 2010 CARB Symposium on "Estimating Premature Deaths from Long-term Exposures to PM<sub>2.5</sub>" included talks by Drs. Enstrom, Jerrett, Pope, Krewski, and many other experts on PM<sub>2.5</sub>. The Jerrett PPT presentation on "California-specific Studies on the PM<sub>2.5</sub> Mortality Association" (28 slides), particularly slide 26 "Summary of California cohort studies associated with long-term particulate matter exposure" makes no mention of Enstrom 2005. However, Jerrett slides 12 and 26 present relative risk (RR) results for the CA CPS II cohort showing RR = 1.00 (0.97-1.03) for all causes of death during 1982-2000. Note that RR = 1.00 means no increased risk due to PM<sub>2.5</sub> and that 95% confidence limits including 1.00 mean no statistically significant effect. The Jerrett result is in exact agreement with the Enstrom 2005 result for the CA CPS I cohort RR = 1.00 (0.98-1.02) for all causes of death during 1983-2002. Based on the CA CPS I and CA CPS II results, by far the two largest California-specific

studies, the number of "premature deaths" associated with PM2.5 exposure is zero, not the thousands of deaths presented to the Board when it voted to approve the off-road and on-road diesel regulations. Since the computations to produce the RRs in slides 12 and 26 are relatively simple, we allege Dr. Jerrett has known these results since July 2008 or earlier. Furthermore, since specific RRs were presented in slides 12 and 26 on February 26, 2010 we believe that there is substantial obfuscation contained in Dr. Jerrett's February 5, 2010 email message below.

It is clear to the undersigned that Dr. Jerrett has engaged in a sustained pattern of falsification ("knowingly omit data or results to misrepresent results in the research record") regarding evidence on the relationship of PM2.5 and mortality in California dating from his 2006 CARB proposal and up to his February 26, 2010 CARB PPT presentation. He has repeatedly failed to cite the Enstrom 2005 study and has repeatedly failed to clarify the various forms of California-specific evidence from the CPS II cohort that he has possessed for the past ten years, dating back to Figure 21 in the 2000 HEI Report. Because of this falsification, CARB members and the general public did not know that overwhelming epidemiologic evidence from CA CPS I and CA CPS II shows no relationship between PM2.5 and mortality in California since 1983. CARB members should have been informed of these California-specific results before they voted on major California diesel vehicle regulations in 2007 and 2008.

Because of the serious nature of the alleged research misconduct (falsification) and because of the serious economic consequences to California businessmen resulting from the CARB diesel regulations that have been approved, at least in part, because of this falsification, we request that you assess our allegations as soon as possible. If Dr. Jerrett disputes the accuracy of any of the statements above, we will provide you with our evidence supporting their accuracy. Most of this evidence is either contained in the letter itself or is freely posted on the Internet. Once you have assessed our allegations, we request that you prepare a detailed account of your findings that can be released to the public. Also, if you confirm that our allegations are valid, we request that you take appropriate action against Dr. Jerrett.

While only the undersigned are responsible for this letter, all the signers of January 6, 2010 letter to you are interested in knowing your findings and conclusions regarding the above allegations. For your reference, we have attached a copy of the January 6, 2010 letter.

Thank you very much for your assistance regarding this important matter.

Sincerely yours,



Norman R. "Skip" Brown  
President and Owner  
Delta Construction Company



Lee Brown



I have carefully examined the letter of particulars concerning Professor Jerrett. I am familiar with literature in this area and statistical technologies used to evaluate observational data. The particulars should be thoroughly and expeditiously evaluated as important decisions have been made and will be made based on Professor Jerrett's work.

A handwritten signature in cursive script, appearing to read "S. Stanley Young", is displayed on a light gray, textured background.

S. Stanley Young, PhD, FASA, FAAAS

Attachments:

Email dated February 05, 2010 from Michael Jerrett to Lee Brown

Email dated 30 January 2006 from Daniel Krewski to James E. Enstrom (with others leading to this email). 4 pages total

Email dated 22 Dec 2003 from Michael Jerrett to James E. Enstrom

**From:** Michael Jerrett [mailto:jerrett@berkeley.edu]  
**Sent:** Friday, February 05, 2010 3:44 PM  
**To:** Lee Brown  
**Cc:** 'Ellison Wilson Advocacy, LLC'; john.balmes@ucsf.edu; 'Ellen Auriti'  
**Subject:** response to your request for California-specific results

Dear Mr. Brown:

I apologize for this delayed reply, but I had to coordinate with President Yudof and his staff. I understand that President Yudof has now replied, and I would like to elaborate on where we are with the research you are interested in having published.

My colleagues and I are continuing to work on the Air Resources Board contract to establish definitive estimates of the mortality risks associated with particulate matter and other criteria air pollutants in California. Last year, however, the State of California suspended hundreds of contracts due to budgetary problems. Our contract was suspended for some 4 months and as a result key personnel could not be hired or had to be laid off the project, which has put us behind schedule. After this considerable delay and disruption it took some time to get the project back on track. We have now just developed the personal exposure measures at the home addresses of the subjects in our study and are now just starting the "formal" analyses of them, which will take another 6-12 months to complete.

As I explained in my earlier communications, I was out of the country when you invited me to speak on August 1, 2009. As the results become available and are properly vetted through rigorous peer review, I would be happy to speak to you and others about our findings.

I should also point out that none of the subject-specific health data needed to conduct the health analyses is resident on the University of California campus. These data are housed and analyzed at the University of Ottawa, Canada. In any event, the data contain sensitive health information on hundreds of thousands of people, and there are means within the data to identify some individuals. On entering the American Cancer Society Cancer Prevention II study, all individuals signed informed consent forms and were guaranteed that their identities would remain confidential. Thus any request to access the data would have to through ethics review to protect the subjects' identities and ensure these identities would remain confidential. There are also provisions from all involved institutions regarding the protection of human subjects, to which any of the researchers accessing the data would have to adhere. The data I use for the study component here at UC Berkeley is publicly available air pollution monitoring data that is downloadable through the ARB website.

We will endeavor to supply the results as quickly as possible, but we cannot rush these analyses. They are technically intricate, extremely complex, and we need to take appropriate care to ensure the results are valid. Your recommendation to replicate the national analysis here in California is not feasible or scientifically defensible because there are so few metropolitan areas with central monitors from our other national studies that the exposure assignment would be so crude that we could not trust the results. Results produced from such analyses would likely not be publishable in the scientific literature and even if they were published, they would have little or no

credibility in the scientific community given the limitations of the exposure assessment.

One of the reasons our research is so widely cited relates to the great care we take in applying the most sophisticated and scientifically valid methods to understand this complex relationship between air pollution and mortality. We cannot rush such analyses without jeopardizing our extensive quality control and peer review process, which is essential for ensuring the scientific findings are valid and accepted by scientific and policy communities. We will not rush these analyses for any given external concern because the integrity and quality of the findings is of utmost importance to my colleagues and I, who are conducting the research and are ultimately responsible for the scientific results that we publish.

I understand how your organization and many others would like to see our results published. It is unfortunate that the budgetary problem in California has led to delays in finalizing science that may help to inform decisions affecting your industry and more generally public health. But these matters were beyond my control or the control of anyone at the University of California. We are working hard to supply those results through publication in journals of the highest standing in the fields of Medicine and Environmental Health.

Thank you for your interest in our research.

