State of California

AIR RESOURCES BOARD

Resolution 82-5

February 24, 1982

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 solicited research Proposal Number 1093-89 entitled "Survey of Automotive Service Industry Maintenance Practices" has been submitted by Automotive Environmental Systems to the Air Resources Board; and

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

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

> Proposal Number 1093-89 entitled "Survey of Automotive Service Industry Maintenance Practices" submitted by Automotive Environmental Systems, for a total amount not to exceed $124,317;

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board under the powers and authority granted by the Health and Safety Code, Section 39705, hereby accepts the recommendation of the Research Screening Committee and approves the following:

> Proposal Number 1093-89 entitled "Survey of Automotive Service Industry Maintenance Practices" submitted by Automotive Environmental Systems, for a total amount not to exceed $124,317;

BE IT FURTHER RESOLVED, that the Executive Officer shall initiate administrative procedures and shall execute all necessary documents and contracts for the research effort proposed in an amount not to exceed $124,317.

I certify that the above is a true and correct copy of Resolution 82-5, as passed by the Air Resources Board.

Harold Holmes

Board Secretary

State of California
AIR RESOURCES BOARD

Item No: 82-4-3b.1
Date: February 24, 1982

ITEM: Research Proposal 1093-89 entitled "Survey of Automotive Service Industry Maintenance Practices".

RECOMMENDATION: Adopt Resolution 82-5, approving Research Proposal 1093-89 for funding in an amount not to exceed $124,317.

SUMMARY: Proper maintenance of in-use vehicles is a key factor in assuring the effectiveness of new vehicle emission standards. However, surveillance testing by the Air Resources Board shows that approximately 75 percent of in-use vehicles fail to retain their originally certified emission levels because of maladjustments, tampering or defective components. Restoring in-use vehicles to acceptable emission levels is becoming increasingly more difficult for the service industry because of the greater sophistication of emission control systems, especially with the introduction of electronic control devices. Such devices, including on-board automotive microprocessors, among other functions, help maintain engine calibrations in order to minimize emissions and fuel consumption. Failure of one or more of the components used in such systems could greatly increase a vehicle's emissions. The individual failure rate of these new components is predicted to be significant. As a result, the ability of the service industry to properly identify and repair component failures is critical.

The objectives of the study are to assess the ability of the service industry properly to diagnose and repair defective vehicle emission control systems and to determine the effect of current maintenance practices on vehicle emission levels and vehicle performance.

Five vehicles will be selected with ARB concurrence. Each vehicle will have two emission control system "defects" induced, with the resulting changes in emissions determined both separately and in combination. The first defect will produce adverse driveability symptoms that are noticeable to the average driver; the second defect will not. Each test vehicle then will be sent to a minimum of five dealerships and five independent repair facilities to determine their ability to identify and correct the specific induced defects.

SUMMARY con't

An emission test (CVS-75) will be performed on the vehicles as repaired and with the induced defects removed whenever: 1) a repair facility performs any work on the carburetor or the fuel injection system, or 2) a defect is suspected that may not be detected by a visual inspection or functional check.

Potentially, up to one hundred CVS emission tests could be required if each of the fifty repair facilities adjusts or repairs the carburetor or fuel injection systems. However, this is unlikely, and any unused funds allocated for testing are to be used to extend the surveillance program to a larger number of repair facilities.

State of California

AIR RESOURCES BOARD

Resolution 82-6

February 24, 1982

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 solicited research Proposal Number 1070-88 entitled "Impact of Reducing Gasoline Volatility in California" has been submitted by Bonner & Moore Management Science to the Air Resources Board; and

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

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

> Proposal Number 1070-88 entitled "Impact of Reducing Gasoline Volatility in California" submitted by Bonner & Moore Management Science for a total amount not to exceed $137,146;

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board under the powers and authority granted by the Health and Safety Code, Section 39705, hereby accepts the recommendation of the Research Screening Committee and approves the following:

> Proposal Number 1070-88 entitled "Impact of Reducing Gasoline Volatility in California" submitted by Bonner & Moore Management Science for a total amount not to exceed $137,146;

BE IT FURTHER RESOLVED, that the Executive Officer shall initiate administrative procedures and shall execute all necessary documents and contracts for the research effort proposed in an amount not to exceed $137,146.

