State of California

AIR RESOURCES BOARD

Resolution 89-45
April 13, 1989

WHEREAS, the Legislature has declared that an effective research program is an integral part of the broad-based statewide effort to combat air pollution in California, pursuant to Health and Safety Code Section 39700;

WHEREAS, the Air Resources Board has been directed to administer and coordinate all air pollution research funded, in whole or in part, with state funds, pursuant to Health and Safety Code Section 39703;

WHEREAS, the Air Resources Board has been directed to establish objectives for air pollution research in California, pursuant to Health and Safety Code Section 39703;

WHEREAS, the Air Resources Board has been directed to appoint a Research Screening Committee to give advice and recommendations with respect to all air pollution research projects funded by the state, pursuant to Health and Safety Code Section 39705;

WHEREAS, the Research Screening Committee has reviewed and approved a 1989-90 Research Plan, dated April, 1989, for air pollution research in California;

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39703 and 39705, hereby concurs in the recommendation of the Research Screening Committee and approves the 1989-90 Research Plan, dated April, 1989, for air pollution research in California.

I hereby certify that the above is a true and correct copy of Resolution 89-45 as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary

State of California

AIR RESOURCES BOARD

Resolution 89-32
April 13, 1989

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; and

WHEREAS, a solicited research proposal, Number 1636-145, entitled "Methanol Fuel Additive Demonstration," has been submitted by Southwest Research Institute; and

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 1636-145, entitled "Methanol Fuel Additive Demonstration," submitted by Southwest Research Institute, for a total amount not to exceed $339,348.

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 1636-145, entitled "Methanol Fuel Additive Demonstration," submitted by Southwest Research Institute, for a total amount not to exceed $339,348.

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 $339,348.

I hereby certify that the above is a true and correct copy of Resolution 89-32, as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary

ITEM NO.:
DATE: April 13, 1989

State of California

AIR RESOURCES BOARD

ITEM: Research Proposal No. 1645-145 entitled "Assessment of Combustion Sources that Emit Polychlorinated Dioxins and Furans, Polycyclic Aromatic Hydrocarbons, and Other Toxic Compounds"

RECOMMENDATION: Adopt Resolution 89-33 approving Proposal No. 1645-145 for an amount not to exceed $274,831

SUMMARY:

The objectives of this study are to: (1) identify combustion sources in California which have the potential to emit polychlorinated dioxins and furans (dioxins), polycyclic aromatic hydrocarbons (PAHs), and other toxic compounds; and (2) perform comprehensive source tests on selected sources to correlate emissions of dioxins, PAHs, and other toxic compounds with operational and combustion parameters. The ARB and the EPA have identified several emission source categories with potential to emit dioxins and PAHs, several of which are in California. However, ARB staff has insufficient information to adequately assess the potential for these source categories to emit dioxins, PAHs, and other toxic compounds.

The ARB has identified dioxins as a toxic air contaminant (TAC), which requires an assessment of statewide emissions, potential public health risk, and need to control (Section 39650 et seq. of the California Health & Safety Code). PAHs are under review for possible identification as TACs, and several other compounds have been either identified as TACs or are being considered. Results of this study will be used to assist in the identification and control regulation activities for these TACs.

Four proposals were received in response to the ARB's Request for Proposals. The proposal from Midwest Research Institute is recommended for funding by the Research Screening Committee. The principal investigator will be Dr. Clarence Haile.

State of California

AIR RESOURCES BOARD

Resolution 89-33
April 13, 1989

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; and

WHEREAS, a solicited research proposal, Number 1645-145, entitled "Assessment of Combustion Sources that Emit Polychlorinated Dioxins and Furans, Polycyclic Aromatic Hydrocarbons, and Other Toxic Compounds," has been submitted by Midwest Research Institute; and

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 1645-145, entitled "Assessment of Combustion Sources that Emit Polychlorinated Dioxins and Furans, Polycyclic Aromatic Hydrocarbons, and Other Toxic Compounds," submitted by Midwest Research Institute, for a total amount not to exceed $274,831.

