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Via U. S. Mail and Email

October 8, 2012

U.S. Environmental Protection Agency
Air and Radiation Docket
Mailcode: 6102T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

a-and-r docket@epa.gov

Re: Docket ID No. EPA-HQ-OAR-2008-0691

Dear U.S. EPA,

I wrote you on May 13, 2010 to request that the U.S.EPA deny the waiver application of the California Air Resources Board (CARB) for off-road diesel regulations. That letter is attached for your review. I stand by everything in that letter, but would like to give you an update of the consequences of CARB's pending regulations.

UPDATE:

Those of us who own previously legal diesel engines that have considerable useful life remaining have seen a destruction of our net worth. A recent piece of equipment sold in auction by my firm received a high bid of \$13,000 for a machine with a new cost exceeding \$225,000.00. The employee who operated this machine now is unemployed because Delta was forced to let him go. This piece of equipment still was perfectly functional and had a useful life exceeding another 10 years. Although asset devaluation is normal during economic times such as we are experiencing, I would have never sold it but for the mandated replacement of the engine within a short period of time, required by regulation. Asset values have always returned when the economy picks up following a recession, **but not when an agency makes them illegal to use or sell in the State where you reside.**

Delta Construction Company's net worth has been devalued via CARB current and future (pending your waiver of preemption) edicts to a point where liquidation would only return around 5% of replacement value. This has affected our financing and bonding abilities which are keys to our economic survival. As a result of these proposed

regulations that seem to have no need based on any circumstances special to California, our banking relationship of 20 years was destroyed and we were forced to find another lender. The same happened to our bonding relationship of equal time. This has resulted in a bank lien on my paid for home, now necessary to secure financing for my company.

Delta's few remaining employees have all taken salary "hits" of 30-40%. I personally did not take a salary for my last three active years, and now in retirement, have taken a "stipend", approximating my monthly social security. You might correctly suspect that I certainly did not plan it that way, nor spend 45 years of my life to build my business up from what my father started to have just enough monthly income to survive day to day. Regulatory actions have destroyed my retirement and I now supplement my income by consulting at the age of 68 years, nine months.

There just isn't any cash available to "upgrade" existing equipment and borrowing is out of the question in today's economy.

QUESTION:

It is my understanding that the Clean Air Act, Section 209 prohibits California and other States from setting emission standards for new motor vehicles and new motor vehicle engines, but authorizes the EPA to waive this prohibition for California for engines above 130Kw when there is a compelling need (engines below 130Kw are preempted and there is no provision for a waiver of preemption)¹. Could you please explain how the State of California qualifies for this compelling, extraordinary need for the U.S. EPA to grant this waiver?

- Certainly not for health reasons: California is the fourth healthiest State in the Nation as measured by premature death rates according to the Center of Disease Control. If the Federal Standard is adequate for the other 46 "less healthy" States, why not California? CARB has claimed tens of thousands of premature deaths annually, but **cannot show even one mortality caused by PM2.5 and no other State has designated diesel PM a Toxic Air Contaminant**. If I am wrong, please fully explain why in the Federal Register, as you are required to do in your response to this comment.
- Certainly not due to air pollution studies: A 35 year epidemiologist at UCLA was quoted in a San Diego newspaper saying: **"Since 2000, 10 separate analyses of five major cohorts of Californians have shown that there is NO relationship between PM2.5 and total mortality (also known as "premature deaths") in California. One of these analyses was led by UC Berkeley Professor Michael Jerrett and was based on about 75,000 California adults in the American Cancer Society Cancer Prevention Study cohort. The results of this 2011 analysis found that criteria pollutants (PM2.5, PM10, ozone, NO2 and**

¹ Federal Register/Vol. 73, No. 196

sulfate) were not related to total mortality during 1982-2000.”²

If there is any statistically significant association that you are aware of, please describe in your response to these comments any competent studies to that effect, as well as their methodology and findings, and why you believe there is any such statistically significant correlation. In addition, please supply the data sets that support such evidence.

