RESOLUTIONS

No.	Item	Staff	Hearing Scheduled	Date Adopted	+ EIS to Resources
82-1	TRC-"Emissions form Bulk Solids Handling Operations for Cement" $75,000.	Research	1/12/82	1/12/82	
82-2	UCR- "Effects of Ozone or SO2 on growth & Yield of Rice"-$95,987.	" "	1/12/82	1/12/82	
82-3	Cal Tech-" A Study of the Characteristics of Chemical Reaction Mechanisms $88,615. for Photochimical Smog"	" "	1/12/82	1/12/82	
82-4	Professional Staff Assoc.-"Correlative & Sensitive Discriminatnts for Air Quality Control"-$173,958.00	" "	1/12/82	1/12/82	
82-5	Automotive Environmental Systems-"Survey of Automotive Service Industry Maintenance Practices"-$124,317.00	" "	2/24/82	2/24/82	
82-6	Bonner & Moore Management Science-"Impact of Reducing Gasoline Bolatility in California" $137,146.00	" "	2/24/82	2/24/82	
82-7	Systems Control Inc.-"Budget Augmentation of $10,892.00 to Impact of Auto Emiss. Cont" Original fund $119,288.00	" "	2/24/82	2/24/82	
82-8	UCLA-"Relationship between Air Quality & the Respiratiory Status of Asthmatics in Area of High Oxidant"-$389,341.00	" "	2/24/82	2/24/82	
82-9	UCR- "The Effects of Present & Potential Air Pollution on Important San Joaquin Valley Crops"-$77,101.00	" "	2/24/82	2/24/82	
82-10	UCSF-"Air Way Responses to Atmospheric Pollutants: Sulfur Dioxide & Ozone" $191,246.00	" "	2/24/82	2/24/82	
82-11	ARB-Appt. Dr. Warren E. Levinson to Research Screening Committee"	" "	2/24/82	2/24/82	
82-12	Suggested Control Measure for the Emissions of Photochemically Reactive Organic Comp. from Ventrs of Steam Drive Oil Vents	Goodley SSCD	2/24/82	2/24/82	Did not give copy to Resources
82-13	Resolution of Appreciation to Claire Dedrick Board	Board	2/24/82	2/24/82	
82-14	NOX Settlement	Legal	2/24/82	2/25/82	Closed Session
82-15	Not Used				
82-16	AG Burning Requirements	Enforcements	4/21/82	4/21/82	

RESOLUTIONS

No.	Item	Staff	Hearing Scheduled	Date Adopted	+ EIS Resources
82-17	Appointment of Jane V. Hall to Research Screening Committee	Research	2/24/82	2/24/82	
82-18	Subvention	RPD	4/21/82	4/21/82	5/10/82
82-19	U.C. Santa Barbara-$144,147,00 Rest & Work-Co.-Exposure at Altitude"	Research	3/31/82	3/31/82	
82-20	Energy Research consultants-$125,000.00 Effects of Air Pollution on Ag. Crops.	" "	" "	" "	
82-21	Not Used				
82-22	SCM for the Control of Emissions of Oxides from Boilers & Process Heaters in Refineries	SSCD	" "	" "	NSTR
82-23	Congeneration Siting Under AB 1862	RPD	4/22/82	4/22/82	
82-24	Correlative & Sensitive Discriminants for Air Quality (Augmentation $8,255.00	Research	5/27/82	5/27/82	
82-25	Formaldehyde: A Survey of Airborne Concentrations & Sources. $174,519.00	" "	" "	" "	
82-26	Energy & Environmental Analysis, Inc. "Diagnosis of Emission Control Conponent Malfunctions on Catalyst Motor Vehicles" $120,725	" "	" "	" "	
82-27	Cal Tech-"Characterization of Reactants Reaction Mechanisms & Reaction Products in Atmopheric Water Droplets $404,130.	" "	" "	" "	
82-28	Univ. of Calif., Riverside "Identification of Particulate Mutagens in CA." $169,484	" "	" "	" "	
82-29	UCSF-"Air Pollution Studies on Ozone & Sulfur Diozide" $107,246.00	" "	" "	" "	
82-30	UCD-"Health Effects from the Inhal of Oxidant Air Pollutants as Related to the Imune System" $105,843.00	" "	" "	" "	
82-31	UCD-"The Effect of Heavy, Sustained Exercised in Comb. with Low Levels of 03 Concentration in Inducing Acute Pulminary $118,787.00	" "	" "	" "	
82-32	DOHS-"Determination of Acidity in Ambient Air" $291,222.00	" "	" "	" "	

RESOLUTIONS

No.	Item	Staff	Hearing Scheduled	Date Adopted	+ EIS to Resources
82-33	DOHS-"Dry Acid Deposition on Materials & Vegetation; Particulate Concentrations in Ambient Air" #322,825	Research	5/27/87	5/27/82	
82-34	DOHS-Particulate Matter Analysis by Electron Microscpy" $100,000.	" "	"" "	" "	
82-35	DOHS -"Carcinogens & Mutagens in Ambient Air Particulate Matter" $290,000.	" "	" "	" "	
82-36	Resolution of Congratulations for Dr. Pitts	" "	" "	" "	
82-37	Guidelines for Certification of 1983 Model Year Federally Certrified Light-Duty Motor Venicles for Sale in Ca	MSCD	6/16/82	6/16/82	
82-38	SAI-"Improvement of Emission Inventories for Reactive Organic Gases & NOx in S.Coast Air Basin" -$249,752.00	Research	7/21/82	7/21/82	
82-39	Cal Tech.-"Visibility Model Verification by Image Processing Techniques" ~~$72,,463.00~~	" "	" "	" "	
82-40	Cal Tech-Tech.-"Control of Atmoshperic Aerosol Nitrate & Nitric Acid Concentrations" ~~$375,620.00~~	" "	" "	Will be Called back later	Ref.82-48
82-41	Sierra Research- "Mobile Source Emissions Analysis forCalifornia" $169,859.00	" "	" "	" "	
82-42	Diesel NOx Standard	MSCD	8/25/82		
82-43	Diesel Particulate Standard	" "	" "		E.I.S. 11/4/82
~~82-44~~	UC Berkeley-"Effects of Acid Rain on Plant-Microbial Associations in Calif. #83,524	Research	" "	" "	
82-45	Sante Fe Research-"Development of Methods to Estimate the Benefits of Visibility ~~Improvement" $54,783.00~~	" "	~~8/26/82~~	8/26/82	
~~82-46~~	~~Carbon Monoxide Standard~~	~~Research~~	~~8/26/82~~	Conclude Adopted ~~9/22/82~~	
~~82-47~~	Petition By Dept. of Defense (ref. China Lake Weapons Naval Center	OPPEC	9/22/82	withdrawn	
82-48	Cal Tech-"Control of Atmospheric Aerosol Nitrate & Nitric Acid Concentrations #375,620	Research	~~9/22/82~~	8/23/82	

RESOLUTIONS

No.	Item	Staff	Hearing Scheduled	Date Adopted	+ EIS to Resources
82-49	Technologies for the treatment and de=struction of Organic wastes as Alter=natives to Land Disposal	SSCD	9/22/82	9/23/82	
82-50	SCM to Reduce Organic Compound Emissions Associated with Volatile Organic Waste Disposal	SSCD	9/22/82	9/23/82	11/4/82
82-51	Visibility: To establish a network of dichotomous samplers to measure visibil-ity reducing particles.	Research	9/22/82	9/22/82	
82-52	Adopting Subchapter 7 to Chap. 1, Part 111 of Tit. 17, H&S Code 41700, the Emission of Toxic Air Contaminants	OPPEC	10/27/82	12/1/82	1/7/82
82-53	MC Petition Regarding the 1.0 Gram Per Kilomenter Hydrocarbon Exhaust Std. for Class 111 MC's for 1984 and later years	MSCD	10/28/82	12/1/82	
82-54	1982 Revisions to the SIP's for South Coast,Sacto, San Fran, San Diego	OPPEC	10/14/82	10/14/82	
82-55	Approval of a Policy for Reviewing New or Modifies Sources of Toxic air Con-taminants.	RPD	10/27/82	10/28/82	11/4/82
82-56	Long Range Motor Vehicle Strategy to Control Emissions	MSCD	10/14/82	10/14/82	
82-57	UCR -"Formation and Fate of Toxic Chemicals in California's Atmoshere" $195,104	Research	10/27/82	11/5/82	
82-58	UCR -"Maintenance and Operation of California Air Resources Board Field Fumigation Facility for Exp. Use" $60,297.	Research	10/27/82	11/5/82	
82-59	UCD-Effects of Ozone & Sulfur Dioxide on Crop Physiology & Pro-ductive: $129,698	Research	10/27/82	11/5/82	
82-60	Energy Resources Consultants-"Quanti-tative Assessment of the Effects of Not Controlling Air Pollution"$172,941	Research	10/27/82	11/5/82	
82-61	Meteorology Research, Inc.-"The Appli-cation of Climatological Analysis" to Minimize Air Pollution Impacts in CA $84,606	Research	10/27/82	11/5/82	
82-62	TRC Enviromental consultatants-"Assessment of Air Pollution Material Damage and Soiling in SCAB" $95,759	Research	12/1/82	12/9/82	
82-63	Fine inhalable Particulate Standard	Research	12/1/82	12/9/82	5/5/83
82-64	Lead in Gasoline	SSCD	12/1/82	12/2/82	1/7/83

RESOLUTIONS

No.	Item	Staff	Hearing Scheduled	Date Adopted	+ EI Resources
82-65	Resolution Thanks to Outgoing Legislators	Legal	12/1.82	12/1/82	
82-66	Report to the Legislature on the Control of Visible Emissions form Ship with Steam Boilers	SSCD	12/8/82	# not used	
82-67	Amendments ot Title 13,"CAC." Sec, 2100 Through 2114 & Related Proc. Reg. In Use -Vehicle Recall	MSCD	" "	12/9/82	
82-68	Consider a Policy for Evaluation Passenger Car NOx Offset Proposals	" "	" "	# Not used	
82-69	Sonoma Tech. Inc. "Acid Rain Research" $99,985.00	Research	" "	12/8/82	
82-70	Irvine-"The Effects of Exercise on Lung Injury Induced by Ozone & Nitrogen Dioxide" $99,858.00	" "	" "	" "	
82-71	U.C. Riverside-"Determiniation of the Effects of Photochimical Oxidants &/or SO2 Yield of Navel Oranges" $300,298.	" "	" "	" "	
82-72	U.S.C.-"The Role of Air Pollutants in Facilitation of Cancer Cell Metastasis" $92,499	" "	" "	" "	
82-73	Pollutant Transcript Study BAAQMD	" "	Mail Ballot 12/27/82		

State of California

AIR RESOURCES BOARD

Resolution 82-1

January 13, 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 solicited research Proposal Number 1068-88 entitled "Emissions from Bulk Solids Handling Operations for Cement" has been submitted by TRC Environmental Consultants 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:

> Proposal Number 1068-88 entitled "Emissions from Bulk Solids Handling Operations for Cement", submitted by TRC Environmental Consultants, Inc., for a total amount not to exceed $75,000;

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 1068-88 entitled "Emissions from Bulk Solids Handling Operations for Cement", submitted by TRC Environmental Consultants, Inc., for a total amount not to exceed $75,000;

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 $75,000.

I certify that the above is a true and correct copy of Resolution 82-1, as passed by the Air Resources Board.

Sally Rump

BOARD SECRETARY

State of California
AIR RESOURCES BOARD

ITEM NO: 82-1-2b.1
DATE: February 13, 1982

ITEM: Research Proposal No. 1068-88 entitled: Emissions From Bulk Solids Handling Operations for Cement

RECOMMENDATION: Adopt Resolution 82-1 approving Research Proposal No. 1068-88 for funding in an amount not to exceed $ 75,000

SUMMARY:

The contractor will develop and will demonstrate a method which can be used by the Board's Engineering Evaluation Section to determine size-segregated particulate matter emission rates from the loading and unloading of cement in bulk. In Task 1, the contractor will determine if methods exist which can be applied to bulk handling operations for cement. In Task 2, cement loading and unloading methods used in California will be described, including details on how relevant emission factors were derived. In Task 3, a loading or unloading facility will be selected for particulate matter emissions evaluation. A method for determining the total mass and the size-segregated particulate matter emission rates from the operations at the facility will be developed. Mass fractions in the fine and inhalable particle size ranges are to be identified. The effectiveness of the method is to be demonstrated in the field. In Task 4, applicability to other bulk solid materials transfer operations in California will be assessed.

The RFP was approved by the Research Screening Committee at the October 6, 1981 meeting and released with a five week response period. Eight proposals were received. The proposal submitted by TRC Environmental Consultants Inc. was determined by the staff and the Research Screening Committee to be the best response to the RFP. The Committee recommended augmenting the proposed budget to the full amount that the State budgeted for this project, $ 75,000, to provide for additional field work.

SUMMARY (Cont.)

TRC Environmental Consultants (TRC) will review the literature and assess the various types of sampling methodologies available, and simultaneously it will perform a survey of the types of cement handling operations that exist in California. A sampling methodology will be developed that is applicable to such cement handling operations. Demonstration of mass-flux profiling is proposed at three distinct fugitive dust sources within a selected cement handling facility. Sixty field tests are proposed, and these tests will be designed to determine both the accuracy and the precision of the method through the use of inert tracer gases. Once the use of the methodology has been demonstrated on cement handling operations, its suitability for application to other bulk solids material transfer operations in California will be assessed.

State of California

AIR RESOURCES BOARD

Resolution 82-2

January 13, 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 solicited research Proposal Number 1080-88 entitled "Effects of Ozone or SO_2 on Growth and Yield of Rice" has been submitted by the University of California at 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 1082-88 entitled "Effects of Ozone or SO_2 on Growth and Yield of Rice", submitted by the University of California at Riverside for a total amount not to exceed $95,987;

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 1082-88 entitled "Effects of Ozone or SO_2 on Growth and Yield of Rice", submitted by the University of California at Riverside for a total amount not to exceed $95,987;

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 $95,987.

I certify that the above is a true and correct copy of Resolution 82-2, as passed by the Air Resources Board.

Sally Rump

BOARD SECRETARY

State of California
AIR RESOURCES BOARD

ITEM NO.: 82-1-262
DATE: January 13, 1982

ITEM: Research Proposal No. 1082-88 entitled "Effects of Ozone or SO_2 on Growth and Yield of Rice".

RECOMMENDATION: Adopt Resolution 82-2 approving Research Proposal No. 1082-88 for funding in an amount not to exceed $95,987.

SUMMARY:

Rice is an important crop in California particularly in the Sacramento Valley. It is usually grown in areas of low air pollution, but these areas may be threatened by increased air pollution from proposed power generating facilities and population increases. Although some Japanese researchers have studied the effects of air pollution on rice, information is incomplete and no information is available on the effect of air pollution on rice grown in California.

This proposal would study the effect of ozone or SO_2 on three widely-grown varieties of rice in California. Fumigation of the plants would simulate field conditions by using the 20 fumigation chambers located at Riverside and built by the Air Resources Board. Plant parameters that will be measured during or after fumigation include time of flowering, dry weight of foliage, yield at harvest, photosynthesis, transpiration and foliar injury. Data will be analyzed and regression curves calculated to relate plant performance to the various pollutant treatments.

The proposed study should be useful in determining if present ozone or SO_2 levels are causing economic losses in yield or predicting what concentration of these pollutants might be harmful to rice. The information also may be used in setting future ambient air quality standards and/or emission standards if needed.

State of California

AIR RESOURCES BOARD

Resolution 82-3

January 13, 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 solicited research Proposal Number 1081-88 entitled "A Study of the Characteristics of Chemical Reaction Mechanisms for Photochemical Smog" has been submitted by the California Institute of Technology 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 1080-88 entitled "A Study of the Characteristics of Chemical Reaction Mechanisms for Photochemical Smog", submitted by the California Institute of Technology, for a total amount not to exceed $50,000;

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 1080-88 entitled "A Study of the Characteristics of Chemical Reaction Mechanisms for Photochemical Smog", submitted by the California Institute of Technology, for a total amount not to exceed $50,000;

BE IT FURTHER RESOLVED, that the Executive Officer shall initiate administrative procedures and shall execute all necessary documents and contracts for Phase I of the research effort proposed in an amount not to exceed $50,000.

I certify that the above is a true and correct copy of Resolution 82-3, as passed by the Air Resources Board.

Sally Rump

BOARD SECRETARY

State of California
AIR RESOURCES BOARD

Item: 82-1-2b.3
Date: January 13, 1982

ITEM: Research Proposal No. 1088-88 entitled "A Study of the Characteristics of Chemical Reaction Mechanisms for Photochemical Smog".

RECOMMENDATION: Adopt Resolution 82-3 approving Research Proposal No. 1088-88 for funding in an amount not to exceed $88,615.

SUMMARY:

Comparison of the results of calculations with various photochemical models shows that significant differences in predictions can occur between the models, depending on the photochemical mechanism employed. These differences indicate a need for further study of the reaction mechanisms that are employed in the models and of the methods by which these reaction mechanism are incorporated into the model. The methodology by which the photochemical mechanisms can be incorporated into a model in a manageable way is especially difficult when one considers that a model may consist of upwards of 100 photochemical reactions involving hundreds of pollutant species.

Existing photochemical models also could be improved by substituting new kinetic data on organic reactions, especially those of aromatic hydrocarbons. Many of the reaction rates used in existing models have been estimated or have resulted from relatively crude measurement techniques. The recent kinetic measurements by Pitts,et al., as well as other investigators, represent a significant improvement over earlier data. Inclusion of these improved kinetic data on aromatics is especially important because of the increased use of aromatics in unleaded motor fuels.

The main objectives of this proposal are: (1) to review and analyze the methodologies by which the various reactions are lumped together and incorporated into the models, and (2) to incorporate improved kinetic data on aromatic compounds into existing models. These objectives will be met by accomplishing the following tasks, which will be performed successively.

SUMMARY (cont)

PHASE I

Task 1. To perform a fundamental study of the mode of representing organic reactions in chemical mechanisms for photochemical smog to reach general conclusions on the key reaction steps and their mechanism sensitivity: this task would be performed in a manner that is essentially independent of particular mechanisms or models;

Task 2. To revise the aromatic hydrocarbon portion of the Caltech mechanism to include the latest kinetic data on aromatic reactions;

Task 3. To evaluate the revised mechanism against selected smog chamber data and to generate ozone isopleth plots suitable for comparison with other mechanisms;

PHASE II

Task 1. To use the information developed in Phase I and to revise as needed the California Institute of Technology mechanism currently incorporated in the Caltech Air Quality model;

Task 2. To implement the revised mechanism on the Air Resources Board computer in the Caltech Air Quality Model.

State of California

AIR RESOURCES BOARD

Resolution 82-4

January 13, 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 solicited research Proposal Number 1081-88 entitled "Correlative and Sensitive Discriminants for Air Quality Control" has been submitted by the Proffesional Staff Association, L.A. County/USC Medical Center 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 1081-88 entitled "Correlative and Sensitive Discriminants for Air Quality Control" submitted by Professional Staff Association, L.A. County/USC Medical Center for a total amount not to exceed $173,958;

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 1081-88 entitled "Correlative and Sensitive Discriminants for Air Quality Control" submitted by Professional Staff Association, L.A. County/USC Medical Center for a total amount not to exceed $173,958;

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 $173,958, contingent upon the principal investigator's having submitted a manuscript describing work completed to date under the above named project to a peer reviewed journal for publication.

I certify that the above is a true and correct copy of Resolution 82-4, as passed by the Air Resources Board.

Sally Rump

BOARD SECRETARY

State of California
AIR RESOURCES BOARD

ITEM NO.: 82-1-2b.4
DATE: January 13, 1982

ITEM: Research Proposal No. 1081-88 entitled "Correlative and Sensitive Discriminants for Air Quality Control", Professional Staff Association, L.A. County/USC Medical Center.

RECOMMENDATION: Adopt Resolution 82-4 approving Research Proposal No. 1081-88 for funding in an amount not to exceed $173,958.

SUMMARY: The proposed study is an extension of work done under ARB sponsorship to elucidate the adverse health effects of exposure to low levels of nitrogen dioxide (NO_2), as well as ozone (O_3) and mixtures of the two pollutants. Completed efforts consist of the development and application of methods for the study of cellular and biochemical indicators of NO_2 at or near ambient concentrations. These methods currently are employed in studies to determine the rates of conversion of Type I pneumocytes (lung cells) to Type II (NO_2, O_3 and combination) and studies of whether such changes are reversible (NO_2 only). These two types of cells are the principal cells lining the alveoli of the lung. The most common cell of the alveolar wall, in terms of area covered, is the Type I cell. It is a very thin cell whose role is the efficient exchange of gases between the atmosphere in the lung and the blood. The Type II cell is distinguished by its thickness and its apparent role in lung defenses, including production of secretions. It appears from completed studies that Type II cell populations increase at the expense of Type I cells, even at relatively low concentrations of NO_2 (0.3 ppm) with repeated short-term exposures. Such cellular changes are thought to be the early steps in the development of several disease states, including emphysema. The investigators have also found that the developing lungs of animals appear to be more sensitive to the pollutants under study than do fully developed lungs.

Other studies, utilizing sensitive measures of rates of protein leakage into alveolar spaces, have indicated increased leakage after exposure to NO_2, also at or near ambient concentrations. These measurements are currently being employed in test designs with ozone (alone) as well as ozone combined

SUMMARY (con't)

with NO_2. Attention is also drawn to the effects of NO_2 and O_3 on the key sub-cellular structures known as mitochondria and lamellar bodies. The importance of effects on mitochondria derives from their role in producing energy for cellular processes. Ongoing studies indicate a change in the dimensions of the mitochondria in lung cells after NO_2 exposures. The lamellar bodies, which also may be affected, function in part to produce phospholipids and supply most of the surfactant vital to the maintenance and operation of the normal lung.

This proposal has two main objectives. The first is to investigate the nature and long term reversibility of cellular level alterations due to NO_2 and O_3 exposures, alone and combined, in developing lungs. The second is to employ recently developed methods to study the association that is thought to exist between loss of alveolar cells and replacement by elastic and connective tissues. These tissue changes are commonly observed "markers" of several common lung diseases. Other satellite investigations will be carried out to address ultrastructural changes as well as systemic effects.

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. AO-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 Walmes

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 82-12

February 24, 1982

WHEREAS, the Air Resources Board ("Board") and the Environmental Protection Agency have established health-based ambient air quality standards for oxidant and ozone, respectively, and for particulate matter, and the Board has established standards for visibility reducing particles, and these standards are frequently violated in several of the State's air basins;

WHEREAS, Health and Safety Code Sections 39003, 39500, 39602, and 41500 authorize the Board to coordinate, encourage, and review efforts to attain and maintain state and national ambient air quality standards;

WHEREAS, Health and Safety Code Sections 39600 and 39605 authorize the Board to act as necessary to execute the powers and duties granted to and imposed upon the Board and to assist the air pollution control districts;

WHEREAS, the California Environmental Quality Act and Board regulations require that the Board not take any action which would have adverse environmental impacts unless the Board responds to all significant environmental issues raised and adopts all feasible measures to mitigate such impacts;

WHEREAS, the Board has held a duly noticed public meeting on this matter and heard and considered the comments presented by representatives of the Board, districts, affected industries, and other interested persons and agencies; and

WHEREAS, the Board finds:

That emissions of photochemically reactive organic compounds from vents of steam drive oil production wells contribute to concentrations of oxidant and ozone and of photochemically generated particulate matter in excess of state and national ambient air quality standards in several of the State's air basins;

That emissions of photochemically reactive organic compounds from steam drive oil production wells can be reduced from an average of 220 pounds per day per well to an average of 4.5 pounds per day per well by condensing such emissions in heat exchangers such as shell and tube condensers or fin fan coolers and by combusting the exit gases from the heat exchangers in a steam generator or a flare;

That the technology to control emissions from vents of steam drive oil production wells is reasonably available and cost-effective; and

That no significant adverse environmental impacts associated with the proposed Suggested Control Measure have been identified and no potentially significant adverse environmental effects are likely to result from the adoption and implementation of the proposed Suggested Control Measure.

