State of California
AIR RESOURCES BOARD

Resolution 85-59
July 26, 1985

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

WHEREAS, an unsolicited research proposal, Number 91-12, entitled "Absolute Measurements of Nitric Acid by Kilometer Pathlength FT-IR Spectroscopy and Their Intercomparison with Other Measurement Methods", has been submitted by the Statewide Air Pollution Research Center, U.C. 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 91-12, entitled "Absolute Measurements of Nitric Acid by Kilometer Pathlength FT-IR Spectroscopy and Their Intercomparison with Other Measurement Methods", submitted by the Statewide Air Pollution Research Center, U.C. Riverside for a total amount not to exceed $16,375.

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 91-12, entitled "Absolute Measurements of Nitric Acid by Kilometer Pathlength FT-IR Spectroscopy and Their Intercomparison with Other Measurement Methods", submitted by the Statewide Air Pollution Research Center, U.C. Riverside for a total amount not to exceed $16,375.

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 $16,375.

I hereby certify that the above is a true and correct copy of Resolution 85-59 as adopted by the Air Resources Board.

ITEM NO.: 85-11-4(b)1
DATE: July 26, 1985

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 91-12 entitled "Absolute Measurements of Nitric Acid by Kilometer Pathlength FT-IR Spectroscopy and Their Intercomparison with Other Measurement Methods," Principal Investigators: Drs. Arthur M. Winer and Ernesto C. Tuazon.

RECOMMENDATION: Adopt Resolution 85-59 approving Proposal No. 91-12 for funding in an amount not to exceed $16,375.

SUMMARY: The Air Resources Board will conduct a study to compare methods of measuring nitrogen species at a central South Coast Air Basin location in September 1985. The major objective of this study is to validate measurement methods for nitric acid and species such as ammonia and particulate nitrate, which can be used in a multi-station monitoring mode in the upcoming Southern California air quality study.

The proponent would make ambient measurements of nitric acid, ammonia, and other gaseous species using a Fourier Transform-Infrared (FT-IR) spectrometer, which will serve as a reference method against which the results from other less direct methods will be compared. Seven days of monitoring are proposed, two of which will be for twenty-four hour periods. Measurements will be obtained from 0600 to 2200 hours on each of the remaining five days. Analysis of the data will be completed within three months after the end of the field study.

BUDGET SUMMARY

Statewide Air Pollution Research Center
University of California, Riverside

"Absolute Measurements of Nitric Acid by Kilometer Pathlength FT-IR Spectroscopy and Their Intercomparison with other Measurement Methods"

BUDGET ITEMS:

Salaries	$6,106	
Benefits	1,595	
Supplies	2,750	
Travel	1,204	
TOTAL, Direct Costs		$11,655
TOTAL, Indirect Costs		4,720
TOTAL PROJECT COST		$16,375

State of California
AIR RESOURCES BOARD

Resolution 85-60
July 26, 1985

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

WHEREAS, an unsolicited research proposal, Number 092-12, entitled "Dry Acid Deposition: Monitoring Technique for Nitric Acid and Particulate Nitrate - Size Distribution of Acidic Particles", has been submitted by Air and Industrial Hygiene Laboratory, California Department of Health Services, Berkeley;

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

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

> Proposal Number 092-12 entitled "Dry Acid Deposition: Monitoring Technique for Nitric Acid and Particulate Nitrate - Size Distribution of Acidic Particles", submitted by Air and Industrial Hygiene Laboratory, California Department of Health Services, Berkeley for a total amount not to exceed $86,863.

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 092-12 entitled "Dry Acid Deposition: Monitoring Technique for Nitric Acid and Particulate Nitrate - Size Distribution of Acidic Particles", submitted by Air and Industrial Hygiene Laboratory, California Department of Health Services, Berkeley for a total amount not to exceed $86,863.

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 $86,863.

I hereby certify that the above is a true and correct copy of Resolution 85-60 as adopted by the Air Resources Board.

ITEM NO.: 85-11-4(b)2
DATE: July 26, 1985

State of California
AIR RESOURCES BOARD

ITEM: Research Proposal No. 092-12 entitled "Dry Acid Deposition: Monitoring Technique for Nitric Acid and Particulate Nitrate - Size Distribution of Acidic Particles", Principal Investigator: Dr. Walter John.

RECOMMENDATION: Adopt Resolution 85-60 approving Proposal No. 092-12 for funding in an amount not to exceed $86,863.

SUMMARY:

It has been estimated that dry deposition fluxes in the South Coast Air Basin may be as much as ten times larger than wet deposition fluxes. More precise assessment of acid deposition in California will require the routine monitoring of dry, as well as wet, deposition. It is generally acknowledged that present capabilities to monitor dry deposition in a practical and routine, yet accurate, manner are inadequate. The approach proposed in this research, provided it can be validated, offers promise for a reliable and accurate method for the sampling of dry acid deposition.

The principal objective of the proposed research is to develop and validate a new but rigorous technique to sample dry acids on a routine basis. The sampling approach would use dichotomous samplers (such as those now used on a small scale by the ARB in the PM_{10} network), cyclone samplers, and bubblers to sample nitric acid, fine and coarse particulate nitrate, sulfate, strong acid, ammonium ion and sulfur dioxide.

The approach would be used under field conditions during the upcoming "Intercomparison Studies of Measurement Methods" in September 1985 as well as under controlled conditions in the laboratory. The contractor will also make detailed measurements of the particle size distribution and particle acidity by size during the intercomparison study.

The proposed sampling approach, once it is validated, could prove to be much more suitable for routine monitoring than the current denuder difference methods, which are labor-intensive and time consuming to operate.

BUDGET SUMMARY

Air and Industrial Hygiene Laboratory
California Department of Health Services, Berkeley

"Dry Acid Deposition: Monitoring Technique for Nitric Acid and Particulate Nitrate - Size Distribution of Acidic Particles"

BUDGET ITEMS:

Salaries	$ 43,125	
Benefits	13,962	
Supplies	3,500	
Travel	2,776	
Equipment	0	
Other Costs	3,845	
TOTAL, Direct Costs		$ 67,208
TOTAL, Indirect Costs		19,655
TOTAL PROJECT COST		$ 86,863