With best regards,

Michael Jerrett

**Michael Jerrett, PhD**

**Director, Doctor of Public Health Program**

**Associate Professor**

**University of California, Berkeley**

**School of Public Health**

**Division of Environmental Health Sciences**

**710 University Hall (Office and GIS Lab)**

**Berkeley, CA 94720-7360**

**[jerrett@berkeley.edu](mailto:jerrett@berkeley.edu)**

**Tel: 510-642-3960**

**Fax: 510-642-5815**

X-Sieve: CMU Sieve 2.2  
Reply-To: <dkrewski@uottawa.ca>  
From: "Daniel Krewski" <dkrewski@uottawa.ca>  
To: "James E. Enstrom" <jenstrom@ucla.edu>  
Cc: "Rick Burnett" <Rick\_Burnett@hc-sc.gc.ca>,  
"Michael Jerrett" <jerrett@usc.edu>  
Subject: RE: Request Regarding HEI Special Report  
Date: Mon, 30 Jan 2006 18:51:17 -0500  
X-Mailer: Microsoft Office Outlook, Build 11.0.6353  
Thread-Index: AcYIBPeNuCLIfNbARKG1QslpyUN8GAA8ikMg  
X-Probable-Spam: no  
X-Spam-Report: none  
X-Scanned-By: smtp.ucla.edu on 169.232.47.138

Without having the report at hand here in Lyon, France, my recollection was that we used only urban centres such as Los Angeles (and all counties therein). There may be other California cities as well, but I would have to check.

Rick Burnett or Mike Jerrett may be able to comment in advance of my return next week.

With best regards.

Daniel Krewski, PhD, MHA  
Professor and Director  
McLaughlin Centre for Population Health Risk Assessment  
University of Ottawa  
Room 320, One Stewart Street  
Ottawa, Ontario CANADA K1N 6N5

Assistant: Suzanne Therien  
Tel: 613-562-5381  
Fax: 613-562-5380  
Email: stherien@uottawa.ca

-----Original Message-----

From: James E. Enstrom [<mailto:jenstrom@ucla.edu>]  
Sent: Sunday, January 29, 2006 1:49 PM  
To: Daniel Krewski  
Subject: Request Regarding HEI Special Report

Dear Dr. Krewski:

I have a question regarding Figure 21, "Fine Particles and Mortality Risk," and the related text, "Spatial Patterns in the Data," in your 2000 HEI

Special Report. Did you determine the relative risk of mortality from all causes for specific counties in California and/or the relative risk of mortality from all causes associated with an increase in fine particles for California as a whole? If you did, are your results available in one of the HEI Special Report Appendices or elsewhere? If you did not, can you calculate them now using the underlying ACS CPS II data described in Figure 14?

Thank you very much for any information you can give me. If you wish, I can explain why this information would be valuable to me.

Best regards,

James E. Enstrom, Ph.D., M.P.H.

At 09:03 PM 1/22/2006, you wrote:

>Thanks for keeping me informed.

>

>With best regards.

>

>Daniel Krewski, PhD, MHA

>Professor and Director

>McLaughlin Centre for Population Health Risk Assessment

>University of Ottawa

>Room 320, One Stewart Street

>Ottawa, Ontario CANADA K1N 6N5

>

>Assistant: Suzanne Therien

>Tel: 613-562-5381

>Fax: 613-562-5380

>Email: [stherien@uottawa.ca](mailto:stherien@uottawa.ca)

>

>

>-----Original Message-----

>From: James E. Enstrom [<mailto:jenstrom@ucla.edu>]

>Sent: Wednesday, January 18, 2006 2:12 PM

>To: Daniel Krewski

>Subject: Fwd: RE: Permission to Reprint HEI Material

>

>Dear Dr. Krewski,

>

>As per the request below from Virgi Hepner, I am writing to notify you

>about the reprinting of material from your HEI Special Report, as described

>below.

>

>Best regards,

>  
>James E. Enstrom, Ph.D., M.P.H.  
>  
>  
>  
>>Subject: RE: Permission to Reprint HEI Material  
>>Date: Wed, 18 Jan 2006 13:23:47 -0500  
>>From: "Virgi Hepner" <VHepner@healtheffects.org>  
>>To: "James E. Enstrom" <jenstrom@ucla.edu>  
>>  
>>To: James E. Enstrom  
>>  
>>The Health Effects Institute hereby gives permission to reprint Figure  
>>21 from the HEI Special Report "Reanalysis of the Harvard Six Cities  
>>Study and the American Cancer Society Study of Particulate Air Pollution  
>>and Mortality" published in 2000.  
>>  
>>We understand that the figure will appear in an article you are  
>>submitting to Inhalation Toxicology and that credit will be given to HEI  
>>as the source.  
>>  
>>We would appreciate it if you would also notify Dr Daniel Krewski (the  
>>Principal Investigator for this project) at  
>>  
>>University of Ottawa  
>>Institute of Population Health  
>>McLaughlin Centre for Population Health Risk Assessment  
>>One Stewart St.  
>>Room 320  
>>Ottawa Ontario K1N 6N5 Canada  
>>613-562 5379  
>>dkrewski@uottawa.ca  
>>  
>>Thanks for your interest in the research sponsored by HEI.  
>>Virgi Hepner  
>>Senior Science Editor  
>>  
>>  
>>  
>>-----Original Message-----  
>>From: James E. Enstrom [mailto:[jenstrom@ucla.edu](mailto:jenstrom@ucla.edu)]  
>>Sent: Thursday, January 05, 2006 1:09 PM  
>>To: Carol Moyer  
>>Cc: Virgi Hepner  
>>Subject: Permission to Reprint HEI Material  
>>

>>Dear Carol Moyer and Virgi Hepner:  
>>  
>>I am writing to request permission to reprint one page from a Health  
>>Effects Institute publication. Specifically, I would like permission to  
>>reprint Figure 21 (page 197) from the following HEI Special  
>>Report: <http://www.healtheffects.org/Pubs/Rean-part2.pdf> . Figure 21  
>>(printed page 197) is on page 70 of the .pdf file. I would like to use  
>>this figure in a commentary on fine particles and mortality that I have  
>>written for publication in a peer-reviewed journal. I would properly  
>>cite HEI as the source of this figure.  
>>  
>>Please let me know if you need any additional information regarding this  
>>request.  
>>  
>>Thank you very much for your consideration.  
>>  
>>Best regards,  
>>  
>>James E. Enstrom, Ph.D., M.P.H.  
>>UCLA School of Public Health and  
>>Jonsson Comprehensive Cancer Center  
>>jenstrom@ucla.edu  
>>(310) 825-2048

X-Sieve: CMU Sieve 2.2  
Date: Mon, 22 Dec 2003 18:09:31 -0800  
From: michael jerrett <jerrett@usc.edu>  
Subject: Re: Potential Air Pollution Study  
To: "James E. Enstrom" <jenstrom@ucla.edu>  
X-Mailer: iPlanet Messenger Express 5.2 HotFix 1.21 (built Sep 8 2003)  
X-Accept-Language: en  
Priority: normal  
X-Probable-Spam: no  
X-Spam-Hits: -1.6  
X-Scanned-By: vscan.smtp.ucla.edu

Dear Dr. Enstrom:

I apologize for my delayed reply. I've just now gotten access to USC's email. I will call you tomorrow regarding your study.