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 1645-145, entitled "Assessment of Combustion Sources that Emit Polychlorinated Dioxins and Furans, Polycyclic Aromatic Hydrocarbons, and Other Toxic Compounds," submitted by Midwest Research Institute, for a total amount not to exceed $274,831.

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 $274,831.

I hereby certify that the above is a true and correct copy of Resolution 89-33, as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary

ITEM NO.:
DATE: April 13, 1989

State of California

AIR RESOURCES BOARD

ITEM: Research Proposal No. 1655-145 entitled "Chemical Analysis of Aerosol Samples from the Carbonaceous Species Methods Comparison Study"

RECOMMENDATION: Adopt Resolution 89-34 approving Proposal No. 1655-145 for an amount not to exceed $79,554.

SUMMARY: The objective of this project is to provide chemical analysis of organic compounds on aerosol filters that were collected during the Carbonaceous Species Methods Comparison Study (CSMCS) at Glendora in August, 1986. Portions of the filters will be subjected to liquid chromatography, gas chromatography/mass spectrometry, and Fourier transform infrared spectroscopy. This combination of analytical methods will provide information on the chemical makeup of the aerosol samples, such as carbonyl, carboxyl and nitro groups. This project will provide information on the proportion of particle carbon coming from primary versus secondary sources as well as fossil versus contemporary carbon in the fine particle samples collected during the CSMCS. These data are needed for the design of PM10 control strategies.

One proposal was received in response to the ARB's Request for Proposals. The proposal from Global Geochemistry is recommended for funding by the Research Screening Committee and the staff. The principal investigator will be Dr. Ian Kaplan.

State of California

AIR RESOURCES BOARD

Resolution 89-34
April 13, 1989

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; and

WHEREAS, a solicited research proposal, Number 1655-145, entitled "Chemical Analysis of Aerosol Samples from the Carbonaceous Species Methods Comparison Study," has been submitted by Global Geochemistry Corporation; and

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 1655-145, entitled "Chemical Analysis of Aerosol Samples from the Carbonaceous Species Methods Comparison Study," submitted by Global Geochemistry Corporation, for a total amount not to exceed $79,554.

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 1655-145, entitled "Chemical Analysis of Aerosol Samples from the Carbonaceous Species Methods Comparison Study," submitted by Global Geochemistry Corporation, for a total amount not to exceed $79,554.

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 $79,554.

I hereby certify that the above is a true and correct copy of Resolution 89-34, as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary

ITEM NO.:
DATE: April 13, 1989

State of California

AIR RESOURCES BOARD

ITEM: Research Proposal No. 1684-146 entitled "Quantification of Evaporative Running Loss Emissions from Gasoline-Powered Passenger Cars in California"

RECOMMENDATION: Adopt Resolution 89-35 approving Proposal No. 1684-146 for an amount not to exceed $300,000.

SUMMARY: The objective of this project is to quantify evaporative running loss emissions from gasoline-powered passenger cars representative of vehicles operating in California. Evaporative running loss emissions are defined as all evaporative emissions generated while a vehicle is being driven. These emissions are, potentially, a major source of hydrocarbon emissions which are not now accounted for in California's emissions inventories. The contractor is expected to devise a methodology for testing vehicles and developing evaporative running loss emission factors which can be incorporated in California's emissions inventory program to account for these emissions.

The proponent would develop a test plan for the Air Resources Board approval. Thirty vehicles equipped with California emission control systems, which have been continuously registered in the State, would be procured by a subcontractor in Anaheim, California and shipped to the proponent's test facility in Indiana. The required amount of California gasoline would also be shipped to Indiana. A total of 64 emission tests would be performed. The data would be analyzed by a subcontractor to identify vehicle characteristics that affect running losses, factors for fuel volatility and alternate driving cycles, and to identify possible subcategories and/or correlations which may be used to evaluate strategies for application of the running loss emission factors.