NOW, THEREFORE, BE IT RESOLVED that the Board endorses the Suggested Control Measure for Emissions of Photochemically Reactive Organic Compounds from Vents of Steam Drive Oil Production Wells as set forth in Attachment A to this Resolution.

BE IT FURTHER RESOLVED that the Executive Officer direct the Board staff to study the appropriateness of inclusion of ethane in definitions of photochemically reactive organic compounds and to report back to the Board on the results of this study.

BE IT FURTHER RESOLVED that the Executive Officer shall forward the Suggested Control Measure to districts for consideration and adoption in regulatory form to the extent necessary to provide for the attainment and maintenance of the ambient air quality standards.

I certify that the above is
a true and correct copy of
Resolution 82-12, as adopted
by the Air Resources Board.

Harold Holmes, Board Secretary

Attachment A

SUGGESTED CONTROL MEASURE FOR EMISSIONS OF PHOTOCHEMICALLY REACTIVE ORGANIC COMPOUNDS FROM VENTS OF STEAM DRIVE OIL PRODUCTION WELLS

I. DEFINITIONS

A. Operate: To perform any activity with or on any crude oil production well including, but not limited to pumping, venting, maintaining or repairing.

B. Photochemically Reactive Organic Compound (PROC): Any compound containing at least one atom of carbon, except methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and carbonates.

C. Production Zone: A formation or group of formations of oil bearing material beneath the surface of the ground through which steam can travel from a steam injection well to an oil production well.

D. Steam Drive Well: Any crude oil production well that is completed in the same production zone as is a steam injection well, that is either operated by the person injecting the steam or responding to steam injection under a contractual agreement with the operator of the steam injection well, and that is within a:

1. 250 foot radius of the steam injection well, if the steam injection well is within a 2-1/2 acre or smaller production well pattern; or

2. 350 foot radius of the steam injection well, if the steam injection well is within a production well pattern of 5 acres or smaller but larger than 2-1/2 acres; or

3. 500 foot radius of the steam injection well, if the steam injection well is within a production well pattern larger than five acres; or

4. 1,000 foot radius of the steam injection well, if the production well is not in one of the above specified patterns.

E. Steam Injection Well: A well into which steam is injected to increase the production of oil from adjacent wells.

II. EMISSION CONTROL REQUIREMENTS*

A. No person shall operate a steam drive well unless the PROC emissions from the well are reduced by at least 98 percent by weight from the uncontrolled level or to 4.5 pounds per day or less, or

B. If steam drive wells are connected to a vapor control system, PROC emissions shall be reduced by an average of at least 98 percent from the uncontrolled level or shall average no more than 4.5 pounds per day per connected well.

III. COMPLIANCE

A. The operator of any new steam drive well, or any non-steam-drive well converted to a steam drive well, which commences steam drive operations on or after the date of adoption of this rule shall comply with the provisions of this rule not later than 12 months after steam injection commences.

B. The operator of any oil production well operated as a steam drive well prior to the date of adoption of this rule shall be in full compliance

*Nothing in this measure is intended to transfer responsibility for emission violations to persons performing repair or maintenance work under contract to the owner or operator of a steam drive well.

with the provisions of this rule within 25 months from the date of adoption of the rule. The operator of any steam drive well who chooses to control the emissions from the well by installing a vapor control system shall comply with the following schedule of increments of progress:

1. Within 9 months from the date of adoption of the rule, submit to the Air Pollution Control Officer a final control plan which describes, as a minimum, the steps, including construction schedules, that will be taken to achieve compliance with the provisions of this rule and an application for authority to construct the proposed vapor control system.
2. Within 12 months from the date of adoption of the rule, provide documentation to the Air Pollution Control Officer that contracts or purchase orders for the control system and component parts have been issued.
3. Within 15 months from the date of adoption of the rule, initiate on-site construction of the vapor control system.
4. Within 23 months from the date of adoption of this rule, complete on-site construction of the vapor control system.
5. Within 25 months from the date of adoption of the rule, demonstrate full compliance with the provisions of this rule.

C. Compliance testing shall be performed annually by the operator of vapor control systems used to control emissions from steam drive wells. The testing shall be performed during June, July, August, or September of each year.

D. The Air Pollution Control Officer may waive the requirement in paragraph III(C) for a vapor control system which combusts the organic vapors leaving the system.

E. The Air Pollution Control Officer shall waive the requirement in paragraph III(C) for the vapor control system which does not emit PROC.

IV. EXEMPTIONS

A. During the times that any steam drive well is being serviced, as determined by criteria issued by the Air Pollution Control Officer, the well shall be exempt from the requirements of this rule.

B. Any steam drive well defined by paragraph I(D)(4) is exempt from the provisions of this rule if the operator shows to the satisfaction of the Air Pollution Control Officer that the temperature at the wellhead of produced oil and water has been increased by less than thirty Fahrenheit degrees above the temperature at the wellhead of oil and water that was produced before steam injection was commenced.

C. Any steam drive well defined by paragraph I(D)(4) into which steam has been injected is exempt from the provisions of this rule for six months from the most recent date of such steam injection, provided that the amount of steam expressed as water injected during the most recent injection is more than 2,000 barrels and that:

1. Steam is injected more frequently than once every 45 days; or

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Meeting to Consider a Suggested Control Measure for Emissions of Photochemically Reactive Organic Compounds from Vents of Steam Drive Oil Production Wells

Public Hearing Date: February 24, 1982

Response Date: February 24, 1982

Issuing Authority: Air Resources Board

Comments: No comments were received identifying any significant environmental issues pertaining to this item. The staff report identified no adverse environmental effects.

Response: N/A

CERTIFIED: _____
Board Secretary

Date: 03/08/82

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 acumen 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.

Resolution
#82-14

was passed in
Executive Session
(Resolution is in
Board Secretary
Files)

State of California
AIR RESOURCES BOARD

Resolution 82-16

April 21, 1982

Agenda Item No.: 82-9-1

WHEREAS, Sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (the "Board") to adopt standards, rules and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, Section 41850 of the Health and Safety Code provides that agricultural burning be reasonably regulated and not be prohibited;

WHEREAS, Sections 41855, 41856, 41857, and 41858 of the Health and Safety Code direct the Board to promulgate guidelines for the regulation and control of agricultural burning for each of the air basins established by the State Board;

WHEREAS, Section 41859 of the Health and Safety Code states that the Board shall continuously review the Guidelines and may modify, repeal or alter such Guidelines if scientific and technological data indicate that such changes are warranted, and that before adopting any such changes, the State Board shall hold a public hearing and shall consider the criteria set forth in Section 41857;

WHEREAS, Government Code Section 11349.7 requires State agencies to review, and revise where necessary, existing regulations, based on standards of necessity, clarity, consistency, authority and reference;

WHEREAS, existing Agricultural Burning Guidelines have been promulgated in accordance with the provisions of the Health and Safety Code, and have been reviewed in accordance with the requirements of Government Code Sections 11340 et seq.;

WHEREAS, the Agricultural Burning Guidelines can be made more responsive to the needs of the districts and others by:

a) Requiring designated agencies to transmit burn permit information to the districts; and

b) Requiring districts outside the Sacramento and San Joaquin Valley Air Basins to submit permissive-burn day statistics and no-burn day reports on an annual basis rather than a quarterly basis;

WHEREAS, the California Environmental Quality Act and Board regulations require that no project having significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available;

WHEREAS, the Board finds that the regulations set forth in Attachment A hereto would have no adverse environmental, economic or feasibility impacts, and therefore no alternatives and/or mitigation measures are required;

WHEREAS, the revisions to the Agricultural Burning Guidelines contained in Attachment A are appropriate to effectuate the purposes of Government Code Section 11349.7; and

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of Chapter 3.5 (commencing with Section 11340), Part 1, Division 3, Title 2 of the Government Code.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby amends Sections 80100 through 80320 of Title 17, California Administrative Code, entitled "Agricultural Burning Guidelines," as set forth in Attachment A hereto.

BE IT FURTHER RESOLVED that the Executive Officer is directed to evaluate the practical effects of the amended regulations and to recommend to the Board any further revisions which may be deemed appropriate.

I hereby certify that this is a true and correct copy of Resolution 82-16, as adopted by the Air Resources Board.

Harold Holmes, Board Secretary

80100. Definitions.

1) The definitions should be alphabetized for clarity and easy reference.

2) Section 80100(d) should be amended for clarity in response to public comment as follows:

(d) "Forest management burning" means the use of open fires, as part of a forest management practice, to remove forest debris or for ~~f~~forest management practices which include timber operations, silvicultural practices or forest protection practices.

3) Section 80100(i) should be amended for clarity in response to public comment as follows:

(i) "Designated agency" means any agency designated by the State Board as having authority to issue agricultural burning permits. The U.S. Forest Service and the California ~~Division~~ Department of Forestry are so designated within their respective areas of jurisdiction.

80102. Exceptions.

1) Section 80102(a) should be amended for clarity as follows:

(a) Open burning in agricultural operations in the growing of crops or raising of fowl or animals, as defined in Section 80100(g)(1) and (2), or disease or pest prevention, at altitudes above 3,000 feet mean sea level (msl)~~, except in the Tahoe Basin,~~ is exempt from these Agricultural Burning Guidelines, except in the Tahoe Basin.

2) Section 80102(b) should be amended for clarity as follows:

(b) Agricultural burning as defined in Section 80100(a) and Section 80100(g), in areas at altitudes above 6,000 feet (msl), ~~except in the Tahoe Basin,~~ is exempt from these Agricultural Burning Guidelines, except in the Tahoe Basin.

80110. Permissive-Burn or No-Burn Days.

1) Section 80110(a) should be amended for clarity as follows:

(a) ~~Commencing no later than December 1, 1974, a~~ A notice as to whether the following day is a permissive-burn day, or a no-burn day, or whether the decision will be announced the following day, shall be provided by the State Board ~~at 1500~~ by 3:00 p.m. daily for each of the air basins. If the decision is made the following day it shall be announced by ~~0745.~~ 7:45 a.m. Such notices shall be based on the Meteorological Criteria for Regulating Agricultural Burning, ~~adopted March 17, 1971, as revised June 21, 1972, February 20, 1975, April 27, 1978, and October 12, 1979~~ Article 3, Sections 80180 through 80320 of these Agricultural Burning Guidelines.

80120. Burning Permits.

1) Section 80120(g) should be amended for necessity, as reflected in public comments, to require burn report submittals from designated agencies as follows:

(g) Permits issued by designated agencies shall be subject to these Agricultural Burning Guidelines and to the rules and regulations of the district. Designated agencies shall submit to the districts permit information as required under Title 17, California Administrative Code, Section 80130 at a time interval consistent with district reporting requirements to the State Board.

80130. Burning Report.

1) Section 80130(a) should be amended for necessity as reflected in public comments to reduce the frequency and the detail of the reports of burning on permissive-burn days for districts outside of the boundaries of the Sacramento and San Joaquin Valley Air Basins as follows:

(a) A report of burning pursuant to these Guidelines during each quarter of a calendar year shall be submitted to the State Board by ~~the district~~ each district within the boundaries of the Sacramento and San Joaquin Valley Air Basins within 20 days of the end of the quarter. The report shall include the date of each burn, the type of waste burned, and the estimated tonnage or acreage of waste burned. ~~In the future if in the judgment of the State Board, quarterly reports are no longer necessary, the State Board may require reports at less frequent intervals.~~

(b) A report of burning pursuant to these Guidelines during each calendar year shall be submitted to the State Board by each district outside the boundaries of the Sacramento and San Joaquin Valley Air Basins within 30 days of the end of the calendar year. The report shall include the estimated tonnage or acreage of each type of waste burned during the calendar year.

2) Section 80130(b) should be amended for necessity as reflected in public comments to reduce the frequency of the reports of burning on no-burn days for districts outside of the boundaries of the Sacramento and San Joaquin Valley Air Basins as follows:

~~(b)~~(c) A report of permits issued pursuant to subdivision (d) of Section 80120 during each quarter of a calendar year shall

be submitted to the State Board by the districts within the boundaries of the Sacramento and San Joaquin Valley Air Basins within 20 days after the end of the quarter. The report shall include the number of such permits issued, the date of issuance of each permit, the person or persons to whom the permit was issued, an estimate of the amount of wastes burned pursuant to the permit, and a summary of the reasons why denial of such permits would have threatened imminent and substantial economic loss. ~~In the future if in the judgment of the State Board, quarterly reports are no longer necessary, the State Board may require reports at less frequent intervals.~~

(d) A report of permits issued pursuant to subdivision (d) of Section 80120 during each calendar year shall be submitted to the State Board by the districts outside of the boundaries of the Sacramento and San Joaquin Valley Air Basins within 30 days of the end of the calendar year. The report shall include the number of such permits issued, the date of issuance of each permit, the person or persons to whom the permit was issued, an estimate of the amount of wastes burned pursuant to the permit, and a summary of the reasons why denial of such permits would have threatened imminent and substantial economic loss.

(e) In the future if in the judgment of the State Board, the frequency of reports required pursuant to subdivisions (a), (b), (c), and (d) of this section are no longer necessary, the State Board may require reports at less frequent intervals.

DIGEST OF REGULATORY ACTION
PURSUANT TO GOVERNMENT CODE SECTION 11346.7(c)

Pursuant to Government Code Section 11340 et seq. (AB 1111), the Air Resources Board (ARB) has adopted certain amendments to its Agricultural Burning Guidelines, Title 17, California Administrative Code, Sections 80100 through 80320. These amendments are based on the criteria of necessity, clarity, authority, and reference, as set forth in AB 1111.

Substantive amendments, based on the criteria of necessity, have been adopted in three areas, as follows: (1) Section 80120(g) - Designated agencies, which are authorized under existing law to issue burn permits, are now expressly required to submit certain burn permit information to the air pollution control districts (APCDs) in their regions. Such information transmittals were not expressly required prior to the adoption of this amendment and, in some instances, this made it difficult for affected APCDs to obtain needed information from the designated burn permit agencies; (2) and (3) Sections 80130(a) and (b) - These amendments change from quarterly to annual district reporting requirements to the ARB for permissive burn and no-burn permits in air basins outside the Sacramento-San Joaquin Valley Air Basins. Because of the extensive data collected in the past, and the relatively small amount of agricultural burning in these areas, sufficient information can be obtained from annual reports, and quarterly reports are no longer deemed necessary.

Clarifying, nonsubstantive amendments, such as alphabetizing definitions, have been adopted to Title 17, California Administrative Code, Sections 80100, 80100(d), 80100(i), 80102(a), 80102(b), and 80110(a).

Amendments to legal reference and authority citations have been adopted for each section of the guidelines to update and better reflect the statutes underlying these regulations.

State of California
AIR RESOURCES BOARD

PUBLIC HEARING TO CONSIDER ADOPTION OF REVISIONS TO THE "AGRICULTURAL BURNING GUIDELINES", TITLE 17, CALIFORNIA ADMINISTRATIVE CODE, SECTIONS 80100 THROUGH 80320

Scheduled for Consideration: April 21, 1982
Agenda Item Number: 82-9-1

FINAL SUMMARY AND STATEMENT OF REASONS FOR PROPOSED RULEMAKING

Government Code Section 11340 et seq. (Assembly Bill 1111) requires California administrative agencies, including the Air Resources Board (the "Board"), to conduct a review of regulations administered by them in accordance with the standards set forth in Government Code Sections 11349 and 11349.1 for necessity, clarity, consistency, authority and reference.

Pursuant to this law, the ARB staff conducted a thorough review of the regulations contained in the Agricultural Burning Guidelines, Title 17, California Administrative Code, Sections 80100 through 80320, and prepared a written report on its review and recommendations. That report was sent to the Office of Administrative Law (OAL) in October 1981.

The staff review consisted of: (1) requests for public comment sent to approximately 5,000 individuals throughout the state; (2) staff evaluation of the responses received; (3) independent staff analysis of the Agricultural Burning Guidelines; and (4) subsequent staff recommendations for revisions.

On April 21, 1982, the Board held a public hearing to consider adoption of certain proposed revisions to the Agricultural Burning Guidelines. The Board adopted all of the revisions then proposed by staff and one additional nonsubstantive amendment which staff also recommended in response to a written comment received prior to the Board hearing. The adopted revisions fall into three categories, described as follows.

(A) Necessity: The staff originally proposed five revisions for necessity in the report submitted to OAL. Three of these proposals were submitted to and adopted by the Board at the April 21, 1982 hearing. The three adopted revisions are as follows: (1) Section 80120(g) was amended to specifically require designated agencies which have authority for granting burn permits to submit their burn permit information to the appropriate air pollution control district; (2) and (3) Sections 80130(a) and 80130(b) were amended to change the reporting requirement periods from quarterly to annually for districts outside the Sacramento and San Joaquin Valley Air Basins for both permissive burn day and no-burn day reports.

Two other proposed substantive revisions contained in the staff report submitted to OAL in October of 1981 were not considered at the Board hearing in April of 1982. These proposed revisions were to: (1) modify the permissive-burn day criteria for the burning of almond and walnut orchard prunings in the north section of the San Joaquin Valley Air Basin, and this proposed revision was adopted (Section 80260(e)(5)) following an Executive Officer Hearing in November of 1981; and (2) revise the boundaries for applying meteorological criteria within the North Coast Air Basin (Section 80180). At this time, the ARB staff believes that further discussions with affected parties are required before specific proposed revisions of the boundaries of the North Coast Air Basin are presented to the Board.

(B) Clarity: Six revisions for clarity were adopted by the Board, all of which were submitted in the staff report to OAL. These revisions are primarily changes in wording which help to make the meaning of these regulations clearer and easier to understand (Sections 80100, 80100(d), 80100(i), 80102(a), 80102(b), and 80110(a)). One example is the alphabetizing of definitions.

(C) Authority and Reference: The Board adopted all of the revisions proposed by staff to Sections 80100 through 80320 regarding legal authority and reference citations at the end of each section.

All of the revisions to Title 17, California Administrative Code, Sections 80100 through 80320, adopted by the Board at the April 21, 1982 hearing, are set forth in Attachment A to Resolution 82-16.

COMMENTS, OPPOSING CONSIDERATIONS AND AGENCY RESPONSE

A. Written Comments

Following the notice of a board hearing to consider the proposed revisions to the Agricultural Burning Guidelines, three letters (attached) were received by the Board which contained comments and proposals for amendments to the guidelines. The issues raised and the agency's responses are set forth below.

1. Issue: A letter from John B. English, Director, Air Pollution Control for the County of Santa Barbara, contained two comments regarding ARB staff proposals for revisions to the Agricultural Burning Guidelines, as follows:

(a) The amendment to Section 80120(g) requiring designated agencies to submit burn permit information to the district should require the transmittal of all information listed on the ARB "Permissive Burn Day Data Forms"; and

(b) Quarterly reporting in areas outside the Sacramento-San Joaquin Valley should be retained.

Agency Response

(a) The intent of the proposed change to Section 80120(g) is to require designated agencies to submit all information to the districts which the districts need in reporting to the ARB. Districts outside the Sacramento and San Joaquin Valley Air Basins are not required to submit to the ARB permissive burn day data sheet information. Nevertheless, all districts retain the authority to collect such daily information, pursuant to Title 17, California Administrative Code, Section 80101(b). Furthermore, the Board adopted a non- substantive amendment to the proposed revision to Section 80120(g) requiring that designated agencies provide districts with all information required pursuant to Section 80130 concerning both permissive burn and no-burn permits.

(b) The Santa Barbara district is the only one to recommend retention of quarterly reports outside the Sacramento-San Joaquin Valley Air Basins. Under Title 17, California Administrative Code, Section 80101(b), any local or regional authority may establish stricter requirements than those set forth in the guidelines, thus preserving a district's prerogative to require quarterly submittals of permissive burn day data for district use. However, the ARB itself no longer needs such information on a quarterly basis for districts outside the Sacramento-San Joaquin Valley Air Basin.

2. Issue: A letter from Kenneth Corbin, Air Pollution Specialist for the County of Siskiyou, contained two requests for amendments to the guidelines as follows:

(a) Amend Section 80120 to allow a district to exempt agricultural burning from permit requirements during a period from December 1 through March 31; and

(b) Amend Section 80240 criteria for designation of burn/no-burn days for the Rogue River National Forest to parallel the criteria specified by the Oregon Department of Forestry.

Agency Response

(a) SB 738 authorizes exemptions from the permit requirements of Heath and Safety Code Section 41852 for a district, or a portion of a district, where agricultural burning does not significantly affect air quality. However, the bill requires that the Board, not the districts, determine whether such exemptions should be granted. Therefore, amending the guidelines to allow a district to exempt burn permit requirements on its own volition would violate SB 738. ARB staff has been working with districts of the Mountain Counties Air Basin in an effort to facilitate the implementation of SB 738, and those districts which believe that the permit exemptions authorized in SB 738 are appropriate for their areas of jurisdiction are invited to submit a request for exemption to the ARB for hearing.

(b) The ARB staff was not previously informed of a problem regarding the designation of burn/no-burn days in the Rogue River National Forest, and the necessity for a change in existing regulations requires further study. Generally, a program which is at least as restrictive as the guidelines would be permissible, and the ARB staff will discuss proposals for changes in the meteorological criteria with representatives of the affected areas. ARB staff has contacted Mr. Corbin and explained the staff's concerns in this area. After discussing the matter with ARB staff, Mr. Corbin stated satisfaction with our currently proposed amendments.

3. Issue: A letter from Twyla Thompson, Acting Chairman for the Sacramento Valley Air Basin Control Council, recommended that the proposals for reducing the frequency and detail of the quarterly agricultural burning

reports outside the Sacramento-San Joaquin Valley Air Basins apply to districts within the Sacramento Valley Air Basin as well.

Agency Response: Both the Sacramento and San Joaquin Valley Air Basins are predominantly agricultural in nature. Their combined agricultural acreage is approximately 84 percent of the total for the state. Both particulate and hydrocarbon emissions from agricultural burning are significant factors affecting ambient air quality for these air basins. Therefore accurate reporting on a daily basis is required for emissions inventories which, in turn, provide the bases for air quality maintenance planning. In addition, such information is needed for daily burn/no-burn day designations. Therefore, ARB staff believes that quarterly burning reports with daily permissive burn day data sheets for the Sacramento and San Joaquin Valley Air Basins are necessary and should not be eliminated or reduced at this time.

This issue was also discussed during oral testimony at the hearing. Staff comments regarding the issue are contained in the response to testimony by Earnie Vickrey, Air Pollution Control Officer for Yuba County.

B. Oral Testimony

At the April 21, 1982, public hearing for consideration of adopting amendments to the Agricultural Burning Guidelines, three persons presented oral testimony. Their testimony is summarized and responded to in the following comments.