With best regards,

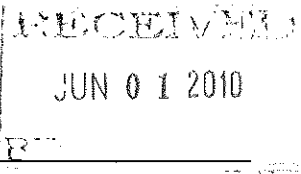
Mike Jerrett

----- Original Message -----

From: "James E. Enstrom" <jenstrom@ucla.edu>  
Date: Wednesday, December 10, 2003 2:23 pm  
Subject: Potential Air Pollution Study

> Dear Dr. Jerrett,  
>  
> I am an epidemiologist at UCLA and Dr. Rob McConnell suggested that I  
> contact you. This regards a potential air pollution epidemiologic study  
> which would combine my prospective cohort data with your GIS data. I  
> would  
> appreciate it if you can call me and I will describe in more detail what I  
> have in mind.  
>  
> Thank you very much.  
>  
> Best regards,  
>  
> Jim Enstrom, Ph.D.  
> (310) 825-2048  
>  
>





OFFICE OF THE VICE CHANCELLOR FOR RESEARCH  
119 CALIFORNIA HALL #1500

BERKELEY, CALIFORNIA 94720-1500

May 25, 2010

PERSONAL & CONFIDENTIAL

Norman Brown  
Lee Brown  
President and Owner  
Delta Construction Company  
P.O. Box 277517  
Sacramento, CA 95827

Gentlemen:

President Yudof has forwarded to me your letter of March 24, 2010, in which you allege that Professor Michael Jerrett has violated the UC Standards of Ethical Conduct and has committed research misconduct. I am the campus official responsible for managing the process of investigating allegations of research misconduct. The procedures followed when these kinds of allegations are made can be found at the following URL: [http://vcresearch.berkeley.edu/research\\_policies/compliance/misconduct](http://vcresearch.berkeley.edu/research_policies/compliance/misconduct). As you can see from the above website, UC Berkeley has an extensive policy and set of procedures to deal with allegations of research misconduct. These conform to Federal Regulation 42CFR93. Our process has three phases: Assessment, Inquiry, and Investigation. The purpose of the initial Assessment phase is to determine if the complaint received constitutes a bona fide allegation of research misconduct within the definition contained in Federal regulation and campus policy.

Your specific claim with regard to your allegation of research misconduct is that Professor Jerrett engaged in the falsification of research results. As you note in your letter, campus policy and federal regulations define falsification as “manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.” What this definition refers to is the record of the investigator’s own research activity, i.e., the data and findings resulting from experimentation or other data gathering techniques conducted by the investigator and reported in scholarly journals, grant applications, presentations, and the like. In the material you provided to us there is no instance in which Professor Jerrett can be said to have altered or misrepresented the data and findings of his studies. You point to a number of instances in which Professor Jerrett did not refer to studies conducted by other researchers that may or may not have been consistent with his findings. But Professor Jerrett is not obligated to do so, and such omissions do not fall within the definition of research falsification under University policy and/or Federal regulations.

Your allegation that Professor Jerrett has violated the UC Standards of Ethical Conduct is apparently based on a claim that he did not reference a variety of publications in his own work. In particular, you object to statements made by Professor Jerrett to the California Air Resources Board (CARB) in support of a project for which he sought funding; statements which you contend he knew or should have known

to be false. Specifically you take exception to the following claim by Professor Jerrett: *"This study will derive the first California wide estimates of mortality associated with PM2.5 exposure and other criteria co-pollutants, thus supplying policymakers with a valuable resource for deriving benefit estimates."* You contend that Professor Jerrett was aware of "a very large and detailed study of PM2.5 and mortality in California" published in 2005 by Dr. Enstrom, and thus the claim Jerrett makes for his own study is false and intended to mislead the CARB.

I note two things with respect to these allegations of an ethical breach by Professor Jerrett. First, a researcher is under no obligation, ethical or otherwise, to reference or acknowledge every study conducted on a topic similar to theirs. Researchers make judgments about the value and relevance of the work done in their field and on that basis choose what to include as part of their own published material. Scholars may well value things differently and on that basis engage in debate about their results and findings. The existence of such differences and the debate they engender does not indicate the existence of ethical issues. Second, the evidence available indicates that Professor Jerrett's study is much more comprehensive than the earlier study of Dr. Enstrom. The Enstrom study has subjects residing in 25 of 58 counties across California, but only 11 of 58 had air pollution estimates. The Jerrett study includes 54 of the 58 counties (all 54 have health data and pollution estimates). While the Enstrom study covered 19% percent of California's counties, the Jerrett study includes more than 93% of the counties. Hence, your assertion that Jerrett misled CARB by claiming his study offered comprehensive coverage of California is not sustained by the available evidence.

Accordingly, I have concluded that the information you have provided is not evidence of conduct that would violate any University policy covering research or other ethical misconduct or would warrant any further inquiry under University policy.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Price". The signature is fluid and cursive, with a large initial "R" and "P".

Robert Price  
Associate Vice Chancellor for Research

June 16, 2010

VIA CERTIFIED MAIL and E-MAIL

**California Air Resources Board Members:**

Ms. Mary D. Nichols, Chair  
Dr. John R. Balmes, Ph.D. M.D.  
Ms. Sandra Berg  
Ms. Dorene D'Adamo  
Hon. Ken Yeager, Santa Clara County Supervisor  
Ms. Lydia H. Kennard

Hon. Ronald O. Loveridge, Mayor, City of Riverside  
Ms. Barbara Riordan  
Hon. Ron Roberts, San Diego County Supervisor  
Dr. Daniel Sperling, Ph.D.  
Dr. John G. Telles, M.D.

1001 I Street, P.O. Box 2815  
Sacramento, CA 95812-2815  
arbboard@arb.ca.gov

**Re: "Replacement Tran Report" on Premature Deaths in California Associated with PM2.5 Exposure**

Dear Chairman Nichols and Board Members:

The purpose of this letter is to demand that all generally-accepted scientific standards are fully complied with prior to finalizing the "Replacement Tran Report."

The October 24, 2008 CARB Staff Report "Methodology for Estimating Premature Deaths Associated with Long-term Exposure to Fine Airborne Particulate Matter in California" (original "Tran Report") was admittedly flawed and unreliable. However, it still provided the primary public health justification for the Statewide Truck and Bus Regulation approved December 12, 2008. As you know, when fully implemented this regulation will cost all affected industries, by your own estimate, more than ten billion dollars in compliance actions. Given that the process used to produce the original Tran Report was severely flawed (both ethically and scientifically), it is imperative that the "Replacement Tran Report" be thoroughly vetted in an open, transparent manner by the unbiased scientists and the general public prior to Board acceptance.

As members of the impacted industries, we request that the final "Replacement Tran Report" meet the following minimum conditions:

1. Since this is a California regulation, the data used to support the report should be California-only data. It is unacceptable that U.S. EPA Integrated Science Assessment for Particulate Matter be "moved to become the basis for" the "Replacement Tran Report" because, in California, PM2.5 (a measurement of mass, not a substance) is not associated with increased mortality or any other significant public health issue.
2. The report should be initially issued in draft form, similar to the May 22, 2008 draft version of the Tran Report.
3. A Curriculum Vitae (CV) should be included for every person who contributes to the authorship of the "Replacement Tran Report."
4. There should be at least three months for public comment and CARB responses to those comments on the draft report.
5. The "Replacement Tran Report" should be based on all research studies published in peer reviewed journals and it should make reference to other major studies that are in progress and

should be reviewed by independent, impartial external experts with no ties, financial or otherwise, to either the Air Resources Board or affected industries.

6. These expert reviewers should be selected by an impartial authority, outside of CARB, such as the President of the University of California.
7. External experts should not review and evaluate the importance or validity of their own work or work of their coworkers on research or coauthors on publications.
8. Certain experts should be disqualified as expert reviewers, including those who were aware that PM2.5 was not associated with increased mortality in California but failed to say so, e.g., Drs. Michael Jerrett, C. Arden Pope, and Daniel Krewski.
9. All correspondence and commentary (including internal emails) between CARB and review panel members writing and reviewing the new report should be part of the public record, in compliance with the California Public Records Act.
10. Appropriate data sets for the accepted and approved studies used to create a new report and justify a regulatory regime should be available for review by the public.

Satisfaction of these conditions would go a long way toward restoring confidence in CARB and the CARB policy-making process, addressing and repairing CARB's currently perceived lack of trustworthiness in research and policy making and CARB's past unwillingness to seek and promote constructive input from the citizens of California and independent scientists regarding air pollution human health effects and implications for policy making and regulatory regimes. At this point any action that fails to incorporate the requested procedures above, or any CARB action to rush the final "Replacement Tran Report" in a closed-to-the-public process, will further diminish CARB's compromised reputation in the eyes of California citizens, the California Legislature, and the national scientific community. The following information serves as background on this critical issue.

