

UNIVERSITY OF CALIFORNIA

Los Angeles

Costs of Compliance with Environmental Regulations:

A Case-Study of Rule 1501 Compliance Efforts
at Five Hughes Aircraft Company Business Units

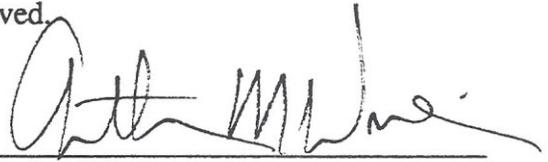
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by

Kenneth P. Green

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The dissertation of Kenneth P. Green is approved.



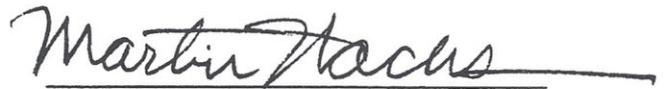
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ABSTRACT OF THE DISSERTATION

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Professor Martin Wachs, Chair

Average vehicle ridership (AVR) and net rideshare program spending at five Hughes Aircraft Company business units were examined based on data provided directly from Hughes Aircraft Company records. The data spanned from 17 to 29 months at the different units, from August, 1991 at all units to December, 1993 for several units.

AVR declined in 1992 at four of the five units, and declined in 1993 at all of the units. The declining AVR observed in this research may mark a reversal of the progress in increasing AVR noted by other investigators (Wachs & Guiliano, 1993). AVR varied strongly with time of year for both 1992 and 1993.

Slightly over \$2 million was spent on rideshare programs at these five business units during the study period, and the range of observed net monthly rideshare spending per employee, from \$4 to \$14, was consistent with the low end of the range of values reported in similar studies.

Net monthly rideshare program spending (total and per employee) declined at four of the five business units, and increased at one of the units over the study period.

The percentage of net spending actually disbursed in the form of subsidies or incentives ranged from 18% to 55% of net annual rideshare program spending in 1992 and 1993, with an aggregate mean of 28%.

Two of these findings have special significance for planners and regulators. First, no strong correlation was observed between AVR levels and net monthly rideshare spending per employee at any business unit over the time period covered by the data, suggesting that rideshare program spending was not the dominant factor determining employee commuting behavior.

Second, the strong relationship between AVR and the time of year observed in this research has important ramifications with regard to the structure of Rule 1501 and similar regulations. If this relationship is not unique to Hughes, it would indicate that the single annual AVR survey required by Rule 1501 for businesses subject to the rule may not produce an accurate impression of AVR as they actually exist over the course of the year.

INTRODUCTION

Air Pollution in the South Coast Air Basin

California's South Coast Air Basin (the Basin) has a severe air pollution problem; in fact, the Basin has the worst air quality in the United States.

Air quality in the Basin deteriorated severely as growth took place in population and industry after World War II, and although it has improved in recent years, levels of ozone, carbon monoxide (CO), fine particulate matter (PM10) and nitrogen dioxide (NO₂) exceed state and national standards set to protect the public health (CCAA, 1990; CAAA, 1990). The only criteria pollutants for which the Basin does not exceed national standards are sulfur dioxide (SO₂) and lead, mainly because there is little high-sulfur fuel use in the Basin, and lead has been removed from gasoline and most coating products (AQMP Preview, 1994).

Primary Pollutants	National Standards	State Standards	Ambient 1992 SCAB pollutant Levels and Exceedances
Ozone	0.12 ppm (1-hour)	0.009 ppm (1-hour)	0.30 ppm (118 Days/Federal) (164 Days/State)
CO	9.0 ppm (8 hours) 35 ppm (1-hour)	9.0 ppm (8 hours) 20.0 ppm (1-hour)	18.8 ppm (8 hours) (31 Days/Federal) (36 Days/State) 28 ppm (1-hour) (5 Days/State)
NO ₂	0.053 ppm (Annual Average)	0.25 ppm (1-hour)	0.0507 ppm (Annual Avg.) 0.30 ppm (1-hour) (1 Day/State)
PM10	150 µg/m ³ (24-hour)	50 µg/m ³ (24-hour)	649 µg/m ³ (24-hour) (3% Days/Federal) (66% Days/State)

Figure 1 - SCAB primary pollutants, National and State Standards, and 1992 Regional SCAB pollutant levels and exceedances. (Exceedances are listed in parentheses, after the monitored ambient pollutant level) (After Table 1-1, SCAQMD Trip Reduction Ordinance Handbook, May 1993, Third Draft)