I certify that the above is a true and correct copy of Resolution 82-6, as passed by the Air Resources Board.

Harold Holmes

Board Secretary

State of California
AIR RESOURCES BOARD

Item No: 82-4-3b.2
Date: February 24, 1982

ITEM: Research Proposal 1070-88 entitled "Impact of Reducing Gasoline Volatility in California".

RECOMMENDATION: Adopt Resolution 82-6, approving Research Proposal 1070-88 for funding in an amount not to exceed $137,146.

SUMMARY: The California Legislature, in 1970 took a major step toward reducing organic gas emissions by requiring the ARB to limit gasoline volatility to 9.0 pounds per square inch Reid Vapor Pressure (RVP) during the summer months. However, gasolines having a RVP of 9.0 psi still contain volatile, low molecular weight hydrocarbons, primarily butanes and pentanes, which tend to evaporate readily and contribute to summertime photochemical smog.

Over the past several years, evaporative controls on motor vehicles, storage tanks, gasoline transfer and service station operations have been implemented widely and, to the extent that these controls capture gasoline vapors, they have tended to reduce the potential benefits of further lowering gasoline volatility. However, recent studies at the ARB's Haagen-Smit Laboratory have shown that vehicle evaporative emission control systems may not be as effective as previously assumed owing to saturation of the carbon canisters or release of the pressure relief valves. Therefore, it is necessary to reexamine the feasibility of lowering gasoline volatility in view of emerging patterns of vehicle use and emission control effectiveness. Moreover, there is public pressure to modify or entirely eliminate the present vapor recovery program for service station operations. Thus, it is appropriate and timely to consider the full range of alternatives that may be available to reduce evaporative emissions from gasoline storage and marketing.

The objectives of this study are to assess the impacts of lowering the allowable RVP of gasoline from current summertime levels of 9 psi to the alternative levels of 8, 7, and 6 psi, upon statewide organic gas emissions, vehicle performance and petroleum refining and marketing.

Two mathematical models are proposed to estimate the impacts of reduced RVP limits upon the refining industry in California. An industry-wide model will be used to obtain

SUMMARY Cont'

product price structures which subsequently will be used to simulate several typical refining situations. The industry-wide linear programming (LP) model will depict the composite processing capability, crude availability and product demands for the refineries in California. Process representation will include all currently used fuel products and processes and simplified petrochemical interfaces. Crude mixes will represent high and low sulfur content, varying gravity, and availabilities defined for the years 1978, 1985, and 1990. The LP model will be calibrated to 1978, and a series of four cases representing four volatility levels (9,8,7 and 6 psi) for each of two future years (1985 and 1990) will be simulated.

Two additional cases to examine the effects of alcohol use and higher octane requirements also will be performed. The LP model will provide an assessment of the changes in capital requirements, operating costs, crude requirements, operating conditions, blend compositions, and will provide incremental cost of products (ability to expand existing facilities and install new processes) to be employed in studying typical refining situations.

Refinery configurations representing simple, moderately complex, and more complex refineries will be simulated under product price structures derived from the various LP model results. Crude combinations will be chosen to reflect various combinations of local and foreign crudes and various levels of sulfur content and gravity.

Changes in yield patterns, operating conditions, cash flow and required new facilities will be obtained under the various price structures from the LP model results and with the appropriate limits on gasoline vapor pressure. Comparisons under the different situations will provide estimates of the impacts on these typical refining situations.

Emission effects of lowering gasoline vapor pressure (Task 1) will be determined by applying published research, from publically available documents, of relationships of gasoline properties and evaporative emissions. These relationships will then be applied to measured changes in gasoline composition and estimated volatility characteristics associated with potential summer vapor pressure limits. This analysis is to be subcontracted to Mr. Milton R. Beychok, consulting engineer.

