State of California
AIR RESOURCES BOARD

Resolution 86-58

June 19, 1986

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

WHEREAS, an unsolicited research proposal, Number 112-17, entitled "Integrated Soil Processes Studies at Emerald Lake Watershed," has been submitted by the University of California, Riverside, to the ARB; and

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 112-17, entitled "Integrated Soil Processes Studies at Emerald Lake Watershed," submitted by the University of California, Riverside, for a total amount not to exceed $265,206.

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 112-17, entitled "Integrated Soil Processes Studies at Emerald Lake Watershed," has been submitted by the University of California, Riverside, for a total amount not to exceed $265,206.

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 $265,206.

I hereby certify that the above is a true and correct copy of Resolution 86-58 as adopted by the Air Resources Board

Harold Holmes, Board Secretary

ITEM NO.: 86-7-4(b)1
DATE: June 19, 1986

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 112-17 entitled "Integrated Soil Processes Studies at Emerald Lake Watershed."

RECOMMENDATION: Adopt Resolution 86-58 approving Proposal No. 112-17 for funding in an amount not to exceed $265,206.

SUMMARY: The Integrated Watershed Study (IWS) at Emerald Lake, Sequoia National Park was initiated by the Air Resources Board in 1984 to investigate the sensitivity of a representative high-elevation watershed to acid deposition. Soil processes in the watershed were investigated by researchers from the University of California, Riverside at the IWS site during the 1984-85 field seasons. The U.C. Riverside group is now requesting funding for an additional 24-month study at the IWS site to continue and expand soil processes research. The objectives of this study are: (1) to continue long-term biological and soil processes studies; (2) to obtain solute transport, biological and chemical data required for integration of soil processes data with vegetation and hydrologic processes data; and (3) to integrate soil process data with recently acquired mapping data to estimate budgets of nitrogen, sulfur, phosphorus and aluminum for the watershed. These data will provide the ARB with information on soil processes that may be changing due to acid inputs. It is also important to collect these data so that the influences on surface water quality can be estimated.

This research project will include field collection of physical, chemical and biological data on soils and laboratory experiments designed to model important processes that can be verified in the field. These data can be used to construct a model that describes this representative, subalpine system and predicts changes that may be attributed to acid deposition.

The principal investigators for this research project include: Drs. L. Lund, M. Lueking, A. Brown and S. Nodvin.

BUDGET SUMMARY

University of California, Riverside

"Integrated Soil Processes Studies at Emerald Lake Watershed"

BUDGET ITEMS:

Salaries	$157,699
Benefits	40,893
*Supplies	13,000
**Equipment	6,500
Other Costs	—
***Travel	23,595

TOTAL, Direct Costs	$241,687
TOTAL, Indirect Costs (10% of $235,187)	23,519
TOTAL PROJECT COST	$265,206

* Supplies include field apparatus, laboratory supplies and office supplies.

** Equipment includes three electronic data loggers for field use.

*** Travel includes $20,995 for mileage charges, per diem expenses and vehicle rental for field work.

State of California
AIR RESOURCES BOARD

Resolution 86-59

June 19, 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 111-17, entitled "Characterization of Year-Round Sensitivity of California's Mountain Lakes to Acidic Deposition," has been submitted by the University of California, Santa Barbara to the ARB; and

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 111-17, entitled "Characterization of Year-Round Sensitivity of California's Mountain Lakes to Acidic Deposition," submitted by the University of California, Santa Barbara, for a total amount not to exceed $237,658.

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 111-17, entitled "Characterization of Year-Round Sensitivity of California's Mountain Lakes to Acidic Deposition," submitted by the University of California, Santa Barbara, for a total amount not to exceed $237,658.

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 $237,658.

I hereby certify that the above is a true and correct copy of Resolution 86-59 as adopted by the Air Resources Board

Harold Holmes, Board Secretary

ITEM NO.: 86-7-4(b)2
DATE: June 19, 1986

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 111-17 entitled "Characterization of Year-Round Sensitivity of California's Mountain Lakes to Acidic Deposition."

RECOMMENDATION: Adopt Resolution 86-59 approving Proposal No. 111-17 for funding in an amount not to exceed $237,658.