- Certainly not if one views the significant economic impact on a substantial number of small entities as described in the Regulatory Flexibility Act (5 U.S.C. 601): If this regulation can destroy my family business of 69 years carrying no long-term debt, it can and will likely destroy thousands of others who have not survived nearly as long.
- And certainly not when one considers Mortality Associations when comparing increases in airborne PM with decreases in income: Lack of employment causes poverty, increasing morbidity and mortality as people suffer from lack of proper nutrition, medical care and housing. Speaking of health in California, the four “healthiest Counties, as measured by premature death have an average “Particulate Matter Days” (PMD’s) of 6 per year, while the four “unhealthiest Counties” (with over twice the premature deaths) have an average of 7. Particulate Matter (PM) is not defined in this study so there is no way of knowing the percentage of Diesel PM which is being regulated. Regardless, the amount of PMD’s is very low considering that some Counties have PMD’s in the 30’s annually. Perhaps the difference lies elsewhere.

The average households with “children in poverty” in the four healthiest Counties is 13%, while the average in the four unhealthiest is 31%.³ Please explain the extent to which EPA has conducted such a “health-benefit” or cost-benefit analysis in its review of CARB’s waiver application in connection with this relationship.

Significantly, California is broke. Destroying businesses via edict under the auspices of supposed improved health will actually have the opposite effect. The least healthy County in California is Trinity County⁴, which is at high elevation replete with pine trees,

² <http://www.utsandiego.com/news/2012/oct/03/air-pollution-health-risks-not-as-dire-as-claimed/>

³ <http://www.countyhealthrankings.org/#app/california/2012>

⁴ California Dept. of Public Health

October 8, 2012

very little construction or farming and only few roads: i.e. - where there is little or no PM problem from diesel engines. Again, poor health is due to poverty and a lack of employment. Increasing unemployment through the regulatory destruction of assets will result in more tax takers and less tax payers. These types of regulations will just help ensure the demise of the State. The supposed health benefits from these CARB regulations are dubious, at best, and counterproductive at worst. How can this be possibly a "compelling and extraordinary" need for regulations? The loss of employment through asset destruction is real and is happening right now, even though the regulation is still "pending" your approval.

If the goal of regulating airborne pollutants under the Clean Air Act is to benefit human health and welfare, how can granting waivers to job crippling regulations that lead to life debilitating conditions of poverty be said to further that goal?

Although the latest amendments to these regulations purport to provide regulatory relief to some affected entities, it is far too little, given the devastating impact that they will have, and already have had, on small businesses like mine throughout California. On behalf of small businesses everywhere in the state, I ask you not to grant the waiver.

Thank you for the opportunity to provide you with my comments on this CARB waiver application. I hope that, in accordance with your duties under the Clean Air Act, you will respond cogently to the points I have made in these comments, and that, in the final analysis, you will deny the waiver application.

Sincerely,



Norman R. "Skip" Brown
Owner



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CONSTRUCTION CO., INC.

May 13, 2010

U.S. Environmental Protection Agency
Air and Radiation Docket
Mailcode: 6102T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: Docket ID No. EPA-HQ-OAR-2008-0691

Dear U.S. EPA,

Delta Construction Co., Inc. is a family business in its 67th year and there is a diminishing chance of its survival to 69 because the California economy is on life support and looking more like a remnant of the good times. Private construction is down 67% in 3 years and public construction is down 40%. I cannot take a salary, much less profit, on the closely held business so my most valuable asset, my employees, can have a job to support themselves and their families. My rolling assets are rapidly becoming valueless because of regulatory overreach and aggressive actions by environmental agencies.

I write to assert that the California Air Resources Board's (CARB) request for a waiver for a new round of regulations on diesel PM and NOx are economically and scientifically flawed and will cause great hardship for the residents of California.

The requested waiver would result in little improvement in the environment and no health benefits, since the CARB is using old and irrelevant science. In addition the new round of regulations will aggravate a very bad economy and increase unemployment—a proven cause of adverse health effects and premature deaths.

The waiver should not be granted to the CARB for the following reasons:

1. Compliance is not feasible;
2. The economic realities make the regulatory regime prohibitive;
3. The new regulations and CARB proposals violate existing law; and
4. The new regulations are unnecessary based on current science and environmental/health analysis.

1. The regulations are not feasible or practicable.

CARB informed Industry that there would be Verified Diesel Emission Control (VDEC) filters that we could place on our existing equipment that would suffice. This is not completely true. Any equipment older than 1996 has to be re-powered at a considerable expense due to the difficulty or inability to place new engines into existing compartments or connecting to existing drive trains. Additionally, the cost of re-powering normally exceeds the value of equipment, making re-financing to comply impossible. Banks will not finance an upside down investment.