State of California

AIR RESOURCES BOARD

Resolution 82-7

February 24, 1982

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 request for budget augmentation of a research study entitled "Characteristics and Impact of Electronic Automotive Emission Control Systems" has been submitted by Systems Control, Inc. to the Air Resources Board; and

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

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

> Request for budget augmentation of a research study entitled; "Characteristics and Impact of Electronic Automotive Emission Control Systems", submitted by Systems Control, Inc. for a total amount not to exceed $10,892;

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board under the powers and authority granted by the Health and Safety Code, Section 39705, hereby accepts the recommendation of the Research Screening Committee and approves the following:

> Request for budget augmentation of a research study entitled; "Characteristics and Impact of Electronic Automotive Emission Control Systems", submitted by Systems Control, Inc. for a total amount not to exceed $10,892;

BE IT FURTHER RESOLVED, that the Executive Officer shall initiate administrative procedures and shall execute all necessary documents and contracts for the research effort proposed in an amount not to exceed $10,892.

I certify that the above is a true and correct copy of Resolution 82-7, as passed by the Air Resources Board.

Harold Holmes

Board Secretary

State of California
AIR RESOURCES BOARD

Item No: 82-4-3b.3
Date: February 24, 1982

ITEM: Request for budget augmentation of a research study entitled "Characteristic and Impact of Electronic Automotive Emission Control Systems" ARB Contract No. A0-144-32.

RECOMMENDATION: Adopt Resolution 82-7, approving budget augmentation request for funding in an amount not to exceed $10,892. Original funding: $119,288.

SUMMARY: This proposal is a request for augmentation of the funding of an ongoing study to quantify the impacts of malfunction of electronic emission control system components upon vehicle emissions, fuel economy, and driveability. The additional funding is requested to offset costs in excess of the amount originally budgeted for procurement of test vehicles.

Ten 1980 or 1981 vehicles, four domestic and six foreign, were specified in the Request for Proposals for this program. The specific models were to be identified later by the ARB.

SCI assumed that the test vehicles would be common representative vehicles and, on that basis, submitted a procurement budget of $1000.00 per vehicle. Subsequently, staff concluded that in order to maximize the usefulness the study's results in the future, it would be desireable to test several vehicles equipped with unique, state-of-the-art electronic emission control systems which are likely to become standard technology in the future. However, these advanced systems are only available on higher priced models. These vehicles are uncommon in rental fleets and, if available, rental charges are substantially greater than the budgeted amounts.

Of the ten vehicles designated by ARB staff, four vehicles, Lincoln Town Car, Cadillac Seville, Datsun 280 ZX Turbo, and BMW 528e, account for all of the additional costs. These vehicles represent the latest electronic emission control technology from Ford, General Motors, Japan and Europe.

This request for augmentation resulted from ARB staff's decision, after the contract had been awarded, to test vehicles with state-of-the-art electronic emission control systems. In staff's opinion, SCI's funding request is both reasonable and justified.

State of California
AIR RESOURCES BOARD

Resolution 82-8

February 24, 1982

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, an unsolicited research Proposal Number 1096-89 entitled "Relationships Between Air Quality and the Respiratory Status of Asthmatics in an Area of High Oxidant Pollution in Los Angeles County" has been submitted by the University of California, Los Angeles to the Air Resources Board; and

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

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

> Proposal Number 1096-89 entitled "Relationship Between Air Quality and the Respiratory Status of Asthmatics in an Area of High Oxidant Pollution in Los Angeles County", submitted by the University of California, Los Angeles for a total amount not to exceed $389,341;

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board pursuant to the authority granted by the Health and Safety Code, Section 39705, hereby accepts the recommendation of the Research Screening Committee and approves the following:

> Proposal Number 1096-89 entitled "Relationship Between Air Quality and the Respiratory Status of Asthmatics in an Area of High Oxidant Pollution in Los Angeles County", submitted by the University of California, Los Angeles, for a total amount not to exceed $389,341;

BE IT FURTHER RESOLVED, that the Executive Officer shall initiate administrative procedures and shall execute all necessary documents and contracts for the research effort proposed in an amount not to exceed $389,341.

I certify that the above is a true and correct copy of Resolution 82-8, as passed by the Air Resources Board.