1. Issue: Mr. Earl Withycombe, Consultant to the Mountain Counties Air Basin Technical Advisory Committee, testified regarding SB 1704. This bill provides for prescribed burning in the implementation of Chaparral Management Programs. Mr. Withycombe stated that Section 80160(b)(6) of the Agricultural Burning Guidelines, which requires that trees over six inches in

diameter be felled and dried six months prior to being burned, could not be complied with during prescribed burning of large acreage sites.

Agency Response: ARB staff noted that there are several other concerns from both state and local agencies regarding the Chaparral Management Program. Therefore, staff proposed that all recommendations in this area be considered at one time rather than in a piecemeal fashion. Mr. Withycombe agreed, and staff will pursue this matter further with the affected parties.

2. Issue: Mr. Earnie Vickrey, Air Pollution Control Officer for Yuba County, citing Ms. Twyla Thompson's letter, expressed dissatisfaction with the current format and time table for reporting permissive burn day data in the Sacramento Valley Air Basin.

Agency Response: The Board directed the staff to investigate the possibility of further changes in the format and/or method of burn data reporting in the valley. Mr. Vickrey agreed that a discussion between ARB staff and the staffs of affected valley districts would be the best way to resolve concerns about the reporting format.

3. Issue: Mr. Roland Brooks, Madera County Air Pollution Control District (San Joaquin Valley Air Basin), stated that his district wished to retain the present reporting procedures. He added that the district utilized the designated agencies (fire districts) reporting data and that he agreed that reporting the data to the ARB on a time schedule consistent with ARB requirements was appropriate.

Agency Response: Since Mr. Brooks' statement was supportive of the ARB program, the agency has no specific response except to thank him for his testimony.

State of California

Memorandum

To : Huey D. Johnson
Secretary
Resources Agency

Date : May 10, 1982

Subject : Filing of Notice of Decision of the Air Resources Board

From : **Air Resources Board**

Pursuant to Title 17, Section 60007 (b), and in compliance with Air Resources Board certification under section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decision and response to environmental comments raised during the comment period.

Harold Holmes
Board Secretary

RECEIVED BY
Office of the Secretary

MAY 10 1982

Resources Agency of California

attachments
[redacted] 82-16
Resolution 82-18

STATE OF CALIFORNIA

EDMUND G. BROWN JR., Governor

AIR RESOURCES BOARD
1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812

Re: Public Hearing to Consider Adoption of Revisions to the "Agricultural Burning Guidelines", Title 17, California Administrative Code, Sections 80100 through 80320

I certify that the record in the above-referenced proceeding was closed April 21, 1982, and that the enclosed is a complete true and correct copy of the rulemaking file in that proceeding.

Harold Holmes

Harold Holmes, Board Secretary

Enclosures

RECEIVED BY
Office of the Secretary

MAY 10 1982

Resources Agency of California

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider Adoption of Revisions to the "Agricultural Burning Guidelines", Title 17, California Administrative Code, Sections 80100 Through 80320

Agenda Item No: 82-9-1

Public Hearing Date: April 21, 1982

Response Date: April 21, 1982

Issuing Authority: Air Resources Board

Comment: No comments were received identifying any significant environmental issues pertaining to this item. The staff report identified no adverse environmental effects.

Response: N/A

CERTIFIED: _____
Board Secretary

Date: 4/30/82

RECEIVED BY
Office of the Secretary
MAY 10 1982
Resources Agency of California

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.

State of California
AIR RESOURCES BOARD

Resolution No. 82-18

April 21, 1982

Agenda Item No.: 82-9-3

WHEREAS, Health and Safety Code Section 39601 requires the Air Resources Board (the "Board") to adopt standards, rules, and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, Health and Safety Code Section 39801 requires the Board to administer, pursuant to Chapter 5 (commencing with Section 39800), Part 2, Division 26, of the Health and Safety Code, the Air Pollution Control Subvention Program with such funds as may be appropriated for the purposes of said Chapter, and Health and Safety Code Sections 39800 through 39811 establish the framework and requirements of the Air Pollution Subvention Program;

WHEREAS, the Board has adopted regulations for administering the subvention program in Sections 90100 through 90500 of Title 17, California Administrative Code;

WHEREAS, pursuant to Government Code Section 11349.7, the Board is required to review all regulations administered by it for compliance with the statutory criteria of necessity, clarity, consistency, authority, and reference;

WHEREAS, public comments on the Board's subvention regulations were solicited by public notice dated July 22, 1981;

WHEREAS, in consideration of these public comments and based on the staff's analysis of the regulations, staff has proposed specific changes to the subvention regulations designed to eliminate unnecessary repetitions of statutory provisions and other excess verbiage, and to reorganize and reword provisions to enhance clarity, resolve ambiguities, and simplify procedures;

WHEREAS, Health and Safety Code Section 39806 provides that money shall be subvened under the Air Pollution Subvention Program to districts engaged in the reduction of air contaminants pursuant to the basinwide air pollution control plan and related implementation programs and Health and Safety Code Section 39808 authorizes the Board to review the programs and expenditures of each district receiving a subvention under the Air Pollution Subvention Program;

WHEREAS, Section 90115 of Title 17, California Administrative Code, provides that the Board staff shall annually develop in cooperation with the districts

and the Board shall adopt evaluation criteria and district classifications which are appropriate to determine whether a district is engaged in the reduction of air contaminants pursuant to the basinwide air pollution control plan and related implementation programs;

WHEREAS, the Board staff, in cooperation with district staffs and the California Air Pollution Control Officers Association, has prepared recommended evaluation criteria and district classifications for the 1982-83 fiscal year;

WHEREAS, the Board staff has prepared an evaluation program by which the staff intends to evaluate districts receiving subventions to determine whether the districts are expending funds in accordance with their approved budget and are operating in accordance with the applicable evaluation criteria;

WHEREAS, the California Environmental Quality Act and Board regulations require that an activity not be adopted as proposed where significant adverse environmental impacts have been identified and feasible alternatives and/or mitigation measures which would substantially reduce these impacts exist;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of Chapter 3.5 (commencing with Section 11340), Part 1, Division 3, Title 2 of the Government Code;

WHEREAS, the Board finds that:

The amendments proposed by staff pursuant to the AB 1111 review process and continuing evaluation of the subvention regulations comply with the letter and the spirit of the review process set forth in the Administrative Procedure Act and conform to the five statutory criteria;

The evaluation criteria for fiscal year 1982-83 and district classifications developed by Board staff in cooperation with the districts are appropriate to determine, for the purpose of subvening state funds and in accordance with Section 39806 of the Health and Safety Code, whether a district is engaged in the reduction of air contaminants pursuant to the basinwide air pollution control plan and related implementation programs;

The evaluation program prepared by Board staff establishes appropriate fiscal and program review procedures for evaluation of districts receiving subvention funds; and

The proposed actions would have no significant adverse environmental impacts.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby endorses:

The amendments to its regulations in Sections 90100 through 90500 of Title 17, California Administrative Code, as set forth in Attachment A hereto;

The "District Subvention Categories", as set forth in Attachment B hereto; and

The "Evaluation Criteria for Air Pollution Control Districts Participating in the Subvention Program", for fiscal year 1982-83, as set forth in Attachment C hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to make Attachments A, B, and C available to the public for a period of 15 days and delegates to the Executive Officer the authority to consider any written comments submitted by the public concerning matters in Attachments A, B, and C which differ from the staff's proposal on these items, and either to adopt the items as set forth in Attachments A, B, and C, adopt them with such nonsubstantial changes as appropriate, or, in the event further substantial changes may be warranted, to bring the matters back before the Board for further consideration.

BE IT FURTHER RESOLVED that the Board recognizes the fiscal crisis facing local districts and directs the staff to consider district resource limitations in its evaluation of district programs pursuant to the subvention evaluation criteria.

BE IT FURTHER RESOLVED that the Board recognizes both the need for accurate, up-to-date emission inventories and the impact the potential fiscal crisis may have on the districts' ability to maintain emission inventories. The Board therefore directs the staff to establish a policy level district/ARB committee to develop recommendations on how the state's emission inventory needs can best be fulfilled.

BE IT FURTHER RESOLVED that the Board approves the evaluation program plan set forth in Attachment D for evaluating districts receiving subvention funds and authorizes the Executive Officer to modify the plan set forth as may be appropriate in the future to improve its effectiveness.

I certify that the above is a true and correct copy of Resolution 82-18, as adopted by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

Attachments to Resolution 82-18

Note: Attachments A, C and D include changes made from the documents as originally proposed in the March 7, 1982 staff report entitled: Public Hearing to Consider Amendments to Title 17, California Administrative Code, Regarding the Air Resources Board's Subvention Program and Local District Evaluation Criteria and Classifications for the 1982-83 Fiscal Year.

The changes in Attachment A consist of the changes indicated on page 4, Section 90110(c), lines 4-5 excluding the deletion of the last comma and insertion of the period on line 5.

The changes in Attachments C and D are indicated in underline and strikeout form. The changes in Attachment C are on pages 5, 12, 14, 15, 16, 19, 22, 23, 25, 26, 26A and 36. The changes in Attachment D are on pages 9 and 37.

Amendments to Title 17.

Subchapter 3. SUBVENTIONS

Article 1. GENERAL PROVISIONS

90050. Scope and Purpose. The regulations set forth in this subchapter shall supplement provisions in the Mulford-Carrell Air Resources Act (Division 26 of the Health and Safety Code), particularly Part 2, Chapter 5 (Sections 39800 et. seq.) and Part 1, Chapter 2 (Sections 39010 et. seq., "Definitions") with regard to the air pollution control subvention program.

90100. Definitions. ~~(a)--"Air-Basin"-means-a-region-within-California-as-defined-in-Article-1-(commencing-with-Section-60100),-Subchapter-1-of-this-Chapter.~~

(a) ~~(b)~~ "Air pollution control program" means the aggregate of all of the activities within a district or in support of a district's effort to control air pollution and to fulfill its obligations under the law.

~~(c)--"Board"-means-the-State-Air-Resources-Board,-or-any-person authorized-to-act-in-its-behalf.~~

(b) ~~(d)~~ "Basinwide air pollution control plan" means the plan prepared and submitted by the control council of each air basin, or, where one district includes an entire air basin, by such district, as approved by the Air Resources Board pursuant to Section 41600, 41500, or 41602 of the Health and Safety Code.

~~(e)--"Category"-means-a-level-in-which-a-district-will-be-classified for-the-purpose-of-establishing-evaluation-criteria.--Criteria-considered in-determining-the-classification-of-districts-will-include:--urban-or rural-nature-of-the-district,-population,-emissions,-violations-of ambient-air-quality-standards,-size-of-the-district-program,-and-subvention-funding-levels.~~

~~The-categories-for-districts-are:~~

~~(1)--"Large-urban-district";~~

~~(2)--"Small-urban-district";~~

~~(3)--"Rural-district".~~

(c) ~~(f)~~ "Control Council" means a basinwide air pollution control council established pursuant to Section 40900 of the Health and Safety Code.

~~(g)--"Disbursement-Request"-means-a-document,-submitted-in-a-format approved-by-the-Executive-Officer,-which-may-be-submitted-prior-to-the subvention-application-by-the-district-and-which-contains-the-information-required-in-a-subvention-application-except-for-an-approved-budget-for the-year-for-which-the-subvention-is-approved.~~

~~(h)--"District"-means-a-county-air-pollution-control-district, regional-air-pollution-control-district,-unified-air-pollution-control district,-the-Bay-Area-Quality-Management-District,-or-the-South-Coast Air-Quality-Management-District-as-provided-for-in-Sections-40200-and 40410,-respectively,-of-the-Health-and-Safety-Code.~~

(d) ~~(i)~~ "Dollars budgeted" means monies derived from revenue sources within a district for use in the district's air pollution control program as shown in the district's adopted budget and subvention application.

(e) ~~(j)~~ "Executive Officer" means the executive officer of the Air Resources Board, or his or her delegate.

(f) ~~(k)~~ "Fiscal year" means the 12-month period from July 1 of one year through June 30 of the following year.

(g) ~~(l)~~ "Implementation program" means a district's program to implement the basinwide air pollution control plan.

(h) ~~(m)~~ "Quarter" means any three month period ending March 31, June 30, September 30, or December 31.

(i) ~~(n)~~ "Quorum" means

(1) more than one-half of the total membership; or

(2) one-half of the total membership if all the districts in the basin have agreed by formal resolution to abide by the actions of such a quorum; such resolutions may specify that such actions must be unanimous.

~~(o)--"SB-90-population-data"-means-population-data,-as-of-January-1 of-the-fiscal-year-preceding-the-subvention-year,-compiled-by-the Department-of-Finance-in-compliance-with-Section-2227-of-the-Revenue-and Taxation-Code.~~

~~(p) "Subvention"-means-funds-granted-to-a-district-by-the-State, as-authorized-by-Chapter-5,-Part-2,-Division-26-of-the-Health-and Safety-Code,-for-financial-assistance-to-the-district's-air-pollution control-program.~~

~~(q) "Subvention-application"-means-an-application-received-or postmarked-between-May-1-of-the-preceding-subvention-year-and September-30.--A-complete-subvention-application-shall-be-based-on-the district's-budget-and-program-as-adopted-by-the-district's-air-pollution control-board-and-shall-include-a-copy-of-the-approved-budget.--The-amount-of-subvention-requested-in-an-application-shall-be-based-on-SB-90 population-data.~~

(j) ~~(r)~~ "Subvention year" means the fiscal year for which a subvention is to apply.

90110. Types of Subventions. (a) "Coordinated subvention" means a subvention authorized by Section 39802 of the Health and Safety Code~~;~~. Such a subvention may be granted to a district participating in a coordinated basinwide program. ~~as described in Section 90120 of these regulations.--A coordinated subvention may be granted to a qualifying district on a matching fund basis up to one subvention dollar ($1) for each one dollar ($1) budgeted by the district.--The amount of a coordinated subvention shall not be less than eighteen thousand dollars ($18,000) for any district, if the district provides the required matching funds and insofar as adequate funds are available, and shall not exceed the amount authorized by Section 39802 of the Health and Safety Code unless that amount is increased by the Executive Officer on behalf of the Board after receiving written approval of the greater amount from the Director of Finance pursuant to Section 39805 of the Health and Safety Code.~~ A district satisfying either of the following conditions will be considered to be participating in a coordinated basinwide program, provided that when a district lies in more than one air basin, only the portion(s) of the district which satisfies either of these conditions shall be considered to be participating in such a program.

(1) A district which includes an entire air basin.

(2) Two or more districts which together include an entire air basin, and which meet the following requirements:

(A) The rules and regulations except for administrative procedures are uniform among all districts and are consistent with the approved nonattainment plan for each district's area. For any air basin where the control council has determined that identical rules and regulations throughout the entire air basin are not necessary for uniformity, the control council may divide the air basin into zones within which equivalent rules and regulations will be required. For the purposes of this subsection, equivalent rules and regulations means rules and regulations which effect the same degree of control. In establishing such zones, the control council shall consider topography, meterorology, population distribution, and air quality;

(B) The control council shall meet as often as necessary for the transaction of business, but not less than once per quarter except as provided for below. The control council of any air basin consisting solely of districts in the rural category may establish an equivalent procedure for basinwide consideration of policy matters and shall meet within 30 days after it has been requested to meet by the executive officer or by a member of the council. For the purposes of this Subdivision a quorum must be present in order to constitute a meeting. Copies of the minutes of each meeting shall be submitted to the executive officer within 30 days after the date of the meeting; and

(C) The districts shall be parties to one joint powers agreement or other enforceable agreement acceptable to the executive officer. The agreement shall specifically provide for the following:

(i) The sharing of qualified air pollution personnel and equipment in a manner which results in the effective use of the basin wide resources and ensures that all districts in the air basin will maintain a program satisfying the applicable evaluation criteria.

Such sharing shall be subject to a method for compensation for the cost of shared personnel and equipment mutually agreed on by the districts. Nothing in this subchapter shall preclude the payment by a district of subvention funds as compensation to other districts to cover costs of shared personnel or equipment use. Subvention funds received by a district under such agreements or contracts, however, may not be counted as matching funds in computing the district's subvention;

(ii) Interdistrict coordination of activities including enforcement; air monitoring; engineering; and, if required by the State Implementation Plan, traffic and land use planning; and

(iii) Implementation of the State Air Pollution Emergency plan, where applicable.

(b) "Individual subvention" means a subvention authorized by Section 39803 of the Health and Safety Code~~;. an individual subvention may be granted to each qualifying district on a matching fund basis of up to two subvention dollars ($2) for each three dollars ($3) budgeted by the district. The amount of an individual subvention shall not be less than twelve thousand dollars ($12,000) for any district, if that district provides the required matching funds, and shall not exceed the amount authorized by Section 39803 of the Health and Safety Code, unless that amount is increased by the Executive Officer on behalf of the Board after receiving written approval of the greater amount from the Director of Finance pursuant to Section 39805 of the Health and Safety Code.~~

(c) "Special subvention" means a subvention authorized by Section 39804 of the Health and Safety Code~~;~~. Such a subvention may be granted to a district participating in a coordinated basinwide program as described in ~~Section 90120~~ Subsection (a) of ~~these regulations~~ this section and lying in an air basin whose population is less than 98,000~~;. if for 1975-76 and subsequent fiscal years, the dollars budgeted by each district in the air basin are equal to or greater than the amount specified in Section 39804 of the Health and Safety Code.~~ If the funding limit specified in Section 39804 of the Health and Safety Code is increased pursuant to Section 39805 of the Health and Safety Code, ~~the local per capita funds budgeted by the district must be increased by the same proportion. The sum of the special subventions to be granted, for said fiscal years, to all of the districts in an air basin will not exceed the difference between the maximum amount authorized by Section 39804 of the Health and Safety Code, unless that amount is increased by the Executive Officer on behalf of the Board after receiving written approval of the greater amount from the Director of Finance pursuant to Section 39805 of the Health and Safety Code, and the rate authorized in Section 39804 of the Health and Safety Code multiplied by the basin population.~~ the required per capita matching funds shall reflect any increase pursuant to Section 39805 in the maximum per capita subvention rate for coordinated subventions. The sum of the special subventions to be granted to the districts in an air basin shall be prorated according to population among the districts in the air basin.

(d) "Supplemental subvention" means a subvention authorized by Section 39810 of the Health and Safety Code~~;. a district may receive a supplemental subvention on a matching fund basis of up to one subvention dollar ($1) for each one dollar ($1) budgeted by the district.~~ Dollars budgeted by the district which are needed to qualify for a coordinated, individual, or special subvention, may not be used to qualify for a supplemental subvention. A supplemental subvention shall not be approved for any district which has not, for the same fiscal year, been granted a coordinated, individual, or special subvention.

90115. Evaluation Criteria. ~~The Board shall classify districts by category pursuant to Section 90100(e) of this subchapter.~~ The ARB staff shall develop in cooperation with the districts and the Board shall adopt evaluation criteria for each category established in Section 90120 which are appropriate to determine, in accordance with Section 39806 of the Health and Safety Code, whether districts are engaged in the reduction of air contaminants pursuant to the basinwide air pollution control plan and related implementation programs. Following cooperation between ARB and district staff in proposing recommendations, the Board shall hold a public hearing annually in the first quarter of the calendar year to consider revisions ~~of~~ to the ~~district classifications and~~ evaluation criteria. ~~The district classifications are set forth in the Air Resources Board's "District Subvention Categories" adopted on April 23, 1981.~~ The evaluation criteria are set forth in the Air Resources Board's "Evaluation Criteria for Air Pollution Control Districts Participating in the Subvention Program" adopted on April 23, 1981 and last amended _____.

90120. ~~Coordinated Basinwide Program.--A district satisfying either of the following conditions will be considered to be participating in a coordinated basinwide program, provided that when a district lies in more than one air basin, only the portion(s) of the district which satisfies either of these conditions shall be considered to be participating in such a program.~~

~~(a)--A district which includes an entire air basin.~~

~~(b)--Two or more districts which together include an entire air basin, and which meet the following requirements:~~

~~(1)--The rules and regulations except for administrative procedures are uniform among all districts and are consistent with the approved nonattainment plan for each district's area.--For any air basin where the control council has determined that equivalent rules and regulations throughout the entire air basin are not necessary for uniformity, the control council may divide the air basin into zones within which equivalent rules and regulations will be required.--For the purposes of this subsection, equivalent rules and regulations means rules and regulations which effect the same degree of control.--In establishing such zones, the control council shall consider topography, meteorology, population distribution, and air quality;~~

~~(2)--The control council shall meet as often as necessary for the transaction of business, but not less than once per quarter except as provided for below. --The control council of any air basin consisting solely of districts in the rural category may establish an equivalent procedure for basinwide consideration of policy matters and shall meet within 30 days after it has been requested to meet by the Executive Officer or by a member of the council. --For the purposes of this Subdivision a quorum must be present in order to constitute a meeting; copies of the minutes of each meeting shall be submitted to the Executive Officer within 30 days after the date of the meeting; and~~

~~(3)--The districts shall be parties to one joint powers agreement or other enforceable agreement acceptable to the Executive Officer. --The agreement shall specifically provide for the following:~~

~~(A)--The sharing of qualified air pollution personnel and equipment in a manner which results in the effective use of the basinwide resources and ensures that all districts in the air basin will maintain a program satisfying the applicable evaluation criteria.~~

~~(B)--Interdistrict coordination of activities including enforcement; air monitoring; engineering; and, if required by the State Implementation Plan, traffic and land use planning; and~~

~~(C)--Implementation of the State Air Pollution Emergency Plan, where applicable.~~

District Categories. The state board shall classify districts by the following categories for the purpose of establishing evaluation criteria based on the factors set forth in Section 39806 (b) of the Health and Safety Code.

(a) "Large urban districts;"

(b) "Small urban districts;"

(c) "Rural resource districts;"

(d) "Rural agricultural districts."

The district classifications by category are set forth in the Air Resources Board's "District Subvention Categories" adopted April 23, 1982, and shall be reviewed by the Board only upon petition of a district, ARB staff, or interested person.

Article 2. APPLICATION PROCEDURES

90200. Subvention Application. (a) An application for a coordinated, individual, or special subvention shall be submitted to the executive officer on forms approved by the executive officer, ~~with a resolution or minute order from the district's air pollution control board authorizing such application.~~ in accordance with this subsection.

(1) An ~~subvention~~ application shall include a copy ~~description~~ of the district's adopted budget ~~and program.~~

(2) Estimates of the subvention to which the district is entitled shall be based on ~~SB 90~~ population data, as of January 1 of the fiscal year preceding the subvention year, compiled by the Department of Finance in compliance with Section 2227 of the Revenue and Taxation Code.

(3) ~~The Executive Officer shall approve or disapprove all complete applications by November 15. Approval shall only be granted insofar as funds are available.~~ The application must be received by the Air Resources Board or postmarked between May 1 of the preceding subvention year and September 30.

(4) ~~In the event that the total subventions requested exceed the total allocation that is available, the Executive Officer shall prorate the funds available among all the districts.~~ A district may revise or amend its application at any time prior to June 30 of the subvention year.

(5) A district submitting an ~~subvention~~ application for a coordinated or a special subvention shall, when such a district is in an air basin comprising two or more districts, submit a copy of its application to the control council.

(b) An application for a supplemental subvention shall be submitted to the executive officer on forms approved by the executive officer and shall contain the following information:

(1) The proposed expenditures related to the supplemental subvention; ~~if application is made at the time the district is applying for its regular subvention, the proposed expenditures shall be shown on the district's proposed budget for the subvention year;~~

(2) A detailed explanation of the purpose of the requested supplemental subvention, and the benefits which are expected to result; and

(3) The length of time required to complete the work proposed, and the total cost of the project.