Three proposals were received in response to the ARB's Request for Proposals. The proposal from

State of California

AIR RESOURCES BOARD

Resolution 89-35
April 13, 1989

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; and

WHEREAS, a solicited research proposal, Number 1684-146, entitled "Quantification of Evaporative Running Loss Emissions from Gasoline-Powered Passenger Cars in California," has been submitted by Automotive Testing Laboratories, Inc.; and

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 1684-146, entitled "Quantification of Evaporative Running Loss Emissions from Gasoline-Powered Passenger Cars in California," submitted by Automotive Testing Laboratories, Inc., for a total amount not to exceed $300,000.

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 1684-146, entitled "Quantification of Evaporative Running Loss Emissions from Gasoline-Powered Passenger Cars in California," submitted by Automotive Testing Laboratories, Inc., for a total amount not to exceed $300,000.

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 $300,000.

I hereby certify that the above is a true and correct copy of Resolution 89-35, as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary

ITEM NO.:
DATE: April 13, 1989

State of California

AIR RESOURCES BOARD

ITEM: Research Proposal No. 1687-146 entitled "Engineering Analysis and Experimental Studies of Medical Waste Incineration"

RECOMMENDATION: Adopt Resolution 89-36 approving Proposal No. 1687-146 for an amount not to exceed $150,058.

SUMMARY: The ARB and other regulatory agencies have been conducting source tests of medical waste incinerators; results show that some incinerators emit significant amounts of dioxins and other toxic compounds. Most source tests have been conducted to establish baseline emissions rather than to evaluate possible operational parameters that can affect emissions. Therefore, staff is not able to make specific regulatory recommendations.

The objective of this project is to develop a better understanding of the operational and design parameters that affect emissions from medical waste incineration and to identify possible control strategies. Available emissions data would be analyzed to estimate the impacts of design and operation on emissions. Data gaps that limit the development of complete design and operation guidelines would be identified, and pilot-scale experimental studies and field tests would be conducted to fill these data gaps. Theoretical engineering analyses developed by the contractor previously for hazardous and municipal waste incinerator systems would be modified as required to account for the special characteristics of medical waste incineration.

The ARB will co-fund this project equally with both the U.S. EPA and Taiwan EPA. All work would be performed in California.

The contractor will be Energy and Environmental Research Corporation. The principal investigator will be Dr. William Randall Seeker.

State of California

AIR RESOURCES BOARD

Resolution 89-36
April 13, 1989

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; and

WHEREAS, an unsolicited research proposal, Number 1687-146, entitled "Engineering Analysis and Experimental Studies of Medical Waste Incineration," has been submitted by Energy and Environmental Research Corporation, and

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 1687-146, entitled "Engineering Analysis and Experimental Studies of Medical Waste Incineration," submitted by Energy and Environmental Research Corporation, for a total amount not to exceed $150,058.

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 1687-146, entitled "Engineering Analysis and Experimental Studies of Medical Waste Incineration," submitted by Energy and Environmental Research Corporation, for a total amount not to exceed $150,058.

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 $150,058.

I hereby certify that the above is a true and correct copy of Resolution 89-36, as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary

ITEM NO.:
DATE: April 13, 1989

State of California

AIR RESOURCES BOARD

ITEM: Research Proposal No. 1672-145 entitled "Southern California Air Quality Study (SCAQS) Interpretive Data Analysis: Toxic Air Contaminants"

RECOMMENDATION: Adopt Resolution 89-37 approving Proposal No. 1672-145 for an amount not to exceed $17,940

SUMMARY:

During the 1987 Southern California Air Quality Study (SCAQS), Daniel Grosjean and Associates, Inc. (DGA) recorded ambient concentrations of two candidate toxic air contaminants (TACs), perchloroethylene (PERC) and methyl chloroform (TCA). These were measured at each site every 30 to 60 minutes, as part of another monitoring effort. The purpose of this project is to develop and report the DGA data base for TCA and PERC.

The ARB has included both PERC and TCA in its "Status of Toxic Air Contaminant Identification" list of February, 1989, with PERC in Category II-A, and TCA in Category III. Information from the proposed study would be used by ARB staff to assist in the development of a control plan for PERC (if it is identified as a TAC), and an exposure assessment report needed for identification of TCA as a TAC (if it enters the review process).