Harold Holmes

Board Secretary

STATE OF CALIFORNIA
AIR RESOURCES BOARD

ITEM NO: 82-4-3b,4
DATE: February 24, 1982

ITEM: Research Proposal No. 1096-89 entitled "Relationship Between Air Quality and the Respiratory Status of Asthmatics in an Area of High Oxidant Pollution in Los Angeles County".

RECOMMENDATION: Adopt Resolution 82-8 approving Research Proposal No. 1096-89 for funding in an amount not to exceed $389,341.

SUMMARY:

Recently completed studies have shown that an association exists between air pollution and asthma. Epidemiologists have established an association of asthma with exposure to sulfates and oxidants. Clinical studies have linked ozone, nitrogen dioxide, sulfur dioxide and various sulfate compounds to asthma or asthma-like responses but these studies generally are not very representative of the more complex exposures found in urban areas. Epidemiological studies, on the other hand, allow one to investigate the more complex real-world nature of air pollution's role in the asthma process. However, in many cases, it has not been possible to control certain important factors which include: inadequate disease state diagnosis, poor information on use of medication, use of symptom-only data, small sample size, unquantified indoor air pollutant exposure, infrequent particulate sampling (generally without particle size data) and the complex nature of the asthma itself. Budget limitations have often been root cause of such problems. Many of the previous efforts have nonetheless provided tantalizing bits of useful information.

This proposal allows for a large-scale, well-controlled study designed to clarify how air pollution levels affect asthma. Many of the factors known to influence asthma and numerous potential confounding factors will be measured allowing for a much more rigorous statistical analysis than typically possible. It would utilize 100 carefully screened and characterized asthmatic subjects identified from the UCLA "CORD" study panel which reside within the two Glendora census tracts. Use of data obtained on the CORD study subjects will greatly aid the proponents in the following ways:

1) provides a rapid, inexpensive method for identifying previously studied subjects (often a difficult task); 2) allows for the selection of a more homogenous population, less likely to be affected by the biases of other selection methods; and 3) allows for more flexible analysis protocol.

These panelists will be trained to perform twice daily peak expiratory flow rate measurements. Analysis will be made of factors such as lifestyle, socio-economics, occupation, indoor air pollution sources (heating, cooling and air conditioning), and behavioral status that might be associated with asthma attacks or functional measurements. The period during which actual health-related data will be collected would be January 1983 through November 1983.

Previous studies have depended on voluntary reporting of medication usage. Accurate records of frequency and time of medication would be assured in the current proposal by use of electronic recording devices attached to the medicators. Participants would also be given diaries in which to record symptoms, functional and "state of mind" information. Every two weeks subjects would visit the investigators' local office/laboratory for more complete pulmonary function testing.

The proponents would continuously measure, or incorporate measurements taken by others, of temperature, humidity, wind speed, ambient gaseous pollutant levels and barometric pressure. Daily measurements of fine and coarse mode particulate levels, as well as aeroallergen levels would also be recorded for the study boundaries.

Data analysis would be carried out employing at least three different techniques. The first method to be employed is the "snapshot" approach, where group findings are viewed within any given time period. The second method would explore relationships that may exist across time at the individual level (repeated measures). This approach allows for sub-groups to be considered should any subjects prove especially susceptible to a given environmental factor as well as a consideration of "lag" periods. Finally, the more typical linear regression methodology would be employed.

The information derived from this study should prove useful in the Board's Ambient Air Quality Standard setting activities. The study size, 11 month panel operation and design could be expected to provide information on the dose-response nature of interactions over a wide range of pollutant concentrations. This

State of California
AIR RESOURCES BOARD

Resolution 82-9

February 24, 1982

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, an unsolicited research Proposal Number 1097-89 entitled "The Effects of Present and Potential Air Pollution on Important San Joaquin Valley Crops" has been submitted by the University of California, Riverside to the Air Resources Board; and

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

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

> Proposal Number 1097-89 entitled "The Effects of Present and Potential Air Pollution on Important San Joaquin Valley Crops" submitted by the University of California, Riverside for a total amount not to exceed $77,101;

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board pursuant to the authority granted by the Health and Safety Code, Section 39705, hereby accepts the recommendation of the Research Screening Committee and approves the following:

> Proposal Number 1097-89 entitled "The Effects of Present and Potential Air Pollution on Important San Joaquin Valley Crops" submitted by the University of California, Riverside for a total amount not to exceed $77,101;

BE IT FURTHER RESOLVED, that the Executive Officer shall initiate administrative procedures and shall execute all necessary documents and contracts for the research effort proposed in an amount not to exceed $77,101.