~~90208. Accomplishing Objectives. If a district receiving a subvention determines that it will be unable to accomplish the applicable evaluation criteria adopted pursuant to Section 90115, the district shall so notify the Executive Officer in writing within 30 days after it makes such determination.~~

~~90210.----Application-Revision.--A-district-may-revise-or-amend-its application-at-any-time-prior-to-June-30-of-the-subvention-year.~~

Article 3. APPLICATION PROCESSING, DISBURSEMENTS, AND REPORTS

90300. ~~Notification-of-Receipt-of~~ Application Processing.

(a) The executive officer shall acknowledge receipt of all subvention applications, including revisions, within 30 days.

(b) The executive officer shall approve or disapprove all complete applications by November 15. Approval shall only be granted insofar as funds are available.

(c) Application approval shall be based on the district's adopted budget and program.

~~90310. Factors-to-be-Considered-in-the-Review-of-Applications-for Coordinated,-Individual,-and-Special-Subventions.--The-primary-factor-to be-considered-in-the-review-of-an-application-for-a-coordinated, individual,-or-special-subvention-is-the-district's-operation-of-a program-meeting-the-applicable-evaluation-criteria-adopted-pursuant-to Section-90115.~~

~~90320. Factors-to-be-Considered-in-the-Review-of-Applications-for Supplemental-Subventions.--An-application-for-a-supplemental-subvention will-be-evaluated-and-ranked-according-to-priority-by-the-Executive Officer.--Supplemental-subventions-will-be-awarded,-insofar-as-funds-are available,-for-those-proposals-having-the-highest-priorities.~~

~~90330.~~ Application Disapproval. (d) ~~(a)~~ A district's application ~~for-a-coordinated,-individual,-or-special-subvention~~ may be disapproved by the executive officer if after consulting with the district it is found that:

(1) The district does not propose a program sufficient to meet the applicable evaluation criteria adopted pursuant to Section 90115; or

(2) The district is not operating a program sufficient to meet the applicable evaluation criteria adopted pursuant to Section 90115.

(e) ~~(b)~~ If an application is disapproved, the executive officer shall state the reason(s) in writing to the district within 15 days of the disapproval.

~~(c)--Districts-may-appeal-Executive-Officer-action-taken-pursuant-to this-section-in-accordance-with-Section-90500.~~

(f) ~~(d)~~ The executive officer shall not approve an application for a special subvention unless the joint powers agreement or other enforceable agreement required pursuant to Section ~~90120(b)(3)~~ 90110(a)(2)(c) has been received.

90360. Disbursement of Funds. Each subvention is to be disbursed in accordance with the following:

(a) Upon annual appropriation by the Legislature the executive officer shall request the State Controller to disburse one half (1/2) of the appropriate subvention as estimated by the executive officer.

(b) Districts which are unable to submit a complete subvention application to the ~~ARB~~ executive officer by June 30 of a given year may submit a disbursement request on a form approved by the executive officer by June 30 of the same year. Upon approval of the executive officer, he or she shall request disbursement as described in Section 90360(a).

~~(c) Districts shall submit by August 15 following the subvention year a final report covering the subvention year.~~

(c) ~~(d)~~ Six months after Legislative appropriation ~~ARB~~ the executive officer shall request the State Controller to disburse the remainder of the approved subvention unless, after review of the district's program, the executive officer finds that the district is not engaged in a program to meet the applicable evaluation criteria adopted pursuant to Section 90115, for reasons that are not expected to be easily resolved, and invokes the provisions of Article 4 of this Subchapter.

(d) ~~(e)~~ All subvention funds not expended or encumbered by the district during the subvention year shall be returned to the Air Resources Board and such funds shall revert to the State General Fund.

(e) ~~(f)~~ A county district shall maintain a separate account for receipts, expenditures, and funding of the district in accordance with accounting procedures acceptable to the State Controller's Office.

(f) In the event that the subventions requested exceed the total allocation that is available, the executive officer shall prorate available funds among all the districts.

90370 District Reporting Requirements. A district receiving a subvention shall:

(a) Notify the executive officer when the district determines that it will be unable to accomplish the applicable evaluation criteria set forth in Section 90115. The notification shall be in writing within 30 days after the district makes such determination.

(b) Submit by August 15 following the subvention year, a final report to the executive officer on forms approved by the executive officer covering the subvention year.

(c) If applicable, submit a supplemental subvention final report to the executive officer on forms approved by the executive officer covering the period for which the supplemental subvention has been approved.

Article 4. WITHHOLDING AND RECOVERY OF SUBVENTIONS ~~AND BOARD OPERATION OF DISTRICT PROGRAMS~~

90400. Withholding and Recovery of Funds. (a) The executive officer may review the programs and expenditures of each district receiving a subvention under the provisions of this Subchapter. If such a review discloses that the dollars budgeted or the subvention monies granted are not being expended substantially in accordance with the application on which the subvention was based, or that the district is not engaged in a program to meet the applicable evaluation criteria adopted pursuant to Section 90115, the ~~Executive Officer~~ state board may after hearing pursuant to Health and Safety Code Section 39806.5 take any or all of the following actions:

(1) Cease all or part of any further payments of the current fiscal year's subvention;

(2) Withhold all or part of any future subventions; and

(3) Bring a legal action against the district to recover monies disbursed for that fiscal year.

(b) The executive officer may reduce a coordinated subvention or a special subvention to an individual subvention if it is found that the provisions of Section 90120 for a coordinated basinwide program are no longer being carried out.

~~(c) Action by the Executive Officer to withhold, recover, or reduce funds pursuant to this section are subject to the provisions of Article 5 of this subchapter.~~

~~90410. Board Operation of District Air Pollution Control Programs. (a) The Executive Officer may utilize monies which have been subvened or would otherwise be subvened to a district, and such other monies as may be available, to carry out a district's air pollution control program or any segment of such a program. Such action may be initiated:~~

~~(1) At the request of the district; or~~

~~(2) When the Board has determined, pursuant to Sections 39806, 41500 or 41502 of the Health and Safety Code that the district is not engaged in a program to meet the applicable evaluation criteria adopted pursuant to Section 90115.~~

~~(b) If the Board has performed services for a district, funds to defray the cost of such services may be deducted from subsequent disbursement of the district's subvention.~~

~~(c) If sufficient subvention funds are not available to cover the cost of such services, the district may be billed for such services. In no event shall the charge for such services exceed the district's approved subvention.~~

Article 5. APPEALS

90500. Appeal Procedures. (a) Review of any decision of the executive officer made pursuant to the provisions of this Subchapter may be requested by filing a petition with the state board within thirty (30) days of the date upon which the district was notified of such decision.

(b) The state board shall hold a public hearing at its first regularly scheduled board meeting at least 60 days after receiving a petition as provided for by Subdivision (a) of this section.

(c) Notification of the public hearing shall be given to the district and to the appropriate control council at least forty-five (45) days before such a public hearing.

(d) The executive officer, district representatives, and any interested persons may comment on the district's appeal at such a public hearing.

PROPOSED

DISTRICT SUBVENTION CATEGORIES

Adopted: April 23, 1981
Amended: _____

CATEGORY I

Large Urban

SCAQMD
BAAQMD
San Diego

CATEGORY II

Small Urban

Ventura
Fresno
Monterey
Kern
San Joaquin
Santa Barbara
Stanislaus
Sacramento

CATEGORY III

Rural Resource

Great Basin
Lake
Amador
Calaveras
El Dorado
Mariposa
Nevada
Placer
Plumas
Sierra
Tuolumne
Del Norte
Humboldt
Mendocino
Northern Sonoma
Trinity

CATEGORY IV

Rural Agricultural

Siskiyou
San Luis Obispo
Imperial
Butte
Colusa
Glenn
Sutter
Tehama
Yolo-Solano
Yuba
San Bernardino (SEDAB portion only)
Los Angeles (SEDAB portion only)
Kings
Madera
Merced
Tulare
Shasta
Lassen
Modoc

PROPOSED

EVALUATION CRITERIA FOR THE AIR POLLUTION CONTROL DISTRICTS PARTICIPATING IN THE SUBVENTION PROGRAM

ADOPTED: APRIL 23, 1981

AMENDED: _____

(These evaluation criteria are proposed to replace the evaluation criteria adopted on April 23, 1981. Because of significant changes in format, the April 23, 1981 evaluation criteria proposed to be replaced are attached following this document to indicate the changes.)

EVALUATION CRITERIA - EMISSION INVENTORY

GOAL: Assist the State in fulfilling federal requirements for emission data and in maintaining a current, accurate, comprehensive inventory of all pollutants subject to state or federal regulation.

CRITERIA:

1. Provide updated data to the Air Resources Board for calendar year 1982 for point sources in the district:

   a. Provide update data to fulfill federal requirements 40 CRF 51.321-51.323 (see attached regulations).

   b. Review all point sources in the point source data base[1] that were not reviewed or updated in the 1980 or 1981 update and provide update data as necessary to reflect the status of the source in 1982.

   c. Provide update data to reflect significant emission changes which:

      1) Result from reevaluation of point sources (such as source inspections, engineering evaluations, or source tests.

[1]The point source data base includes data for all facilities that emit more than 25 tons per year of TSP, TOG, SOx, or NOx; 250 tons per year of CO; or 5 tons per year of lead. Individual emission points within a facility are to be identified separately if they emit more than 25 tons per year of TSP, TOG, SOx, NOx; 250 tons per year of CO; or 5 tons per year of lead. Smaller emission points may be aggregated within a source category (e.g., same source classification code.) Smaller sources may be included in the point source inventory data base.

2) Result from a rule change or permit condition.

3) Result from any point source starting or ceasing operation.

4) Result from a change in activity occurring at a facility (for example, a change from one-shift to two-shift operation or a change in energy consumption).

Updated data to represent calendar year 1982 shall be provided to ARB by May 1, 1983, or 90 days after a district receives turnaround documents from ARB, whichever is later.

Turnaround documents for updating point source data, similar to those developed for the 1980 update, will be available for District use. Districts operating their own data systems may submit 1982 update data in EIS/P&R format or in any alternative format that the ARB and the District mutually agree upon.

2. Assist the state in updating area source emissions:

a. Update area source emission estimates to reflect emissions in 1982 for area source categories identified as a district responsibility[2] whose estimated emissions changed from prior estimates by either 100 tons per year or 0.5% of the county-wide emissions for each pollutant.[3] The changes may result from:

1. New controls implemented
2. New or better District information.

b. Review and update, if appropriate, area source categories identified as district responsiblity[2] that were not reviewed or updated in the 1980 or 1981 update efforts.

Updated area source data and supporting documentation shall be provided to the ARB by June 1, 1983, or 90 days after a district receives turnaround documents from ARB, whichever is later.

COMMENTS:

1. Evaluation criteria approved by the Board in 1981 will be used in audits conducted in FY 1982-83.

2. The Emission Inventory Technical Advisory Committee (EITAC) is continuing to evaluate requirements for maintaining a comprehensive emission inventory consistent with available resources. This may

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[2]Source categories identified as districts responsibility are listed in Table I.
[3]Alternative criteria may be used provided ARB agrees they are adequate for fulfilling the inventory update goals. One alternative that is acceptable is to update area source emission estimates for source categories whose emissions exceed either 100 tons per year or one percent of the county-wide emissions for each pollutant, whichever is more.

TABLE I

January 18, 1982

STATE OF CALIFORNIA - AIR RESOURCES BOARD
LEAD RESPONSIBILITY FOR INDIVIDUAL AREA SOURCE CATEGORIES

RESPONSIBILITY DISTRICT (D)	ARB (A)	CES	DESCRIPTION
	A	46425	OIL & GAS EXTRACTION.PETROLEUM & RELATED.PRIMARY/SECONDARY OPERATION.PROCESS LOSS
	A	46433	OIL & GAS EXTRACTION.PETROLEUM & RELATED.TERTIARY OPERATION PROCESS LOSS
	A	46441	OIL & GAS EXTRACTION.PETROLEUM & RELATED.GAS STRIPPING.PROCESS LOSS
D		46458	OIL & GAS EXTRACTION.LIQUID STORAGE & TRANSFER.CRUDE PETRO-EVAP
D		46466	BULK PLANTS.TANKS.BREATHING LOSS.GASOLINE-EVAP
D		46474	BULK PLANTS.TANKS.WORKING LOSS.GASOLINE-EVAP
D		46482	BULK PLANTS.TANK CARS & TRUCKS.WORKING LOSS.GASOLINE-EVAP
	A	46490	PETROLEUM & GAS MARKETING.BULK CUSTOMERS.LIQUID STORAGE & TRANSFER.GASOLINE-EVAP
	A	46532	SERVICE STATIONS.TANKS.WORKING LOSS.GASOLINE-EVAP
	A	46540	SERVICE STATIONS.VEHICLE REFUELING.VAPOR DISPLACEMENT.GASOLINE-EVAP
	A	46557	SERVICE STATIONS.TANKS.BREATHING LOSS.GASOLINE-EVAP
	A	46565	SERVICE STATIONS.VEHICLE REFUELING.SPILLAGE.GASOLINE-EVAP
	A	46573	PETROLEUM & GAS MARKETING.MARINE VESSELS.LOADING.TANKERS.CRUDE PETRO-EVAP
	A	46581	PETROLEUM & GAS MARKETING.MARINE VESSELS.LOADING.TANKERS.GASOLINE-EVAP
	A	46599	PETROLEUM & GAS MARKETING.MARINE VESSELS.LOADING.TANKERS.JET FUEL-EVAP
	A	46607	PETROLEUM & GAS MARKETING.MARINE VESSELS.LOADING.BARGES.CRUDE PETRO-EVAP
	A	46631	PETROLEUM & GAS MARKETING.MARINE VESSELS.LOADING.BARGES.GASOLINE-EVAP
	A	46706	PETROLEUM & GAS MARKETING.MARINE VESSELS.LOADING.BARGES.JET FUEL-EVAP
	A	46714	PETROLEUM & GAS MARKETING.MARINE VESSELS.LIGHTERING.CRUDE PETRO-EVAP
	A	46722	PETROLEUM & GAS MARKETING.MARINE VESSELS.BALLASTING.CRUDE PETRO-EVAP
	A	46730	PETROLEUM & GAS MARKETING.MARINE VESSELS.BALLASTING.GASOLINE-EVAP
	A	46748	MANUFACTURING & INDUSTRIAL.SURFACE COATING.COATING MATERIAL-EVAP
	A	46755	UNSPECIFIED ACTIVITIES.PAINTING & DECORATING.SURFACE COATING.WATER BASED-EVAP
	A	46763	UNSPECIFIED ACTIVITIES.PAINTING & DECORATING.SURFACE COATING.OIL BASED-EVAP
	A	46771	UNSPECIFIED ACTIVITIES.PAINTING & DECORATING.SURFACE COATIG.SOLVENT-EVAP
	A	46789	SERVICES &COMMERCE.COAUTO DEALERS & SERVICES.SURFACE COATING,COATING MATERIAL-EVAP
	A	46797	LAUNDRY & DRYCLEANERS.DRY CLEANING.NON SYNTHETIC-EVAP.STODDARD
	A	46805	LAUNDRY & DRYCLEANERS.DRY CLEANING.SYNTHETIC-EVAP
	A	46813	MANUFACTURING & INDUSTRIAL.DEGREASING.NON SYNTHETIC-EVAP.STODDARD
	A	46821	MANUFACTURING & INDUSTRIAL.DEGREASING.SYNTHETIC-EVAP
	A	46839	MANUFACTURING & INDUSTRIAL.DEGREASING.SOLVENT-EVAP
	A	46847	SERVICES & COMMERCE.DEGREASING.NON SYNTHETIC-EVAP
	A	46854	SERVICES & COMMERCE.DEGREASING.SYNTHETIC-EVAP
D		46862	MANUFACTURING & INDUSTRIAL.SOLVENT USE.EVAPORATION
D		46870	ROAD CONSTRUCTION.ASPHALT PAVING.PETROLEUM-EVAP.CUTBACK ASPHALT
D		46888	ROAD CONSTRUCTION.ASPHALT PAVING.PETROLEUM-EVAP.ROAD OIL
D		46896	ROAD CONSTRUCTION.ASPHALT PAVING.PETROLEUM-EVAP.PAVING ASPHALT
D		46904	ROAD CONSTRUCTION.ASPHALT PAVING.PETROLEUM-EVAP.EMULSIFIED ASPHALT
	A	46912	DOMESTIC.SOLVENT USE.SYNTHETIC-EVAP
D		46938	RUBBER & PLASTICS FAB.CHEMICAL PROCESSES.SOLVENT-EVAP
D		46946	RUBBER & PLASTICS FAB.CHEMICAL PROCESSES.PROCESS LOSS
D		46953	CHEMICAL & ALLIED.CHEMICAL PROCESSES.PROCESS LOSS.SODIUM CARBONATE
D		46961	CHEMICAL & ALLIED.CHEMICAL PROCESSES.PROCESS LOSS
D		46979	METALLURGICAL.METAL PROCESSES.PROCESS LOSS
D		46987	MINERAL PRODUCTS.MINERAL PROCESSES.PROCESS LOSS
D		46995	MINERAL PRODUCTS.MINERAL PROCESSES.DUST.SAND/GRAVEL
D		47001	PAVING & ROOFING MAT'LS.MINERAL PROCESSES.DUST.ASPHALT

D			47019 MINERAL PRODUCTS.MINERAL PROCESSES.DUST.ROCK/GRAVEL
D			47027 UNSPECIFIED ACTIVITIES.MINERAL PROCESSES.SURFACE BLASTING DUST
D			47035 MINERAL PRODUCTS.MINERAL PROCESSES.BATCHING.DUST.CONCRETE
D			47043 LUMBER & WOOD PRODUCTS.WOOD & PAPER PROCESSES.DUST
D			47050 FOOD & KINDRED.FOOD & AGRICULTURAL.EVAPORATION
		A	47068 WINES & BRANDY.FOOD & AGRICULTURAL.EVAPORATION
D			47076 AGRICULTURAL SERVICES.CROP PREP FOR MARKET.FOOD & AGRICULTURAL.PROCESS LOSS
D			47084 UNSPECIFIED ACTIVITIES.INDUSTRIAL PROCESSES.PROCESS LOSS
		A	47092 AGRICULTURAL CROPS.PESTICIDE APPLICATION.EVAPORATION.SYNTHETIC PESTICIDES
		A	47100 DOMESTIC.PESTICIDE APPLICATION.EVAPORATION.SYNTHETIC PESTICIDES
		A	47118 UNSPECIFIED ACTIVITIES.PESTICIDE APPLICATION.PETROLEUM-EVAP.CREOSOTE
		A	47126 AGRICULTURAL CROPS.PESTICIDE APPLICATION.EVAPORATION.NONSYNTHETIC PESTICIDES
		A	47134 DOMESTIC.PESTICIDE APPLICATION.EVAPORATION.NON SYNTHETIC PESTICIDES
		A	47142 MANUFACTURING & INDUSTRIAL.FUEL COMBUSTION.NATURAL GAS-CMBSTN
D			47159 SERVICES & COMMERCE.FUEL COMBUSTION.DISTILLATE OIL-CMBSTN
		A	47167 SERVICES & COMMERCE.FUEL COMBUSTION.NATURAL GAS-CMBSTN
D			47183 SERVICES & COMMERCE.FUEL COMBUSTION.RESIDUAL OIL-CMBSTN
		A	47191 RESIDENTIAL.FUEL COMBUSTION.NATURAL GAS-CMBSTN
D			47209 RESIDENTIAL.FUEL COMBUSTION.DISTILLATE OIL-CMBSTN
D	OR	A	47217 RESIDENTIAL.FUEL COMBUSTION.LPG-CMBSTN
		A	47225 RESIDENTIAL.FUEL COMBUSTION.WOOD-CMBSTN
D			47233 AGRICULTURAL PRODUCTION.ORCHARD HEATERS.DISTILLATE OIL-CMBSTN
		A	47241 AGRICULTURAL CROPS.AGRI DEBRIS.WASTE-CMBSTN.PRUNINGS
		A	47258 AGRICULTURAL CROPS.AGRI DEBRIS.WASTE-CMBSTN.FIELD CROPS (WASTE)
		A	47266 UNSPECIFIED ACTIVITIES.OPEN BURNING.WEED ABATEMENT.SOLID MAT'L-CMBSTN
		A	47274 FORESTRY.FOREST MANAGEMENT.SOLID MAT'L-CMBSTN
		A	47282 RESOURCE DEVELOPMENT & AGRICUL.RANGE IMPROVEMENT.SOLID MAT'L-CMBSTN
D	OR	A	47290 UNSPECIFIED ACTIVITIES.OPEN BURNING.WASTE-CMBSTN
		A	47308 UNSPECIFIED ACTIVITIES.WILD FIRES.SOLID MAT'L-CMBSTN.GRASS & WOODLAND
		A	47316 UNSPECIFIED ACTIVITIES.WILD FIRES.SOLID MAT'L-CMBSTN.TIMBER & BRUSH
		A	47324 UNSPECIFIED ACTIVITIES.STRUCTURAL FIRES.SOLID MAT'L-CMBSTN
		A	47332 AGRICULTURAL CROPS.FARMING OPERATIONS.DUST
		A	47340 AGRICULTURAL LIVESTOCK.FARMING OPERATIONS.DUST
		A	47357 BUILDING CONSTRUCTION.RESIDENTIAL (2 ND ACTIVITY).CONSTRUCTION & DEMOLITION.DUST
		A	47365 BUILDING CONSTRUCTION.COMMERCIAL (2 ND ACTIVITY).CONSTRUCTION & DEMOLITION.DUST
		A	47373 BUILDING CONSTRUCTION.INDUSTRIAL (2 ND ACTIVITY).CONSTRUCTION & DEMOLITION.DUST
		A	47381 ROAD CONSTRUCTION.CONSTRUCTION & DEMOLITION.DUST
		A	47399 ON-ROAD TRAVEL.UNPAVED ROAD.CITY & COUNTY ROADS (TRAVEL).DUST
		A	47407 ON-ROAD TRAVEL.UNPAVED ROAD.U.S. FORESTS & PARKS (TRAVEL).DUST
		A	47415 ON-ROAD TRAVEL.UNPAVED ROAD.TIMBER PRODUCTION (TRAVEL).DUST
		A	47423 ON-ROAD TRAVEL.UNPAVED ROAD.BLM ROADS (TRAVEL).DUST
		A	47431 ON-ROAD TRAVEL.UNPAVED ROAD.FARM ROADS (TRAVEL).DUST
		A	47449 RESIDENTIAL.UTILITY EQUIPMENT.GASOLINE-CMBSTN
		A	47456 ON-ROAD TRAVEL.PAVED ROAD.DUST
		A	47464 RECREATIONAL.OFF-ROAD MOTOR VEHICLES.TRAIL BIKES.GASOLINE-CMBSTN
		A	47472 CONSTRUCTION,MOBILE EQUIPMENT,COMBUSTION
		A	47480 AGRICULTURAL PRODUCTION.MOBILE EQUIPMENT.DIESEL-CMBSTN
		A	47498 AGRICULTURAL PRODUCTION.MOBILE EQUIPMENT.GASOLINE-CMBSTN
		A	47514 RECREATIONAL.OFF-ROAD MOTOR VEHICLES.SNOW MOBILE.GASOLINE-CMBSTN
		A	47522 RECREATIONAL.OFF-ROAD MOTOR VEHICLES.PLEASURE CRAFT IN-BOARD.GASOLINE-CMBSTN
		A	47530 RECREATIONAL.OFF-ROAD MOTOR VEHICLES.PLEASURE CRAFT IN-BOARD.DIESEL-CMBSTN
		A	47548 RECREATIONAL.OFF-ROAD MOTOR VEHICLES.PLEASURE CRAFT IN-BOARD.GASOLINE-CMBSTN
D			47555 AIR TRANSPORTATION.AIRCRAFT.COMMERCIAL (AIRCRAFT).JET FUEL-CMBSTN
D			47563 AGRICULTURAL SERVICES.AIRCRAFT.COMMERCIAL (AIRCRAFT).GASOLINE-CMBSTN
D			47571 NATIONAL SECURITY.AIRCRAFT.MILITARY (AIRCRAFT).LIQUID MAT'L-CMBSTN
D			47589 AIR TRANSPORTATION.AIRCRAFT.CIVIL (AIRCRAFT).LIQUID MAT'L-CMBSTN
		A	47597 RAIL TRANSPORT.TRAINS.ROAD HAULING.DIESEL-CMBSTN
		A	47605 RAIL TRANSPORT.TRAINS.SWITCHING.DIESEL-CMBSTN
		A	47613 WATER BORNE.SHIPS.MANEUVERING.U.S. STEAM SHIPS.RESIDUAL OIL-CMBSTN
		A	47621 WATER BORNE.SHIPS.MANEUVERING.FOREIGN STEAM SHIPS.RESIDUAL OIL-CMBSTN