## **BACKGROUND**

### **Lead Technical Report Author Committed Credential Fraud**

The scientific and public health basis for CARB's Statewide Truck and Bus Regulation (on-road in-use diesel regulation or "Truck Rule") is the October 24, 2008 CARB Staff Report on "Methodology for Estimating Premature Deaths Associated with Long term Exposure to Fine Airborne Particulate Matter in California" by lead author Hien T. Tran. However, Tran admittedly misrepresented his scientific qualifications and education. He did not in fact have a Ph.D. from U.C. Davis as he had originally claimed. Rather, Tran purchased a mail-order Ph.D. degree in June 2007 from "Thornhill University," which operates out of a New York City UPS Store. As documented in CARB's April 2009 Notice of Adverse Action, CARB found Tran guilty of "fraud, dishonesty and other failure of good behavior." Further, page 4 of the Notice states "Since you were the lead author and project coordinator of this report which was used to support the Regulation, your lack of credibility has called into question the credibility of the entire Regulation." However, despite fundamentally misrepresenting his credentials, Hien Tran still remains employed by the California Air Resources Board. We find it unacceptable that a 11-year employee who is very familiar with CARB's employment guidelines, was in fact only demoted and his salary was cut by only \$1,066 per month, down to \$7,899 per month (\$94,788/yr.). We remain curious as to why CARB continues to protect this employee.

### **Key CARB Personnel Knew About Fraud, Yet Failed to Disclose Crucial Information to the Full CARB Board and Public Prior to Important Vote, and Subsequently Perpetrated a Cover-up**

Prior to approving the extremely costly Truck Rule on December 12, 2008, which affects nearly a million trucks and buses in the state, key CARB officials including Chair Mary Nichols, Executive Director James Goldstene, Chief Legal Counsel Ellen Peter and at least one Board Member, Dr. John Balmes, had actual knowledge that the project leader Hien Tran had falsified his Ph.D. credentials. In addition, on

December 3, 2008, Board Members Ronald Loveridge and Barbara Riordan were directly informed by four California scientists that Tran had misrepresented his Ph.D. However, the staff and Board Members chose to conceal this crucial information from the full 11-member Board, as well as the public, until after the Board adopted the controversial Truck Rule. Essentially, CARB purposefully withheld fundamental misrepresentations from the public in order to pass this contentious and costly rule.

In a November 10, 2009 email message to Board Member Dr. John Telles, CARB Chair Mary Nichols admitted she knew of the falsified credentials prior to the Board's vote on December 12, 2008. She also acknowledged that Tran's conduct was illegal and unethical, and admitted that it was a "mistake" to have concealed the information from the other Board Members. Ms. Nichols justified her cover-up by claiming to know that Tran's report was true despite his lies, and therefore decided that the vote should go forward without revealing the "distraction" of his misrepresentations. Dr. Telles filed a formal, November 16, 2009 complaint with CARB Chief Legal Counsel Ellen Peter claiming that key CARB officials had actual knowledge that Tran lied about his qualifications on or before December 10, 2008.

### **Extreme Negative Economic Impact of the Rule**

It is imperative to state the severe economic consequences this rule will have on California's already struggling businesses and taxpayers. By CARB's own admission, the on-road rule alone will result in a \$5.5 billion cost to California's businesses, and tens of millions of dollars to public school districts. Based on CARB's past documented regulatory underestimates, industry now calculates the costs of this rule alone to be over \$20 billion, four times CARB's original estimate. Given the current economic collapse in this state, this regulation is likely to become the premiere "job-killer" government regulation of all time that will cause businesses that are already operating under thin profit margins to either shut down or avoid business in California altogether. Certainly a rule with such huge financial consequences deserves a fair, unprejudiced reevaluation and substantiated scientific justification.

### **CARB Agreed to Withdraw and "Redo" the Tran Report at its December 9, 2009 Board Meeting**

In light of the fraudulent nature of the original Tran Report, the Board directed staff to withdraw and redo the report, with Chair Nichols stating "With today's set of actions, we confidently set out to revalidate the science supporting our rules..." (CARB Press Release, 12/9/09) In fact, Governor Schwarzenegger publicly stated in regards to the scandal, "It is clear...clear responsible action is needed." (*Capitol Weekly*, 12/17/09) Furthermore, CARB spokeswoman Mary Salas Fricke specified that the "Replacement Tran Report" would be completed by April, "There is going to be a series of workshops and an update to the board in April with some new provisions and a new health report." (*Capitol Weekly*, 12/17/09) To date, the above statements appear to be no more than mere hot air. The April date came and went without any mention of the "Replacement Tran Report." Compliance with our above-mentioned conditions will certainly be necessary to "revalidate the science supporting our rules" as Chair Nichols desires.

### **The February 26, 2010 CARB Science Symposium Showed that the Substantive Contents of Tran's Report Likely Cannot be Recreated Without Fraud**

While Tran's lack of adequate credentials should in itself call into question the validity of his report, independent scientists continue to dispute the validity of his original report based on a number of reasons, including:

1. Substantial epidemiologic evidence from six different sources indicates that there is no current relationship between PM2.5 (specifically diesel PM) and premature deaths in California. The EPA's own (most recent 2005) California source data of PM2.5 indicates that on- and off-road diesel powered vehicles (this includes on-road diesel trucks and cars) account for just over 10% of the total PM2.5 in California. Consequently fully regulating the existing fleet of on-road diesel

powered vehicles will have virtually no quantifiable impact on reducing total PM2.5 levels in CA, but will cost in excess of \$20-billion to implement or \$896,740/ton.

2. The key epidemiologists relied upon by CARB in the October 24, 2008 CARB Staff Report (Drs. C. Arden Pope, Michael Jerrett, Daniel Krewski, and Michael J. Thun) have clear conflicts of interest because they are recipients of CARB and EPA funding, and/or were also involved in review of report. Furthermore, they have repeatedly refused to allow reanalysis of the key American Cancer Society Cancer Prevention Study (CPS II) database, which is in violation of Federal Data Access Act.
3. CARB has not considered several factors relevant to the justification of their diesel emission regulations. California has the fourth lowest total age-adjusted death rate of all 50 states; California is currently experiencing 13% unemployment and 25% underemployment, the highest levels since the Great Depression; none of the epidemiologic evidence used by CARB satisfies the Federal Judiciary Center standards for establishing a causal relationship between PM2.5 and premature deaths.
4. On May 22, 2008 a Draft CARB Report on PM2.5 & Premature Deaths by Hien T. Tran was published. On July 11, 2008 Tran conducted a detailed teleconference with Drs. Enstrom, Pope, Jerrett, and other key scientists who explained their data which was extremely relevant to the rule.
5. On July 11, 2008, 148 pages of mostly critical scientific comments were submitted to CARB in response to the May 22, 2008 Draft CARB Report. The October 24, 2008 Final CARB Report (Tran Report) does not properly include or address the critical comments by Drs. Enstrom, Moolgavkar, North, Dunn and Lipfert, and others.
6. CARB's February 26, 2010 Symposium on "Estimating Premature Deaths from Long-term Exposures to PM2.5" included comments by Dr. Jerrett of UC Berkeley, Dr. Enstrom of UCLA, and many other experts on PM2.5 health effects. Among other Symposium findings, based on the CA CPS I and CA CPS II results, by far the two largest California-specific studies, the number of "premature deaths" associated with PM2.5 exposure is zero, not the thousands of deaths presented to the CARB members when it voted to approve the off-road and on-road diesel regulations. Furthermore, Dr. Jerrett stated in regards to PM2.5 "...we are getting a null result for all causes now and it's because we do see this negative association with all cancer." Dr. Enstrom agreed, "In terms of total deaths, which are what are used to calculate premature deaths by the Air Resources Board, if I didn't misinterpret what he [Dr. Jerrett] said, there was no effect – very consistent with my findings."

