State of California
AIR RESOURCES BOARD

Resolution 85-74

November 22, 1985

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 1241-106-A2, entitled "Project BASIN (BAsic Studies IN Airflow, Smog and Inversion)", has been submitted by the 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 1241-106-A2, entitled "Project BASIN (BAsic Studies IN Airflow, Smog and Inversion)", submitted by the University of California, Los Angeles for a total amount not to exceed $6800.

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 1241-106-A2, entitled "Project BASIN (BAsic Studies IN Airflow, Smog and Inversion)", submitted by the University of California, Los Angeles for a total amount not to exceed $6800.

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 $6800.

I hereby certify the above is
a true and correct copy of
Resolution 85-74 as adopted
by the Air Resources Board.

Harold Holmes, Board Secretary

ITEM NO.: 85-17-4(b)1
DATE: November 22, 1985

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 1241-106-A2 entitled "Project BASIN (BAsic Studies IN Airflow, Smog and Inversion)".

RECOMMENDATION: Adopt Resolution 85-74 approving Proposal No. 1241-106-A2 for funding in an amount not to exceed $6800.

SUMMARY: The objective of this proposal is to extend the analysis of aerometric data collected by the ARB and others as part of project Basin. During the 1984 Summer Olympic Games in Los Angeles, the Air Resources Board and the South Coast Air Quality Management District (SCAQMD) sponsored the Department of Atmospheric Sciences at UCLA, to make extensive surface and upper-level meteorological measurements to characterize the windfield over the South Coast Air Basin. In addition to these efforts, significant field measurement support was provided, at no cost to ARB, by the U. S. Forest Service, in the form of airsonde measurements, by the EPA in the form of airborne LIDAR measurements, and by several private participants. As a result, a far richer data base than originally envisioned was forthcoming. Accordingly, an initial augmentation of $15,000 was provided for analysis and archiving these additional data.

During the data analysis phase, new techniques were developed for relating LIDAR data to surface and upper-level meteorological data. Taken together this information clearly shows the existence of polluted layers aloft and the relationships of these polluted layers to the meteorology of the Basin.

Notably, the LIDAR equipped aircraft performed several flights along major air trajectories, offering the opportunity to continuously analyze the atmospheric processes and effects along these routes. The trajectories to be studied are from Long Beach to Riverside and from Los Angeles to Upland. These have also been tentatively selected as the trajectories of major interest for next year's Southern California Air Quality Study.

The additional work proposed here would extend the analyses of the relationships between meteorological conditions and polluted layers aloft. The structure of the polluted layers aloft depicted by the LIDAR data will be related to the measured meteorological patterns. Trajectory analysis will be conducted to verify the source region and the pathway along which these polluted air masses move. The improved understanding of these complex flow patterns and distribution of polluted layers aloft will be used to make an assessment of the minimum number of upper-air measurements needed to model pollutant formation and transport along transport corridors and will provide important information concerning boundary conditions for air quality simulation models.

The Research Screening Committee has recommended that this augmentation be awarded to the University of California, Los Angeles. The principal investigators will be Dr. Morton G. Wurtele and Dr. Roger M. Wakimoto.

State of California
AIR RESOURCES BOARD

Resolution 85-75

November 22, 1985

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 1341-118, entitled "Lifetimes and Fates of Toxic Chemicals in California's Atmosphere", has been submitted by the Statewide Air Pollution Research Center, 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 1341-118, entitled "Lifetimes and Fates of Toxic Chemicals in California's Atmosphere", submitted by the Statewide Air Pollution Research Center, University of California, Riverside for a total amount not to exceed $196,186.

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 1341-118, entitled "Lifetimes and Fates of Toxic Chemicals in California's Atmosphere", submitted by the Statewide Air Pollution Research Center, University of California, Riverside for a total amount not to exceed $196,186.

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 $196,186.

I hereby certify the above
is a true and correct copy
of Resolution 85-75 as adopted
by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

ITEM NO.: 85-17-4(b)2
DATE: November 22, 1985

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 1341-118 entitled "Lifetime and Fates of Toxic Chemicals in California's Atmosphere".

RECOMMENDATION: Adopt Resolution 85-75 approving Proposal No. 1341-118 for funding in an amount not to exceed $196,186.

SUMMARY:

The objectives of this proposed program are to investigate the atmospheric lifetimes and products formed for a series of organic compounds of interest to the CARB. In recent years there has been growing concern by both the general public and by health, regulatory and legislative officials concerning the use, storage and transport of hazardous and toxic chemicals. This concern exists, in part, because segments of the public are exposed to a variety of toxic and hazardous chemical compounds which are emitted from hazardous waste disposal sites and landfills, and from releases which occur in the course of industrial or commercial processes.