	D		47019 MINERAL PRODUCTS.MINERAL PROCESSES.DUST,ROCK/GRAVEL
	D		47027 UNSPECIFIED ACTIVITIES.MINERAL PROCESSES.SURFACE BLASTING DUST
	D		47035 MINERAL PRODUCTS.MINERAL PROCESSES.BATCHING.DUST.CONCRETE
	D		47043 LUMBER & WOOD PRODUCTS.WOOD & PAPER PROCESSES.DUST
	D		47050 FOOD & KINDRED.FOOD & AGRICULTURAL.EVAPORATION
		A	47068 WINES & BRANDY.FOOD & AGRICULTURAL.EVAPORATION
	D		47076 AGRICULTURAL SERVICES.CROP PREP FOR MARKET.FOOD & AGRICULTURAL.PROCESS LOSS
	D		47084 UNSPECIFIED ACTIVITIES.INDUSTRIAL PROCESSES.PROCESS LOSS
		A	47092 AGRICULTURAL CROPS.PESTICIDE APPLICATION.EVAPORATION.SYNTHETIC PESTICIDES
		A	47100 DOMESTIC.PESTICIDE APPLICATION.EVAPORATION.SYNTHETIC PESTICIDES
		A	47118 UNSPECIFIED ACTIVITIES.PESTICIDE APPLICATION.PETROLEUM-EVAP.CREOSOTE
		A	47126 AGRICULTURAL CROPS.PESTICIDE APPLICATION.EVAPORATION.NONSYNTHETIC PESTICIDES
		A	47134 DOMESTIC.PESTICIDE APPLICATION.EVAPORATION.NON SYNTHETIC PESTICIDES
		A	47142 MANUFACTURING & INDUSTRIAL.FUEL COMBUSTION.NATURAL GAS-CMBSTN
	D		47159 SERVICES & COMMERCE.FUEL COMBUSTION.DISTILLATE OIL-CMBSTN
		A	47167 SERVICES & COMMERCE.FUEL COMBUSTION.NATURAL GAS-CMBSTN
	D		47183 SERVICES & COMMERCE.FUEL COMBUSTION.RESIDUAL OIL-CMBSTN
		A	47191 RESIDENTIAL.FUEL COMBUSTION.NATURAL GAS-CMBSTN
	D		47209 RESIDENTIAL.FUEL COMBUSTION.DISTILLATE OIL-CMBSTN
	D OR	A	47217 RESIDENTIAL.FUEL COMBUSTION.LPG-CMBSTN
		A	47225 RESIDENTIAL.FUEL COMBUSTION.WOOD-CMBSTN
	D		47233 AGRICULTURAL PRODUCTION.ORCHARD HEATERS.DISTILLATE OIL-CMBSTN
		A	47241 AGRICULTURAL CROPS.AGRI DEBRIS.WASTE-CMBSTN.PRUNINGS
		A	47258 AGRICULTURAL CROPS.AGRI DEBRIS.WASTE-CMBSTN.FIELD CROPS (WASTE)
		A	47266 UNSPECIFIED ACTIVITIES.OPEN BURNING.WEED ABATEMENT.SOLID MAT'L-CMBSTN
		A	47274 FORESTRY.FOREST MANAGEMENT.SOLID MAT'L-CMBSTN
		A	47282 RESOURCE DEVELOPMENT & AGRICUL.RANGE IMPROVEMENT.SOLID MAT'L-CMBSTN
	D OR	A	47290 UNSPECIFIED ACTIVITIES.OPEN BURNING.WASTE-CMBSTN
		A	47308 UNSPECIFIED ACTIVITIES.WILD FIRES.SOLID MAT'L-CMBSTN.GRASS & WOODLAND
		A	47316 UNSPECIFIED ACTIVITIES.WILD FIRES.SOLID MAT'L-CMBSTN.TIMBER & BRUSH
		A	47324 UNSPECIFIED ACTIVITIES.STRUCTURAL FIRES.SOLID MAT'L-CMBSTN
8		A	47332 AGRICULTURAL CROPS.FARMING OPERATIONS.DUST
		A	47340 AGRICULTURAL LIVESTOCK.FARMING OPERATIONS.DUST
		A	47357 BUILDING CONSTRUCTION.RESIDENTIAL (2 ND ACTIVITY).CONSTRUCTION & DEMOLITION.DUST
		A	47365 BUILDING CONSTRUCTION.COMMERCIAL (2 ND ACTIVITY).CONSTRUCTION & DEMOLITION.DUST
		A	47373 BUILDING CONSTRUCTION.INDUSTRIAL (2 ND ACTIVITY).CONSTRUCTION & DEMOLITION.DUST
		A	47381 ROAD CONSTRUCTION.CONSTRUCTION & DEMOLITION.DUST
		A	47399 ON-ROAD TRAVEL.UNPAVED ROAD.CITY & COUNTY ROADS (TRAVEL).DUST
		A	47407 ON-ROAD TRAVEL.UNPAVED ROAD.U.S. FORESTS & PARKS (TRAVEL).DUST
		A	47415 ON-ROAD TRAVEL.UNPAVED ROAD.TIMBER PRODUCTION (TRAVEL).DUST
		A	47423 ON-ROAD TRAVEL.UNPAVED ROAD.BLM ROADS (TRAVEL).DUST
		A	47431 ON-ROAD TRAVEL.UNPAVED ROAD.FARM ROADS (TRAVEL).DUST
		A	47449 RESIDENTIAL.UTILITY EQUIPMENT.GASOLINE-CMBSTN
		A	47456 ON-ROAD TRAVEL.PAVED ROAD.DUST
		A	47464 RECREATIONAL.OFF-ROAD MOTOR VEHICLES.TRAIL BIKES.GASOLINE-CMBSTN
		A	47472 CONSTRUCTION,MOBILE EQUIPMENT,COMBUSTION
		A	47480 AGRICULTURAL PRODUCTION.MOBILE EQUIPMENT.DIESEL-CMBSTN
		A	47498 AGRICULTURAL PRODUCTION.MOBILE EQUIPMENT.GASOLINE-CMBSTN
		A	47514 RECREATIONAL.OFF-ROAD MOTOR VEHICLES.SNOW MOBILE.GASOLINE-CMBSTN
		A	47522 RECREATIONAL.OFF-ROAD MOTOR VEHICLES.PLEASURE CRAFT IN-BOARD.GASOLINE-CMBSTN
		A	47530 RECREATIONAL.OFF-ROAD MOTOR VEHICLES.PLEASURE CRAFT IN-BOARD.DIESEL-CMBSTN
		A	47548 RECREATIONAL.OFF-ROAD MOTOR VEHICLES.PLEASURE CRAFT IN-BOARD.GASOLINE-CMBSTN
	D		47555 AIR TRANSPORTATION.AIRCRAFT.COMMERCIAL (AIRCRAFT).JET FUEL-CMBSTN
	D		47563 AGRICULTURAL SERVICES.AIRCRAFT.COMMERCIAL (AIRCRAFT).GASOLINE-CMBSTN
	D		47571 NATIONAL SECURITY.AIRCRAFT.MILITARY (AIRCRAFT).LIQUID MAT'L-CMBSTN
	D		47589 AIR TRANSPORTATION.AIRCRAFT.CIVIL (AIRCRAFT).LIQUID MAT'L-CMBSTN
		A	47597 RAIL TRANSPORT.TRAINS.ROAD HAULING.DIESEL-CMBSTN
		A	47605 RAIL TRANSPORT.TRAINS.SWITCHING.DIESEL-CMBSTN
		A	47613 WATER BORNE.SHIPS.MANEUVERING.U.S. STEAM SHIPS.RESIDUAL OIL-CMBSTN
		A	47621 WATER BORN SHIPS.MANEUVERING.FOREIGN STEAM SHIPS.RESIDUAL OIL-CMBSTN

	A	47639	WATER BORNE.SHIPS.MANEUVERING.U.S. MOTOR SHIPS.DIESEL-CMBSTN
	A	47647	WATER BORNE.SHIPS.MANEUVERING.FOREIGN MOTOR SHIPS.DIESEL-CMBSTN
	A	47654	WATER BORNE.SHIPS.MANEUVERING.TUG BOATS.LIQUID MAT'L-CMBSTN
	A	47662	WATER BORNE.SHIPS.BERTHING.U.S. STEAM SHIPS.RESIDUAL OIL-CMBSTN
	A	47670	WATER BORNE.SHIPS.BERTHING.FOREIGN STEAM SHIPS.RESIDUAL OIL-CMBSTN
	A	47688	WATER BORNE.SHIPS.BERTHING.U.S. MOTOR SHIPS.DIESEL-CMBSTN
	A	47696	WATER BORNE.SHIPS.BERTHING.FOREIGN MOTOR SHIPS.DIESEL-CMBSTN
	A	54353	FRUIT/VEG PRESERVATION.EQUIPMENT.DIESEL-CMBSTN.COOLING PROCESS
	A	54361	FRUIT/VEG PRESERVATION.EQUIPMENT.GASOLINE-CMBSTN.COOLING PROCESS
	A	54379	MANUFACTURING & INDUSTRIAL.OFF-ROAD MOTOR VEHICLES.DIESEL-CMBSTN
	A	54387	MANUFACTURING & INDUSTRIAL.OFF-ROAD MOTOR VEHICLES.GASOLINE-CMBSTN
	A	54411	RECREATIONAL.OFF-ROAD MOTOR VEHICLES.GASOLINE-CMBSTN.FOUR-WHEEL DRIVES
	A	54429	MANUFACTURING & INDUSTRIAL.OFF-ROAD MOTOR VEHICLES.LPG-CMBSTN
	A	54437	BUILDING CONSTRUCTION.CONSTRUCTION & DEMOLITION.DIESEL-CMBSTN.RESIDENTIAL
	A	54445	BUILDING CONSTRUCTION.CONSTRUCTION & DEMOLITION.GASOLINE-CMBSTN.RESIDENTIAL
	A	54452	BUILDING CONSTRUCTION.CONSTRUCTION & DEMOLITION.DIESEL-CMBSTN.COMMERCIAL
	A	54460	BUILDING CONSTRUCTION.CONSTRUCTION & DEMOLITION.GASOLINE-CMBSTN.COMMERCIAL
	A	54478	BUILDING CONSTRUCTION.CONSTRUCTION & DEMOLITION.DIESEL-CMBSTN.INDUSTRIAL
	A	54486	BUILDING CONSTRUCTION.CONSTRUCTION & DEMOLITION.GASOLINE-CMBSTN.INDUSTRIAL
	A	54494	BUILDING CONSTRUCTION.CONSTRUCTION & DEMOLITION.DIESEL-CMBSTN.INSTITUTIONAL
	A	54502	BUILDING CONSTRUCTION.CONSTRUCTION & DEMOLITION.GASOLINE-CMBSTN.INSTITUTIONAL
	A	54510	ROAD CONSTRUCTION.CONSTRUCTION & DEMOLITION.DIESEL-CMBSTN
	A	54528	ROAD CONSTRUCTION.CONSTRUCTION & DEMOLITION.GASOLINE-CMBSTN
	A	54536	GOVERNMENT.MOBILE EQUIPMENT.DIESEL-CMBSTN.PUBLIC WORKS
	A	54544	GOVERNMENT.MOBILE EQUIPMENT.GASOLINE-CMBSTN.PUBLIC WORKS
	A	54551	BUILDING CONSTRUCTION.CONSTRUCTION & DEMOLITION.DUST.INSTUTIONAL
	A	54569	RESIDENTIAL.SPACE HEATERS.NATURAL GAS-CMBSTN
	A	54577	RESIDENTIAL.BOILERS & HEATERS.NATURAL GAS-CMBSTN.WATER(HEATERS)
9	A	54585	RESIDENTIAL.FUEL COMBUSTION.NATURAL GAS-CMBSTN.COOKING
	A	54593	MISC. ACTIVITIES.MOBILE EQUIPMENT.DIESEL-CMBSTN.LIGHT DUTY.FORKLIFTS & ETC
D		57281	SANITARY & WATER.SOLID WASTE LAND FILL.UNSPECIFIED E&M
	A	57307	UNSPECIFIED ACTIVITIES.UNPLANNED FIRES.SOLID MAT'L-CMBSTN.AUTO BODY & TIRES
D		57315	AIR TRANSPORTATION.AIRCRAFT.GASOLINE-CMBSTN.COMMERCIAL
D		57323	NATIONAL SECURITY.AIRCRAFT.GASOLINE-CMBSTN.MILITARY
D		57331	AIR TRANSPORTATION.AIRCRAFT.GASOLINE-CMBSTN.CIVIL
D		57349	BAKERY PRODUCTS.FOOD & AGRICULTURE.PROCESS LOSS.ETHANOL
	A	58560	AGRICULTURAL PRODUCTION.MOBILE EQUIPMENT.GASOLINE-CMBSTN.SPECIALITY CROPS
	A	58578	AGRICULTURAL PRODUCTION.MOBILE EQUIPMENT.DIESEL-CMBSTN.SPECIALITY CROPS
	A	58602	RECREATIONAL.OFF-ROAD MOTOR VEHICLES.DIESEL-CMBSTN.PLEASURE CRAFT IN & OUT-BOARD
	A	58610	RECREATIONAL.OFF-ROAD MOTOR VEHICLES.GASOLINE-CMBSTN.PLEASURE CRAFT IN & OUT-BOARD
	A	58628	WATER BORNE.OFF-ROAD MOTOR VEHICLES.DIESEL-CMBSTN.COMMERCIAL
	A	58636	WATER BORNE.OFF-ROAD MOTOR VEHICLES.GASOLINE-CMBSTN.COMMERCIAL
	A	58644	WATER BORNE.SHIPS.RESIDUAL OIL-CMBSTN.INTRANSIT.U.S. STEAM SHIPS
	A	58651	WATER BORNE.SHIPS.RESIDUAL OIL-CMBSTN.INTRANSIT.FOREIGN STEAM SHIPS
	A	58669	WATER BORNE.SHIPS.DIESEL-CMBSTN.INTRANSIT.U.S. MOTOR SHIPS
	A	58677	WATER BORNE.SHIPS.DIESEL-CMBSTN.INTRANSIT.FOREIGN MOTOR SHIPS
D		58685	PIPE LINES.PETROLEUM & RELATED.PROCESS LOSS.NATURAL GAS
	A	58693	RESIDENTIAL.SOLVENT USE.SYNTHETIC-EVAP.AEROSOL PROPELLANT
	A	58701	RESIDENTIAL.SOLVENT USE.NON SYNTHETIC-EVAP.AEROSOL PROPELLANT
D		58727	SERVICES & COMMERCE.FUEL COMBUSTION.LPG-COMBUSTION
D		58735	SERVICES & COMMERCE.SPACE HEATERS.NATURAL GAS-CMBSTN
D		58743	SERVICES & COMMERCE.BOILERS & HEATERS.NATURAL GAS-CMBSTN.WATER (HEATERS)
	A	60400	GOVERNMENT.CONSTRUCTION & DEMOLITION.DUST.INSTITUTIONAL (2 ND ACTIVITY)
	A	60418	FOOD & KINDRED.FOOD & AGRICULTURE.PROCESS LOSS.CHARCOAL BROILING
	A	60467	WINES & BRANDY.FOOD & AGRICULTURAL.AGING.EVAP
	A	66605	AGRICULTURAL LIVESTOCK.UNSPECIFIED PROCESSES.UNSPECIFIED E&M.WASTE
D		66613	TRANSPORTATION EQUIP.SURFACE COATING.MARINE VESSELS.COATING MATERIAL-EVAP
D		66621	LUMBER & WOOD PRODUTS.SURFACE COATING.COATING MATERIAL-EVAP
D		66639	TEXTILES & APPAREL.SURFACE COATING.COATING MATERIAL-EVAP
D		66647	FURNITURE & FIXTURES.METAL (FURNITURES/FIXTURES).SURFACE COATING.

D		66654	MANUFACTURING & INDUSTRIAL.CANS & CONTAINERS.SURFSCE COATING.COATING MATERIAL-EVAP
D		66662	MANUFACTURING & INDUSTRIAL.METAL PARTS & PRODUCTS.SOLVENT USE.EVAP ORATION
D		66670	FURNITURE & FIXTURES.WOOD(FURNITURES/FIXTURES).SURFACE COATING.COATING MATERIAL-EVAP
	A	66712	MISC SERVICES.MISC PROCESSES.ORGANICS.WASTE.EVAP
	A	66720	BUILDING CONSTRUCTION.CONSTRUCTION & DEMOLITION.ASPHALT ROOFING.EVAP
	*	66738	UNSPECIFIED ACTIVITIES.UNSPECIFIED PROCESSES.UNSPECIFIED E&M
	*	66746	SERVICES & COMMERCE.UTILITY EQUIPMENT.GASOLINE CMBSTN.LAWN & GARDEN&SHOP
*		66787	UNSPECIFIED ACTIVITIES.STATIONARY I.C. ENGINES.NATURAL GAS CMBSTN
D		66795	MANUFACTURING & INDUSTRIAL.FUEL COMBUSTION.LPG CMBSTN
D		66803	MANUFACTURING & INDUSTRIAL.FUEL COMBUSTION.DISTILLATE OIL CMBSTN
	*	66811	FOOD & KINDRED.FOOD & AGRICULTURAL.PROCESS LOSS.COOKING.DEEP-FAT FRYING
	*	66829	PRINTING & PUBLISHING.PRINTING.COATING MATERIAL-EVAP.SOLVENT
	*	66837	UNSPECIFIED ACTIVITIES.UNSPECIFIED PROCESSES.COMBUSTION (E&M)
	*	66845	UNSPECIFIED ACTIVITIES.UNSPECIFIED PROCESSES.EVAPORATION

*NOTE: These categories were recent additions to the data base. It is anticipated that category 66787 may require District review and update in order to best reflect local conditions.

D	66654	MANUFACTURING & INDUSTRIAL.CANS & CONTAINERS.SURFSCE COATING.COATING MATERIAL-EVAP
D	66662	MANUFACTURING & INDUSTRIAL.METAL PARTS & PRODUCTS.SOLVENT USE.EVAP ORATION
D	66670	FURNITURE & FIXTURES.WOOD(FURNITURES/FIXTURES).SURFACE COATING.COATING MATERIAL-EVAP
A	66712	MISC SERVICES.MISC PROCESSES.ORGANICS.WASTE.EVAP
A	66720	BUILDING CONSTRUCTION.CONSTRUCTION & DEMOLITION.ASPHALT ROOFING.EVAP
*	66738	UNSPECIFIED ACTIVITIES.UNSPECIFIED PROCESSES.UNSPECIFIED E&M
*	66746	SERVICES & COMMERCE.UTILITY EQUIPMENT.GASOLINE CMBSTN.LAWN & GARDEN&SHOP
*	66787	UNSPECIFIED ACTIVITIES.STATIONARY I.C. ENGINES.NATURAL GAS CMBSTN
D	66795	MANUFACTURING & INDUSTRIAL.FUEL COMBUSTION.LPG CMBSTN
D	66803	MANUFACTURING & INDUSTRIAL.FUEL COMBUSTION.DISTILLATE OIL CMBSTN
*	66811	FOOD & KINDRED.FOOD & AGRICULTURAL.PROCESS LOSS.COOKING.DEEP-FAT FRYING
*	66829	PRINTING & PUBLISHING.PRINTING.COATING MATERIAL-EVAP.SOLVENT
*	66837	UNSPECIFIED ACTIVITIES.UNSPECIFIED PROCESSES.COMBUSTION (E&M)
*	66845	UNSPECIFIED ACTIVITIES.UNSPECIFIED PROCESSES.EVAPORATION

*NOTE: These categories were recent additions to the data base. It is anticipated that category 66787 may require District review and update in order to best reflect local conditions.

EVALUATION CRITERIA - AIR QUALITY MONITORING

GOAL: Carry out those air monitoring activities which a district determines are reasonably necessary to assess the status and trend of air quality. To the extent such air monitoring is conducted, it should be carried out in such a way that it meets minimum standards for regulatory data use.

ALL DISTRICTS:

1. As a courtesy, advise the ARB in writing either on a quarterly basis or when a change occurs of known air quality surveillance operations conducted within the District's jurisdiction by parties other than the District or the ARB. This information should include the name and address of the party or parties conducting such monitoring and the nature of the monitoring project.

ALL DISTRICTS OPERATING AIR MONITORING SITES:

2. Submit to the ARB monthly for all ambient air monitoring sites at which air monitoring has been conducted for a consecutive period of three months or longer, all gaseous, tape sampled particulate (AISI), and high volume sampled total suspended particulate matter air monitoring data either: (1) on forms prescribed by the ARB within 21 days after the end of the month in which the data were collected, or (2) on computer magnetic tape or key punch cards with computer printout sheets within 45 days after the end of the month in a format approved by the ARB. "Variable" and "Method" codes, and site identification codes shall conform to the ARB's latest codes.

Notwithstanding the foregoing, submit to the ARB high volume data or samples for analysis of lead, sulfate, nitrate, and organic fractions within 45 days after the end of each month in which the data were collected, in the format and using the codes specified above.

~~ALL-DISTRICTS-OPERATING-AIR-MONITORING-ANALYZERS-AND-SAMPLERS:~~

ALL DISTRICTS OPERATING SLAMS

3. Conduct all activities~~,-including-collocated-high-volume-sampling, bi-weekly-precision-tests,~~ as are necessary and required to determine and report individual analyzer and sampler precision estimates, and agency precision estimates for each criteria pollutant measured under the SLAMS/NAMS network. Prepare and submit to the ARB quarterly and annual reports for data precision. Pollutants measured outside the SLAMS network are exempt from the above requirements.

4. Participate in the ARB's performance audit program at all District-operated SLAMS and NAMS.

~~ALL-DISTRICTS-OPERATING-SLAMS:~~

5. Districts that operate any station designated by the ARB as a proposed State and Local Air Monitoring Station (SLAMS) shall have an air monitoring program plan which includes procedures and time tables for implementing federal monitoring, quality assurance, and data reporting regulations (40 CFR Part 58, May 10, 1979).