Newer equipment requires the addition of filters costing \$20,000-\$50,000 for each piece of equipment. The new filters do not increase the value of the equipment, so financing will be just as difficult as for old units.

For example 90% of Delta's current rolling equipment will be illegal to use or sell in California in a few years under proposed regulations. New work is not available to support replacement costs at this time. There is no business plan and financing that will survive another round of CARB mandates proposed for the waiver request.

There are also serious safety issues. These new filters unavoidably block operator visibility, causing potential serious injury to men working on the ground around the equipment. Additionally, the high heat generated by the VDEC filter creates personnel burn and fire hazards for organic and petroleum contacts. Currently there is a moratorium on installing filters that block operator vision while CARB estimates just "how much additional operator visibility can be blocked". Such an attitude in the context of a new regulation that has no real health benefit (see discussion below), gives the appearance of sophistic agency behavior that does not justify a waiver by EPA.

To compound the installation problem, there is no competent industry today to supply the some 20,000-30,000 devices that CARB will require annually. Less than 1000 have been installed to date, after almost three years of promotion and pressure from CARB. CARB's assumption that somehow industry can "gear up" to meet this inordinate demand is, again, evidence of irrational agency comportment.

2. The regulations violate sensible and prudent economics.

The economic condition of Industry is such that we cannot afford ANY additional investment for equipment during this ongoing recession (depression?). Small businesses employ more than one-half of the total workforce and 60%-80% of the new jobs annually¹, will necessarily become smaller or go completely out of business should these regulations be implemented. The only way Delta will be able to comply annually is via the elimination of assets. Each asset sold **must** go out of the State. These regulations, along with the economic conditions, have relegated the value of my equipment to about 10% of previous values. Every asset eliminated will take a job with it, the resultant being

¹ First Star Capital May 2010 Newsletter

more tax takers (unemployed) and less tax payers. California is bankrupt and more unemployment caused by regulation can only exacerbate that problem.

The Federal Clean Air Act (42 USC.7410(k) and (40 CFR 52.02(a) states, in part: "...Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601)." These regulations will destroy most, if not all small businesses in the "diesel smoke industries" in California. This includes construction, transportation, logging, shipping and agriculture. I believe that these regulations "fit the requirement" of a "significant economic impact on a substantial number of small entities..." For CARB or EPA to "certify otherwise" could only be described as misrepresenting the evidence to bolster a weak argument.

The economic damage caused by devaluation of assets for businesses that use diesels engines (affecting balance sheets and bonding capacity) will destroy what is left of small business opportunities in California. The loss of assets and bonding capacity will diminish business to a point of no survival for companies like Delta and other small and medium sized companies that depend on diesel engines-the only acceptable working engines for heavy machinery, trucks and tractors.

My equipment is critical to the balance sheet, since even in my small company equipment is(was) worth hundreds of thousands of dollars per machine. The value of my rolling stock will be decimated by the proposed CARB mandates, regardless of a change in economic conditions. The equipment that I have bought and paid for will be useless as I will be precluded from using it productively.

3. The regulations that are the subject of the waiver request are illegal and will result in lawsuits once implemented.

CARB's regulations without provisions for grandfathering prior purchased equipment make this new regulatory regime not only devastating to businesses, but an *ex post facto* edict. CARB's destruction of assets in rolling stock for companies that depend on diesel engines is a "taking" as defined in Amendment 5 of the U.S. Constitution and the appropriate sections of the California Constitution and Law. My company is my property and the assets of the company are now threatened by irrational CARB aggression to the point of not allowing for normal business cycles and inventory renewal.

To save their companies, businesses will be forced to sue to prevent and enjoin these actions by CARB. Proper compensation for the damage resulting from a regulation would be one remedy, but also the remedy of rescinding a regulation that does not comply with the laws pertinent, since the science that supports the new regulatory regime is already out of date and has been challenged for violating basic rules of toxicology and epidemiology. There is in the record of the CARB evidence that studies of California show no adverse effect from air pollution. In fact California citizens show no detriment

from air pollution and experience a very good quality of health and low level of premature death.

A public agency cannot just "take personal property" without remuneration for same. CARB has offered a very small amount of funds to a select few individuals who meet "certain requirements" to replace engines. Delta does not meet these specific requirements, therefore I must provide the capital or borrow same to meet the regulations to "fix" perfectly legal equipment when purchased that has not reached the end of its useful life. It has been shown that these regulations will cost industry tens of billions of dollars. That lawsuit will complete the bankruptcy of the State.

