



1 I, Paul Brian English, declare as follows:

2 1. I submitted a declaration in this case dated June 9<sup>th</sup>, 2003. My background and  
3 qualifications are set forth in my prior declaration. I prepare this declaration voluntarily and on  
4 my own behalf. The opinions contained herein are mine and do not necessarily represent the  
5 official views of the California Department of Health Services.

6 2. I have reviewed the supplemental declarations in this case on behalf of the  
7 defendant by Perry H. Fontana and Steven Heisler. The purpose of this supplemental declaration  
8 is to respond to certain matters addressed in those declarations.

9 3. Mr. Fontana states that I have just assumed that there is a linear relationship  
10 between health effects and particulate matter levels. In fact, it is commonly accepted that there is  
11 a causal linear nonthreshold relationship between particulate matter with health outcomes such as  
12 hospital admissions, all-cause death, and death due to cardiorespiratory causes (Martuzzi, et al.  
13 2003, Daniels, et al, 2000).

14 4. Mr. Fontana states that I have based my analysis on peak short term increases,  
15 whereas I should base my calculations on long term average ambient concentrations. Mr.  
16 Fontana is correct in asserting that the long-term average estimations are more appropriate to use  
17 than peak short term increases when estimating chronic health effects. However, peak short term  
18 exposures are appropriate to use when estimating acute effects of particulate matter. When  
19 assessing overall health impacts, it is important to consider both chronic and acute health effects.  
20 Acute effects of particulate matter exposure include both increases in deaths and asthma attacks.  
21 Pope and Dockery (1999) have reviewed the literature on short-term exposures of particulate  
22 matter and have found a “coherence of effects across a range of related health outcomes and at  
23 least some consistency of effects across independent studies with different investigators and from  
24 different settings.” The meta-analysis of the literature of acute exposure studies has found that  
25 an increase of 10 ug/m<sup>3</sup> of PM<sub>10</sub> is associated with a 3% increase in deaths due to respiratory  
26 causes, a 2.5% increase in hospitalizations in coronary obstructive pulmonary disease (COPD),  
27 and approximately 3% increase in upper respiratory symptoms and asthma. (Pope and Dockery,  
28 1999) Therefore, still using the air quality modeling reporting value from the EA of an increase

1 of 3 ug/m<sup>3</sup>, we can assume that there will be at least a 1% increase in deaths due to respiratory  
2 causes, a 0.8% increase in hospitalizations in COPD, and approximately 1% increase in upper  
3 respiratory symptoms and asthma. Even though these percentage increases appear small, when  
4 applied to larger populations they represent significant mortality and morbidity. For example, a  
5 pilot study conducted among 6-7 yr olds and 13-14 yr olds in schools in Calexico, CA, which is  
6 right on the international border and would be a sensitive receptor of increased particulates,  
7 found prevalences of physician-diagnosed asthma to range from 15 –27%. (Impact Assessment,  
8 2001). Applying these numbers to the 8000 children in the Calexico school district, a 1%  
9 increase in asthma represents an increase in 80 additional cases of asthma. Asthma is the leading  
10 cause of lost school days and of childhood hospitalization in California. In 1997, 39,708 adults  
11 and 16,705 children were hospitalized for asthma in California, costing \$350,000,000 (CDHS,  
12 2000).

13 5. Mr. Fontana and Mr. Heisler also state that since the projected level of 3 ug/m<sup>3</sup> is  
14 below applicable EPA significance levels they should not be of public health concern. However,  
15 this is adding an increased burden of PM in a population that is already in non-attainment for PM  
16 and suffering from the highest childhood asthma hospitalization rate in the State. Since the  
17 linear relationship between PM and health is accepted as causal, with no threshold, even a small  
18 increase can have large public health effects. The EPA significance levels, according to the  
19 Fontana declaration, “represent the incremental increases in ambient concentrations attributable  
20 to an emissions source below which the source would not be considered to cause or contribute to  
21 a violation of the applicable National Ambient Air Quality Standards.” However, in reviewing  
22 the data from the California Air Resources Board at the Grant and Ethel Street monitors in  
23 Calexico from 1994 to 2002 (Exhibit 1) it can be seen that on 8 occasions readings at Calexico  
24 PM<sub>10</sub> monitors would be exceeding the 150 ug/m<sup>3</sup> standard when an additional 3 ug/m<sup>3</sup> is added.  
25 On these days the power plant emissions would be in fact contributing to a violation of the 24-  
26 hour PM<sub>10</sub> federal air quality standard.

27 I declare under penalty of perjury and under the laws of the State of California that the  
28 foregoing is true and correct.

1 Executed this 15<sup>th</sup> day of June, 2003, in Alameda, California.

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4 Paul B. English, PhD, MPH

5 REFERENCES

6  
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cities. *Am J Epidemiol* 152(5): 397-406

11 Impact Assessment, Inc. 2001. U.S.-Mexico Border Environmental Health Surveillance  
12 Demonstrations – Phase Two – Final Report. Requisition No. 00-BPHC-0128. Department of  
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14 Martuzzi M, Krzyzanowski M, Bertollini R. 2003. Health impact assessment of air pollution:  
15 providing further evidence for public health action. *Eur Respir J Suppl* 40 86s-91s.

16 Pope, CD, and Dockery, DW, 1999. Epidemiology of Particle Effects. *In: Air Pollution and  
17 Health*. Holgate, S; Samet, J; Koren, J; and Maynard, RL, eds. Academic Press, London.

EXHIBIT 1 to Supplemental Declaration of Paul Brian English, Ph.D.

Ambient PM<sub>10</sub> Concentrations<sup>1</sup> Measured at or Near 24-hour Federal PM<sub>10</sub> Standard of 150 ug/m<sup>3</sup>, Grant and Ethel Street Stations, Calexico, California, 1994 -2002

Site	Date	PM <sub>10</sub> Concentration (ug/m <sup>3</sup> )
Grant Street	February 13, 2002	148
	January 26, 2002	149
	December 9, 2001	142
	October 16, 2001	148
	December 25, 1998	144
	November 23, 1995	150
	December 10, 1994	148
	Ethel Street	October 14, 1998
November 24, 1997		146
November 6, 1997		149
October 7, 1997		144
August 8, 1997		145
January 16, 1996		143
December 28, 1995		142
December 11, 1995		149
September 5, 1994		148

B. Powers postscript note added December 1, 2003: PM<sub>10</sub> sampling is conducted during one 24-hour period every six days. For this reason, each exceedance is record as six days of PM<sub>10</sub> exceedance.

<sup>1</sup> California Air Resources Board, Aerometric Data Analysis Management System, 1994 -2002 PM<sub>10</sub> monitoring data, Grant Street and Ethel Street Stations, Calexico, California.