The data obtained from DGA could be correlated with other parameters developed during SCAQS, such as other pollutant concentrations and meteorological parameters. For example, data analysis could reveal whether observed levels can be correlated with large known emission sources; or if an area source behavior appears, due to many widely distributed sources.

This proposal was received in response to a Request for Proposals, under the category SCAQS Interpretive Data Analysis, in the subcategory "Sources, Transformation, Transport and Fate of Toxic Air Contaminants". The DGA proposal was

State of California

AIR RESOURCES BOARD

Resolution 89-37
April 13, 1989

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; and

WHEREAS, a solicited research proposal, Number 1672-145, entitled "Southern California Air Quality Study (SCAQS) Interpretive Data Analysis: Toxic Air Contaminants," has been submitted by Daniel Grosjean and Associates, Inc.; and

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 1672-145, entitled "Southern California Air Quality Study (SCAQS) Interpretive Data Analysis: Toxic Air Contaminants," submitted by Daniel Grosjean and Associates, Inc., for a total amount not to exceed $17,940.

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 1672-145, entitled "Southern California Air Quality Study (SCAQS) Interpretive Data Analysis: Toxic Air Contaminants," submitted by Daniel Grosjean and Associates, Inc., for a total amount not to exceed $17,940.

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 $17,940.

I hereby certify that the above is a true and correct copy of Resolution 89-37, as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary

ITEM NO.:
DATE: April 13, 1989

State of California

AIR RESOURCES BOARD

ITEM: Research Proposal No. 1681-146 entitled "Indoor Pollutant Concentrations and Exposures"

RECOMMENDATION: Adopt Resolution 89-44 approving Proposal No. 1681-146 for an amount not to exceed $459,975.

SUMMARY:

The objective of this project is to obtain information regarding indoor concentrations of air pollutants and Californians' actual exposure to them. California Health and Safety Code Section 39660.5 requires the ARB to consider indoor exposures to candidate toxic air contaminants (in addition to ambient exposures) in assessing the risk posed by those substances. However, little information is available regarding indoor, non-occupational exposures to these and other indoor pollutants of concern.

In this project, the investigators will monitor indoor, outdoor, and personal exposure concentrations of 32 organic compounds listed in the ARB's Toxic Air Contaminants Identification List. Many of the compounds classified in Groups IIB and III of that list are of particular interest to the ARB because risk assessments for those compounds are anticipated in the future. The investigators will collect air samples using stainless steel canisters and two different types of organic resins in order to trap compounds of different volatilities.

The investigators will monitor approximately 150 homes and 180 residents of those homes for a 24-hour period in one season. The homes will be selected based on a probability sample of homes in San Jose or the San Joaquin Valley area. The investigators will use questionnaires to gather information on the activities of the subjects during the monitoring period and on potential sources of pollutants to which the subjects may have been exposed.

The data obtained from this project will enable the ARB to assess more accurately the risk posed by exposure to toxic air contaminants in

State of California

AIR RESOURCES BOARD

Resolution 89-38
April 13, 1989

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; and

WHEREAS, a solicited research proposal, Number 1673-145, entitled "Southern California Air Quality Study Interpretive Data Analysis: Analysis of Hydrocarbon and Carbonyl Data" has been submitted by Sonoma Technology, Inc. and

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 1673-145, entitled "Southern California Air Quality Study Interpretive Data Analysis: Analysis of Hydrocarbon and Carbonyl Data" submitted by Sonoma Technology, Inc. for a total amount not to exceed $69,152.

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 1673-145, entitled "Southern California Air Quality Study Interpretive Data Analysis: Analysis of Hydrocarbon and Carbonyl Data" submitted by Sonoma Technology, Inc. for a total amount not to exceed $69,152.

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 $69,152.

I hereby certify that the above is a true and correct copy of Resolution 89-38, as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary

ITEM NO.:
DATE: April 13, 1989

State of California

AIR RESOURCES BOARD

ITEM: Research Proposal No. 1673-145 entitled "Southern California Air Quality Study Interpretive Data Analysis: Analysis of Hydrocarbon and Carbonyl Data"

RECOMMENDATION: Adopt Resolution 89-38 approving Proposal No. 1673-145 for an amount not to exceed $69,152.

