State of California
AIR RESOURCES BOARD

Resolution 86-101
November 20, 1986

WHEREAS, the Air Resources Board has been directed to design and implement a comprehensive program of research and monitoring of acid deposition in California pursuant to Health and Safety Code Sections 39900 through 39915; and

WHEREAS, a solicited research proposal, Number 133-19, entitled "Acidic Aerosol Size Distributions During SCAQS," has been submitted by California Public Health Foundation;

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

WHEREAS, the Scientific Advisory Committee on Acid Deposition has reviewed and recommends for funding:

> Proposal Number 133-19, entitled "Acidic Aerosol Size Distributions During SCAQS," has been submitted by California Public Health Foundation, for a total amount not to exceed $164,044.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39906, hereby accepts the recommendation of the Scientific Advisory Committee on Acid Deposition and approves the following:

> Proposal Number 133-19, entitled "Acidic Aerosol Size Distributions During SCAQS," submitted by California Public Health Foundation for a total amount not to exceed $164,044.

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 $164,044.

I hereby certify that the above is a true and correct copy of Resolution 86-101, as adopted by the Air Resources Board

Harold Holmes, Board Secretary

ITEM NO.: 86-13-6(b) 1
DATE: November 20, 1986

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 133-19 entitled "Acidic Aerosol Size Distributions During SCAQS."

RECOMMENDATION: Adopt Resolution 86-101 approving Proposal No. 133-19 for funding in an amount not to exceed $164,044.

SUMMARY:

The purpose of this study is to provide data on size-resolved chemical composition of aerosols during the summer portion of the Southern California Air Quality Study (SCAQS). The overall goal of SCAQS is to develop a comprehensive and properly archived air quality and meteorological data base for the South Coast Air Basin that can be used to test, evaluate, and improve elements of air quality simulation models for oxidants, PM_{10}, fine particles, toxic air contaminants and acidic species.

Gas and Aerosol phase computer models require, for their validation, spatially and temporally resolved ambient measurements of aerosols, including information on inorganic ions (nitrate, sulfate, chloride, ammonium, potassium, and sodium). To provide these data, the proponent would use the nine-stage Berner cascade impactor, which was demonstrated successfully during the ARB-sponsored Nitrogen Species Measurement Methods Comparison Study held in Claremont in September 1985.

The Contractor will measure the particle size distribution of major inorganic ions during the summer intensive study period of SCAQS, approximately 6 weeks (12 sampling days) beginning in June, 1987. The Berner impactors will be operated at three stations including the two type "A" (intensive) stations, and a mobile station which would be situated in an upwind area. In addition to the above measurements, the contractor would analyze ten percent of the samples collected for calcium and magnesium ions, and formic and acetic acids.

The research contractor is the California Public Health Foundation and the Principal Investigator is Dr. Walter John.

BUDGET SUMMARY

California Public Health Foundation

"Acidic Aerosol Size Distributions During SCAQS"

BUDGET ITEMS:

Salaries	$70,678	
Benefits	20,477	
Supplies[1]	11,600	
Travel	10,560	
Equipment[2]	18,501	
TOTAL, Direct Costs		$131,816
TOTAL, Indirect Costs		32,228
TOTAL PROJECT COST		$164,044

1/ Includes fabrication of three wind shields, three denuders, and three sampling stands.

2/ Includes two eight-stage Berner Impactors ($17,006).

State of California
AIR RESOURCES BOARD

Resolution 86-102
November 20, 1986

WHEREAS, the Air Resources Board has been directed to design and implement a comprehensive program of research and monitoring of acid deposition in California pursuant to Health and Safety Code Sections 39900 through 39915; and

WHEREAS, an augmentation proposal, Number 018-3(b), entitled "Snow Deposition, Melt, Runoff and Chemistry in a Small Alpine Watershed, Emerald Lake Basin, Sequoia National Park," has been submitted by the University of California, Santa Barbara;

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

WHEREAS, the Scientific Advisory Committee on Acid Deposition has reviewed and recommends for funding:

> Proposal Number 018-3(b), entitled "Snow Deposition, Melt, Runoff and Chemistry in a Small Alpine Watershed, Emerald Lake Basin, Sequoia National Park," submitted by the University of California, Santa Barbara, for a total amount not to exceed $32,183.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39906, hereby accepts the recommendation of the Scientific Advisory Committee on Acid Deposition and approves the following:

> Proposal Number 018-3(b), entitled "Snow Deposition, Melt, Runoff and Chemistry in a Small Alpine Watershed, Emerald Lake Basin, Sequoia National Park," submitted by the University of California, Santa Barbara for a total amount not to exceed $32,183.

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 $32,183.

I hereby certify that the above is a true and correct copy of Resolution 86-102, as adopted by the Air Resources Board.

Harold Holmes, Board Secretary

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DATE: November 20, 1986

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 018-3(b) entitled "Snow Deposition, Melt, Runoff and Chemistry in a Small Alpine Watershed, Emerald Lake Basin, Sequoia National Park."