Present assessments of the environmental and health impacts of airborne toxic and hazardous chemicals focus primarily on the effects of the parent compound. In general, little or no consideration is given to the atmospheric reactions of such compounds which can lead to products that are either more, or less, toxic than the parent compound. Without a thorough knowledge of these atmospheric processes, and the rates at which they occur, reliable and cost-effective risk assessments for releases of toxic and hazardous chemicals cannot be made in the case of many volatile and reactive organic compounds.

The compounds to be studied through this effort will include benzyl chloride, cresol, p-chloroaniline, napthalene, benzo-1,4-dioxin, 2,3-benzofuran, allyl chloride, ethylene dichloride and acrolein. Six of these compounds are included in the ARB list of substances scheduled for review as Toxic Air Contaminants by the Scientific Review Panel. The other three compounds selected for study are model compounds structurally related to certain pesticides (p-chloroaniline) and to toxic compounds emitted from combustion sources, polychlorinated benzo-1,4-dioxins and 2,3-benzofurans.

The data obtained from this research will provide information on both atmospheric lifetimes and chemical transformations that are directly relevant to the assessment of potential human health hazards of airborne toxic and hazardous substances as required by the Tanner Bill.

The Research Screening Committee has recommended that this contract be awarded to the Statewide Air Pollution Research Center, University of California, Riverside. Drs. Arthur Winer and Roger Atkinson will be the co-principal investigators.

BUDGET SUMMARY

Statewide Air Pollution Research Center
University of California, Riverside

"Lifetimes and Fates of Toxic Chemicals
in California's Atmosphere"

BUDGET ITEMS:

Salaries	$112,831	
Supplies	17,787	
Other Cost*	6,800	
Travel	2,216	
TOTAL, Direct Costs		$139,634
TOTAL, Indirect Costs		56,552
TOTAL PROJECT COST		$196,186

*Machine shop, electronic shop, printing and publication costs.

State of California
AIR RESOURCES BOARD

Resolution 85-76

November 22, 1985

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 1349-120, entitled "Statewide Economic Assessment of Crop Loss Due to Air Pollution", 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 1349-120, entitled "Statewide Economic Assessment of Crop Loss Due to Air Pollution", submitted by the University of California, Davis for a total amount not to exceed $77,000.

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 1349-120, entitled "Statewide Economic Assessment of Crop Loss Due to Air Pollution", submitted by the University of California, Davis for a total amount not to exceed $77,000.

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 $77,000.

I hereby certify the above is
a true and correct copy of
Resolution 85-76 as adopted
by the Air Resources Board.

Harold Holmes, Board Secretary

ITEM NO.: 85-17-4(b)3
DATE: November 22, 1985

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 1349-120 entitled "Statewide Economic Assessment of Crop Losses Due to Air Pollution".

RECOMMENDATION: Adopt Resolution 85-76 approving Proposal No. 1349-120 for funding in an amount not to exceed $77,000.

SUMMARY: This research project will use the California Agricultural Resources (CAR) model to estimate the statewide cost of air pollution damage to crops in California and to refine and direct the biological and economic estimation of the California Crop Loss Assessment program (CCLA). The CCLA program is funded by the ARB and conducted by plant scientists at the Statewide Agricultural Research Center at UC Riverside. The CAR model is a computerized model of the California farm economy which was developed by the Giannini Foundation of the University of California.

The tasks to be performed by this project include:

1. evaluate the cost of air pollution damage to crops in all major farming areas of California using the CAR model;

2. update the CAR model from the 1978 base year to 1984. This task involves re-estimating cost functions and data on land-use, water, fuel, energy, labor and fertilizer by crop and region; and

3. use the CAR model to evaluate preliminary biological data on crop yields as a guide in selecting crops for future fumigation studies.

In accordance with the State Health and Safety Code, this research provides for the development of a mathematical model to facilitate both the estimation of the effects of air pollution on plants and the economic analysis of those effects in order to assist the Board in determining the consequences of various alternative solutions to specific air pollution problems and adopting standards in consideration of the public welfare, including, effects on the economy, in its statewide effort to combat air pollution.

The Research Screening Committee has recommended funding this proposal from the University of California at Davis. The principal investigators will be Drs. Richard E. Howitt and Delworth B. Gardner.