### **CARB Staff Continues to Make Scientific and Data Mistakes on the Diesel Rules**

In April 2010, more evidence was unveiled to further damage CARB's already shaky reputation. A computer model that CARB used to justify their off-road diesel regulations mistakenly attributed at least twice as much pollution to the off-road equipment as they actually produce and, in the case of the off-road rule, the error was up to 379 percent. CARB is still attempting to discern the full impacts of this "mistake," but clearly it means that the construction industry is producing only a fraction of the pollutants that CARB believed was the case when it adopted the off-road regulations in 2007. This display of incompetence could not have come at a worse time for CARB's credibility with the public.

Furthermore, it must be noted that Hien Tran's work was also fundamental to the justification of this off-road regulation. Tran was the "Primary Author" of the 2006 report "Quantification of the Health Impacts and Economic Valuation of Air Pollution from Ports and Goods Movement in California." This Tran report provided the methodology for the 2006 CARB report "Emission Reduction Plan for Ports and Goods Movement in California." (Appendix A). Per CARB's own admission in the Final Statement of Reasons for the off-road rule, "The methodology used to quantify health impacts was the same as that used in the Emission Reduction Plan for Ports and Goods Movement in California." (FSOR, page 44). Additionally, the off-road rule's technical supporting document "Assessment of Health Impacts from Off-

Road Diesel Vehicles” relied solely on this same Tran methodology (Appendix C, footnote 1). As you can see, Tran’s “work” is inextricably intertwined within the diesel regulations. To further withhold from the public a legitimate, full-vetted analysis is completely inexcusable.

**REQUEST**

Given CARB’s recent reputation for creating scientifically-unsupportable regulations, we once again must demand that the “Replacement Tran Report” be completed in an open and above-board manner so that California’s citizens can rest assured that all costly regulations are 100% necessary and justified. We call for you, as Board Members, to insist that CARB staff meet each and every one of the ten conditions detailed on page one of this letter prior to placing the “Replacement Tran Report” before you for adoption.

Respectfully,

From all signatories of interest below,



Lee Brown, Executive Director  
CA Dump Truck Owners Association (CDTOA)



Bill Davis, Executive Vice President  
Southern California Contractors Association (SCCA)



Skip Brown, Owner  
Delta Construction



Jay McKeeman, Vice President, Government Relations  
California Independent Oil Marketers Association (CIOMA)



Bryan Bloom, Owner  
Priority Moving, Inc.



Mike Lewis, Senior Vice President,  
Construction Industry Air Quality Coalition (CIAQC)



Steve Weitekamp, President  
California Moving & Storage Association (CMSA)

- CC: The Honorable Arnold Schwarzenegger, Governor of California  
Jerry Brown, Attorney General  
Ms. Linda Adams, Secretary, California Environmental Protection Agency  
Members, California State Legislature



Sheffield Hale  
Chief Counsel

~~April 4~~  
July 30, 2010

**VIA U.S. MAIL AND/OR EMAIL**

Lee Brown, CDTOA/AADT Executive Director  
334 N. Euclid Ave  
Upland CA 91786

**Re: "Replacement Tran Report" letter**

Dear Mr. Brown:

The American Cancer Society, Inc. (ACS) has reviewed your letter to the California Air Resources Board (CARB) dated June 16, 2010, which makes several inaccurate allegations about the Society and our Vice President Emeritus of Epidemiology and Surveillance Research, Dr. Michael Thun.

Four statements in particular are incorrect. First, neither ACS nor Dr. Thun has received CARB or EPA funding. Second, neither ACS nor Dr. Thun have been involved in the development or review process of the CARB report. Third, ACS has joined efforts with the Health Effects Institute in Boston to create a mechanism for legitimate scientific recalculation of the data in question. And finally, the CPS-II database is owned privately by ACS and therefore is not subject to the Federal Database Access Act.

In the future, I hope that any communications regarding ACS and Dr. Thun will contain factually accurate information.

Sincerely,



Sheffield Hale

cc: Michael J Thun, M.D., ACS, Inc.  
Mrs. Mary D. Nichols, Chair  
Dr. John R. Balmes, Ph.D. M.D.  
Ms. Sandra Berg  
Ms. Dorene D'Adamo  
Hon. Ken Yeager, Santa Clara Co. Supervisor  
Ms. Lydia H. Kennard  
Hon. Ronald O. Loveridge, Riverside Mayor  
Ms. Barbara Riordan  
Hon. Ron Roberts, San Diego Co. Supervisor  
Dr. Daniel Sperling, Ph.D.  
Dr. John G. Telles, M.D.  
Hon. Arnold Schwarzenegger, Governor

Hon. Jerry Brown, Attorney General  
Ms. Linda Adams, Secretary, Calif. EPA  
Members, California State Legislature  
Michael Jerrett, Ph. D., UC Berkeley  
Daniel Krewiski, Ph.D., U Ottawa  
C. Arden Pope III, Ph.D., BYU  
Bill Davis, SCCA  
Skip Brown, Delta Construction  
Jay McKeeman, CIOMA  
Bryan Bloom, Priority Moving  
Mike Lewis, CIAQC  
Steve Weitekamp, CMSA

National Home Office  
250 Williams Street Atlanta, GA 30305  
404.327.6423 fax) 404.929.6980  
Cancer Information 1.800.ACS.2345 www.cancer.org

**Hope.Progress.Answers.®**



September 7, 2010

Mr. Lee Brown  
Lee Brown  
CDTOA/AADT Executive Director  
334 N. Euclid Ave.  
Upland CA 91786

Dear Lee,

I am pleased to forward the results of analyses prepared by Dr. Daniel Krewski of a California-specific analysis of American Cancer Society (ACS CPS II) data for the California Metro Statistical Areas. As you know, this was follow-up to the work presented in HEI Research Report 140 using the same methods and approaches, and performed in response to your request to HEI. I had hoped that these could be made available sooner, but am glad to be able to provide them now.

The data underlying these analyses is owned by the American Cancer Society which has provided access by specific investigators for researching particular research questions. The ACS was willing to provide permission for data access to Dr. Krewski for these additional analyses and he agreed to perform them. I am attaching a letter from Dr. Krewski which explains how the analyses were performed and limitations in their interpretation. Given potential broader interest in any such results, HEI is forwarding these supplementary analyses to CARB as well, with a request to post them on their website so that they are available to the larger community.

Dr. Krewski describes the limitations of conducting such an analysis with very limited statistical power; I might note that HEI's Research Committee would likely not have funded this analysis given its limited power and utility. I should also note that these specific supplementary results were not subjected to HEI's detailed and careful process by which we select research and investigators, engage outside data auditors to provide quality assurance, monitor progress of the research, independently review and evaluate every completed study, and prepare a commentary pointing to strengths and weaknesses of the study. In as much as this work was a direct extension of the research presented in Report 140 (which did go through our detailed research and review processes), and also based on our experience of working with Dr. Krewski in the past, we have no reason to believe anything but that the analyses were performed using all the appropriate methods and safeguards. Nevertheless, these results have not been subjected to the detailed scrutiny to which HEI would normally put any research that it sponsors.

Please let us know if you have any questions and thank you for your patience in awaiting these results.

Sincerely,



Daniel S. Greenbaum, President

Cc: Dr. Krewski, University of Ottawa  
Dr. Thun, American Cancer Society



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L'Université canadienne  
Canada's university

Université d'Ottawa  
Institut de recherche  
Sur la santé des populations

Centre R. Samuel McLaughlin  
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sur la santé des populations

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August 31, 2010

Dan Greenbaum  
President  
Health Effects Institute  
101 Federal Street  
Suite 500  
Boston, MA 02110  
USA

Dear Dan,

In response to your request of April 30, and subsequent telephone discussions with senior staff at both the Health Effects Institute (HEI) and the American Cancer Society (ACS), I have prepared a number of supplementary analyses pursuant to the presentation that I made at the workshop sponsored by the California Air Resources Board (CARB) on February 26, 2010 in Sacramento.