SUMMARY: The Kapiloff Acid Deposition Act requires the California Air Resources Board to assess the potential for damage to natural ecosystems of the state due to acid deposition. Since the Sierra Nevada is known to be the most sensitive region of the state, it is important to characterize the vulnerability of high-elevation lakes to acid deposition. It is also critical that episodic acidification events due to acidic precipitation in the Sierra be monitored in a number of different lake basins to understand the extent of this phenomena.

The proposal by the University of California, Santa Barbara, describes a 24-month field program to study the year-round status of four lakes in the Sierra: two on the western slope and two on the eastern slope. This project will measure precipitation inputs as rain and snow, estimate lake outflow and examine chemical and physical dynamics of lakes on a bimonthly schedule. This project is designed to document alkalinity changes that may occur in winter. Also, this sampling schedule will allow for the identification of acidic rain or snowmelt events in four different locations in the Sierra.

At the completion of this field study, the proponents will evaluate the complete set of data bases relating to lakes generated under the Kapiloff program and will recommend a long-term monitoring program for California's sensitive lakes.

The principal investigator for this project is Dr. John Melack.

BUDGET SUMMARY

University of California, Santa Barbara

"Characterization of Year-Round Sensitivity of California's Mountain Lakes to Acidic Deposition"

BUDGET ITEMS:

Salaries	$92,902	
Benefits	29,095	
*Supplies	24,676	
**Equipment	32,695	
***Other Costs	13,000	
****Travel	26,657	
TOTAL, Direct Costs		$219,025
TOTAL, Indirect Costs		18,633
	TOTAL PROJECT COST	$237,658

* Supplies include laboratory and field supplies.

** Equipment includes field instruments for the four watersheds (tipping bucket gauges, pressure transducers and electronic data loggers) and an ion chromatograph auto sampler ($10,945).

*** Other costs include publication costs, technical editing, office expenses, computer costs and stock fees.

**** Travel includes $9,600 for per diem expenses and $13,860 for mileage charges and vehicle rental for field work.

State of California
AIR RESOURCES BOARD

Resolution 86-63

June 19, 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 1409-126, entitled "A Quantitative Assessment of the Air Quality Effects of Methanol Fuel Use," has been submitted by the Carnegie-Mellon University;

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

WHEREAS, the Research Division has reviewed and recommends for funding:

> Proposal Number 1409-126, entitled "A Quantitative Assessment of the Air Quality Effects of Methanol Fuel Use," submitted by Carnegie-Mellon University for a total amount not to exceed $149,965.

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 1409-126, entitled "A Quantitative Assessment of the Air Quality Effects of Methanol Fuel Use," submitted by Carnegie-Mellon University for a total amount not to exceed $149,965.

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 $149,965.

I hereby certify that the above is a true and correct copy of Resolution 86-63 as adopted by the Air Resources Board

Harold Holmes, Board Secretary

ITEM NO.: 86-7-4 (b) (3)
DATE: June 19, 1986

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 1409-126 entitled "A Quantitative Assessment of the Air Quality Effects of Methanol Fuel Use."

RECOMMENDATION: Adopt Resolution 86-63 approving Proposal No. 1409-126 for funding in an amount not to exceed $149,965.

SUMMARY: The ARB has been evaluating methanol as an alternative motor vehicle fuel because of its potential for improving air quality in the SCAB. Preliminary studies of the impact of methanol use on air quality have been criticized by reviewers who are concerned about the validity of some major assumptions and about the emission factors that have been used in these estimates. The purpose of this project is to provide improved estimates of the air quality changes that would take place in the South Coast Air Basin (SCAB) as a result of varying levels of methanol fuel use. These estimates will be provided for the years 2000 and 2010.

An air quality simulation model will be used to provide these estimates. Uncertainity analysis will be performed on the modeling results and a plan formulated to reduce these uncertainities.

BUDGET SUMMARY

Carnegie-Mellon University

"A Quantitative Assessment of the Air Quality Effects of Methanol Fuel Use"

BUDGET ITEMS:

Salaries	$76,760	
Transportation	5,667	
Computer Usage	10,000	
Publication & Misc.	5,400	
Consulting*	7,500	
TOTAL, Direct Costs		$105,327
TOTAL, Indirect Costs		44,638
TOTAL PROJECT COST		$149,965

* RSC recommends that up to $7500 be added for a consultant on emissions of methanol powered vehicles.