State of California
AIR RESOURCES BOARD

Resolution 86-64
July 24, 1986

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 solicited research proposal, Number 1425-126, entitled "Economic Impact of Air Pollution on Forested Areas of California: Phase I, Data Base, and Ranking of Forest Sensitivity," has been submitted by Energy and Resource Consultants, Inc.;

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 1425-126, entitled "Economic Impact of Air Pollution on Forested Areas of California: Phase I, Data Base, and Ranking of Forest Sensitivity," submitted by Energy and Resource Consultants, Inc., for a total amount not to exceed $88,895.

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 1425-126, entitled "Economic Impact of Air Pollution on Forested Areas of California: Phase I, Data Base, and Ranking of Forest Sensitivity," submitted by Energy and Resource Consultants, Inc., for a total amount not to exceed $88,895.

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 $88,895.

I hereby certify that the above is a true and correct copy of Resolution 86-64, as adopted by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

ITEM NO.: 86-8-4(b)1
DATE: July 24, 1986

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 1425-126 entitled "Economic Impact of Air Pollution on Forested Areas of California: Phase I, Data Base, and Ranking of Forest Sensitivity."

RECOMMENDATION: Adopt Resolution 86-64 approving Proposal No. 1425-126 for funding in an amount not to exceed $88,895.

SUMMARY: This research project constitutes Phase I of an assessment of air pollution damage to California Forests. The project objectives are: 1) to compile a data base describing forest resources; 2) to develop and apply a scheme to rank forest areas for sensitivity to ozone and sulfur dioxide and to couple this ranking with measured or estimated air quality data to produce a ranking of forest areas at highest risk from pollution; and 3) to examine the policies of governmental agencies that manage forest areas to analyze and report on apparent conflicts between forest management policies and the prevention of air pollution damage to forests. Phase II, which is outside the scope of the RFP, will use information gathered in Phase I and in subsequent field studies to evaluate current and potential economic damage to forests.

In accordance with the State Health and Safety Code, this research project will provide a data base and a risk assessment of the effects of air pollution on forests for eventual economic analyses to assist the Board in determining the consequences of various alternative solutions to specific air pollution problems and in adopting standards in consideration of the public welfare, including, effects on the economy, in its effort to combat air pollution.

The principal investigator would be Dr. Robert Rowe.

withdrawn at
Board Hearing

State of California
AIR RESOURCES BOARD

Resolution 86-65
July 24, 1986

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 1408-126, entitled "Analysis of the 1982 Truck Inventory and Use Survey Data for California," has been submitted by Energy and Environmental Analysis, Inc.;

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 1408-126, entitled "Analysis of the 1982 Truck Inventory and Use Survey Data for California," submitted by Energy and Environmental Analysis, Inc., for a total amount not to exceed $39,830.

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 1408-126, entitled "Analysis of the 1982 Truck Inventory and Use Survey Data for California," submitted by Energy and Environmental Analysis, Inc., for a total amount not to exceed $39,830.

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 $39,830.

ITEM NO.:
DATE: July 24, 1986

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 1408-126 entitled "Analysis of the 1982 Truck Inventory and Use Survey Data for California."

RECOMMENDATION: Adopt Resolution 86-65 approving Proposal No. 1408-126 for funding in an amount not to exceed $39,830.

SUMMARY: Approximately ten percent of the heavy-duty vehicles (HDVs) registered in the U. S. are based in California. As at the national level, HDVs in California encompass a broad range of weight categories and major use applications in both urban and rural areas of the state. Of primary interest to the ARB are: 1) the contribution of these HDV classes to emissions and air quality in urban areas, and 2) the contribution of trucks based outside the state to emission inventories in California. The 1982 Truck Inventory and Use Survey (TIUS) data collected by the U. S. Bureau of the Census, with other information and some data processing, can be used to address these concerns.

The contractor proposes to perform data analysis on the 1982 Truck Inventory and Use Survey and other related reports to provide information relative to California's HDV fleet technology mix, usage patterns and distribution. They are currently analyzing the national data to provide similar estimates for the EPA.

Data provided by this study would be used by the ARB staff to upgrade the State's emission inventory for HDVs and to assist in promulgating future emission standards and/or an inspection and maintenance program for HDV's.

The principal investigator would be Mr. K. G. Duleep.

State of California
AIR RESOURCES BOARD

Resolution 86-66
July 24, 1986

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 1429-127, entitled "Engineering Evaluation and Control of Toxic Airborne Effluents," 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 1429-127, entitled "Engineering Evaluation and Control of Toxic Airborne Effluents," submitted by the University of California, Davis, for a total amount not to exceed $76,374.

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 1429-127, entitled "Engineering Evaluation and Control of Toxic Airborne Effluents," submitted by the University of California, Davis, for a total amount not to exceed $76,374.

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 $76,374.