These supplementary analyses are being provided to you with the approval of ACS in the interests of being responsive to requests received by HEI for additional California specific results. The supplementary analyses included Tables 1 and 2 attached are identical to national analyses given in Tables 33 and 34 in HEI Report No. 140, *Extended Follow-up and Spatial Analyses of the American Cancer Society Cohort Linking Particulate Air Pollution and Mortality*, published in May, 2009, but are specific to the State of California. The supplementary analyses for California were prepared using the same analytical methods used for the national analyses that are described in HEI Report No. 140, but are restricted to ACS participants residing in metropolitan statistical areas within California.

These analyses have been conducted by the McLaughlin Centre for Population Health Risk Assessment at the University of Ottawa, and have not been reviewed by other members of the research team that prepared the national analyses summarized in our HEI Report. There will be no charges to HEI for preparing these results.

It is important to note that although these analyses show results for cardiopulmonary mortality that are similar to those in the national analysis, these analyses are subject to a number of limitations, the most important of which is the very small number of metropolitan statistical areas for which fixed site ambient monitoring data are available in California. A more fulsome analysis of the ACS data specific to California is currently being conducted under an agreement between CARB and the University of

California at Berkeley, for which Dr. Michael Jerrett is Principal Investigator. This analysis will involve a much more sophisticated assessment of exposure to ambient air pollution throughout California, thereby providing a firmer basis for the assessment of the impact of air pollution on population health in that state. The final report will include a detailed evaluation of the study results, which is necessary for a proper interpretation of the findings.

With the ongoing CARB sponsored study nearing completion, further ad hoc analysis of the ACS data of the type included in the attached two tables would appear to be counterproductive, and of limited utility for assessing the population health risks of ambient air pollution. As such, the McLaughlin Centre would prefer not to receive requests for additional ad hoc analyses of this type from HEI.

Having worked with the ACS data since 1998, we are aware of the challenges involved in analyzing, evaluating, and interpreting complex data of this type. If there remains interest in exploring regional variation in mortality associated with ambient air pollution within the United States, it might be preferable to address such variation on a national scale. However, this would be a nontrivial undertaking, which would require time and resources to complete.

I understand that HEI has made arrangements with CARB to have these supplementary analyses posted on their website.

With best regards,



Daniel Krewski, PhD, MHA  
Professor and Director  
MacLaughlin Centre for Population Health  
Risk Assessment  
University of Ottawa

Cc Dr. Michael Thun, American Cancer Society

# Table 1

HRs by Cause of Death for a 10-ug/m<sup>3</sup> Change in PM<sub>2.5</sub> Covering Three Follow-Up Time Periods, Using the Same Number of MSAs and Study Participants Within PM<sub>2.5</sub> Exposure Categories, and With and Without Adjustment for the Seven Ecologic Covariates (State of California)<sup>a,b</sup>

Covariates in Model <sup>c</sup>	Follow-Up Through 1989		Follow-Up Through 1998		Follow-Up Through 2000	
	1979-1983	1979-1983	1979-1983	1999-2000	1979-1983	1999-2000
PM <sub>2.5</sub>						
MSAs (n)	4	4	4	7	4	7
Participants (n)	40,408	40,408	40,408	50,930	40,408	50,930
<b>All Causes</b>						
44 Individual	0.872 (0.805, 0.944)	0.958 (0.914, 1.003)	0.958 (0.914, 1.003)	0.975 (0.918, 1.034)	0.960 (0.920, 1.002)	0.968 (0.916, 1.022)
+ 7 Ecologic	0.927 (0.830, 1.035)	0.950 (0.890, 1.014)	0.950 (0.890, 1.014)	0.976 (0.912, 1.045)	0.949 (0.894, 1.008)	0.960 (0.902, 1.022)
<b>CPD</b>						
44 Individual	0.985 (0.877, 1.106)	1.056 (0.988, 1.128)	1.056 (0.988, 1.128)	1.101 (1.012, 1.197)	1.053 (0.991, 1.119)	1.084 (1.003, 1.171)
+ 7 Ecologic	1.119 (0.955, 1.311)	1.089 (0.995, 1.193)	1.089 (0.995, 1.193)	1.104 (1.003, 1.216)	1.081 (0.995, 1.175)	1.075 (0.984, 1.174)
<b>IHD</b>						
44 Individual	1.034 (0.876, 1.220)	1.126 (1.021, 1.242)	1.126 (1.021, 1.242)	1.306 (1.153, 1.480)	1.126 (1.028, 1.233)	1.258 (1.121, 1.410)
+ 7 Ecologic	1.131 (0.899, 1.422)	1.150 (1.005, 1.316)	1.150 (1.005, 1.316)	1.332 (1.155, 1.537)	1.144 (1.010, 1.296)	1.250 (1.097, 1.425)
<b>Lung Cancer</b>						
44 Individual	0.630 (0.485, 0.818)	0.887 (0.751, 1.046)	0.887 (0.751, 1.046)	0.889 (0.720, 1.099)	0.902 (0.772, 1.054)	0.900 (0.738, 1.097)
+ 7 Ecologic	0.746 (0.518, 1.074)	0.944 (0.750, 1.188)	0.944 (0.750, 1.188)	0.891 (0.699, 1.134)	0.941 (0.759, 1.168)	0.877 (0.700, 1.099)
<b>All Other Causes</b>						
44 Individual	0.797 (0.704, 0.901)	0.849 (0.789, 0.914)	0.849 (0.789, 0.914)	0.841 (0.765, 0.924)	0.856 (0.800, 0.916)	0.843 (0.773, 0.920)
+ 7 Ecologic	0.757 (0.635, 0.901)	0.780 (0.702, 0.866)	0.780 (0.702, 0.866)	0.849 (0.762, 0.947)	0.788 (0.715, 0.867)	0.847 (0.767, 0.936)

<sup>a</sup> The analyses included in the above table are identical to national analyses given in Table 33 in HEI Report No. 140, *Extended Follow-up and Spatial Analyses of the American Cancer Society Cohort Linking Particulate Air Pollution and Mortality*, published in May, 2009 by the Health Effects Institute, but are specific to the State of California.

<sup>b</sup> Based on a standard Cox model with the 44 individual-level covariates with and without adjustment for the seven ecologic covariates at MSA & DIFF levels. The baseline hazard function was stratified by age (1-year groupings), gender, and race. All analyses were conducted using the same 4 MSAs (40,408 participants) (Los Angeles, San Diego, San Francisco, San Jose) or 7 MSAs (50,930 participants) (Los Angeles, San Diego, San Francisco, San Jose, Fresno, Riverside, Sacramento) from the state of California. HRs are followed by 95% confidence intervals.

<sup>c</sup> Data for the 44 individual-level covariates are from the ACS enrollment questionnaire. Data for the seven ecologic covariates were extracted from the 1980 U.S. Census Bureau database for the Nationwide Analysis of the current study.

