

State of California
AIR RESOURCES BOARD

RESEARCH PROPOSAL

Resolution 05-7

January 20, 2005

Agenda Item No.: 05-1-2

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 2569-246, entitled "Development of In-field Diesel PM Compliance Method for Stationary and Portable CI Engines," 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 Research Screening Committee has reviewed and recommends for funding:

Proposal Number 2569-246 entitled "Development of In-field Diesel PM Compliance Method for Stationary and Portable CI Engines", submitted by the University of California, Riverside, for a total amount not to exceed \$299,895.

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 2569-246 entitled "Development of In-field Diesel PM Compliance Method for Stationary and Portable CI Engines", submitted by University of California, Riverside, for a total amount not to exceed \$299,895.

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 \$299,895.

I hereby certify that the above is a true and correct copy of Resolution 05-7, as adopted by the Air Resources Board.

Lori Andreoni, Clerk of the Board

ATTACHMENT A

“Development of In-field Diesel PM Compliance Method for Stationary and Portable CI Engines”

Background

The ARB recently adopted an Airborne Toxic Control Measure (ATCM) to control particulate matter (PM) emissions from stationary and portable diesel engines. This ATCM requires the measurement of PM emissions from most of these engines. The test methods used to measure emissions from these engines are time consuming and costly, and hence the ARB would like to develop a simpler, less costly test method.

Objective

The objective of this project is to develop a "Simplified Field Test Method" (SFTM) that will be based on the existing ARB Method 5 that is used to measure PM emissions from stationary sources.

Methods

The contractor will conduct emissions testing to collect data from stationary and portable diesel engines, and perform data analysis to support the development of less expensive field test methods to measure PM emissions from stationary and portable diesel engines. Specifically, a variety of stationary and portable diesel engines will be procured for emissions testing using both Code of Federal Regulations dilution sampling as well as Method 5 raw exhaust emissions sampling, and International Organization for Standardization (ISO) steady-state test cycles will be utilized. The contractor will employ both filter-based PM sampling methods and non-filter-based electronic methods for quantifying PM emissions. The test results will be used to develop both a compliance test, as well as a test to identify high emitting diesel engines. If successful and project resources permit, the field test method might be extended to other source categories such off-road mobile sources that operate at the ports in Southern California.

Expected Results

The products from this project are expected to be new field test methods to measure PM emissions from stationary and portable diesel engines.

Significance to the Board

The development of a SFTM will allow local air districts and testing contractors to perform less expensive, in-the-field PM emissions compliance testing of in-use stationary and portable diesel engines to support implementation of the stationary diesel engine ATCM.

Contractor:

University of California, Riverside

Contract Period:

24 months

Principal Investigators (PIs):

J. Wayne Miller Ph.D. and David Cocker, Ph.D.

Contract Amount:

\$299,895

Basis for Indirect Cost Rate:

The State and the UC system have agreed to a ten percent indirect cost rate.

Past Experience with this Principal Investigator:

ARB Research Division staff are currently working with Dr. Miller on two Research Division contracts and we have found Dr. Miller and CE-CERT staff to be knowledgeable in their subject areas, and flexible in terms of making modifications to the projects to respond to changing circumstances dictated by interim project results.

Prior Research Division Funding to UCR:

Year	2004	2003	2002
Funding	\$0	\$1,036,130	\$0

BUDGET SUMMARY

University of California, Riverside

Development of In-field Diesel PM Compliance Method
for Stationary and Portable CI Engines

DIRECT COSTS AND BENEFITS

1.	Labor and Employee Fringe Benefits	\$138,116
2.	Subcontractors	\$ 0
3.	Equipment	\$ 0
4.	Travel and Subsistence	\$ 825
5.	Electronic Data Processing	\$ 384
6.	Reproduction/Publication	\$ 0
7.	Mail and Phone	\$ 0
8.	Supplies	\$ 2,271
9.	Analyses	\$ 90,319 ¹
10.	Miscellaneous	<u>\$ 45,980²</u>
	Total Direct Costs	\$277,895

INDIRECT COSTS

1.	Overhead	\$ 22,000
2.	General and Administrative Expenses	\$ 0
3.	Other Indirect Costs	\$ 0
4.	Fee or Profit	<u>\$ 0</u>
	Total Indirect Costs	<u>\$ 22,000</u>

TOTAL PROJECT COSTS

\$299,895

¹ Mobile Lab Testing

9 days of prep/tech @ \$1,108/day	9,972
9 days of testing @ \$2,634/day	<u>23,706</u>
	33,678

Method 5 Testing

Emission Sampling and Control Chamber: 31 days @ \$633/day	19,623
Tech days: 40 days @\$202/day	<u>8,080</u>
	27,703

Analytical Lab Testing

Elemental and Organic Carbon (224@\$50/ea)	11,200
Method 5 (79@\$222/ea)	17,538
Other testing to include SMPS (2 @ \$100/ea)	<u>200</u>
	28,938

² Facilities Rental of 20.9% of a modified total direct cost.