4. There is no proven necessity for CARB regulations.

The following issues point to the outdated and incorrect analysis by CARB that results in the ill-advised and damaging new round of regulations of diesel emission. For example:

- Recent Associated General Contractors of America (AGC) Study shows the off-road diesel fleet has met CARB's PM targets through 2019 and NOx targets through 2025 due to the economic downturn and resultant parked and/or elimination of equipment. Nothing needs to be done to the remaining engines at this time, yet CARB continues to propose mandated requirements for installing diesel emission controls and replacing engines on equipment owned. CARB has admitted that the emissions were based on assumptions that have not proven out. Industry studies show that emissions today may only be one-sixth as high as the Board projected they would be at the time the regulation was to be adopted.
- Studies used by CARB to support small particle regulations are nationwide and CARB has ignored California specific studies or California data from the national studies, available easily from the studies. Specific California studies, ignored by CARB, show no disease or death caused by PM2.5 or NOx (see attached Enstrom Letter).
- California is the fourth healthiest state in nation (as measured by age adjusted total death rate) according to the Center of Disease Control (CDC). Where is the supposed death caused from particulate matter?
- CARB won't release California specific data for the health studies that it uses to justify its regulations. Numerous requests to CARB for this California-specific data have been made by Industry and others. CARB counters with such comments as, "it's not our data", and "there are privacy issues". CARB is both fostering and depending on "Trust Me Science". The studies that are used by a state or federal agency for policy making are subject to freedom of information

requests. The rules that are derivative of the state and federal research integrity statutes must be open to review and must meet the Daubert tests of testability, error rate, peer review and general acceptance with the scientific community. The Federal Administrative Procedure Act, the Data Quality Act and the Data Access Act would necessarily apply to EPA sponsored and referenced research, the very research relied upon by CARB. The erroneous calculations, assumptions made and dated studies will guarantee the success of a "takings clause" lawsuit.

- Causality of disease or death has not been established by CARB studies. Under the Federal Reference Manual Chapter on Epidemiology, proof of causation of disease or death for epidemiological studies must, at a minimum, have a relative risk (RR) of 2 (100% increase in effect) to show a potentiality of cause. The relative risk between PM2.5 and mortality used by CARB is 1.10 (10% increase in effect).² Note that a RR of 1.00 is no effect. Ten percent above no effect is hardly evidence that supports proof of causation on epidemiological studies, whether it be premature death (these studies) or some other effect claim, like asthma, pulmonary or heart disease.
- The 2005 Enstrom Study³ concludes that there is no death effect from PM2.5 in California. Further confirmation of no effect in California is shown in Figure 21 of the 2000 Krewski Health Effects Institute Reanalysis Report⁴ and in Table 3 of the 2008 Zeger Study.⁵ Additionally, the 2008 analysis of "Air Quality in America" by Schwartz and Hayward shows that the nationwide RR is dropping over time and may no longer be significantly above 1.00.⁶ I have attached to this letter a document filed with CARB on April 21, 2010 from James E. Enstrom, Ph.D., M.P.H. of the UCLA Jonsson Comprehensive Cancer Center outlining the latest California findings, including the information derived from CARB's PM Scientific Symposium held on February 26, 2010. All of this information confirms that CARB has no public health basis to implement diesel regulations.
- Asthma rates continue to rise while the air gets cleaner (Figure 7-1), and all elements of air pollution decline, including PM and NOx, yet CARB continues to blame Pm and NOx for increased asthma occurrences. Based on what evidence?

² Tran, HT: Methodology for Estimating Premature Deaths Associated with Long-term Exposure to Fine Airborne Particulate Matter in California, CARB Staff Report, Table 3, October 24, 2008

³ Enstrom, J.E.: "Fine particulate air pollution and total mortality among elderly Californians, 1973-2002" *Inhalation Toxicology* 2005;17: 803-816

