

State of California  
AIR RESOURCES BOARD

Research Resolutions

Research Division

September 7-8, 2000

## INTRODUCTION

Contained herein for Board review is a resolution and an accompanying summary to sponsor the National Environmental Respiratory Center from the Extramural Research Program recommended to the Board by the Research Screening Committee.

Item 1 is a research proposal from the Lovelace Respiratory Research Institute entitled, "Annual Report of the National Environmental Respiratory Center." The principal investigator will be Dr. Joe Mauderly.

Resolution No. 00-28

**PROPOSED****State of California  
AIR RESOURCES BOARD****RESEARCH PROPOSAL**

Support for the National Environmental Respiratory Center

Resolution 00-28  
September 7-8, 2000

**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 2457-215, entitled "Annual Report of the National Environmental Respiratory Center", has been submitted by Lovelace Respiratory Research Institute;

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

**WHEREAS**, the Research Screening Committee has reviewed and recommends for funding:

Proposal Number 2457-215 entitled "Annual Report of the National Environmental Respiratory Center ", submitted by Lovelace Respiratory Research Institute, for a total amount not to exceed \$50,000.

**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 2457-215 entitled "Annual Report of the National Environmental Respiratory Center ", submitted by Lovelace Respiratory Research Institute, for a total amount not to exceed \$50,000.

**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 \$50,000.

## Annual Report of the National Environmental Respiratory Center

### Background

One of the major problems facing researchers, regulators, and the public in addressing the issues of health effects from air pollution exposure is the complex mixtures to which the public is exposed. Historically, research on air pollutants has been focused on one pollutant or one class of pollutant at a time. However, it is becoming increasingly apparent that this approach is inadequate to provide the information needed by the regulatory community. The National Environmental Respiratory Center (NERC or Center) was created to address some of the concerns and issues surrounding research on pollution mixtures.

The NERC is a joint government, industry, research, and information program created in 1998 and funded through the United States Environmental Protection Agency. Congress approved \$2 million for the initial establishment of the NERC in 1998, and an additional \$2 million was approved for 1999. Additional funding for work performed at the Center is provided by non-government sponsors, mainly from the automotive, petroleum, and trucking industries. The Center is located at the Lovelace Respiratory Research Institute (LRRI) in Albuquerque, New Mexico. It will be managed by LRRI staff, under the direction of Dr. Joe Mauderly. Dr. Mauderly is a renowned scientist with expertise in health-related impacts from inhaled particles and the use of animal models in predicting human respiratory risks. He will be assisted by the expert team of scientists and technicians of the LRRI, and competent new staff are being recruited for the program.

### Objective

The initial objective of the program will be to study the cardiorespiratory effects of 12 complex atmospheres, using a consistent set of health assays in animal models and cells. The mixtures include diesel exhaust (contemporary engines, pre-1990 engines), gasoline exhaust (on-road, off-road), road dust (paved, unpaved), wood smoke (hardwood, softwood), cooking fumes (vegetable, meat), tobacco smoke, and coal power plant emissions. A matrix will be devised to correlate the test atmospheres and a series of specific health endpoints, including irritation and inflammation, allergies and asthma, defenses against infection, heart and lung function, and cancer. Additional mixtures may be tested in future studies.

### Expected Results

This program should result in important new information on the interaction of components within these complex mixtures of air pollutants and the impact of pollution mixtures on human health; the contemporary diesel emissions atmosphere will be the first exposure mixture examined. The progress of the exposures testing depends, to some extent, on the level of funding reached; however, the NERC plans to study two atmospheres per year. Additional funding may be used to increase the timing of the exposures or explore additional interactions among mixture constituents.

**Significance to the Board**

The investigation of complex mixtures and their public health impact is essential to the development of comprehensive control measures. Fiscal support for the NERC's ambitious program will enable the ARB to participate in a larger effort to examine these complex issues. A contribution of \$25,000 per year to this program will give the ARB "Center Affiliate" status and entitle the ARB to attendance at all workshops and meetings and prepublication access to Center results.

**Contractor:** Lovelace Respiratory Research Institute

**Contract Period:** 24 months

**Principal Investigator:** Joe Mauderly

**Contract Amount:** \$50,000

**Cofunding:** U.S. EPA has contributed \$4,000,000 to the program.

**Basis for Indirect Cost Rate:** Not applicable

**Past Experience with this Principal Investigator:** Dr. Joe Mauderly is a world renowned expert in the field of respiratory physiology and toxicology and is the author or co-author of over 200 publications. Dr. Mauderly's early research interest was in study of interspecies differences in lung physiology, the physiology of lung lavage, functional aspects of lung aging and the correlation of structure-function changes in lung disease caused by inhalation of toxicants. Dr. Mauderly's recent work includes the health risks from inhaled particles and mixtures containing particles, specifically diesel exhaust, and on the application and usefulness of animal models in prediction of particle-induced human disease.

**Prior Research Division Funding to Lovelace Respiratory Research Institute:**

Year	1999	1998	1997
Funding	\$0	\$0	\$0

## BUDGET SUMMARY

Lovelace Respiratory Research Institute

Support for the National Environmental Respiratory Center

### DIRECT COSTS AND BENEFITS

1.	Labor and Employee Fringe Benefits	\$50,000
2.	Subcontractors	\$ -
3.	Equipment	\$ -
4.	Travel and Subsistence	\$ -
5.	Electronic Data Processing	\$ -
6.	Reproduction/Publication	\$ -
7.	Mail and Phone	\$ -
8.	Supplies	\$ -
9.	Analyses	\$ -
10.	Miscellaneous	\$ -
Total Direct Costs		\$50,000

### INDIRECT COSTS

1.	Overhead	\$ -
2.	General and Administrative Expenses	\$ -
3.	Other Indirect Costs	\$ -
4.	Fee or Profit	\$ -
Total Indirect Costs		\$ -

<b>TOTAL ARB COSTS</b>	<b>\$ 50,000*</b>
<b>COFUNDING</b>	<b>\$ 4,000,000</b>
<b>TOTAL PROJECT COST</b>	<b>\$24,000,000**</b>

\*Includes labor and all related costs

\*\* The estimate for the 6-year research program is \$24,000,000. ARB will contribute \$50,000 towards this total. U.S.EPA has committed \$4,000,000 for the first two years and LRRI is anticipating this same contribution for the duration of the program.