

State of California
AIR RESOURCES BOARD

Resolution 87-13
February 26, 1987

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code Sections 39700 through 39705; and

WHEREAS, an unsolicited research proposal, Number 1489-131, entitled "The Role of Lung Inflammation in Ozone-Induced Hyperresponsiveness at Two Concentrations," has been submitted by the University of California, Davis;

WHEREAS, the Research Division staff has reviewed and recommended this proposal for approval; and

WHEREAS, the Research Screening Committee has reviewed and recommends for funding:

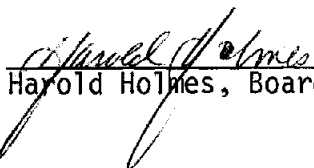
Proposal Number 1489-131, entitled "The Role of Lung Inflammation in Ozone-Induced Hyperresponsiveness at Two Concentrations," submitted by the University of California, Davis for a total amount not to exceed \$18,072.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39703, hereby accepts the recommendation of the Research Screening Committee and approves the following:

Proposal Number 1489-131, entitled "The Role of Lung Inflammation in Ozone-Induced Hyperresponsiveness at Two Concentrations," submitted by the University of California, Davis for a total amount not to exceed \$18,072.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed \$18,072.

I hereby certify that the above is a true and correct copy of Resolution 87-13, as adopted by the Air Resources Board.


Harold Holmes, Board Secretary

ITEM NO.: 87-3-5 (b) 1
DATE: February 26, 1987

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 1489-131 entitled "The Role of Lung Inflammation in Ozone-Induced Hyperresponsiveness at Two Concentrations."

RECOMMENDATION: Adopt Resolution 87-13 approving Proposal No. 1489-131 for funding in an amount not to exceed \$18,072.

SUMMARY: Several investigations have demonstrated that human subjects exposed to sufficient ozone to produce a reduced pulmonary function on one day usually experience an even greater reduction with the same exposure on the day following the first exposure. The objective of this study is to investigate how this sensitive protocol for pulmonary function tests relates to lung inflammation. This work would support an objective of the Health Effects Section of the Long Range Research Plan.

The experiment will expose healthy young male subjects to ozone while they engage in exercise. The next day the subjects will be reexposed to ozone at the same level (0.35 ppm) and, during a separate experiment, reexposed at a lower level (0.20 ppm). The investigators will assess the effects of the ozone exposures by measuring each subject's pulmonary function and blood levels of specific compounds that are involved in the mediation of inflammation.

If reductions in this sensitive approach to pulmonary function testing are observed to be linked to inflammation, then uncertainty about the medical significance of acute pulmonary function reductions in healthy subjects will be substantially reduced. More confidence in the interpretation of the result will aid in assessing the level of harm of ozone and possibly other pollutants.

The contractor for this work is the University of California, Davis and the principal investigator is Dr. William Adams.

B U D G E T S U M M A R Y

University of California, Davis

"The Role of Lung Inflammation in
Ozone-Induced Hyperresponsiveness at Two Concentrations"

BUDGET ITEMS:

Salaries	\$7,915	
Benefits	399	
Supplies*	4,551	
Other Costs**	1,584	
Travel	0	
Human Subject Compensation	1,980	
TOTAL, Direct Costs		\$16,429
TOTAL, Indirect Costs		1,643
	<u>TOTAL PROJECT COST</u>	<u>\$18,072</u>

* Supplies: Materials for analysis of prostaglandins in the blood.

** Other costs: Computer analysis and report.

State of California
AIR RESOURCES BOARD

Resolution 87-14
February 26, 1987

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code Sections 39700 through 39705; and

WHEREAS, an unsolicited research proposal, Number 1483-130(R), entitled "Toxicity of Mobile Source-Related Fine Particles in Atmospheres Containing Oxidant Gases," has been submitted by the University of California, Irvine;

WHEREAS, the Research Division staff has reviewed and recommended this proposal for approval; and

WHEREAS, the Research Screening Committee has reviewed and recommends for funding:


Proposal Number 1483-130(R), entitled "Toxicity of Mobile Source-Related Fine Particles in Atmospheres Containing Oxidant Gases," submitted by the University of California, Irvine for a total amount not to exceed \$301,220.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39703, hereby accepts the recommendation of the Research Screening Committee and approves the following:

Proposal Number 1483-130(R), entitled "Toxicity of Mobile Source-Related Fine Particles in Atmospheres Containing Oxidant Gases," submitted by the University of California, Irvine for a total amount not to exceed \$301,220.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed \$301,220.

I hereby certify that the above is a true and correct copy of Resolution 87-14, as adopted by the Air Resources Board.