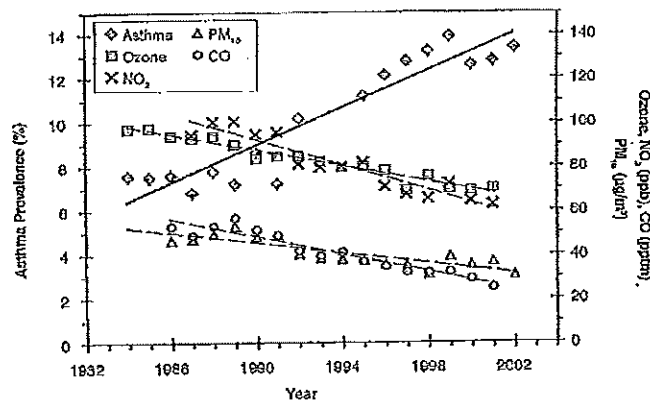
³ Krewski, D., et al Reanalysis of the Harvard Six Cities Study and American Cancer Society Study....., Health Effects Institute, 2000, Figure 21.

⁵ Zeger, S.,L., "Mortality in the Medicare Population and Chronic Exposure to Fine Particulate Air Pollution in Urban Centers (2000-2005)" *Environmental Health Perspectives* 2008;116:1614-1619, Table 3.

⁶ AIR QUALITY IN AMERICA by Joel Schwartz and Steven Hayward, 2007

The worst areas of Los Angeles exceeded the 1-hour ozone standard more than 150 days a year in the 70's and early 80's. By 2007 it was under 25 days a year. For PM, Riverside CA PM_{2.5} declined 58% from the 1980's to 2006. But between 1980 and 1996, asthma rates rose 75%, and nearly doubled for children.⁷ In fact, no form of ambient PM other than viruses, bacteria and biochemical antigens has been shown to cause disease or death at concentrations remotely close to US ambient levels.⁸

FIGURE 7-1
TREND IN ASTHMA PREVALENCE VS.
TRENDS IN AIR POLLUTION IN CALIFORNIA



- California's air is getting cleaner each year and mandated destruction of the businesses that employ Californians can only cause very serious real health effects that unemployment brings.
- **REAL HEALTH RISKS IGNORED BY CARB:**

A well known effect of economic hardship and economic recessions and depressions is human health effects as a result of poverty and deprivation, which are caused usually by underemployment or unemployment. The effects of economic deprivation are well known and real, not "assumed" effects. The charts below show the Life Expectancy associations with PM_{2.5} and income. The left chart shows that there is no clear relationship between PM change and Life Expectancy. As income rises, however, the right chart shows a definite improvement in Life Expectancy.

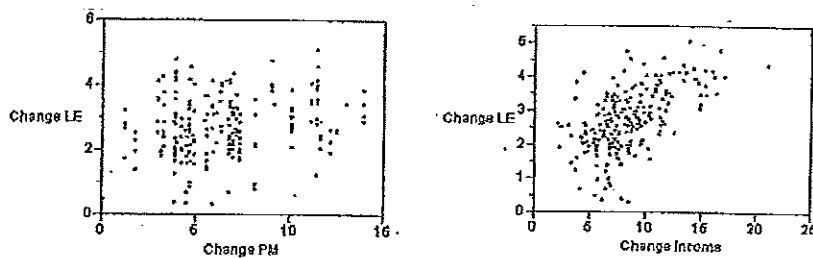
⁷

AIR QUALITY IN AMERICA by Joel Schwartz and Steven Hayward, 2007

⁸

Green and Armstrong, "Particulate Matter in Ambient Air and Mortality: Toxicologic Perspectives," *Regulatory Toxicology and Pharmacology* 38 (2003): 326-35

Mortality Associations with PM2.5 and Income



Data from Pope CA, Ezzati M, Dockery DW. (2009)
Fine-particulate air pollution and life expectancy in the United States.
New England Journal of Medicine 360, 376-386.

CARB issued Factoids about diesel exhaust emissions in December, 2009, claiming that "Each year in California, diesel PM contributes up to 24,000 premature deaths and thousands of hospital admissions, asthma attacks and other respiratory symptoms." This statement followed the admission that the lead author of the health effects study² used to promulgate diesel regulations had a fake PhD.

My desk dictionary provides the following definition of Factoids:

FACTOIDS n Something fictitious or unsubstantiated that is presented as fact, devised especially to gain publicity and accepted because of constant repetition.

To gain control over diesel engines in California, CARB has been issuing factoids since 1998, when they declared diesel PM to be a toxic air contaminant. They make up wild statements, printed by the press, to alarm the general public to gain support for onerous regulations. I could go on for another four or five pages about the fallacies of CARB's claims (and will if you desire) but this should be enough evidence to cause serious doubt if not total disbelief of the need for CARB to acquire more controls on diesel engines.