SUMMARY:

This study is one of several intended to analyze and interpret the data from the 1987 Southern California Air Quality Study (SCAQS). This and other related projects will provide an analysis of SCAQS data base by methods other than gridded, source-oriented models. Issues related to the Board's regulatory needs are addressed.

This project would characterize the spatial and temporal distribution of volatile organic compounds and toxic air contaminants. This information will be used to identify major inconsistencies between emission inventory data for volatile organic compounds and ambient data. The observed carbonyl concentrations will be compared to photochemical model predictions. The contribution of natural and biogenic emissions will also be assessed.

The reliability of photochemical modeling results depend greatly upon the accuracy of the emission inventory for volatile organics. This project would provide an estimate of this accuracy.

The contractor will be Sonoma Technology, Inc. and the principal investigator will be Mr. Fred Lurmann.

State of California

AIR RESOURCES BOARD

Resolution 89-39
April 13, 1989

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; and

WHEREAS, a solicited research proposal, Number 1663-145 entitled "Diagnostic Analysis of Wind Observations Collected During the Southern California Air Quality Study," has been submitted by Systems Applications, Incorporated; and

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 1663-145, entitled "Diagnostic Analysis of Wind Observations Collected During the Southern California Air Quality Study," submitted by Systems Applications, Incorporated, for a total amount not to exceed $39,142.

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 1663-145, entitled "Diagnostic Analysis of Wind Observations Collected During the Southern California Air Quality Study," submitted by Systems Applications, Incorporated, for a total amount not to exceed $39,142.

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 $39,142.

I hereby certify that the above is a true and correct copy of Resolution 89-39, as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary

ITEM NOS.: 14 & 15
DATE: April 13, 1989

State of California

AIR RESOURCES BOARD

ITEM: 1989-90 RESEARCH PLAN AND INDOOR AIR QUALITY/PERSONAL EXPOSURE ASSESSMENT FIVE-YEAR STUDY PLAN.

RECOMMENDATION: Adopt Resolutions 89-45 and 89-46 approving the 1989-90 Research Plan, dated March, 1989, and the Indoor Air Quality/Personal Exposure Assessment Five-Year Study Plan, dated March, 1989.

SUMMARY:

In establishing the State's approach to clean air, the Legislature: has declared that an effective research program is an integral part of the broad-based statewide effort to combat air pollution in California; has directed the Air Resources Board to administer and coordinate all air pollution research funded, in whole or in part, with state funds; has directed the Air Resources Board to establish objectives for air pollution research; and has directed the Air Resources Board to appoint a Research Screening Committee to give advice and recommendations with respect to air pollution research projects funded by the State.

In order to comply with these mandates from the Legislature, the Board meets, each year, with its Research Screening Committee, to review the Board's research program, as outlined in the 1989-90 Research Plan. This Plan is prepared by the staff, with guidance from the Research Screening Committee.

The 1989-90 Research Plan contains a section describing the Board's goals and objectives and related extramural research projects, a section listing recently completed research projects, and a section describing each of the research projects proposed for the next fiscal year. These projects are divided into six study areas:

- Diesels and Motor Vehicles;
- Toxic Air Contaminants;
- Stationary Source Emissions Inventory and Control;
- Regional Air Quality Studies;
- Health Effects; and
- Vegetation Effects.

For each study area, there is a prioritized list of research projects proposed for the next fiscal year, a figure which relates these projects to ongoing and future work, and a detailed discussion of each proposed project. The discussions include a summary of the research problem, relationship to previous work, description of the proposed approach, and identification of benefits to be provided by the study.

This year's 1989-90 Research Plan features projects to support the Board's activities to reduce emissions from motor vehicles; support the introduction of clean burning fuels; add to our knowledge of the sources, fate and effects of toxic air contaminants; provide bases for controlling stationary source emissions; better characterize the effects of agricultural burning; improve our ability to analyze regional air quality problems; better define the effects of exposure to air pollutants on human health; and better define the extent of air pollution damage to all forms of vegetation.