Harold Holmes, Board Secretary

ITEM NO.: 87-3-5(b) 2
DATE: February 26, 1987

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 1483-130(R) entitled "Toxicity of Mobile Source-Related Fine Particles in Atmospheres Containing Oxidant Gases."

RECOMMENDATION: Adopt Resolution 87-14 approving Proposal No. 1483-130(R) for funding in an amount not to exceed \$301,220.

SUMMARY: This study will evaluate the health effects of exposure to diesel-generated emissions in an ozone atmosphere. The results will indicate whether there is a hazard when such diesel emissions, which contain fine particles and nitrogen oxides, enter air that is already substantially polluted with ozone. There have already been studies showing effects of higher levels of particles in acidic atmospheres, as well as effects of ozone itself. The work is part of the Board's effort to enhance the basis of the ambient air quality standard for particles, as outlined in the Board's Long Range Research Plan.

Rats will be exposed to the test atmosphere or clean air. They will then be sacrificed, and a comprehensive set of effects will be measured. These effects include multiple measures of changes in cells and tissues involved in the respiratory defense system, changes in lung permeability and damage to cells of the deep lung.

The exposure is planned at two different levels. The first is at high ambient levels for five days and the second is at lower levels for twenty-one days. At the recommendation of the Research Screening Committee the second exposure would not be performed and expenditures would be limited to \$190,000 if the first experiment produced a negative result.

The contractor for this work is the University of California, Irvine and the principal investigator is Dr. Michael Kleinman.

B U D G E T S U M M A R Y

University of California, Irvine

"Toxicity of Mobile Source-Related Fine Particles in
Atmospheres Containing Oxidant Gases"

BUDGET ITEMS *:

Salaries	\$172,749	
Benefits	47,415	
Supplies	39,400	(2)
Consultant		
Dr. Rao, Immunologist	2,500	
Other Costs	2,500	(1)
Travel	2,000	
Equipment (Microscope parts)	8,000	
TOTAL, Direct Costs		\$274,564
TOTAL, Indirect Costs		26,656
	<u>TOTAL PROJECT COST</u>	<u>\$301,220</u>

* Budget subject to satisfactory completion of first experiment.
First experiment cost not to exceed \$190,000.

- (1) Copying, library charges, phone, equipment maintenance.
(2) Animals and animal care (\$13,550); Histopathology (\$3,500), Air sampling and Analysis (\$19,350); Computer use (\$2,000), Waste disposal (\$1,000)

State of California
AIR RESOURCES BOARD

Resolution 87-15
February 26, 1987

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code Sections 39700 through 39705; and

WHEREAS, an unsolicited research proposal, Number 1501-131, entitled "Relationship Between Acute Ozone Responsiveness and the Chronic Loss of Lung Function in Residents Exposed to Recurrent Oxidant Air Pollution," has been submitted by University of California, Los Angeles;

WHEREAS, the Research Division staff has reviewed and recommended this proposal for approval; and

WHEREAS, the Research Screening Committee has reviewed and recommends for funding:

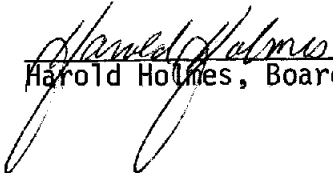
Proposal Number 1501-131, entitled "Relationship Between Acute Ozone Responsiveness and the Chronic Loss of Lung Function in Residents Exposed to Recurrent Oxidant Air Pollution," submitted by University of California, Los Angeles, for a total amount not to exceed \$145,299.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39703, hereby accepts the recommendation of the Research Screening Committee and approves the following:

Proposal Number 1501-131, entitled "Relationship Between Acute Ozone Responsiveness and the Chronic Loss of Lung Function in Residents Exposed to Recurrent Oxidant Air Pollution," submitted by University of California, Los Angeles, for a total amount not to exceed \$145,299.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed \$145,299.

I hereby certify that the above is
a true and correct copy of Resolution
87-15, as adopted by the Air Resources
Board,



Harold Holmes, Board Secretary

ITEM NO.: 87-3-5(b) 3

DATE: February 26, 1987

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 1501-131 entitled "Relationship Between Acute Ozone Responsiveness and the Chronic Loss of Lung Function in Residents Exposed to Recurrent Oxidant Air Pollution."

RECOMMENDATION: Adopt Resolution 87-15 approving Proposal No. 1501-131 for funding in an amount not to exceed \$145,299.

