State of California
AIR RESOURCES BOARD

RESEARCH PROPOSAL

Resolution 06-34

November 16, 2006

Agenda Item No.: 06-10-2

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 2619-253, entitled "Development of Updated Solvent Cleaning Emissions Inventory," has been submitted by the University of California, Riverside;

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

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

> Proposal Number 2619-253, entitled "Development of updated ARB Solvent Cleaning Emissions Inventory," submitted by the University of California, Riverside, for a total amount not to exceed $249,343.

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 2619-253, entitled "Development of Updated ARB Solvent Cleaning Emissions Inventory," submitted by University of California, Riverside, for a total amount not to exceed $249,343.

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 $249,343.

I hereby certify that the above is a true and correct copy of Resolution 06-34, as adopted by the Air Resources Board.

Lori Andreoni

Lori Andreoni, Clerk of the Board

ATTACHMENT A

"Development of Updated ARB Solvent Cleaning Emissions Inventory"

Background

New regulation of solvent cleaning operations is being considered to achieve volatile organic compounds (VOC) emissions reductions. Solvent cleaning is one of the top five non-mobile source classes of VOC emissions in California. However, the emissions inventory is out of date, relative to solvent cleaning. During the past 10 years, the types of solvents being used have changed substantially due to the designation of acetone as an exempt VOC compound, the banning of ozone-depleting and certain toxic compounds, and changes in the applicable regulations. The feasibility and benefits of further regulation of solvent cleaning operations cannot be accurately assessed until the VOC emission inventory is updated to reflect these and other changes over the last 10 years.

Objective

The objective of this project is to update the inventory of VOC emissions from solvent cleaning operations. The updated emissions inventory will categorize VOC emissions by type of solvent, business application, technology type, and region in the state.

Methods

There are three principal tasks in this proposed project. The first is a survey of solvent cleaning businesses. The second is the development of a species profile for the solvents. The third is the development of the VOC emissions inventory for solvent cleaning operations.

The field survey that will be conducted of solvent cleaning businesses will consist of site visits by the contractor to the shops where the cleaning operations occur. During the site visits, the contractor will interview shop personnel and will review applicable records on solvent use. The information to be collected will include the types of solvents used, the quantities of solvents used, the types of cleaning technologies used, the number of employees, and any other factors which influence the amounts and types of solvents used.

Through the information obtained from the field survey, chemical profiles of the solvents currently being used would be developed. A database would be constructed to record the types, amounts, and Maximum Incremental Reactivity values (MIR) of all solvents used in cleaning operations. Using the results of the survey, an updated VOC emissions inventory from solvent cleaning operations will be developed. Emission estimates for individual shops and processes will be made by multiplying estimates of activity, or use, by emission factors. Activity, or use estimates, will be in units of volume of solvent used per day, and emission factors will be in units of mass of VOC emitted per volume of solvent used. Reactivity-weighted emission estimates will also be calculated using the latest MIR values.

Expected Results
The expected results will be an updated emissions inventory for solvent cleaning operations.

Significance to the Board
The updated emissions inventory for solvent cleaning operations will allow the ARB and the local air quality management districts to evaluate the effectiveness of existing regulations and the need for additional regulations for solvent cleaning operations.

Contractor:
University of California, Riverside

Contract Period:
24 months

Principal Investigator (PI):
David R. Cocker, III

Contract Amount:
$249,343

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:
The ARB has not had experience with this principal investigator. However, this principal investigator has worked on related projects, and the ARB staff is confident in his ability to successfully complete this project.

Prior Research Division Funding to UCR:

Year	2005	2004	2003
Funding	$699,826	$424,743	$1,036,130

BUDGET SUMMARY

University of California, Riverside

Development of Updated ARB Solvent Cleaning Emissions Inventory

DIRECT COSTS AND BENEFITS			
1.	Labor and Employee Fringe Benefits	$ 172,597	
2.	Subcontractors	$ 0	
3.	Equipment	$ 0	
4.	Travel and Subsistence	$ 17,887	
5.	Electronic Data Processing	$ 0	
6.	Reproduction/Publication	$ 0	
7.	Mail and Phone	$ 0	
8.	Supplies	$ 0	
9.	Analyses	$ 0	
10.	Miscellaneous	$ 39,811[1]	
	Total Direct Costs		$230,295
INDIRECT COSTS			
1.	Overhead	$ 19,048	
2.	General and Administrative Expenses	$ 0	
3.	Other Indirect Costs	$ 0	
4.	Fee or Profit	$ 0	
	Total Indirect Costs		$ 19,048
TOTAL PROJECT COSTS			**$249,343**

[1] The miscellaneous cost is a facilities rental fee. Because CE-CERT is an off-campus facility, they have an additional cost for renting facilities. This is charged as a direct cost and is calculated as 20.9 percent of the Modified Total Direct Costs (MTDC).