The Board also conducts a special research program to obtain information regarding indoor air quality and personal exposures of Californians to air pollutants. Health and Safety Code Section 39660.5 requires the Board to consider indoor exposures to toxic pollutants in assessing the risk posed by them. However, little information is available regarding indoor exposures. The information obtained through the Indoor Air Quality/Personal Exposure Assessment Five-Year Study Plan will be used by staff to develop more accurate risk assessments, especially for toxic pollutants considered under the Board's Toxic Air Contaminants Program.

State of California

AIR RESOURCES BOARD

Resolution 89-40
April 13, 1988

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; and

WHEREAS, an unsolicited research proposal, Number 1677-146, entitled "Peroxyacetyl Nitrate and Methanol from FTIR Spectral Records During the 1986 Carbonaceous Species Methods Comparison Study," has been submitted by the University of California, Riverside; and

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 1677-146, entitled "Peroxyacetyl Nitrate and Methanol from FTIR Spectral Records During the 1986 Carbonaceous Species Methods Comparison Study," submitted by the University of California, Riverside, for a total amount not to exceed $19,593.

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 1677-146, entitled "Peroxyacetyl Nitrate and Methanol from FTIR Spectral Records During the 1986 Carbonaceous Species Methods Comparison Study," submitted by the University of California, Riverside, for a total amount not to exceed $19,593.

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 $19,593.

I hereby certify that the above is a true and correct copy of Resolution 89-40, as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary

ITEM NO.:
DATE: April 13, 1989

State of California

AIR RESOURCES BOARD

ITEM: Research Proposal No. 1677-146 entitled "Peroxyacetyl Nitrate and Methanol from FTIR Spectral Records During the 1986 Carbonaceous Species Methods Comparison Study"

RECOMMENDATION: Adopt Resolution 89-40 approving Proposal No. 1677-146 for an amount not to exceed $19,593.

SUMMARY:

The objective of this study is to derive peroxyacetyl nitrate (PAN), methanol, and dimethyl sulfate concentrations from long-path FTIR spectra which were recorded during the Carbonaceous Species Methods Comparison Study (CSMCS) held in August 1986 at Citrus College in Glendora. The data are instantaneous concentrations recorded every 15 minutes for a period of nine consecutive days. Although the FTIR spectra were originally taken to obtain concentrations of formaldehyde, nitric acid and ammonia, the spectra also contain potentially valuable information for other compounds, including PAN, methanol, and dimethyl sulfate.

The data for methanol and dimethyl sulfate from this project will represent the first detailed and accurate set of baseline data for the South Coast Air Basin which may be used in the future to assess the air quality impact of methanol as an alternative fuel. The spectroscopic PAN data provide the only means to validate the PAN measurements made by another group. The derived values from the FTIR spectra will permit a detailed evaluation and comparison of PAN data measured by other techniques.

The contractor will be the Statewide Air Pollution Research Center at the University of California, Riverside, and the principal investigator will be Dr. Ernesto Tuazon.

ITEM NO.:
DATE: April 13, 1989

State of California

AIR RESOURCES BOARD

ITEM: Research Proposal No. 1663-145 entitled "Diagnostic Analysis of Wind Observations Collected During the Southern California Air Quality Study"

RECOMMENDATION: Adopt Resolution 89-39 approving Proposal No. 1663-145 for an amount not to exceed $39,142.

SUMMARY: This is one of several studies to analyze and interpret the data from the 1987 Southern California Air Quality Study (SCAQS). This and other related projects will provide an analysis of the SCAQS data base by methods other than gridded, source-oriented models. Issues related to the Board's regulatory needs will be addressed.

This research effort will generate hourly three-dimensional gridded wind fields for each of the 17 SCAQS intensive-measurement days, and develop transport patterns in the South Coast Air Basin.

The results of this project will facilitate source-receptor transport path analysis and transport flux calculations being performed by other ARB contractors.

The contractor for this study will be Systems Applications, Incorporated, and the principal investigators will be Dr. Robert C. Kessler and Ms. Sharon G. Douglas.