SOUTH COAST, BAY AREA, AND SAN DIEGO DISTRICTS:

6. In accordance with the timetable established in the District's monitoring plan, meet all federal requirements for a "reporting organization" as defined in 40 CFR Part 58, and submit to the ARB and the EPA quarterly and annual reports for precision and accuracy estimates for all ambient air quality data.

7. Participate in the ARB's performance audit program for selected pollutants at selected sites. Such audits shall be scheduled with District concurrence to assure minimal disruption of the District's ongoing monitoring activities.

8. Conduct an annual review of SLAMS, National Air Monitoring Station (NAMS), and Special Purpose Monitoring (SPM) monitoring programs and, with ARB concurrence, make the necessary changes to the SLAMS monitoring program (including site upgrade or relocation) to meet the ongoing monitoring requirements of the SIP.

EVALUATION CRITERION - ENFORCEMENT

GOAL:

Establish and maintain an enforcement program to ensure that all sources are complying with District rules, regulations, and permit conditions.

CRITERIA:

1. Enforce all district rules and regulations.

2. All districts shall have on their staff, personnel certified to evaluate visible emissions. Evaluation of visible emissions shall be done only by certified inspectors.

3. The district shall perform thorough annual inspections and follow-up reports. ~~This shall include~~ An initial engineering evaluation of probable emissions and a flow diagram of the process showing all control equipment. ~~A flow diagram~~ shall be drawn upon initial inspection and at the time the process is modified. A thorough update of existing information may be used.

4. The district shall require an annual source test to determine compliance of major sources, or identify in the source file how compliance can be determined without a source test. For purposes of this criteria, a major source is considered to be one on the Compliance Data System (CDS) list. If the district does not have its own source testing capabilities, the following options are available to it:

a. Request the ARB to source test the suspected source (source test fees outlined in Figure 2),

b. Request assistance from another district with testing capabilities,

c. Require the source to hire an independent contractor to perform the source test. This type of test should be observed by a district staff member,

d. Condition the permit to operate of a major source to require annual source testing ~~by the source~~.

~~5.--A district shall have a written plan describing how it intends to keep owners informed about permit conditions and rule requirements.~~

5 6. All districts, in nonattainment areas, issuing notices of violation primarily as a warning notice for a violation of a nonattainment pollutants emission standard shall develop a program for submittal of these notices for prosecution or settlement of violations.

6 ~~7~~. The district shall submit to ARB all variance orders (i.e., emergency, interim and regular) within 30 days of the date the order was granted.

7 ~~8~~. The district shall investigate (site inspections may not always be necessary) all reported breakdowns and take enforcement action against any source found not reporting a breakdown.

8 ~~9~~. In districts that have sources with continuous-emission monitors, inspection should be frequent enough so that the operators of the monitors will maintain their accuracy. In addition, monitor accuracy should be verified for sources on the CDS list at least twice annually using parallel source testing. The district should consider requiring the source to pay for such tests.

9 ~~10~~. The district shall keep a record of all complaints and action taken.~~develop a written procedure for processing and evaluating all complaints. The procedure should be used for handling each complaint in an efficient and timely manner.~~

10 ~~11~~. The district shall develop an agricultural burning program consistent with the Agricultural Burning Guidelines. The district should ~~have a plan for conducting agricultural burning inspections that and should~~ document and prosecute violations. The district should keep a record of burn ~~permits~~ information available for inspections and a record of burn ~~permits~~ information within the district issued by other agencies. The district should have a written ~~plan~~ procedure for cooperating with other designated agencies and the ARB in issuing burning permits.

EVALUATION CRITERIA PUBLIC INVOLVEMENT/PARTICIPATION

GOAL:

Encourage and provide for public involvement/participation in developing and implementing District policies and programs.

CRITERIA:

1. Solicit active public involvement in the development of rules and regulations and in the development, adoption, and implementation of the Nonattainment Plan.

2. Establish and/or maintain a program to inform citizens of the extent and nature of the air pollution problem in the District.

Public participation programs are tailored to meet the needs of individual districts and unique pollution problems. There are no components specifically required, nor none that are guaranteed to be applicable in all situations. However, an effective public participation program could contain elements such as:

formation of advisory committees comprised of representatives of publics affected by district rules or persons who provide additional technical expertise.

written summaries of staff reports, public hearing issues and district decisions that can aid non-technical persons in understanding the purpose, requirements, consequences or effects on air quality of proposed actions.

workshops through which affected publics can discuss proposals during their development.

presentations to public groups that can improve understanding of district proposals, goals, or purposes.

use of newspapers, television, radio, billboards and other public advertisements to make the general public aware of district programs, decisions to be made and how they can participate in making those decisions.

EVALUATION CRITERIA - STATIONARY SOURCE PERMITTING[1]

NEW SOURCE SITING

GOAL: ~~Establish and maintain an effective permitting program by conducting a thorough evaluation of permits to construct and operate and by granting or denying permits for major stationary sources of air pollution based upon consistency with the applicable New Source siting rules (New Source Review or Prevention of Significant Deterioration).~~ To help achieve and maintain ambient air quality standards in a district by having a permit system in place which assures adequate review and documentation of the stationary source permitting process, as detailed in the district's rules and regulations.

CRITERIA FOR EVALUATING SOURCES SUBJECT TO NEW SOURCE REVIEW AND/OR PREVENTION OF SIGNIFICANT DETERIORATION REVIEW:

In evaluating a permit to construct for non-exempt stationary sources, a district should:

1. To conduct an adequate analysis, obtain the following information from the project applicant:

[1]Although these evaluation criteria do not differentiate between urban districts and non-urban districts, the criteria will be evaluated in accordance with the requirements of individual districts' rules and regulations. The criteria will, therefore, differentiate between districts to the extent that the applicable regulations reflect a difference between urban and non-urban programs.

a. A thorough description of the proposed project, including the proposed facilities and processes, normal and maximum operating parameters, fuel use (composition and quantity), output of the facility, dates of start-up and any planned expansions.

b. For sources subject to an air quality impact analysis provide description of the environmental setting of the project site before construction, including existing air quality, meteorology and topography data, location and distribution of population and existing industrial sources in the project area.

c. An identification of all emission points or sources associated with the project and quantification of all emissions (both criteria and non-criteria pollutants).

2. Conduct an analysis of the air quality impacts of projects that are subject to analysis under the new source siting rule of the district through use of:

a. The most applicable and recent emissions data and/or emission factors; and

b. The proper models and calculation procedures required by the district's new source siting rule.

In granting or denying permits to construct or operate:

1. Assure that the source, when operated, will meet all applicable federal, state and local regulations.

2. Assure that BACT or LAER will be applied in accordance with the district's new source siting rule.

3. Assure that, when required by the applicable new source siting rule, offsets are properly applied.

4. Include conditions in the permit to assure that the proper control technology is applied and that the source will operate in accordance with all applicable rules and regulations.

5. Provide adequate notification of the intent to grant or deny a permit to construct or operate and conduct public hearing as required by the applicable rules and regulations.

6. Determine compliance with permit conditions by source testing or other techniques consistent with the applicable rules and regulations.

7. Maintain the following records of permit action taken by the district:

    a. The complete application for an authority to construct or operate and the district's letter to the applicant indicating that the application is complete.

b. All analyses used to determine the basis for BACT, LAER, Offsets, Banking or Bubbling provisions of the applicable new source siting rule of the district.

c. All decisions to grant or deny an application for construction or modification.

d. Copies of the public notification to grant or deny an application for construction or modification.

e. All source tests conducted to determine compliance with the permits to construct or operate.

f. Hearing Board records on appeals of district decisions to grant or deny a permit.

~~GENERAL PERMIT ADMINISTRATION~~

~~GOAL: --Administer an effective permit program to assure that the number and type of sources which have the potential of having an air quality impact but which are not subject to the district's new source siting rules obtain permits to construct and operate from the district.~~

CRITERIA FOR GENERAL PERMIT ADMINISTRATION:

1. Obtain sufficient information from the project applicant to determine if the applicant is required to obtain a permit or that the project does not trigger the new source siting rules of the district.

2. Account for emissions from each project which is granted a permit for purposes of including such emissions in the district emissions inventory and for accumulating net emissions increases from each modification to such projects. (It is acceptable for emissions from small portable equipment and sources that are more normally inventoried as area sources to be analyzed using area source inventory techniques.)

3. Assure that the source, when operated, will meet all applicable federal, state, and local regulations.

4. Maintain records of the permit actions taken by the district and the emissions from the project.

EVALUATION CRITERIA - VAPOR RECOVERY

GOAL:

To carry out an effective vapor recovery program while increasing public confidence in and acceptance of the program.

CRITERIA:

ALL DISTRICTS HAVING STAGE I VAPOR RECOVERY:

1. During 1982-83 fiscal year, inspect bulk plants once and terminals located in the district at least twice. Written documentation should be provided for both the plant and terminal inspections. Attempt to observe bulk drops equivalent to 2.5 percent of the total number of Stage I installations on underground storage tanks once on a random selection basis (or an alternative acceptable to ARB).

ALL DISTRICTS HAVING STAGE II VAPOR RECOVERY:

2. During 1982-83 fiscal year, inspect all stations where complaints indicate some sort of malfunction or poor maintenance were detected. Inspect other stations on a random basis. Implement AB 127 Out-of-Order Tagging Procedure when performing the above inspections. The total number of inspections shall equal at least 25 percent of the station population for the district. Part of the inspection shall include a check to determine if vapor recovery equipment operating instructions and the telephone number for registering complaints are clearly posted.

EVALUATION CRITERIA - NONATTAINMENT PLANNING

GOAL:

Participate in the development, adoption, and implementation of air quality plans required to achieve and maintain state and federal ambient air quality standards.

CRITERIA:

ALL DISTRICTS PREPARING NONATTAINMENT PLANS:

1. Prior to plan adoption complete those products necessary for the 1982 Nonattainment Plan (NAP) (e.g. emission inventory and projections, air quality analyses, air quality monitoring, stationary and area source control measures.)

2. Work with the appropriate local and state agencies to institute those coordinative mechanisms (e.g., MOUs, resolutions of commitment) necessary to insure the implementation of 1982 NAP. These commitments should be obtained before plan adoption.

3. Annually submit (or work with the NAP lead agency to submit) ~~to ARB by May 1 of each year~~ the report on NAP implementation for demonstration of Reasonable Further Progress. Timely submittal to

the ARB in advance of the required July 1 ARB transmittal to EPA is necessary to secure ARB review. Areas need not develop RFP reports beyond the year of attainment of the NAAQS. A report need not be provided for a specific demonstration of reasonable further progress and attainment of the ozone standard in rural areas (EPA rural ozone policy). ~~(Submittal by May 1 is needed so that ARB has time to review and transmit to EPA by July 1.)~~

4. If EPA nonattainment plan approval is conditional submit to ARB items required or documentation of the action taken to satisfy the condition thirty days before it is due to the EPA.

EVALUATION CRITERIA - CEQA

GOAL:

To insure full disclosure by lead agencies of the air quality impacts resulting from proposed industrial, commercial, and residential development and their alternatives subject to the California Environmental Quality Act (CEQA).

CRITERIA:

ALL DISTRICTS:

1. Review and comment upon the air quality aspects of proposed major private and public projects in accordance with CEQA.

2. Provide EIR air quality assessment guidelines for lead agencies to follow that are consistent with appropriate ARB guidelines, such as "Recommended Contents for Air Quality Analyses of General Development and Transportation Projects."(Attached)

FOR NONATTAINMENT DISTRICTS

3. Determine the effects of a proposed project on the adopted Nonattainment Plan.

4. Recommend and urge measures that will mitigate the project's air quality impact if a project is inconsistent with the State Implementation Plan or any state or local air quality requirement.

5. Submit annually to ARB a brief summary of the number of projects reviewed and the number of projects found inconsistent with the local Nonattainment Plan.

SAN DIEGO, BAY AREA, SCAQMD

6. Continue to investigate standardized methods for quantifying the emissions impact of projects and mitigation measures.

AIR RESOURCES BOARD
Regional Progams Division
January 1982

RECOMMENDED CONTENTS FOR AIR QUALITY ANALYSIS OF GENERAL DEVELOPMENT AND TRANSPORTATION PROJECTS

The preparation of all environmental impact reports (EIRs) are subject to environmental evaluation requirements of the California Environmental Quality Act. As a result, an air quality analysis is needed as part of this evaluation to help inform decision makers of potential air quality constraints and impacts of all proposed project (activities subject to CEQA) alternatives. Therefore, to inform and to help assist decision makers in assessing potential air quality impacts and measures to minimize these impacts, we recommend the following information be included in an air quality analysis. This information is to be used as a guide in the preparation of EIRs for proposed projects. Following these guidelines will help ensure a proper air quality analysis, expedite review, and minimize comments which should result in less additional work for all parties concerned. Many of the items listed may be satisfied through incorporation by reference. When incorporating by reference, a brief summary of the information must be provided in the EIR, and the incorporated reference must be available for public review. Those pollutants listed under Section II may or may not be applicable and are not to be considered as all inclusive.

You should also consult with your local air pollution control district for any additional requirements, guidelines, or local data for use in your

analysis. Additionally, the General Projects Section and the Transportation Section of the Air Resources Board are available to answer specific questions. Both Sections may be reached at (916) 322-3806.

I. Environmental Setting

A. Conditions affecting air pollution (the following items need to be discussed as to their relationship and/or effect on air pollution):

1. Meteorology and Climate
    a. Air Basin in which project is located
    b. Atmospheric stability
    c. Seasonal air flow patterns
    d. Inversion characteristics
2. Topography

B. Standards and Regulations affecting air quality:

1. Federal
2. State
3. Regional
4. County
5. City

C. Three to five year summary of ambient air quality data obtained at the closest monitoring station(s) to the project site. This data should include all pollutants subject to primary and secondary (health and welfare) standards:

analysis. Additionally, the General Projects Section and the Transportation Section of the Air Resources Board are available to answer specific questions. Both Sections may be reached at (916) 322-3806.

I. Environmental Setting

A. Conditions affecting air pollution (the following items need to be discussed as to their relationship and/or effect on air pollution):

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B. Standards and Regulations affecting air quality:

1. Federal
2. State
3. Regional
4. County
5. City

C. Three to five year summary of ambient air quality data obtained at the closest monitoring station(s) to the project site. This data should include all pollutants subject to primary and secondary (health and welfare) standards:

1. Monthly maximum concentrations
2. Trend analysis (number of days/number of hours standards were violated)

D. Most current emissions inventory for county or air basin:
   a. Stationary
   b. Mobile

E. Potential effects of existing air pollutants on sensitive receptors such as:
   1. Schools (children)
   2. Hospitals (patients)
   3. Convalescence homes (elderly)
   4. Agricultural areas (crop productivity)

II. Impact of Project Proposal and Alternatives

A. Short term impacts. These are associated with emissions resulting from site preparation, construction, or modification, and should be evaluated to determine whether any adverse health or nuisance effects would result during the project development phase.

B. Long term impacts. These are associated with both direct and indirect emissions (e.g. emissions from motor vehicles drawn to the project) resulting from the long term use or operation of a facility or project. Potential impacts should be evaluated on two scales of

analysis: regional and local. When performing these analyses, all calculations should be supported by documentation and all assumptions should be explicity stated in either footnotes or technical appendicies.

1. Regional (Macroscale) Analysis: Applicable pollutants include hydrocarbons, nitrogen oxides, sulfur dioxide, particulates, and carbon monoxide. The analysis should include a quantification of the emissions which could result from the project at buildout. These emissions should then be assessed relative to regional emissions to determine project impact on attaining and maintaining regional air quality goals. If the project has a long development period (i.e. more than 5 years) then this analysis should also be performed at each major phase of the project or at 5 year intervals, whichever is shorter.

2. Local (Microscale) Analysis: Applicable pollutants include carbon monoxide and lead. A suitable microscale model, such as CALINE3[1], should be utilized to analyze critical intersections, road segments, and ingress and egress points for parking. This analysis should determine whether the project

[1] See Paul Benson's CALINE 3 - A Versatile Dispersion Model For Predicting Air Pollutant Levels Near Highways and Arterial Streets, Report No. FHWA-CA-TL-79-23. California Department of Transportation. November 1979.

would cause an exceedance or contribute to an exceedance of any applicable air quality standards and it should conform to the same timeframes as the regional analysis in 1 above. The analysis should also determine whether the project will cause any long term nuisances to local residents. A lead analysis should be performed if local stationary sources of lead emissions are present in the area or if the project is in an area designated nonattainment for lead.

C. Hazardous Pollutants[2]. If any hazardous or toxic pollutants are expected to be generated as a result of the project, they should be clearly identified. The quantities emitted and their impact on public health should be addressed and thoroughly evaluated.

III Mitigation measures

A. The EIR should identify all feasibile measures for avoiding or mitigating project impacts. These measures may include ridesharing, parking management, and traffic flow improvement measures.

B. There should be an assessment of the air quality benefits which could result from the implementation of mitigation measures. These should

[2]See State of California Administrative Code Title 22 Social Security Division - Environmental Health Chapter 35 Section 66680.

be stated in quantitative terms such as amount reduction in emissions, trips generated, or vehicle miles travelled.

C. The EIR should also identify and describe which mitigation measures are incorporated into the project design, the entities responsible for their implementation, and identify that the commitment for their implementation has been secured.

IV. Cumulative Impacts

The cumulative impact (the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects) should be addressed and thoroughly evaluated. This should include a summary of emissions anticipted from projects proposed in the same area as the project under study.

V. Consistency Demonstration

Nonattainment Plans (NAPs)/State Implementation Plans (SIPs): Section 15142(b) of the California Environmental Quality Act Guidelines requires that the EIR discuss any inconsistencies between the proposed project and the applicable Air Quality Plan for the region.

1. Comparison of projected population growth for projects with the Air Quality Plan forecasts.
2. Comparison of project identified transportation control measures with the control strategies contained in the Air Quality Plan.

Note: The following publications may be of assistance to you in preparing an air quality analysis in response to this outline:

Air Resources Board. California Air Quality Data. Technical Services Division.

Contains monitored air quality data for all pollutants from monitoring sites throughout California. Available as Quarterly Reports or Annual Summaries from the Air Resources Board, Public Information Office, P. O. Box 2815, Sacramento, CA 95812 or call (916) 322-2990.

Air Resources Board. EMFAC6C Emission Factors; California Statewide Mix of Vehicles; 1980-2000. Regional Programs Division. October 1981.

Contains current composite mobile emission factors based on EMFAC6C. It is compiled in an easily usable format for calculating emissions resulting from motor vehicles at any given speed and year. Available from the Air Resources Board at the above address.

Air Resource Board. Supplement 2 to Procedure and Basis for Estimating On-Road Motor Vehicle Emissions. Stationary Source Control Division. June 1980.

This publication provides the basis for the above composite emission factors and documents the data and process used by ARB to estimate present and future emissions. It also serves as a guide for estimating emissions using specific traffic and vehicle usage data. Available from the Air Resources Board, Motor Vehicle Emissions and Projections Section, P. O. Box 2815, Sacramento, CA 95812 or call Ed Yotter at (916) 322-3984.

Benson, Paul. CALINE3 - A Versatile Dispersion Model for Predicting Air Pollutant Levels Near Highways and Arterial Streets. California Department of Transportation. November 1979.

This publication contains documentation of the CALINE 3 Model and a description of the operating procedure. The publication also includes listings of the model in FORTRAN and BASIC languages as well as abbreviated versions for use on HP 67/97 and TI59 programmable calculators. Available from Caltrans Publication Unit, 6002 Folsom Blvd., Sacramento, CA 95819 or call (916) 445-3520. There is a fee for this publication.

U. S. Department of Transportation. The Costs and Effectiveness of Transportation Control Measures in Achieving Air Quality Goals. Office of Environment and Safety. August 1981.

This publication provides an assessment of the costs and effectiveness of a variety of transportation control measures. Many of these measures are applicable for mitigating project impacts, therefore this publication may be a good guide for use in estimating costs and effectiveness of project mitigation measures. Copies may be obtained from the Air Resources Board, Transportation Section, P. O. Box 2815, Sacramento, CA 95812 or call (916) 322-3806.

EVALUATION CRITERIA - STATIONARY SOURCE CONTROL RULE ADOPTION

GOAL:

Adopt rules necessary to control pollution from stationary sources.

CRITERIA:

1. Adopt all rules required by the 1979 and 1982 Nonattainment Plans in accordance with the schedule contained in the Nonattainment Plan, or as modified by the associated Reasonable Further Progress reports as approved by ARB.

2. Follow the protocols for ARB review of draft, proposed, and adopted rules as attached~~.~~, except that draft rules may be submitted to the ARB for review 30 days or as soon as possible before the rule is noticed for public hearing.

3. Submit to the appropriate basin control council for its review Suggested Control Measures proposed for adoption and required as part of the Nonattainment Plan. The Suggested Control Measures should be submitted within 120 days of receipt from ARB.

PROCEDURE FOR PROCESSING RULES AND REGULATIONS RECEIVED FROM DISTRICTS

This section presents ARB's procedures for processing air pollution control district rules and regulations from the time they are developed by the districts (including those developed by the SCM process) until they are submitted by the ARB to the EPA for approval. In addition, this section describes other ARB cooperative efforts in the area of rule processing.

It is ARB's desire to work with district staff to alleviate both ARB and district concerns before the district staff present rules to their governing boards. ARB review of draft rules (i.e., before they are noticed for pubic hearing) saves considerable time because the ARB's concerns on subsequent proposed and adopted rules will more likely be minimal or nonexistent. The need for ARB to identify rule deficiencies at the local hearing in a public forum will also be eliminated in most cases.

Draft Rules

In conducting reviews of draft local rules the ARB has consulted with local districts and agreed to the following procedure:

1. Draft rules prepared by districts will be submitted to the ARB's Regional Programs Division, SIP Section, as soon as possible but not later than 30 days prior to noticing a public hearing. The ARB's review is to assure these rules minimally conform to (1) SIP requirements, (2) CAA requirements, and (3) requirements of state law.

2. The ARB will telephone the districts with conceptual comments and follow up with written comments within 15 working days of receipt of the draft rule by the SIP Section.

3. All written comments by the ARB regarding the adequacy of proposed rules will be provided by the executive officer or his designee and will be the official ARB staff positions.

Proposed Rules

The districts will submit final proposed rules to the ARB (in the form to be considered at public hearing). The following procedure and time schedule has been developed in consultation with the local districts:

1. When the districts publish 30 day notices of public hearings to meet the requirements of state and federal law, the districts will also submit copies of proposed rules and the hearing notices to the ARB's SIP Section.

2. The ARB will evaluate proposed rules to determine if previous ARB comments have been considered and if the proposed rules minimally conform to SIP requirements, CAA requirements, and requirements of state law.

3. The ARB will provide districts with telephone comments followed by written comments at least one week prior to the public hearing. Comments will be provided earlier, if possible, to meet specific district requirements. Comments will specify which modifications are required for ARB approval and which are recommended for clarity. In some cases the telephone call will simply inform the district that the ARB has no problem with the rule as proposed.

4. The ARB will endeavor to testify at local public hearings, when requested by a district, or if the rules do not minimally conform with SIP, CAA, and state law requirements. As a courtesy, the district staff will be notified in advance.

Adopted Rules

After the districts have adopted rules, the following procedure will be followed to complete ARB approval and submission to EPA:

1. The districts will submit adopted rules, hearing notices and, if required by EPA grants, evaluations of rule impacts to ARB's Regional Programs Division, SIP Section, for approval and submittal to EPA.

2. Within 15 working days, ARB will complete its final review of rules for consistency with SIP, CAA, and state law requirements.