I certify that the above is a true and correct copy of Resolution 82-9, as passed by the Air Resources Board.

Harold Holmes

Board Secretary

State of California
AIR RESOURCES BOARD

ITEM NO: 82-4-3b.5
DATE: February 24, 1982

ITEM: Research Proposal No. 1097-89 entitled "The Effects of Present and Potential Air Pollution on Important San Joaquin Valley Crops".

RECOMMENDATION: Adopt Resolution 82-9 approving Research Proposal No. 1097-89 for funding in an amount not to exceed $77,101.

SUMMARY: During the 1979, 1980 and 1981 growing seasons the proponent exposed alfalfa to ozone and/or sulfur dioxide and exposed Thompson Seedless grapes to filtered or nonfiltered air in open-top chambers, all under field conditions. Data were collected from the alfalfa plots during all three seasons and are now being evaluated. Growth data and fruit production of grapes in the two pollution treatments were collected during the 1979, 1980 and 1981 seasons. Unfortunately, data collected for grapes in 1980 were unusable because of the mildew infections that destroyed the fruit. The 1981 grape yield demonstrated that ambient air pollution reduced yield 28% compared to filtered air. This potentially important finding needs to be confirmed by continuation of the fumigation for one more season because the 1980 crop was destroyed by mildew. As before the treatments of the Thompson Seedless grapes will be: (1) ambient, non-filtered air and (2) carbon filtered air.

Black-eyed beans would replace the alfalfa plants studied during the previous three years. The air pollution treatments would include: (1) filtered air, (2) one-third filtered air, (3) Ambient air (4) Ambient ozone + sulfur dioxide (0.05 ppm), (5) Ambient ozone + sulfur dioxide (0.1 ppm) (6) Filtered air + sulfur dioxide (0.1 ppm) and (7) a non-enclosed ambient plot to test for chamber influences. All plant responses will be correlated with pollution dose.

Preparation for possible future research will include planting almond trees on the Kearney Field station at a cost of $500. This expenditure would not obligate the Air Resources Board to study the effect of air pollution on these almond trees in the future.

State of California

AIR RESOURCES BOARD

Resolution 82-10

February 24, 1982

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, an unsolicited research Proposal Number 1100-89 entitled "Airway Responses to Atmospheric Pollutants: Sulfur Dioxide and Ozone", has been submitted by the University of California, San Francisco to the Air Resources Board; and

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

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

> Proposal Number 1100-89 entitled "Airway Responses to Atmospheric Pollutants: Sulfur Dioxide and Ozone", submitted by the University of California, San Francisco for a total amount not to exceed $191,246;

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board pursuant to the authority granted by the Health and Safety Code, Section 39705, hereby accepts the recommendation of the Research Screening Committee and approves the following:

> Proposal Number 1100-89 entitled "Airway Responses to Atmospheric Pollutants: Sulfur Dioxide and Ozone", submitted by the University of California, San Francisco for a total amount not to exceed $191,246;

BE IT FURTHER RESOLVED, that the Executive Officer shall initiate administrative procedures and shall execute all necessary documents and contracts for the research effort proposed in an amount not to exceed $191,246.

I certify that the above is a true and correct copy of Resolution 82-10, as passed by the Air Resources Board.

Harold Walmsley

Board Secretary

STATE OF CALIFORNIA
Air Resources Board

ITEM NO: 82-4-3b.6
DATE: February 24, 1982

ITEM: Research Proposal No. 1100-89 entitled "Airway Responses to Atmospheric Pollutants: Sulfur Dioxide and Ozone"

RECOMMENDATION: Adopt Resolution 82-10 approving Research Proposal No. 1100-89 for funding not to exceed $191,246.