I hereby certify that the above is a true and correct copy of Resolution 86-66, as adopted by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

ITEM NO.: 86-8-4(b)3
DATE: July 24, 1986

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 1429-127 entitled "Engineering Evaluation and Control of Toxic Airborne Effluents."

RECOMMENDATION: Adopt Resolution 86-66 approving Proposal No. 1429-127 for funding in an amount not to exceed $76,374.

SUMMARY: Faculty and graduate students of the College of Engineering, University of California, Davis have been assisting the staff of the Air Resources Board's Stationary Source Division in laboratory studies concerning the development and evaluation of control and measurement methods for toxic air pollutants. In pursuing these activities, the University has also provided a "test site" where on-campus laboratory facilities and expertise in relevant disciplines are made available to the ARB staff. Originally, a lack of laboratory facilities available to staff for conducting research and development studies, especially involving toxic compounds at concentrations anticipated under field test conditions, prompted this joint effort with the University.

The current proposal presents the third in a series of studies of mutual interest to both the ARB and the University. The 1985-86 program involved a study of the feasiblity of a pilot scale waste incinerator to determine thermal destruction and removal efficiency (DRE) for toxic compounds and surrogates; a review of literature on hazardous waste surrogate compound DRE; the measurement of single component parameters for an oil production sump emissions model; incorporation of latent heat effects into the emissions model; and an initial study of emissions from land farming operations. These studies are complete and the results will be reported soon.

UCD now proposes to expand the 1985-86 efforts to investigate combustion mechanisms of toxic waste incineration; to extend the single component oil sump emissions model to the multicomponent case, including the effects of residence time upon multicomponent transport; and to determine synergistic relationships between the biological activity of bacterial colonies

and oily wastes, and the rate of loss of waste organic compounds as a function of temperature, soil loadings, soil water content, etc. in land farming operations.

These studies are designated to provide ARB staff with cost effective support in resolving certain technical problems associated with permit evaluation, risk assessment and emissions estimation. The principal investigators would be Drs. D. P. Chang, C. K. Lau, and Richard Bell.

BUDGET SUMMARY

University of California, Davis

"Engineering Evaluation and Control
of Toxic Airborne Effluents"

BUDGET ITEMS:

Salaries	$46,081	
Benefits	3,500	
Travel	1,360	
Equipment (chemical reagents, standards, surrogates)	5,630	
Analytical Cost	4,000	
Equipment for single drop combuster	8,900	
Reports	770	
TOTAL, Direct Costs		$70,241
TOTAL, Indirect Costs		6,133
TOTAL PROJECT COST		$76,374

State of California
AIR RESOURCES BOARD

Resolution 86-67
July 24, 1986

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 proposed program plan, Number 1431-127, entitled "Crop Loss from Air Pollutants Assessment Program," has been submitted by the University of California, Riverside;

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 1431-127, entitled "Crop Loss from Air Pollutants Assessment Program," submitted by the University of California, Riverside, for a total amount not to exceed $97,954.

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 1431-127, entitled "Crop Loss from Air Pollutants Assessment Program" submitted by the University of California, Riverside, for a total amount not to exceed $97,954.

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 $97,954.

I hereby certify that the above is a true and correct copy of Resolution 86-67, as adopted by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

ITEM NO.: 86-8-4(b)4
DATE: July 24, 1986

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 1431-127 entitled " Crop Loss from Air Pollutants Assessment Program"

RECOMMENDATION: Adopt Resolution 86-67 approving Proposal No. 1431-127 for funding in an amount not to exceed $97,954.

SUMMARY: Agricultural crop losses due to air pollution are known to occur in California. Estimates of economic losses vary from $150 million to $1 billion annually. A sounder information base is needed to improve estimates of these losses, and to assess the biological and economic impacts of air pollution levels expected to result from proposed regulatory decisions and actions.

In January 1985, the Air Resources Board initiated a program to develop estimates, on a statewide basis, of crop losses caused by current levels of ambient oxidants. This program is now being carried out through the University of California, Riverside. The first set of preliminary crop loss estimates, for 1984, was presented to ARB staff at a recent workshop.

Project activities for the 1986-87 fiscal year include revising the presentation of preliminary crop loss estimates in light of comments received during the workshop. During the winter of 1986-87, the investigators will visit the county agricultural commissioners to discuss the 1984 assessment and its data bases in order to take into account any additional input which the county agricultural commissioners can provide. The investigators will prepare an assessment for 1985, identify critical data gaps, and conduct limited short term experiments to provide the needed information.

The Program in Crop Loss Assessment expects to provide improved and more realistic assessments than are now available of air pollution damage to important California crops. These assessments will provide a firm basis for estimates of economic losses suffered by growers and consumers as a result of ambient levels of air pollution, and will be helpful in estimating long term effects of alternative proposed regulatory decisions and actions. In addition the program furnishes an excellent source of guidance for the extramural research program.