If rules are not approvable, the ARB will inform the districts (within 15 working days) why the rule is not being submitted to EPA and recommend a course of action. If necessary, appropriate conflict resolution procedures will be initiated (see Section III).

If rules are approvable in accordance with the requirements of the Clean Air Act, they are submitted to EPA as a SIP revision as part of an ARB quarterly submittal. (In case a rule needs to be received by EPA to satisfy an EPA deadline, the rule is submitted as soon as possible.) Districts will be notified of approved rules which are not appropriate for inclusion in the SIP, e.g., rules for attainment of state ambient air quality standards only. These will not be submitted to EPA as SIP revisions.

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I INTRODUCTION

In April 1981, the Air Resources Board (ARB) directed the Executive Officer to develop, in conjuction with the California Air Pollution Control Officer's Association (CAPCOA), recommended procedures to be followed in conducting program evaluations of local air pollution control districts.

This document is intended to be used by the ARB Subvention audit staff as a handbook in conducting evaluations of local air pollution control programs. It is also intended as a resource for districts so that they know how the evaluation program will be administered.*

The purpose of the audit program is threefold: first, to assure that districts are expending funds in accordance with their approved budget; second, to measure district performance based on the jointly developed evaluation criteria; and third, to assist the district in improving the effectiveness and efficiency of their programs.

While it is the obligation of the auditors to thoroughly evaluate the district's financial and programmatic records, it is also their

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*Further background and reference on the evaluation program's development can be obtained in the Development of a New Process for Correlating Financial and Technical Evaluations of Local District Air Pollution Control Programs, R. David Flesh, Margaret L. Riha, TRC Environmental Consultants, Inc., December 1981. This document was prepared under State Contract No. A1-042-76 as a report to the joint ARB/CAPCOA Subvention Committee.

responsibility to provide a meaningful service to the districts. The procedures outlined in this document were written with the concept of "service" in mind. Procedures contained in this report will be continually evaluated and modified in conjunction with the districts as experience in implementing them dictates. Before making their findings, the auditors will determine and consider a district's unique characteristics or air quality issues.

II PROGRAM EVALUATION PROCESS

The following is a narrative description of the program evaluation process from selection of districts to be audited through the final audit report and appeal procedures. Actual procedures which the auditors will follow in conducting audits in the districts are covered in Section III of this document.

A. District Selection and Audit Notification

The number of air pollution control districts audited each year will depend on available resources. The following criteria will be applied in making audit selections.

1. Last time an audit was conducted.
2. A district request for audit.
3. Problems identified based upon a review of a district's fiscal year-end financial reports and applications for subvention.
4. Obtaining a representative sample by size category.

5. Proximity of districts. (It may be more cost effective to audit several districts in the same general area.)

The first four criteria will be used in making audit selections. The fifth criterion will be used in scheduling audits of those districts.

A list of districts to be audited will be developed annually and may be revised during the year if conditions warrant changes to the list. At least thirty (30) days prior to the scheduled audit date, a district will be notified of the impending audit. The letter of notification will contain a request that district staff be available, as necessary, and that needed documents be made available at the time of the audit. A request for a delay in the audit of up to 60 days may be approved by the Chief of the Regional Programs Division of ARB. A request for a longer postponement must be approved by the Executive Officer.

B. Pre-audit Preparations

Pre-audit preparation by ARB staff assigned to the audit include reviews of subvention applications, subvention fiscal year-end financial reports, prior year audits, and prior year evaluations of district programs. Subvention staff will also discuss with ARB staff from other divisions areas of potential program strength and weakness. The information gathered during the pre-audit period will be used to determine likely program and financial areas for testing.

C. Audit Team

The audit team will consist usually of two persons. One will have financial auditing capability, the other will have expertise in program evaluation and air pollution control. The audit team may be expanded to include additional staff from other ARB divisions with specialized expertise.

D. District Visit

No sooner than 30 days after a district is notified, a field visit will be made by the audit team. The team will hold an entrance conference with the Air Pollution Control Officer (APCO) or a designated representative during which they will explain the purpose of the audit and answer questions. The length of the visit will be determined by the size of the district as well as by the information gathered prior to and during the visit.

Upon completion of the fieldwork, the team will conduct an exit conference with the APCO or designated representative where the preliminary findings of the audit will be discussed. Any deficiencies identified that can be removed easily by the district should be so removed. District action to eliminate such deficiencies should be noted for later incorporation in the preliminary audit report. If district action of a more complex nature is needed to correct the deficiency, then the audit team and the district should develop at this time the components of a Corrective Action Plan (see Section IV of this document for format).

As part of the exit interview, the audit team will identify program areas which are adequate as well as those in which the district is particularly effective. The audit team will also share with the district methods and techniques used successfully by other APCDs to increase program effectiveness.

E. Post Visit/Preliminary Report

The auditors will correlate field data and the results of the exit conference. These findings will be presented in the Preliminary Audit Report which will describe program strengths and deficiencies. The Preliminary Audit Report will also contain recommendations for correcting deficiencies and any agreements reached with the districts to make these corrections. The district will have 30 days from receipt of the Preliminary Report to respond to the Report findings. There shall be at least one meeting between the Chief, Regional Programs Division and appropriate district staff following the 30 day period and prior to issuance of the Final Audit Report to discuss any pending issues. The district's response to each audit finding will be included in the Final Audit Report.

F. Final Audit Report

In preparing the Final Audit Report, the audit findings will again be included along with all corrective actions already taken by the district. Included in this report will be the final, jointly agreed upon Corrective Action Plan for the district, as well as any agreement for assistance between ARB and the district. The Final Audit Report will

also contain the ARB staff comments on the district response to the preliminary audit findings. If ARB staff agrees with the district response to an audit finding, then it will so indicate by making the appropriate changes to the Report. If it disagrees, then the reasons for the disagreement will be stated and included in the Report. The Final Audit Report may then be used as a primary source document in any appeal action. The Executive Officer of the Air Resources Board or his delegate will have the responsibility for approving Final Audit Reports.

G. Penalties and Corrective Actions

If serious deficiencies are found in the district program and the district is unwilling to take corrective action, then the Final Audit Report may contain the following recommendations in accordance with Health and Safety Code Section 39808:

1. Cease further subvention payments;
2. Withhold future subventions;
3. Bring an action against the district, or the counties and cities supporting the district, to recover the subvention paid that year;
4. Assume the powers of the district.

These penalties are substantial and should be considered major penalties. Board approval after public hearing is necessary before any of these penalties can be imposed. Clearly, an agreed upon Corrective

Action Plan is preferred to any of the actions listed above.

In cases where minor deficiencies are identified, corrective actions may be negotiated as specified in Section IV.

H. Appealing Audit Findings:

Upon receipt of a Final Audit Report which identifies at least one deficiency, the district may choose one of the following courses of action:

1. Compliance with the terms of the Corrective Action Plan including return of the subvention funds if there are disallowances noted in the Final Audit Report.
2. Appeal of one or more of the audit findings. The following steps shall be taken when appeals are made.

    a. Initial discussions with appropriate Regional Programs Division staff.
    b. If resolution with staff is not satisfactory, then within 30 days of receipt of the Final Audit Report, formal appeal may be filed with the ARB Executive Officer.
    c. If the Executive Officer does not respond within 30 days or if resolution with the Executive Officer is not satisfactory, then the district may petition the Board for a public hearing within 30 days of the district's receipt of notification of the Executive Officer's

decision to uphold the staff findings.

d. The Board will hold a public hearing at its first regularly scheduled Board meeting at least 60 days after receiving the district petition.

e. If the issue is financial in nature and the district is not satisfied with the Board decision, then it may appeal to the Board of Control.

III. STANDARDS AND PROCEDURES FOR AUDIT STAFF IN CONDUCTING EVALUATIONS OF LOCAL DISTRICTS

A. Audit Standards

Auditing is a systematic examination of a program from both a fiscal and programmatic perspective. As it applies to the subvention program its prime function is to determine if stated objectives have been accomplished in an effective and efficient manner. State law and administrative procedure require that state agencies be held accountable for their expenditures. State law gives the Air Resources Board the responsibility of administering the air pollution control subvention program. Consequently, the ARB is required to account for the use of subvention funds.

The ARB will audit local district programs both from a financial

and programmatic perspective and will correlate financial and program findings in order to develop a better understanding of a district's operations. Both audit types will be conducted using the standards established by the Controller General of the United States as outlined in Standards for Audit of Governmental Organization, Programs, Activities, and Functions (Appendix A).

The audit procedures contained in this handbook have been developed for three purposes. One purpose is to help ARB measure district's progress in satisfying the evaluation criteria. The second purpose is to help ARB determine that funds expended by each district were spent substantially in accordance with that district's budget and that generally accepted accounting practices have been applied to account for these expenditures. The third purpose is to assist the districts in assessing the efficiency and effectiveness of their operations. Both program and fiscal information is needed to accomplish that goal. The Operational Audit Procedures contained in Appendix B are included to help correlate program and fiscal information as well as to assist the program auditor determine if the evaluation criteria have been satisfied.

B. Fiscal Audit Procedures

The fiscal audit will be based upon the audit program (see Appendix C, Financial Audit Procedures) that has been used historically by the Field Audit Section of the State Controller's Office. The scope of testing that the auditor will perform will be determined based upon evaluation of existing internal control procedures. The auditor will review the controls and the means of safeguarding assets when performing

the field work. The auditor's examination will be in conformance with generally accepted accounting principles. The audit will be adequately planned and supervised and due professional care will be practiced in the auditor's examination.

The fiscal auditor will be expected to have full access to district records and at all times display independence in the opinions, judgements, conclusions, and recommendations.

The auditor's examination will include testing a sufficient sample to verify that repeated expenditures are valid and proper. Additionally, the auditor will determine that revenues are accurately reflected in the district's fiscal year-end financial statement.

The Final Audit Report will contain a review of the subvention application, revenue and expenditure ledgers, and related records. The report will identify for each district the amount of revenues and expenditures and, using the applicable subvention formula for that district, indicate the amount of subvention the district was eligible to receive in the fiscal year audited. The auditor will document in the audit working papers audit exceptions and questioned costs. During the exit conference the auditor will inform the district of the nature of these exceptions and questioned costs. The fiscal auditor will make recommendations on improving operational efficiency and fully explain, the cause, the effect, and the recommendation for each audit finding. The audit report will discuss the district's accounting system and its

conformance with generally accepted accounting principles. It will also recognize district accomplishments in order to present a balanced perspective on the district's overall operation.

C. OPERATIONAL AUDIT PROCEDURES

An operational audit correlates the findings in the program and financial audits (see Appendix B, Operational Audit Procedures). Its purpose is to assess the district's total program effectiveness and efficiency.

While the fiscal audit is being conducted, the program auditor(s) will examine the district's records of activities. The examination of these records will be correlated eventually with the information gathered in the fiscal audit.

The Operational Audit Procedures includes a detailed description of the steps a program auditor will take in conducting the program review. Working as a team the auditors will have to assess the data gathered and make their findings based on the determined facts.

The auditors are not required to develop a recommended action for every finding of deficiency. It is expected, however, that in the course of discussions with the district staff there will be a specific action recommended or agreed upon by the district and ARB before the Final Audit Report is published. It is not always the responsiblity of the audit team to specify the corrective action necessary during its visit.

Following both the Operational Audit Procedures and the Fiscal Audit Procedures will help the audit team systematically and consistently evaluate districts' program. It is also important to examine all districts' programs using a consistent set of procedures.

IV. CORRECTIVE ACTION PLAN

When a preliminary audit report discloses a deficiency in either the financial or programmatic areas, a response by the district to each audit finding must be submitted for inclusion in the Final Audit Report as part of a Corrective Action Plan. Each deficient element identified will include a description of the deficiency and the corrective action needed. If the correction cannot be made immediately then the Corrective Action Plan shall include the following:

1. Timetable for correction of the deficiency with milestones;
2. Listing of any documentation necessary to track progress; and,
3. If necessary, additional resources needed to accomplish the correction.

Districts may also be required to submit quarterly reports tracking progress to remove the deficiency. Documentation of progress may be requested as an addendum to the report.

Notice of corrective action taken by the district during or

immediately after the exit conference will be incorporated in the Preliminary and Final Audit Reports and will not be included as part of the Corrective Action Plan. Written responses specifying corrective action taken by the district after issuance of the Preliminary Report will be noted in the Final Audit Report.

The components of a Corrective Action Plan will be jointly agreed upon by the district and ARB staff. Ideally, agreement with the district on the components of the plan will be reached during the exit conference. If a more extensive plan is necessary, or if there are problems with reaching an agreement on an action plan during the exit conference, more time will be provided (up to 30 days). It is expectedthat an agreed upon Corrective Action Plan will be contained within the Preliminary Audit Report. If agreement cannot be reached within 30 days then ARB may extend the time to reach agreement, or recommend in the Final Audit Report, that action be taken against the district for failure to operate an adequate program pursuant to Section 39806 of the Health and Safety Code. The district may appeal this action pursuant to Section 90500 of the Subvention Regulations. If the Final Audit Report concludes that a district needs to reimburse money to the State and the district disagrees, then the district may initiate the appeal process pursuant to Section II H of this document and Section 90500 of the Subvention Regulations.

V. ARB ASSISTANCE TO LOCAL PROGRAMS

If a district does not have the necessary resources to correct a deficiency and ARB staff agrees with that assessment, the district may

request assistance from ARB as part of a Corrective Action Plan. The request must include the following:

1. Problem encountered (type of deficiency if identified in a Corrective Action Plan).
2. Action needed to remove the deficiency.
3. Specific assistance needed from the ARB (other than increased funding) such as for evaluating permits or for air monitoring equipment.
4. District contribution toward removing the deficiency.
5. Estimated time during which assistance would be needed.

The ARB Executive Officer shall respond to a district request for assistance within 30 days in cases where requests are submitted as a result of an audit and included in the Corrective Action Plan. While ARB will endeavor to assist the district, such assistance is conditioned upon resource availability.

STANDARDS FOR AUDIT OF GOVERNMENTAL ORGANIZATIONS, PROGRAMS, ACTIVITIES, AND FUNCTIONS

GENERAL STANDARDS

1. The full scope of an audit of a governmental program, function, activity, or organization should encompass:
   a. An examination of financial transactions, accounts, and reports, including an evaluation of compliance with applicable laws and regulations.
   b. A review of efficiency and economy in the use of resources.
   c. A review to determine whether desired results are effectively achieved.

   In determining the scope for a particular audit, responsible officials should give consideration to the needs of the potential users of the results of that audit.
2. The auditors assigned to perform the audit must collectively possess adequate professional proficiency for the tasks required.
3. In all matters relating to the audit work, the audit organization and the individual auditors shall maintain an independent attitude.
4. Due professional care is to be used in conducting the audit and in preparing related reports.

EXAMINATION AND EVALUATION STANDARDS

1. Work is to be adequately planned.
2. Assistants are to be properly supervised.

3. A review is to be made of compliance with legal and regulatory requirements.

4. An evaluation is to be made of the system of internal control to assess the extent it can be relied upon to ensure accurate information, to ensure compliance with laws and regulations, and to provide for efficient and effective operations.

5. Sufficient, competent, and relevant evidence is to be obtained to afford a reasonable basis for the auditor's opinions, judgements, conclusions, and recommendations.

REPORTING STANDARDS

1. Written audit reports are to be submitted to the appropriate officials of the organizations requiring or arranging for the audits. Copies of the reports should be sent to other officials who may be responsible for taking action on audit findings and recommendations and to others responsible or authorized to receive such reports. Copies should also be made available for public inspection.

2. Reports are to be issued on or before the dates specified by law, regulation, or other arrangement and, in any event, as promptly as possible so as to make the information available for timely use by management and by legislative officials.

3. Each report shall:

   a. Be as concise as possible but, at the same time, clear and complete enough to be understood by the users.

   b. Present factual matter accurately, completely, and fairly.

c. Present findings and conclusions objectively and in language as clear and simple as the subject matter permits.

d. Include only factual information, findings, and conclusions that are adequately supported by enough evidence in the auditor's working papers to demonstrate or prove, when called upon, the bases for the matters reported and their correctness and reasonableness. Detailed supporting information should be included in the report to the extent necessary to make a convincing presentation.

e. Include, when possible, the auditor's recommendations for actions to effect improvements in problem areas noted in his audit and to otherwise make improvements in operations. Information on underlying causes of problems reported should be included to assist in implementing or devising corrective actions.

f. Place primary emphasis on improvement rather than on criticism of the past; critical comments should be presented in balanced perspective, recognizing any unusual difficulties or circumstances faced by the operating officals concerned.

g. Identify and explain issues and questions needing further study and consideration by the auditor or others.

h. Include recognition of noteworthy accomplishments, particularly when management improvements in one program or activity may be applicable elsewhere.

i. Include recognition of the views of responsible officials of

the organization, program, function, or activity audited on the auditor's findings, conclusions, and recommendations. Except where the possibility of fraud or other compelling reason may require different treatment, the auditor's tentative findings and conclusions should be reviewed with such officials. When possible, without undue delay, their views should be obtained in writing and objectively considered and presented in preparing the final report.

j. Clearly explain the scope and objective of the audit.

k. State whether any significant pertinent information has been omitted because it is deemed privileged or confidential. The nature of such information should be described, and the law or other basis under which it is withheld should be stated.

4. Each audit report containing financial reports shall:

a. Contain an expression of the auditor's opinion on whether the information contained in the financial reports is presented fairly. If the auditor cannot express an opinion, the reasons therefore should be stated in the audit report.

b. State whether the financial reports have been prepared in accordance with generally accepted or prescribed accounting principles applicable to the organization, program, function, or activity audited and on a consistent basis from one period to the next. Material changes in accounting policies and procedures and their effect on the financial reports are to

be explained in the audit report.

c. Contain appropriate supplementary explanatory information about the contents of the financial reports as may be necessary for full and informative disclosure about the financial operations of the organization, program, function, or activity audited. Violations of legal or other regulatory requirements, including instances of noncompliance, shall be explained in the audit report.

Source: Comptroller General of the United States. Standards for Audit of Governmental Organizations, Programs, Activities, & Functions. (Washington, DC: United States General Accounting Office, 1972), pages 6-9.

APPENDIX B

OPERATIONAL AUDIT PROCEDURES

NOTE: The scope of the auditors' examinations is not to be limited by this audit procedure if, in the auditors' judgement, additional testing and sampling are necessary. The auditors will maintain an independent attitude when conducting their examinations. It is important that they be free from personal or external impairments to their independence. The auditors will utilize portions of this document for evaluation of the applicable district's programs.

PROCEDURES FOR EVALUATION

The following procedures are to be used by ARB program auditors in evaluating the plans and programs of a local air pollution control district in California.

These procedures are divided into 14 Sections. Sections I, II, and IV are intended to assist both fiscal and program auditors in their discussions with the person in charge of day-to-day district operations and the fiscal auditor, specifically, in the examination of the district (or county) administrative files. Section III is designed to assist the program auditor in gathering information to determine whether or not the district has met the ARB/district approved evaluation criteria for the fiscal year in question.

After determining which criteria apply for the fiscal year being audited, the auditor should next determine the district's activities in meeting the criteria. This will be done by examining the district files and, in some cases, by accompanying district employees into the field and evaluating their application of district procedures.

The program auditor will also gather data on the number of work products completed by the district during the fiscal year, for example, the number of sources inventoried, inspections conducted, and permit actions taken.

PROCEDURES FOR THE EVALUATION OF LOCAL AIR POLLUTION CONTROL DISTRICTS' PROGRAMS

The following procedures cover investigations of performance in meeting specific evaluation criteria. They were prepared for use with evaluation criteria to be applied in fiscal year 1982-83. However, with minor modification they may be used for other years as well. Prior to reviewing district performance, the auditor will review the approved criteria for the year to be audited in order to assess the district program responsibilities for that year.

I. Entrance Conference

A. Name and title of person interviewed. (Preferably the Air Pollution Control Officer.)

B. Description of the District.*

1. Name, address, and telephone number of district
2. Type of district (APCD, Unified APCD, or AQMD)
3. Parent agency (health department, agriculture department, or other), if applicable
4. Jurisdiction of area (names of counties served)

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*Information under this subsection will initially be obtained through ARB records and files as part of the pre-audit preparation. Accuracy of the information should then be verified in the Entrance Conference.

6. Population

7. Major categories of industry

9. Number of sources operating under air pollution control permits with emissions of:

   - 100 tons per year (TPY) or more
   - 25 TYP or more, but less than 100 TPY
   - Less than 25 TPY

9. Approximate percent of area in the district designated by EPA as nonattainment for:

   - Ozone
   - Carbon monoxide
   - Nitrogen dioxide
   - Sulfur dioxide
   - Total suspended particulates (TSP)

C. Unique characteristics of the district (e.g., rules and regulations, geographic location, local politics, number and types of sources, existing air quality, etc.).

D. Problems unique to the district (e.g., funding limitations, experience of employees, turnover, equipment, relationship with other government agencies, relationship with sources, relationship with public)

II. Examination of Administrative Files

A. Number of budgeted positions:

1. Full-time

2. Part-time

B. Number of employees:

1. Full-time

2. Part-time;

C. Calculated number of full-time equivalent (FTE) employees

D. Number of terminations in past 12 months

E. Calculated turnover rate

F. List of employees and activities they performed

1. Name*

2. Organizational classification (engineer, inspector, etc.)*

3. Number of months in current position

4. Number of months of previous experience in similar position

5. Activity(ies) performed (interview employee if necessary)*

6. Number of hours worked per month at each activity (interview employee if necessary)*

7. Hourly wage or salary*

III. Determination of District Compliance With Evaluation Criteria; Associated Measures of Effectiveness and Efficiency

A. Emission Inventory

1. District employee with responsibility for emission inventory

2. Types of sources in the district that must be inventoried

3. Number of sources in the district that must be inventoried

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*Data collected during financial audit. In large districts employees will be grouped by classification and activity(ies) performed, rather than by individual listings.

4. Number of sources inventoried during fiscal year(s) being audited
5. Reference(s) consulted to obtain emission factors
6. Source test data used (if yes, under what conditions)
7. Frequency of emission inventory update
8. Review elements of the criteria with the employee in charge of emission inventory:
    a. Elements district has undertaken during fiscal year(s) being audited
    b. Elements district has not undertaken during fiscal year(s) being audited (explanation)
9. Confirm that records of activities requiring documentation are on file
10. Date of most recent emission inventory update submittal to ARB
11. Based on a review of a portion of the emission inventory file, evaluate items selected for completeness and accuracy.

B. Stationary Source Control Rule Adoption

1. District employee(s) with responsibility for rules and regulations.
2. Review elements of criteria with employee in charge of rules and regulations:
    a. Elements district has undertaken during fiscal years(s) being audited
    b. Elements district has not undertaken during fiscal year(s) being audited (explanation)
3. Confirmation that records of public hearings or basin control council actions taken in response to the criteria are on file.

C. Air Quality Monitoring

1. District employee with responsiblity for air monitoring
2. Review elements of the criteria with the employee in charge of air monitoring:
    1. Elements district has undertaken during fiscal year(s) being audited.
    2. Elements district has <u>not</u> undertaken during fiscal year(s) being audited (explanation).
3. Confirm existence of an air monitoring program plan if the district operates one or more State and Local Air Monitoring Stations (SLAMS) and determine whether or not the content of that plan complies with federal regulations (40 CFR Part 58).
4. Confirmation that district meets all federal requirements for a "reporting organization" as defined in 40 CFR Part 58, as required by the criteria.
5. Review air monitoring files, sample and evaluate items selected for completeness and accuracy (files should contain records of all station maintenance; procedures and time tables for implementing federal monitoring, quality assurance, and reporting regulations; and copies of letters or other evidence of monthly submittals of air monitoring data and other submittals of non-district monitoring advisories to the ARB).
6. Evaluation of the district's air monitoring activities (from the ARB Division of Technical Services, Air Monitoring Unit).