SUMMARY: This project investigates the high rate of pulmonary function decline observed in a previous study of a population frequently exposed to high concentrations of ambient oxidants in Glendora. The objectives of the present study are: 1) to determine if the previously observed rate of decline in pulmonary function has continued, 2) to investigate the relationship between present pulmonary function response to acute clinical ozone exposure and long-term rates of decline in pulmonary function, and 3) to determine whether several physiological and biochemical markers are related to the long-term rates of decline.

This study addresses one of the objectives in the Long Range Research Plan, exploration of the link between acute and chronic exposures to air pollution. The degree to which such a link is found will be important in interpreting the significance of the results of short term exposure tests. In addition, the work affords an important opportunity to check previous trends.

The work for which funding is sought was originally funded by the U.S. EPA as part of the first year of a multi-year project, which evolved from ideas initiated by ARB. The work is currently starting; however, due to budget cuts, EPA cannot provide complete funding for the first year. This proposal would provide funds to complete the first year of the multi-year study, and ensure that a unique opportunity to study a key population is not lost.

The contractor for this work is the University of California, Los Angeles and the principal investigator is Dr. Henry Gong.

B U D G E T S U M M A R Y

University of California, Los Angeles

"Relationship Between Acute Ozone Responsiveness and the
Chronic Loss of Lung Function in Residents Exposed
to Recurrent Oxidant Air Pollution"

BUDGET ITEMS:

Salaries	\$32,094	
Benefits	7,726	
Supplies	1,446	
Equipment	3,407	
Carbon Monoxide Analyzer		
Respiratory Test Meter		
Subcontracts*	30,461	
Other Costs**	56,176	
Travel	780	
TOTAL, Direct Costs		\$132,090
TOTAL, Indirect Costs		13,209
	<u>TOTAL PROJECT COST</u>	<u>\$145,299</u>

* The portions of subcontracts with Rancho Los Amigos Medical Center for clinical pulmonary function testing and with City of Hope Medical Center for facilities not funded by EPA.

** Detail of Other Costs:

The portion of "other costs" not funded by EPA	\$29,191
Partial cost of attending physician	\$ 7,935
Travel cost for Dr. McDonnell	6,535
Dr. Steven Colome, Consultant	6,300
Dr. Joseph Taylor, Consultant	6,215
TOTAL	<u>\$56,176</u>

The U.S. Environmental Protection Agency is providing funding in the amount of \$206,867.

State of California
AIR RESOURCES BOARD

Resolution 87-16
February 26, 1987

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code Sections 39700 through 39705; and

WHEREAS, a request for budget augmentation for Contract Number A6-099-32 entitled "Southern California Air Quality Study: Measurements of Peroxyacetyl Nitrate (PAN)," has been submitted by Daniel Grosjean and Associates, Inc.;

WHEREAS, the Research Division staff has reviewed and recommended this augmentation for approval; and

WHEREAS, the Research Screening Committee has reviewed and recommends for funding:

Augmentation to Contract Number A6-099-32, entitled "Southern California Air Quality Study: Measurements of Peroxyacetyl Nitrate (PAN)," submitted by Daniel Grosjean and Associates, Inc. by \$4,919 for a total amount not to exceed \$39,221.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39703, hereby accepts the recommendation of the Research Screening Committee and approves the following:

Augmentation Contract Number A6-099-32, entitled "Southern California Air Quality Study: Measurements of Peroxyacetyl Nitrate (PAN)," submitted by Daniel Grosjean and Associates, Inc. by \$4,919 for a total amount not to exceed \$39,221.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts to augment the research effort proposed herein by \$4,919 for a total amount not to exceed \$39,221.

I hereby certify that the above is a true and correct copy of Resolution 87-16, as adopted by the Air Resources Board.


Harold Holmes, Board Secretary

ITEM NO.: 87-3-5(b) 4
DATE: February 26, 1987

State of California
AIR RESOURCES BOARD

ITEM: Augmentation for Contract No. A6-099-32 entitled "Southern California Air Quality Study: Measurements of Peroxyacetyl Nitrate (PAN)."

RECOMMENDATION: Adopt Resolution 87-16 approving a budget augmentation of Contract No. A6-099-32 by \$4,919 for a total contract amount not to exceed \$39,221.

SUMMARY: This augmentation will provide funds to perform aircraft measurements of PAN concentrations aloft from two aircraft during the SCAQS intensive study days. Ground-based PAN measurements are part of an earlier contract to Daniel Grosjean Associates (DGA). The PAN measurements aloft will complement the ground-based PAN data obtained by DGA, and are a necessary and integral part of the SCAQS program.

The principal investigator for this study is Dr. Daniel Grosjean of DGA.