RECOMMENDATION: Adopt Resolution 86-102 approving Proposal No. 018-3(b) for funding in an amount not to exceed $32,183.

SUMMARY: As part of the Acid Deposition Research and Monitoring Program, snow deposition and snowmelt runoff have been studied at a representative, high-elevation watershed, Emerald Lake Basin. The proponents have carried out this study of snow deposition and chemistry during two field seasons, winter 1984-85 and 1985-86. This study continuation will allow the researchers to collect snow samples and conduct experiments at the Emerald Lake Watershed during winter 1986-87 to help with the estimation of atmospheric loading to the Basin during the winter period, when more than 90% of the total volume of deposition occurs.

The work to be continued includes: routine sampling of snowfall and snowpack at a number of locations in the Basin; collection of data on meteorological parameters; installation of equipment and conducting of snow-event fractionation experiments; and planning from tracer experiments during snowmelt.

This work on snow-processes and chemistry is crucial to an understanding of the chemistry of dry and wet deposition to sensitive, high-elevation areas of California. These data will also be useful in estimating timing, magnitude and acidity of snowmelt runoff in the spring when biological populations are particularly vulnerable.

The research contractor is the University of California at Santa Barbara, and the principal investigators are Drs. Jeffrey Dozier and John Melack.

BUDGET SUMMARY

University of California, Santa Barbara

"Snow Deposition, Melt, Runoff and Chemistry in a Small Alpine Watershed, Emerald Lake Basin, Sequoia National Park,

BUDGET ITEMS:

Salaries	$14,320	
Benefits	2,087	
Supplies	4,000	
Other Costs*	5,850	
Travel	3,000	
TOTAL, Direct Costs		$29,257
TOTAL, Indirect Costs		2,926
TOTAL PROJECT COST		$32,183

* Includes computer time, satellite data and aerial overflights.

State of California
AIR RESOURCES BOARD

Resolution 86-103
November 20, 1986

WHEREAS, the Air Resources Board has been directed to design and implement a comprehensive program of research and monitoring of acid deposition in California pursuant to Health and Safety Code Sections 39900 through 39915; and

WHEREAS, an unsolicited research proposal, Number 136-19, entitled "Effects of Acid Fog and Ozone on Conifers," 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 Scientific Advisory Committee on Acid Deposition has reviewed and recommends for funding:

> Proposal Number 136-19, entitled "Effects of Acid Fog and Ozone on Conifers," submitted by the University of California, Riverside for a total amount not to exceed $88,480.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39906, hereby accepts the recommendation of the Scientific Advisory Committee on Acid Deposition and approves the following:

> Proposal Number 136-19, entitled "Effects of Acid Fog and Ozone on Conifers," submitted by the University of California, Riverside for a total amount not to exceed $88,480.

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 $88,480

I hereby certify that the above is a true and correct copy of Resolution 86-103, as adopted by the Air Resources Board.

Harold Holmes, Board Secretary

ITEM NO.: 86-13-6(b) 3
DATE: November 20, 1986

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 136-19 entitled "Effects of Acid Fog and Ozone on Conifers."

RECOMMENDATION: Adopt Resolution 86-103 approving Proposal No. 136-19 for funding in an amount not to exceed $88,480.

SUMMARY:

The objective of this proposal is to identify the metabolic basis for the response of coniferous trees to acid fog, and to determine whether acid fog exposure predisposes trees to ozone injury and growth reduction.

The Kapiloff Act requires the Board to conduct a comprehensive research program into the effects of acid deposition, including determination of the effects of acid deposition, in its various forms, upon forest plants. In addition, the Act requires the Board to determine dose response functions to assess economic effects of damage to forest plants.

The experiments proposed here for pine seedlings should provide valuable information on the effects of acid deposition for an important forest species. The experiments are intended to simulate spring and summer ambient air conditions in the South Coast Air Basin. The plants, Ponderosa pine and Monterey pine, will be exposed to acidic fog for up to eleven weeks during spring and then exposed to ambient ozone levels during July through September. During the exposures, appropriate physiological measurements will be made and environmental conditions monitored. These data will then be analyzed to assess the degree of plant response.

The research contractor is the Statewide Air Pollution Research Center of the University of California at Riverside, and the principal investigators are Drs. Andrzej Bytnerowicz and David Olszyk.

BUDGET SUMMARY

University of California, Riverside

"Effects of Acid Fog and Ozone on Conifers"

BUDGET ITEMS:

Salaries	$53,759	
Benefits	13,958	
Supplies*	9,436	
Other Costs	2,085	
Travel	1,517	
TOTAL, Direct Costs		$80,755
TOTAL, Indirect Costs		7,725
TOTAL PROJECT COST		$88,480

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* Includes $3000 for fabrication of fogging enclosures and $4000 for electric power.