State of California

AIR RESOURCES BOARD

Resolution 89-41
April 13, 1989

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; and

WHEREAS, a solicited research proposal, Number 1619-142, entitled "Carbonaceous Species Methods Comparison Study, Interlaboratory Round Robin, Interpretation of Results," has been submitted by G2 Environmental, Inc.; and

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 1619-142, entitled "Carbonaceous Species Methods Comparison Study, Interlaboratory Round Robin, Interpretation of Results," submitted by G2 Environmental, Inc., for a total amount not to exceed $19,994.

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 1619-142, entitled "Carbonaceous Species Methods Comparison Study, Interlaboratory Round Robin, Interpretation of Results," submitted by G2 Environmental, Inc., for a total amount not to exceed $19,994.

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 $19,994.

I hereby certify that the above is a true and correct copy of Resolution 89-41, as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary

State of California

AIR RESOURCES BOARD

Resolution 89-42
April 13, 1989

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; and

WHEREAS, a unsolicited research proposal, Number 1689-146 entitled "Low Level Carbon Monoxide Exposure in Sensitive Subjects Exposed at High Altitude," has been submitted by the University of California, Irvine; and

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 1689-146, entitled "Low Level Carbon Monoxide Exposure in Sensitive Subjects Exposed at High Altitude," submitted by the University of California, Irvine, for a total amount not to exceed $236,779.

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 1689-146, entitled "Low Level Carbon Monoxide Exposure in Sensitive Subjects Exposed at High Altitude," submitted by the University of California, Irvine, for a total amount not to exceed $236,779.

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 $236,779.

I hereby certify that the above is a true and correct copy of Resolution 89-42, as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary

State of California

AIR RESOURCES BOARD

Resolution 89-43
April 13, 1989

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; and

WHEREAS, an unsolicited research proposal, Number 1688-146, entitled "Neural Basis for Symptomatic and Physiological Effects of Ozone," has been submitted by the University of California, San Francisco; and

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 1688-146, entitled "Neural Basis for Symptomatic and physiological Effects of Ozone," submitted by the University of California, San Francisco, for a total amount not to exceed $41,856.

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 1688-146, entitled "Neural Basis for Symptomatic and Physiological Effects of Ozone," submitted by the University of California, San Francisco, for a total amount not to exceed $41,856.

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 $41,856.

I hereby certify that the above is a true and correct copy of Resolution 89-43, as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary

ITEM NO.:
DATE: April 13, 1989

State of California

AIR RESOURCES BOARD

ITEM: Research Proposal No.1688-146 entitled "Neural Basis for Symptomatic and Physiological Effects of Ozone"

RECOMMENDATION: Adopt Resolution 89-43 approving Proposal No. 1688-146 for an amount not to exceed $41,856.

SUMMARY:

The objective of this project is to determine if acute exposures to ozone produce cough in normal and sensitive human subjects. Cough, eye irritation and chest discomfort are the common complaints of people exposed to smog, as existent in Los Angeles area.

The proponent will expose 18 human subjects to varying concentrations of ozone and evaluate their sensitivity to cough elicited by inhalation of capsaicin aerosol. In addition, pulmonary functional changes will be determined.

This study will help in understanding the importance of symptomatology experienced by people under smoggy conditions and also establish a correlation between the symptoms and the observed changes in pulmonary function upon which the existing ozone standards are based.

The contractor will be the University of California, San Francisco. The principal investigator will be Dr. Homer Boushey.

State of California

AIR RESOURCES BOARD

Resolution 89-44
April 13, 1989

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; and

WHEREAS, a solicited research proposal, Number 1681-146, entitled "Indoor Pollutant Concentrations and Exposures," has been submitted by the Research Triangle Institute; and

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 1681-146, entitled "Indoor Pollutant Concentrations and Exposures," submitted by the Research Triangle Institute, for a total amount not to exceed $459,975.

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 1681-146, entitled "Indoor Pollutant Concentrations and Exposures," submitted by the Research Triangle Institute, for a total amount not to exceed $459,975.

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 $459,975.

I hereby certify that the above is a true and correct copy of Resolution 89-44, as adopted by the Air Resources Board.

Cary Allison

Cary Allison, Board Secretary