I have made all of these points (and more) to the CARB during the past three years. To date, they have no valid responses for any of these issues. The Board continues to ignore any cogent comment they cannot dismiss. They are out of control and if allowed to persist, the outcome will be that California never recovers from the current economic debacle.

According to the Federal Register/ Vol. 73, No. 196/Wednesday, October 8, 2008/Rules and Regulations: "Clean Air Act section 209 prohibits California and other states from setting emission standards for new motor vehicles and new motor vehicle engines, but

May 12, 2010

authorizes EPA to waive this prohibition for California.....” and “Similar preemption and waiver provisions apply for emission standards for nonroad engines and vehicles, whether new or in-use. However for new locomotives, new engines used in locomotives, and new engines used in farm or construction equipment with a maximum power below 130Kw, **California and other states are preempted and there is no provision for a waiver of preemption.” Prior to any regulation, Delta purchased new equipment with new engines that CARB is now attempting to regulate.**

It seems very clear by this statement that the EPA has no authority to waive this preemption to California for these engines. Nor should it; for all the reasons discussed above. In addition, the EPA should reconsider continuing to place more restrictions on air quality in California until at least the economy recovers and the science is settled over the heavily disputed claims that PM and NOx concentrations at present levels represent a proven health hazard. Epidemiological (observational) studies used for justification of regulation are notoriously unreliable and not replicable—that means test them again and you can’t verify the results. The rate of lack of replication for observational studies in medicine is 80% (Ioannidis, JAMA, 2005) to over 90% (Young National Institute of Statistical Sciences, www.niss.org/sites/default/files/Young_Safety_June_2008.pdf). To base decisions resulting in the destruction of an economy on such questionable and unfounded assumptions derived from these studies can only be described as a travesty.

Sincerely,



Norman R. “Skip” Brown
President

Attachment:

James E. Enstrom, Ph.D., M.P.H. Letter to CARB dated April 21, 2010

April 21, 2010

California Air Resources Board
1001 I Street
P.O. Box 2815
Sacramento, CA 95812
<http://www.arb.ca.gov/>

Re: Update Regarding CARB Off-Road and On-Road Diesel Vehicle Regulations
(<http://www.arb.ca.gov/regact/nonreg/inuseoffroad10.pdf>)

Dear Board Members:

The purpose of these comments is to summarize the most recent and most relevant epidemiologic evidence on the relationship between PM_{2.5} and total mortality in California. This California-specific evidence must be given primary consideration in the estimation of "premature deaths" associated with PM_{2.5} in California and in the overall assessment of the current health effects of PM_{2.5}. Most of this evidence was not used in 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" (http://www.arb.ca.gov/research/health/pm-mort/pm-mort_final.pdf).

These comments add to my December 10, 2008 CARB comments (http://www.arb.ca.gov/lists/truckbus08/897-carb_enstrom_comments_on_statewide_truck_regulations_121008.pdf), my May 27, 2009 CARB comments (http://www.arb.ca.gov/lists/gmove09/1-carb_enstrom_comments_re_pm2.5_and_life_expectancy_052709.pdf) and my December 8, 2009 CARB comments (http://www.arb.ca.gov/lists/dec09update/181-carb_enstrom_comments_reviewer_conflicts_of_interest_120809.doc).

California-specific epidemiologic evidence was presented and discussed at the February 26, 2010 CARB Symposium on "Estimating Premature Deaths from Long-term Exposure to PM_{2.5}" (<http://www.cal-span.org/cgi-bin/archive.php?owner=CARB&date=2010-02-26>). In particular, evidence that there is NO current relationship between PM_{2.5} and total mortality in California is shown in slides 20-25 of my PPT presentation (<http://www.arb.ca.gov/research/health/pm-mort/enstrom.pdf>) and in slides 12 and 26 of the PPT presentation by Michael L. Jerrett (<http://www.arb.ca.gov/research/health/pm-mort/jerrett.pdf>).