Table 2

HRs by Cause of Death for a 10-ug/m<sup>3</sup> Change in PM<sub>2.5</sub> Based on Either a Standard Cox or a Random Effects Cox Model Covering Three Follow-Up Time Periods and Using the Same or Different Numbers of MSAs and Participants (State of California)<sup>a,b</sup>

Model and Number of MSAs	Follow-Up Through 1989 <sup>c</sup>		Follow-Up Through 1998 <sup>d</sup>		Follow-Up Through 2000 <sup>e</sup>	
	1979-83	1979-83	1979-83	1979-83	1979-83	1999-2000
PM <sub>2.5</sub> data						
Same <sup>f</sup>						
MSAs	4	4	7	4	7	
Participants	40,408	40,408	50,930	40,408	50,930	
Different <sup>f</sup>						
MSAs	4	4	7	4	7	
Participants	38,925	42,720	53,827	40,408	50,930	
<b>All Causes</b>						
Standard Cox						
Same	0.872 (0.805, 0.944)	0.958 (0.914, 1.003)	0.975 (0.918, 1.034)	0.960 (0.920, 1.002)	0.968 (0.916, 1.022)	
Different	0.893 (0.823, 0.969)	0.864 (0.798, 0.934)	0.861 (0.778, 0.952)			
RE Model						
Same	0.872 (0.805, 0.944)	0.958 (0.914, 1.003)	0.981 (0.903, 1.066)	0.960 (0.920, 1.002)	0.973 (0.899, 1.054)	
Different	0.893 (0.823, 0.969)	0.864 (0.798, 0.934)	0.868 (0.767, 0.983)			
<b>CPD</b>						
Standard Cox						
Same	0.985 (0.877, 1.106)	1.056 (0.988, 1.128)	1.101 (1.012, 1.197)	1.053 (0.991, 1.119)	1.084 (1.003, 1.171)	
Different	0.985 (0.874, 1.109)	0.970 (0.865, 1.088)	0.960 (0.830, 1.111)			
RE Model						
Same	0.985 (0.877, 1.106)	1.056 (0.988, 1.128)	1.101 (1.012, 1.197)	1.053 (0.991, 1.119)	1.084 (1.003, 1.171)	
Different	0.985 (0.874, 1.109)	0.970 (0.865, 1.088)	0.960 (0.830, 1.111)			
<b>IHD</b>						
Standard Cox						
Same	1.034 (0.876, 1.220)	1.126 (1.021, 1.242)	1.306 (1.153, 1.480)	1.126 (1.028, 1.233)	1.258 (1.121, 1.410)	
Different	1.034 (0.874, 1.223)	1.016 (0.864, 1.195)	1.151 (0.939, 1.411)			
RE Model						
Same	1.034 (0.876, 1.220)	1.126 (1.021, 1.242)	1.364 (1.132, 1.644)	1.126 (1.028, 1.233)	1.299 (1.086, 1.554)	
Different	1.034 (0.874, 1.223)	1.016 (0.864, 1.195)	1.246 (0.946, 1.642)			
<b>Lung Cancer</b>						
Standard Cox						
Same	0.630 (0.485, 0.818)	0.887 (0.751, 1.046)	0.889 (0.720, 1.099)	0.902 (0.772, 1.054)	0.900 (0.738, 1.097)	
Different	0.598 (0.460, 0.777)	0.620 (0.478, 0.805)	0.554 (0.398, 0.771)			

RE Model									
Same	0.630 (0.485, 0.818)	0.887 (0.751, 1.046)	0.889 (0.720, 1.099)	0.902 (0.772, 1.054)	0.900 (0.738, 1.097)				
Different	0.598 (0.460, 0.777)	0.620 (0.478, 0.805)	0.554 (0.398, 0.771)						
<b>All Other Causes</b>									
Standard Cox									
Same	0.797 (0.704, 0.901)	0.849 (0.789, 0.914)	0.841 (0.765, 0.924)	0.856 (0.800, 0.916)	0.843 (0.773, 0.920)				
Different	0.849 (0.747, 0.964)	0.789 (0.699, 0.891)	0.808 (0.690, 0.947)						
RE Model									
Same	0.797 (0.704, 0.901)	0.849 (0.789, 0.914)	0.848 (0.746, 0.965)	0.856 (0.800, 0.916)	0.847 (0.766, 0.937)				
Different	0.849 (0.747, 0.964)	0.789 (0.699, 0.891)	0.816 (0.595, 1.121)						

<sup>a</sup> The analyses included in the above table are identical to national analyses given in Table 34 in HEI Report No. 140, *Extended Follow-up and Spatial Analyses of the American Cancer Society Cohort Linking Particulate Air Pollution and Mortality*, published in May, 2009 by the Health Effects Institute, but are specific to the State of California.

<sup>b</sup> Models included the 44 individual-level covariates. The baseline hazard function was stratified by age (1-year groupings), gender, and race. HRs are followed by 95% confidence intervals.

<sup>c</sup> Follow-up period used for the Reanalysis Project (Krewski et al. 2000).

<sup>d</sup> Follow-up period used for the Updated Analysis (Pope et al. 2002, 2004).

<sup>e</sup> Follow-up period used for this Extended Analysis.

<sup>f</sup> Rows marked "Same" use the MSAs and participants from the current Nationwide Analysis (state of California Only). Rows marked "Different" use the MSAs and participants included in the earlier analyses (as outlined in Table 32).



334 N. Euclid Ave.  
Upland CA 91786  
(909) 982-9898

January 20, 2011

Michael L. Jerrett, Ph.D.  
Division of Environmental Health Sciences  
School of Public Health  
University of California  
50 University Hall  
Berkeley, CA 94720-7360  
[jerrett@berkeley.edu](mailto:jerrett@berkeley.edu)  
(510) 642-3960

RE: Urgent Request Regarding Relationship Between PM2.5 and Premature Deaths in California

Dear Dr. Jerrett:

This letter is a follow-up to the January 6, 2010 and March 23, 2010 letters to UC President Mark G. Yudof, regarding your research on the relationship between PM2.5 and premature deaths in California. These letters are attached for your reference. We are particularly concerned that the California Air Resources Board (CARB) did not accurately estimate the number of premature deaths in their August 31, 2010 Report ““Estimate of Premature Deaths Associated with Fine Particle Pollution in California Using the United States Environmental Protection Agency Methodology.” This report relies primarily the May 2009 Health Effects Institute Research Report 140 “Extended Analysis of the American Cancer Society Study of Particulate Air Pollution and Mortality,” that you co-authored with Daniel Krewski, Ph.D., and others. The 2010 CARB Report has been used as the public health justification for revised CARB diesel regulations that were approved by CARB on December 17, 2010. These regulations have a direct and adverse impact on our businesses and our ability to survive in the California economy.

Consequently, we request a copy of your paper or report that describes in detail your February 26, 2010 CARB Symposium findings on PM2.5 and total mortality in California. Since your three-year \$750,000 CARB-funded project "Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort" was initiated in January 2007, we assume that you have now prepared a paper based on your 2010 CARB Symposium findings. For your reference, we have summarized your findings in the attached PDF file.

If you have not written this paper and/or cannot share it with us, we request an unredacted copy of pages 1 and 16-19 from your June 25, 2008 CARB Quarterly Progress Report describing Task #10 for this project. A redacted copy of these pages is attached so you know exactly what is being requested.

Finally, we request that you notify CARB that the findings in your February 26, 2010 CARB Symposium presentation and in the attached August 31, 2010 letter from Dr. Krewski do not support the conclusion that PM2.5 is responsible for 9,200 premature deaths per year in California


All the concerns that are stated in our 2010 letters still stand. As California taxpayers who are directly impacted by your California taxpayer funded research at a California taxpayer funded university, we hope you will respond appropriately and promptly.

Thank you very much for your consideration regarding this important request.