SUMMARY: Sulfur dioxide has long been known to adversely affect the human respiratory system. Persons with existing lung diseases appear to be most sensitive to this pollutant. The proponent, Dr. Jay Nadel, has been pursuing research with low levels of SO_2 employing normal and asthmatic subjects. Work to date has produced some striking findings that have raised questions regarding the adequacy of the protection provided by current SO_2 standards. These key results have been obtained in asymptomatic asthma subjects performing light exercise. Ten-minute exposures employing as low as 0.1 ppm SO_2 produced bronchoconstriction in some asthmatics and 0.5 ppm causes bronchospasm in most asthmatics. The implication of these findings have caused the studies to be closely scrutinized and, as a result, questions have been raised that might be addressed in further exposure work. Most criticism has centered about the suitability of mouthpiece delivery of the air containing SO_2. Critics have pointed out that the nose plays an important role in removal of SO_2 before the pollutant reaches the lung and argued that Dr. Nadel's findings are therefore invalid.

Questions have also been raised as to what might be seen if higher exercise rates are employed or if persons with more severe asthma were tested. Previous studies have indicated that both ozone and SO_2 produce bronchoconstriction. Ozone may also alter the breathing pattern of subjects in a way that would increase the penetration of SO_2 into the lungs.

Previous SO_2 exposure studies by the proponent have provided evidence that is viewed by the staff and EPA officials as critical in establishing adverse

effects of the pollutant at levels below some current standards. The proposed effort would have two major thrusts to further investigate SO_2- related effects. The first is to answer numerous criticisms raised about the relevance of data derived from mouthpiece and face-mask exposure studies. The proponent would construct and employ an exposure chamber to assist in this and future efforts. The second major objective is to determine the sensitivity to SO_2 in subjects with more moderate asthma chronic bronchitis. Information would also be generated by studies into the pattern and routes of breathing in subjects under different exercise loading and the extent to which normal subjects differ from asthmatics. A third study protocol is designed to determine the mechanisms of SO_2-induced bronchospasms.

State Of California
AIR RESOURCES BOARD

Resolution 82-11

February 24, 1982

WHEREAS, the Air Resources Board is vested, under Section 39705 of the Health and Safety Code, with authority to appoint a Research Screening Committee composed of up to nine members with expertise in specified technical areas;

WHEREAS, there now exist, as a result of resignations, two vacancies on the Research Screening Committee; and

WHEREAS, Warren E. Levinson, M.D., Ph.D., Professor of Microbiology and Immunology, School of Medicine , University of California, San Francisco is a recognized expert in the field of research in medicine as it relates to the effects of toxic substances and other air pollutants and has broad experience in the public policy aspects of health and the environment;

NOW, THEREFORE BE IT RESOLVED that the Air Resources Board hereby appoints to full membership in its Research Screening Committee the following person, who has been found to meet all of the requirements set forth in Section 39705 of the Health and Safety Code:

Warren E. Levinson, M.D., Ph.D.
Professor of Microbiology and Immunology
School of Medicine
University of California, San Francisco

I certify that the above is a true and correct copy of Resolution 82-11, as passed by the Air Resources Board.

Harold Holmes
Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 82-11

February 24, 1982

ITEM NO.: 82-4-3b.7
DATE: February 24, 1982

ITEM: Appointment of new member to the Research Screening Committee.

RECOMMENDATION: Adopt Resolution 82-11 appointing Warren E. Levinson, M.D., Ph.D. to the Research Screening Committee.

SUMMARY: Dr. Warren E. Levinson, Professor of Microbiology and Immunology in the School of Medicine, University of California, San Francisco, has been highly recommended to the Board as a candidate for membership on the Research Screening Committee. Dr. Alvin Gordon, who serves as Chairman of the Research Screening Committee, has determined that Dr. Levinson is agreeable to serving as a member of the Committee. The staff has reviewed Dr. Levinson's qualifications and believe that he qualifies under the provisions of Section 39705 of the Health and Safety Code for appointment to the Research Screening Committee.