Special consideration must be given to the following three primary sources of California-specific evidence, particularly to the adjusted relative risk (RR) of death from all causes associated with a 10 µg/m³ increase in PM_{2.5} contained in each of these sources:

- 1) December 15, 2005 *Inhalation Toxicology* paper, "Fine Particulate Air Pollution and Total Mortality Among Elderly Californians, 1973-2002," by James E. Enstrom (Enstrom 2005) (http://www.arb.ca.gov/planning/gmerp/dec1plan/gmerp_comments/enstrom.pdf). This paper is based on 36,000 elderly California residents in the California Cancer Prevention Study (CA CPS I) and Table 7 shows the relationship between PM_{2.5} and total mortality is RR = 0.997 (0.978-1.016) for 1983-2002.
- 2) February 26, 2010 unpublished results from the ongoing analysis of 95,000 California residents in the 1982 ACS Cancer Prevention Study (CPS II) by Michael L. Jerrett (Jerrett 2010) (<http://www.arb.ca.gov/research/health/pm-mort/jerrett.pdf>). These results were presented at the February 26, 2010 CARB Symposium cited above. As best as can be interpreted from slides 12 and 26 of the Jerrett PPT presentation, the relationship between PM_{2.5} and total mortality is RR ~ 0.994 (0.965-1.025) during 1982-2000.
- 3) March 2010 *Environmental Health Perspectives* paper, "Long-Term Exposure to Constituents of Fine Particulate Air Pollution and Mortality: Results from the California Teachers Study," by Bart Ostro, Michael Lipsett, Peggy Reynolds, Debbie Goldberg, Andrew Hertz, Cynthia Garcia, Katherine D. Henderson, Leslie Bernstein (Ostro 2010) (<http://ehschplp03.niehs.nih.gov/article/fetchArticle.action?articleURI=info%3Adoi%2F10.1289%2Fehp.0901181>). Key results on 45,000 female California teachers from this paper were presented at the February 26, 2010 CARB Symposium by Michael L. Jerrett (<http://www.arb.ca.gov/research/health/pm-mort/jerrett.pdf>). As best as can be interpreted from slide 26 of the Jerrett PPT presentation, the relationship between PM_{2.5} and total mortality is RR ~ 1.8 (1.6-2.0) during 2002-2007. This RR, which is specific to this cohort of female teachers, is unusually large for PM_{2.5} relationships and requires further examination and explanation.

The Enstrom 2005 and Jerrett 2010 results have by far the largest statistical weight and when these results are combined by the standard meta-analysis procedure the summary relationship between PM_{2.5} and total mortality is RR = 0.996 (0.980-1.012). The meta-analysis procedure is described and illustrated in my March 1, 2006 *Inhalation Toxicology* paper (<http://www.scientificintegrityinstitute.org/IT030106.pdf>). Including the Ostro 2010 results with the Enstrom 2005 and the Jerrett 2010 results in the meta-analysis slightly increases the summary relationship between PM_{2.5} and total mortality to RR = 1.008 (0.992 - 1.024). The Ostro 2010 results have little influence on the RR because they comprise only about 2% of the statistical weight relative of the three studies. Both of the summary RRs are consistent with NO relationship between PM_{2.5} and total mortality in California.

These findings are supported by one additional source of largely California-specific evidence: December 2008 *Environmental Health Perspectives* paper, "Mortality in the Medicare Population and Chronic Exposure to Fine Particulate Air Pollution in Urban Centers (2000-2005)," by Scott L. Zeger, Francesca Dominici, Aidan McDermott, and Jonathan M. Samet (Zeger 2008) (<http://www.ehponline.org/members/2008/11449/11449.pdf>). The results for the western region [California, Oregon, and Washington] are dominated by those for California, since 468 (73%) of the 640 zip codes for the western region are in California. This paper is based on the 13.2 million participants in the Medicare Cohort Air Pollution Study (MCAPS) and Table 3 shows the adjusted relationship between PM_{2.5} and total mortality in the western region

is $RR = 0.989$ (0.970-1.008) for 2000-2005. This result is almost identical to the summary relationship for the Enstrom 2005 and Jerrett 2010 results: $RR = 0.996$ (0.980–1.012).

In summary, three major studies (Enstrom 2005, Jerrett 2010, and Zeger 2008) have produced results indicating NO relationship between $PM_{2.5}$ and total mortality in California since 1982. These results must be given primary consideration in the estimation of “premature deaths” associated with $PM_{2.5}$ in California and in the overall assessment of the current health effects of $PM_{2.5}$ and diesel particulate matter in California. These results have direct relevance to the public health justification for CARB off-road and on-road diesel vehicle regulations.

Thank you very much for your consideration of my public comments above.

Sincerely yours,

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