Sincerely yours,



Lee Brown, President  
California Dump Truck Owners Association  
CDTOA



Skip Brown, Owner  
Delta Construction Company

cc: Patrick Whalen, CDTOA Counsel  
Ellison Wilson Advocacy, LLC

S. Katharine Hammond, Ph.D., Chair  
Division of Environmental Health Sciences  
School of Public Health  
University of California  
Berkeley, CA 94720-7360

President Mark G. Yudof  
Office of the President  
University of California  
1111 Franklin Street, 12<sup>th</sup> Floor  
Oakland, CA 94607-5200



Attachments:

June 25, 2008 CARB Jerrett Quarterly Progress Report (5 pages)

January 6, 2010 Ad Hoc Group letter to Yudof re Jerrett (3 pages)  
([http://www.cdtoa.org/CARBdocs/Jerrett letter final 1-6-09.pdf](http://www.cdtoa.org/CARBdocs/Jerrett%20letter%20final%201-6-09.pdf))

February 26, 2010 CARB Symposium Jerrett Summary PDF (3 pages)  
([http://www.cdtoa.org/CARBdocs/Jerrett%20CARB\\_Final060310.pdf](http://www.cdtoa.org/CARBdocs/Jerrett%20CARB_Final060310.pdf))

March 24, 2010 Ad Hoc Group letter to Yudof re Jerrett (14 pages)  
(<http://www.cdtoa.org/CARBdocs/letters/AdHocGroupLettertoYudofReJerrettMisconduct032410.pdf>)

August 31, 2010 Krewski letter to Greenbaum then to Brown (6 pages)  
(<http://www.cdtoa.org/CARBdocs/letters/HEI%20Supplemental%20Data%20Analysis%20Results%20CDTOA%20090710.pdf>)



OFFICE OF THE CHANCELLOR  
200 CALIFORNIA HALL #1500  
BERKELEY, CALIFORNIA 94720-1500

January 31, 2011

Lee Brown, President  
California Dump Truck Owners Ass'n.  
Skip Brown, Owner  
Delta Construction Co.  
334 Euclid Avenue  
Upland, CA 91786

Dear Messrs. Brown:

This will acknowledge and respond to your January 20, 2011, letter to Professor Michael Jerrett, requesting "a copy of your paper or report that describes in detail your February 26, 2010 CARB Symposium findings on PM2.5 and total mortality in California."

As your letter correctly anticipated, such a document is not available for release because the work has not been completed and the report has yet to be written. Your letter goes on to say that, if this paper has not been written, you are requesting an "unredacted copy of pages 1 and 16-19 from your June 25, 2008 CARB Quarterly Progress Report describing Task #10 for this project." The records in question were redacted at the specific request of one of the funding agencies, the South Coast Air Quality Management District. We are reviewing the request for redaction of the record, and will get back to you shortly on this aspect of your records request.

Please let me know if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Alan T. Kolling".

Alan T. Kolling  
Public Records Coordinator

Cc: Chief Campus Counsel Chris Patti  
Professor Michael Jerrett

STATE CAPITOL  
 P.O. BOX 942849  
 SACRAMENTO, CA 94249-0059  
 (916) 319-2059  
 FAX (916) 319-2159

DISTRICT OFFICE  
 15900 SMOKETREE STREET, ROOM 100  
 HESPERIA, CA 92345  
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 FAX (760) 244-5447

Assembly  
 California Legislature



TIM DONNELLY  
 ASSEMBLYMAN, FIFTY-NINTH DISTRICT

COMMITTEES  
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 JOINT LEGISLATIVE AUDIT  
 RULES

Michael Jerrett Ph.D  
 School of Public Health  
 University of California  
 50 University Hall #7360  
 Berkeley, CA 94720-7360

April 26, 2011

Dear Dr. Jerrett,

It has come to my attention that there have been conflicting reports upon which the Air Resources Board based the truck and bus regulation regarding PM2.5 and the mortality rate. I would like the chance to personally examine this data myself.

Therefore, I am writing to request a copy of the report entitled "Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort." The work was supposed to have been completed on February 28<sup>th</sup>, 2010 (which was paid for at the expense for the California taxpayer). If the report is still not completed, please send unredacted copies of pages 1 and 16-19 from the June 25<sup>th</sup>, 2008 CARB Quarterly Progress Report detailing Task #10 for the project.

Thank you in advance for your assistance in getting me this information.

Godspeed,

Tim Donnelly  
 Assemblyman, 59<sup>th</sup> District

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## UNIVERSITY OF CALIFORNIA, BERKELEY

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MAY 24 2011

OFFICE OF THE CHANCELLOR  
200 CALIFORNIA HALL #1500

BERKELEY, CALIFORNIA 94720-1500

May 17, 2011

Tim Donnelly  
Assemblyman, 59th District  
15900 Smoketree Street, Room 100  
Hesperia, CA 92345

Dear Assemblyman Donnelly:

This will acknowledge and respond to your records request to Professor Michael Jerrett at the School of Public Health here on the Berkeley Campus.

The report you request is still in draft form and remains unavailable at this time. However, we understand that the Draft Final Report is scheduled to be presented to the Research Screening Committee on June 9, and we can update you about its status after that date. Please find enclosed the unredacted pages of the June 25, 2008 CARB Quaterly Progress Report that you also requested.

Please let me know if you have any questions.

Sincerely,

Alan T. Kolling  
Public Records Coordinator

Enclosure

cc: Professor Michael Jerrett



# California Air Resources Board Research Division Contract Quarterly Progress Report

## Contract Information

**Title:** Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort  
**Date Submitted:** June 25, 2008  
**Agreement Number:** 06-332  
**CARB Contract Manager:** Cynthia Garcia  
**Prepared by:** Bernard Beckerman

<b>Principal Investigator:</b>	Dr. Michael Jerrett	
<b>Organization:</b>	University of California Berkeley	
<b>Reporting Period:</b>	Quarter No: 4	April 1, 2008 - June 30, 2008
<b>Project Description:</b>		
<b>#</b>		

**Disclaimer:** *The statements and conclusions in this report are those of the University of California Berkeley and not necessarily those of the California Air Resources Board. The mention of commercial products, their source, or their use in connection with material reported herein is not to be construed as actual or implied endorsement of such products.*

<b>Task# 10</b>	<b>Task Descripti on:</b>	<b>Replication of LA analysis for all California Zipcodes</b>	
<b>% Task Completed this Quarter:</b>	<b>75%</b>	<b>% Task Remaining:</b>	<b>25%</b>
<b>Funds Spent on Task (this quarter):</b>		<b>Remaining Task Funds:</b>	
<b>Sub-contractor Assigned:</b>	<b>UCB Faculty and subcontr actors</b>		
<b>Work Accomplished in this Quarter</b>			

revised

<p>During this period we ran health analysis for the entire state (N=93,000-97,000 depending on the specific exposure and geocoding exposures). Analyses were run using Cox proportional hazards models for ozone and PM2.5. Exposures were assigned to the zip codes of the participants. For PM2.5 we used the inverse distance weighting (IDW) interpolations supplied to us by Cynthia Garcia, and two kriging models (one universal fit in GS-Plus and ArcGIS, and one ordinary fit in R software). For summertime ozone (i.e. April-September months) we used the IDW interpolations from ARB and the new Bayesian Maximum Entropy Interpolators developed by Dr. Christakos and his team. We did not attempt to fit an ordinary or universal kriging model to the ozone data because of the presence of spatiotemporal anisotropy.</p> <p>We tested all cause, cardiopulmonary, cardiovascular, ischemic heart disease (IHD), respiratory, lung cancer and "other" causes (the final as a negative control). Both PM2.5 and ozone had significant associations with cardiopulmonary, cardiovascular, and IHD deaths, and these effects were generally insensitive to the exposure modeling</p>			
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<p>technique. Although these results appear promising, we would propose to wait until all the individual geocodes and the land use regression models are prepared to publish the results.</p> <p>Most of the kriging models appeared to over smooth the pollution surfaces compared to what we had observed in single-city models. It appears ancillary information is needed to obtain fine-grained exposure assessment. In addition, it seems assignment to the zip code centroid, while probably reasonable for PM2.5, may produce significant error for the ozone models, because this pollutant has considerable variation near roadways due to scavenging by NO of the O3. We will nonetheless compile all of our results for inclusion as appropriate in the final report.</p>			
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<b>Work Ongoing</b>			
Additional investigation into the relationships between exposure and disease			
<b>Summary of Changes to the Work Plan, Schedule or Milestones.</b>			
N/A.			
<b>Describe Work Planned for the Upcoming Quarter</b>			
See "Work Ongoing"			