State of California
AIR RESOURCES BOARD

Resolution 82-13

February 24, 1982

WHEREAS, Claire Dedrick served as a member of the Air Resources Board from February 1981 to February 1982 with great energy and enthusiasm;

WHEREAS, although the position of Board member is part-time, out of a sense of commitment Claire devoted her full energies to the interests of the Board;

WHEREAS, Claire devoted special attention and worked successfully with the Legislature, industry, and local districts to create a statutory and regulatory framework to encourage the development of cogeneration in California;

WHEREAS, Claire has worked with great diligence and success to ensure the continued effectiveness of the state's Phase II vapor recovery program;

WHEREAS, in all her activities as a Board member she worked to foster cooperation between state and local regulatory agencies and affected industries; and

WHEREAS, Claire has been appointed by the State Lands Commission to serve as its Executive Officer.

NOW, THEREFORE, BE IT RESOLVED that the Air Resources Board expresses its deep appreciation for the outstanding contribution Claire Dedrick made while a Board member and extends to her its best wishes for success in her new position.

Mary D. Nichols, Chairperson

Laurence S. Caretto, Member

Alvin S. Gordon, Member

James G. Leathers, Member

Alfred A. McCandless, Member

Sam T. Chapman, Member

State of California

AIR RESOURCES BOARD

RESOLUTION 82-13

February 24, 1982

WHEREAS, Claire Dedrick served as a member of the Air Resources Board from February 1981 to February 1982 with great energy and enthusiasm;

WHEREAS, although the position of Board member is part-time, out of a sense of commitment Claire devoted her full energies to the interests of the Board;

WHEREAS, Claire devoted special attention and worked successfully with the Legislature, industry, and local districts to create a statutory and regulatory framework to encourage the development of cogeneration in California;

WHEREAS, Claire has worked with great diligence and success to ensure the continued effectiveness of the state's Phase II vapor recovery program;

WHEREAS, in all her activities as a Board member she worked to foster cooperation between state and local regulatory agencies and affected industries; and

WHEREAS, Claire has been appointed by the State Lands Commission to serve as its Executive Officer.

NOW, THEREFORE, BE IT RESOLVED that the Air Resources Board expresses its deep appreciation for the outstanding contribution Claire Dedrick made while a Board member and extends to her its best wishes for success in her new position.

[illegible], Chairperson

Lawrence J. Caretto, Member

[illegible], Member

[illegible] Leathers, Member

[illegible] A. McCandless, Member

[illegible] Chapman, Member

State Of California
AIR RESOURCES BOARD

Resolution 82-17

February 24, 1982

WHEREAS, the Air Resources Board is vested, under Section 39705 of the Health and Safety Code, with authority to appoint a Research Screening Committee composed of up to nine members with expertise in specified technical areas;

WHEREAS, there now exist, as a result of resignations, two vacancies on the Research Screening Committee; and

WHEREAS, Jane V. Hall, Ph.D., Associate Professor of Economics at California State University, Fullerton is a recognized expert in research in the field of economics as it relates to air pollution control and energy development and has broad experience in the fields of environmental protection and regulatory analysis;

NOW, THEREFORE BE IT RESOLVED that the Air Resources Board hereby appoints to full membership in its Research Screening Committee the following person, who has been found to meet all of the requirements set forth in Section 39705 of the Health and Safety Code:

Jane V. Hall, Ph.D.
Associate Professor of Economics
State University, Fullerton

I certify that the above is a true and correct copy of Resolution 82-17, as passed by the Air Resources Board.

Harold Holmes
Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 82-17

February 24, 1982

ITEM NO.: 82-4-3b.8
DATE: February 24, 1982

ITEM: Appointment of new member to the Research Screening Committee.

RECOMMENDATION: Adopt Resolution 82-12 appointing Jane V. Hall, Ph.D., to the Research Screening Committee.

SUMMARY: Dr. Jane V. Hall, Associate Professor of Economics, State University, Fullerton, has been highly recommended to the Board as a candidate for membership on the Research Screening Committee. Dr. Alvin Gordon, who serves as Chairman of the Research Screening Committee, has determined that Dr. Hall is agreeable to serving as a member of the Committee. The staff has reviewed Dr. Hall's qualifications and believe that she qualifies under the provisions of Section 39705 of the Health and Safety Code for appointment to the Research Screening Committee.