State of California
AIR RESOURCES BOARD

Resolution 01-22
June 28, 2001

Agenda Item No.: 01-5-6

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;

WHEREAS, a research proposal, number 2493-220, entitled "Deployment and Operation of the Scanning Mobility Particle Sizers and Low Temperature Tapered Element Oscillating Microbalance in the Children's Health Study Communities", has been submitted by the University of Southern California.

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 2493-220 entitled "Deployment and Operation of the Scanning Mobility Particle Sizers and Low Temperature Tapered Element Oscillating Microbalance in the Children's Health Study Communities", submitted by the University of Southern California, for a total amount not to exceed $74,679.

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 2493-220 entitled "Deployment and Operation of the Scanning Mobility Particle Sizers and Low Temperature Tapered Element Oscillating Microbalance in the Children's Health Study Communities", submitted by the University of Southern California, for a total amount not to exceed $74,679.

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, and as described in Attachment A, in an amount not to exceed $74,679.

I hereby certify that the above is a true and correct copy of Resolution 01-22, as adopted by the Air Resources Board.

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Marie Kavan, Clerk of the Board

ATTACHMENT A

"Deployment and Operation of the Scanning Mobility Particle Sizers and
Low Temperature Tapered Element Oscillating Microbalance
in the Children's Health Study Communities"

Background

The Air Resources Board operates an air monitoring network in the South Coast air basin to provide data for the Children's Health Study (CHS). PM10 data is collected by Temperature Tapered Element Oscillating Microbalance (TEOMs) operating at 50 degrees Celsius, the U.S. EPA equivalent method configuration. At this temperature the particulate mass can be under reported due to loss of volatile organic and nitrogen compounds. In order to avoid seriously misrepresenting PM10 mass in statistical analyses, the investigators in the CHS have elected to correct PM10 mass values from the TEOMs with hi-vol mass measurements from either collocated or similar locations nearby. In some cases, hi-vol data from considerable distances are employed in this correction process. There is a likelihood that the uncertainties in this correction process introduce unknown errors into the statistical analysis efforts of the CHS. The U.S. EPA has committed to co-funding approximately two thirds of the cost of this project through the South Coast Air Quality Management District.

Objective

The objective of this project is to deploy and operate the low temperature TEOM and the SMPS in the CHS. These instruments will allow for more mass conservative PM10 determinations and collect ultrafine particle size distribution information, respectively.

Methods

The proposed TEOMs operate at reduced temperatures to avoid volatilization. This project will circulate the low temperature TEOMs throughout the CHS network to recalculate the adjustment factor applied to the PM10 data.

The deployment of the Scanning Mobility Particle Sizers (SMPS) will expand the newly initiated ultrafine particle counter network, which measures another aspect of particulate matter in the atmosphere at the CHS monitoring sites. The SMPS instruments will produce data about the size distributions of ultrafine particles and provide valuable information about particle sources and dynamics and help provide insights into the potential health consequences of exposure to these particles.

The instruments will circulate through the CHS network with periods of two to six months at each station to gather seasonal data.

Expected Results

The low temperature TEOM will use the new model of TEOM that operates at or near ambient temperature. Data will be collected to recalculate PM10 correction factors which will improve the data used in modeling in the Children's Health Study.

The deployment of the SMPS will produce data about the size distributions of ultrafine particles. These data will provide valuable information about particle sources and dynamics, and help provide insights into the potential health consequences of exposure to these particles.

Significance to the Board
This project will provide information to improve the quality of particulate matter data reported from the Children's Health Study and used in the health effects models in that study. It will also provide pioneering information about the nature and behavior of ultrafine particles, which many health researchers believe are a critical component of air pollution effects on health outcomes.

Contractor: University of Southern California

Contract Period: 36 months

Principal Investigator: Dr. Constantinous Sioutas

Contract Amount: $74,679

Cofunding: $120,000 from the U.S. EPA

Basis for Indirect Cost Rate: The Indirect Cost Rate is 30 percent, as previously negotiated and agreed upon by the State of California and the University of Southern California.

Past Experience with this Principal Investigator: The Principal Investigator has an international reputation in aerosol science, specializing in field operations and ambient monitoring. He is the Deputy Director of the Southern California Particle Center and Supersite.

Prior Research Division Funding to the University of Southern California:

Year	2000	1999	1998
Funding	$0	$0	$6,015,941

B U D G E T S U M M A R Y

University of Southern California

"Deployment and Operation of the Scanning Mobility Particle Sizers and Low Temperature Tapered Element Oscillating Microbalance in the Children's Health Study Communities"

DIRECT COSTS AND BENEFITS			
1.	Labor and Employee Fringe Benefits	$45,691	
2.	Subcontractors	$ 0	
3.	Equipment	$ 0	
4.	Travel and Subsistence	$11,754	
5.	Electronic Data Processing	$ 0	
6.	Reproduction/Publication	$ 0	
7.	Mail and Phone	$ 0	
8.	Supplies	$ 0	
9.	Analyses	$ 0	
10.	Miscellaneous	$ 0	
	Total Direct Costs		$57,445
INDIRECT COSTS			
1.	Overhead	$17,234	
2.	General and Administrative Expenses	$ 0	
3.	Other Indirect Costs	$ 0	
4.	Fee or Profit	$ 0	
	Total Indirect Costs		$17,234
TOTAL PROJECT COSTS			**$74,679[1]**

(notes)

[1] Total project cost = $194,679; U.S. EPA co-funding will pay $120,000 leaving ARB cost as $74,679