D. Nonattainment Planning

1. District employee with responsibility for air quality nonattainment planning.
2. Review elements of the criteria with the employee in charge of air quality attainment planning:
   a. Elements districts has undertaken during fiscal year(s) being audited.
   b. Elements district has not undertaken during fiscal year(s) being audited.
3. Confirm that copies of air quality attainment plans and records of actions taken to adopt those plans are on file.

E. California Environmental Quality Act (CEQA) Reviews

1. District employee with responsibility for CEQA reviews.
2. Review elements of the criteria with employee in charge of CEQA activities:
   a. Elements district has undertaken during fiscal year(s) being audited.
   b. Elements district has not undertaken during fiscal year(s) being audited (explanation).
3. Confirm that district has commented on air quality aspects of proposed major private and public projects.

F. Public Involvement/Participation

1. District employee with responsiblity for promoting public

involvement/participation.

2. Review elements of the criteria with employee in charge of public involvement/participation:
   a. Elements district has undertaken during fiscal year(s) being audited.
   b. Elements district has not undertaken during fiscal year(s) being audited.
3. Confirm that records of actions taken to encourage and provide for public involvement/participation in developing and implementing district policies and programs are on file.

G. Enforcement

1. District employee responsible for enforcement activities.
2. Types of sources in the district that must be inspected annually.
3. Number of sources in the district that must be inspected annually.
4. Number of inspections conducted during fiscal year(s) being audited:
   a. Annual formal inspections
   b. Informal walk-through inspections
   c. Informal drive-by inspections
5. Number of non-vehicular notices of violation issued during fiscal year(s) being audited:
   a. Warnings issued
   b. Notices of violation issued

c. Notices to appear issued.

6. Number of vehicular enforcement actions taken during fiscal year(s) being audited.

7. Number of complaints received during fiscal year(s) being audited:

   a. Complaints received

   b. Complaints investigated

8. Number of breakdowns reported during fiscal year(s) being audited:

   a. Breakdowns reported

   b. Breakdowns not reported, but discovered

   c. Breakdowns investigated

9. Number of legal actions taken during fiscal year(s) being audited:

   a. Office conferences

   b. Cases referred to District Attorney or County Counsel

   c. Court cases filed (list names of sources, violations, case numbers, and dates actions were filed).

   d. Convictions (list names of sources, case numbers, and dates convictions were handed down).

   e. Fines levied (list names of sources, case numbers, and amounts of fines).

10. Types of sources in the district that must be source tested annually.

11. Number of sources in the district that must be source tested annually.

12. Number of source tests conducted during fiscal year(s) being audited:

a. Source test conducted by district

b. Source tests conducted by ARB at request of district

c. Source tests conducted by another district at request of district being audited.

d. Source tests conducted by independent contractor hired by source.

e. Source tests conducted by source.

13. Number of source tests by source or by independent contractor hired by source and observed by authorized district employee.

14. Number of variance actions taken by the district's hearing board during the fiscal year(s) being audited:

a. Abatement orders issued

b. Variances granted

c. Variances denied

d. Permits to operate revoked

e. Permits to operate reinstated.

15. Review elements of the criteria with employee in charge of enforcement activities:

a. Elements districts has undertaken during fiscal year(s) being audited.

b. Elements districts has not undertaken during fiscal year(s) being audited (explanation).

16. Confirm that district employees who conduct source inspections are certified to evaluate visible emissions and that the certifications are on file.

17. Confirm records of activities requiring documentation are on file.

18. Review file on annual inspections, sample and evaluate items selected for completeness and accuracy.

19. Document that the district has a written plan to keep source operators informed about permit conditions and rule requirements.

20. Accompany district employees on inspection of selected sources:

    a. Observe and evaluate adequacy of district employees' performance and district's inspection procedures.

    b. Observe district employees verify accuracy of continous-emission monitors operated by the sources.

21. Confirm that the district has a plan for conducting agricultural burning inspections.

H. Stationary Source Permitting

1. Districts employee with responsibility for permitting.

2. District's definition of permit unit (entire facility including all processes, individual process, or item of process equipment).

3. Types of sources in the district that must operate under permit.

4. Number of sources in the district that must operate under permit.

5. Number of sources operating under permit, by amount of emissions.

6. Number of permit actions occuring during fiscal year(s) being audited:

    a. Applications received for authority to construct

    b. Authorities to construct issued.

    c. Authorities to construct denied. List reasons for denial.

d. Applications received for permit to operate.

e. Permits to operate issued.

f. Permits to operate denied.

7. Backlog of applications for authority to construct.

8. Backlog of applications for permit to operate.

9. District's schedule for:

   a. Authority to construct.

   b. Permit to operate.

   c. Renewal of permit to operate.

10. Review the criteria with the employee in charge of permitting:

    a. Elements district has undertaken during fiscal year(s) being audited.

    b. Elements district has not undertaken during fiscal year(s) being audited (explanation).

11. Confirm records of activities requiring documentation are on file.

12. Review permit file and select sample of sources. For the fiscal year(s) being audited, check the completeness and accuracy of the district's evaluation of all applications received from those sources to see if they comply with the rules and regulations. Do this for:

    a. Authorities to construct.

    b. Permits to operate.

13. For permits reviewed in item 12, confirm correct fees have been charged by the district and paid by the sources.

14. Accompany district employee on visits to selected sources which have permits that were reviewed (item 12) and confirm that the information on the sources in the district's permit file is current and accurate.

I. Vapor Recovery

1. District employee with responsibility for vapor recovery.
2. Review elements of the criteria with employee in charge of Stage I & II vapor recovery inspections.
3. Determine that documentation of inspections are on file and that the district is in compliance with provisions of applicable evaluation criteria of the year being audited.

IV. Exit Interview

A. Review the information collected during the visit to the district.

B. Prepare statement of preliminary findings:

1. List all deficiencies and problems found.
2. Evaluate the efficiency and effectiveness of the district in carrying out the activities audited.*
3. Compare the district's program in the fiscal year being audited to its program during the previous years audited.**

C. Discuss the preliminary findings with the person who participated in the entrance interview.

D. Secure acknowledgement from the district of the existence of the deficiencies and, if possible, assurance that easily remedied

deficiencies will be eliminated within 30 days.

E. Develop corrective action plan with district to eliminate more complex deficiencies. Plan includes:

1. Description of the deficiency.
2. Description of correction action to be taken by the district.
3. Timetable for implementing corrective action, showing milestones to mark progress.
4. List of additional information (e.g., quarterly reports) necessary to track progress.
5. List of additional resources needed to accomplish the correction.

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*Suggested measures of efficiency called "activity ratios" are given in Figure 3, pages 57-59, of a report to the ARB entitled Development of a New Process for Correlating Financial and Technical Evaluations of Local District Air Pollution Control Programs, dated December 1981. Major indicators of the effective use of a district's funds are the completeness and accuracy of the district's files. These activity ratios will not be included in audit reports until they are determined, in conjunction with the districts after experimental application, to be an effective tool for evaluating the efficiency and effectiveness of a district. If they are not determined to be a useful tool, the concept of activity ratios will be deleted from this document.

**Measures of progress are discussed in Section VIII, pages 51-61, in the report to the ARB cited in footnote above.

8300 Air Resources Board - Air Pollution Control Program 8300

8301 Air Resources Board Subvention Program 8301

The State program for the air resources subvention program is contained in Sections 39280 through 39291* of the Health and Safety Code, encompassing the following law:

Air Pollution Control Subvention Program

This program makes provision for the Air Resources Board to financially assist Air Pollution Control Districts throughout the State. Amounts allocated are regulated by provisions of the Act.

8302 Administration of the Program 8302

The Air Resources Board as established by Legislation is charged with the functions of supervising, coordinating, and otherwise assisting local and regional Air Pollution Control Districts in meeting or exceeding levels of air quality as determined by the Board and the Legislature.

Types of Projects

The Air Resources Board supervises the use of local, State and Federal funds in those Districts accepting State subventions. The Board also evaluates the effectiveness of all Air Pollution Control Districts (including those not within the State subvention program) in achieving compliance with air pollution standards.

8303 Financial Participation 8303

The financial participation of the State is limited to specific maximum reimbursement amounts as approved by the Air Resources Board for projects which comply with the goals of the program. Sharing ratios for State subventions and local expenditures vary according to the type of District, as follows:

1. Coordinated Districts (those consisting of various cooperating agencies within an air basin) qualify for funds on a 1 to 1 matching basis for local funds generated and expended.

2. Individual Districts (those Districts comprising less than an air basin) qualify for matching funds on a 2 for 3 matching basis for local funds generated and expended.

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* Currently, Sections 39800 through 39811. 12/76

8303 Financial Participation (continued) 8303

3. Special Districts - these Districts qualify for subventions based upon local participation determined by population set dollar amount, and local participation.

Items 1 and 2 above are subject to further limitations based on maximum awards determined by population.

8304 Fiscal Procedure 8304

The chronological steps leading to the disbursement of State funds for Air Pollution Control Districts are as follows:

1. Allocation of Funds

Annually, the Board includes in its proposed budget for the next fiscal year the amount estimated to be needed for the program. The amount is included in the Governor's Budget which is submitted to the Legislature. The amounts allocated, or appropriated, by the Legislature become available for disbursement by the Board during the Budget year.

2. Claims For Subventions

In order to claim State funds an Air Pollution District must submit a proposed budget and program to the Air Resources Board showing revenues available and proposed expenditures. The Board approval of the program, entitles the District to a subvention based upon the type of District submitting the claim (i.e. coordinated, individual or special).

3. Payment by the State Controller *

The State Controller then issues a warrant for 50% of the total award. Reports must be filed for an additional payment of 50% to be approved by the Executive Officer. Where deficiencies are evident only 25% is paid and 25% is withheld until deficiencies are corrected. Districts with State approved plans are required to keep separate fund records of their operations.

8305 Audit of Claims 8305

After the District has filed a final report on program operation, the State Controller's Office will perform a field audit of actual program costs and performance.

* Out of date. Refer to Administrative Code, Title 17, Section 90360, for current regulations. 12/76

8306 Field Audit Procedures 8306

Upon receipt of a District final report from the Board with a request for audit, the State Controller's Office will make a field examination of the pertinent accounts and records of the District. The examination will be made in accordance with the program set forth elsewhere in the Field Audits Manual. State policies and principles as established by the Program and as implemented by the regulations of the Board will be applied by the Controller's Office in determining the eligibility for subvention for items of expenditure. In the absence of specific State policies, standard accounting practices will be applied in establishing allowable expenditures. Upon completion of the audit, a report will be prepared summarizing the audit findings and showing the amount of State subvention allowable. Copies of the report will be furnished to the Board and to the District. The District is allowed a period of 90 days* in which to protest any deductions resulting from the audit. The audit program is designed to serve the field auditor as an aid and guide in the performance of the audit and in the preparation of working papers and the audit report.

The program is not intended to serve as a substitute for the auditor's knowledge of the law and applicable rules and regulations. It is not required that the operations be performed in the order listed, nor is it required that the audit be limited to the operations listed. All listed operations must be performed, however, except those not applicable in the circumstances. The degree of test checking and sampling is determined by the auditor based on the conditions existing in the field.

The form of the audit report is illustrated by a pro forma sample audit report (Section 8308). The content of the report will be determined by the auditor's findings.

* ARB staff is amending to 30 days to be consistent with provisions of Health and Safety Code.

8307 Audit Program - Air Pollution Control Program 8307

Auditor _____ Agency _____

Assistant _____ Program Director _____

Date of Audit _____ Address _____

Audit Period _____

Completed Yes	Completed No	
		I. Preliminary
		A. Review law - (Sections 39280-39291* of the Health and Safety Code) and the regulations for administration of subvention program. The regulations have been codified in subchapter 3, Chapter 1, Part III, Title 17, of the Administrative Code of California.
		B. Review claim audit file and prepare schedule of State payments.
		C. Review approved applications and final report filed by the District.
		II. Verification of Eligibility of Jurisdiction
		A. Verify that the jurisdiction adheres to the minimum standards for accounting records as required by the rules and regulations of the Air Resources Board. (Subvention regulations 90360)
		III. Examination of Expenditures
		A. Examine A.P.C.D. fund accounts.
		1. Verify expenditures charged as being proper and as being properly charged. Verify that any costs incurred for functions benefiting agencies other than A.P.C.D. are properly allocated.
		2. Determine that subvention requirements have been met. (If subvention approval requires that specific items must be purchased or positions filled, verify that the requirement has been satisfied).
		3. Prepare detailed list of fixed asset acquisitions.

* Currently, Sections 39800 through 39811.

12/76

Completed Yes | No

4. Prepare detailed list of personnel expenditures showing actual expenditures, title and functions of each employee, and man-years expended in each function. In large Districts, employees may be grouped by classification and function, rather than individual listings.

5. Prepare summary of expenditures, relating expenditures to application categories.

IV. Examination of Revenues

A. Check County ledgers to determine sources and amounts of revenue. Detail revenues.

B. If any District employees are Federally funded (i.e. P.E.P., C.E.T.A., etc.) determine extent of participation and amounts federally reimbursed.

C. If transfers from other Departments are made, determine that costs being charged are not State or Federally reimbursed.

V. Verification of State Subvention Amount*

A. Determine the type of program operated by the District.

1. Coordinated Plan - Compute population base x $.23 - maximum subvention is lesser of actual local funds expended or population computation.

2. Individual Plan - compute population base by $.184 - maximum subvention is the lesser of .667 x local District funds or population computation. Where Federal funds are involved, if Federal funds exceed local funds, reduce the subvention by the amount the Federal funds exceed local funds, not to exceed 50% of the subvention based on local funds only.

3. Special Plan - compute basin population times $.23 and subtract from $45,000 - divide District population and multiply result by (45,000 - (.23 x basin population)) to find maximum State subvention. District must expend a minimum of $.23 per capita in local funds to qualify for subvention.

B. Determine State subvention did not exceed maximum subvention as computed above using actual expenditures.

* Refer to latest ARB Air Pollution Control District Subvention Guidance Package for allowable per capita and Special Plan limits.

8307 Audit Program - Air Pollution Control Program (Continued)

Completed Yes	Completed No	
		VI. Preparation of Reports
		A. Prepare Schedule 1 showing:
		1. Budgeted, reported and actual costs and any differences between reported and actual costs.
		2. Budgeted and actual costs by activity.
		3. State payments schedule.
		B. Prepare Schedule 2 detailing District revenue by source. If all revenue is provided by County General Fund and State subvention footnoting audited expenditures on Schedule 1 to show local contribution is sufficient.
		C. Prepare Schedule 3 detailing personnel expenditures. Show employee(s) title, man-years and amount by category.
		D. Prepare Schedule 4 showing detail of fixed asset acquisitions.
		E. Prepare audit report.
		VII. Exit Interview
		A. Review findings.
		B. List comments, suggestions, and complaints in relation to the program.

8308 Sample Audit Report 8308

Dear Sir:

We have examined the records of the _____ Air Pollution Control District pertinent to Application Number _____ of the Air Pollution Control Subvention Program under the provisions of Chapter 1016 of the Statutes of 1972 Sections 39280 to 39291* of the Health and Safety Code for the _____ fiscal year.

Our examination was made in accordance with generally accepted auditing standards and included such tests and verifications considered necessary in the circumstances. This included, but was not limited to, an examination of the application for subvention funds, revenue and expenditure ledgers, and related records.

The State Air Resources Board has prescribed a formula based upon expenditures and population for determining the maximum allowable State subvention. For the _____ fiscal year, the Air Resources Board awarded a maximum subvention of _____ to the District for the purposes of its _____ Subvention Program based upon budgeted District expenditures of _____.

The District reported expenditures of _____. Our examination disclosed ineligible charges in the amount of _____ reducing allowable District expenditures to _____. Of this amount, _____ was provided by a Federal grant and _____ from the Air Resources Board for air monitoring data. The balance of _____ qualifies the District for a maximum subvention of _____. The State paid _____ to the District; therefore, the District should refund _____ to the State.

In our opinion, payment of only _____ by the State to the _____ Air Pollution Control District for Subvention Application Number _____ was proper, and the District should refund _____ to the State.

* Currently, Sections 39800 through 39811.

State of California

Memorandum

To : Huey D. Johnson
Secretary
Resources Agency

Date : May 10, 1982

Subject: Filing of Notice of Decision of the Air Resources Board

From : **Air Resources Board**

Pursuant to Title 17, Section 60007 (b), and in compliance with Air Resources Board certification under section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decision and response to environmental comments raised during the comment period.

Harold Holmes
Board Secretary

RECEIVED BY
Office of the Secretary
MAY 10 1982
Resources Agency of California

attachments
Resolution 82-16
[redacted]

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider Amendments to Title 17, California Administrative Code, Regarding the Air Resources Board's Subvention Program and Local District Evaluation Criteria and Classifications for the 1982-83 Fiscal Year

Agenda Item No: 82-9-3

Public Hearing Date: April 21, 1982

Response Date: April 21, 1982

Issuing Authority: Air Resources Board

Comment: No comments were received identifying any significant environmental issues pertaining to this item. The staff report identified no adverse environmental effects.

Response: N/A

CERTIFIED: Harold F. Holmes

DATE: 5/06/82

RECEIVED BY
Office of the Secretary

MAY 10 1982

Resources Agency of California

STATE OF CALIFORNIA
AIR RESOURCES BOARD
1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812

EDMUND G. BROWN JR., Governor

Re: Public Hearing to Consider Amendments to Title 17, California Administrative Code, Regarding the Air Resources Board's Subvention Program and Local District Evaluation Criteria and Classifications for the 1982-83 Fiscal Year

I certify that the record in the above-referenced proceeding was closed April 21, 1982, and that the enclosed is a complete true and correct copy of the rulemaking file in that proceeding.

Harold Holmes, Board Secretary

Enclosures

RECEIVED BY
Office of the Secretary
MAY 10 1982
Resources Agency of California

State of California
AIR RESOURCES BOARD

Executive Order G-146

WHEREAS, on April 21, 1982, the Air Resources Board (the "Board") conducted a public hearing to consider amendments to the Board's regulations relating to subvention of funds pursuant to the Air Pollution Control Subvention Program contained in Sections 90100 through 90500 of Title 17, California Administrative Code, including district classifications and evaluation criteria for the 1982-83 fiscal year;

WHEREAS, at the close of the hearing the Board adopted Resolution 82-18, appended hereto as Attachment 1, by which it endorsed the following documents and directed the Executive Officer to adopt them after making them available to the public for a period of 15 days and considering such public comment as might be received in the 15-day period:

The amendments to its regulations in Sections 90100 through 90500, Title 17, California Administrative Code, as set forth in Attachment A thereto;

The "District Subvention Categories", as set forth in Attachment B thereto;

The "Evaluation Criteria for Air Pollution Control Districts Participating in the Subvention Program", for fiscal year 1982-83, as set forth in Attachment C thereto; and

WHEREAS, subsequent to the April 21, 1982 hearing, Attachments A, B, and C have been made available to the public for a period of 15 days, and public comments received were considered.

NOW, THEREFORE, IT IS HEREBY ORDERED that the recitals and findings contained in Resolution 82-18 are incorporated herein.

IT IS FURTHER ORDERED that the regulations in Sections 90050 through 90500, Title 17, California Administrative Code, are amended, as set forth in Attachment A to Resolution 82-18.

IT IS FURTHER ORDERED that the "District Subvention Categories" are adopted, as set forth in Attachment B to Resolution 82-18.

IT IS FURTHER ORDERED that the "Evaluation Criteria for Air Pollution Control Districts Participating in the Subvention Program" are adopted for fiscal year 1982-83, as set forth in Attachment C to Resolution 82-18.

Executed at Sacramento, California, this 26th day of July, 1982.

James D. Boyd
Executive Officer

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider Amendments to Title 17, California Administrative Code, Regarding the Air Resources Board's Subvention Program and Local District Evaluation Criteria and Classifications for the 1982-83 Fiscal Year

Agenda Item No.: 82-9-3

Public Hearing Date: April 21, 1982

Response Date: April 21, 1982

Issuing Authority: Executive Officer, Air Resources Board

Comment: No comments were received identifying any significant environmental issues pertaining to this item. The staff report identified no adverse environmental effects.

Response: N/A

CERTIFIED: _____
Executive Officer

Date: July 26, 1982

Office of the Secretary
JUL 30 1982
Resources Agency of California

STATE OF CALIFORNIA

AIR RESOURCES BOARD
1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812

EDMUND G. BROWN JR., Governor

Re: Public Hearing to Consider Amendments to Title 17, California Administrative Code, Regarding the Air Resources Board's Subvention Program and Local District Evaluation Criteria and Classifications for the 1982-83 Fiscal Year

I certify that the record in the above-referenced proceeding was closed May 21, 1982, and that the enclosed is a complete true and correct copy of the rulemaking file in that proceeding.

Harold Holmes, Board Secretary

Enclosures

Office of the Secretary
JUL 30 1982
Resources Agency of California

ITEM NO.: 82-18-7b1
DATE: September 22, 1982

ITEM: Research Proposal No. 1157-93 entitled "Control of Atmospheric Aerosol Nitrate and Nitric Acid Concentrations".

RECOMMENDATION: Adopt Resolution 82-48 approving Research Proposal No. 1157-93 for funding in an amount not to exceed $375,620.

SUMMARY: It has been estimated that up to 40% of the visibility reduction in the eastern part of the South Coast Air Basin may be caused by aerosol nitrate, most of which is ammonium nitrate. Development of a control strategy to reduce fine particles and to improve visibility must, therefore, address the question of aerosol nitrates, and the relationship of pollutant emission to nitrate levels.

The precursors for ammonium nitrate formation are gaseous ammonia and nitric acid. Nitric acid is itself a secondary pollutant and is formed by a number of chemical reactions involving both oxides of nitrogen and reactive hydrocarbons, which are also responsible for ozone formation. Thus the implications of any control strategy for nitric acid control must be considered with respect to ozone formation.

Ammonia, the other precursor for aerosol nitrate formation arises from a number of anthropogenic as well as biogenic sources and to date a well-validated inventory has not been prepared. The reaction of ammonia and nitric acid to form nitrate aerosol is also affected by temperature and relative humidity. The project, to develop a control strategy for aerosol nitrate, will consist of the following tasks:

1. Modification of the Caltech photochemical airshed model to include nitrate aerosol formation;

2. Field sampling of ambient concentrations of NH_3, NO_2 and NO_3 to aquire a data base for model validation;

3. Preparation of emission inventories for NH_3, NOx and RHC for time periods corresponding to the ambient sampling;

4. Model Evaluation and Validation; and

5. Development of a strategy to reduce aerosol nitrate formation.

State of California
AIR RESOURCES BOARD

Resolution 82-19

March 31, 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 1099-89 entitled "Rest and Work During Carbon Monoxide Exposure at Altitude", has been submitted by University of California at Santa Barbara to the Air Resources Board; 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 1099-89 entitled "Rest and Work During Carbon Monoxide Exposure at Altitude", submitted by the University of California at Santa Barbara, for a total amount not to exceed $144,147 (year 1) and $142,450 (year 2), a total amount not to exceed $286,597;

WHEREAS, the Governor's Executive Order B97-82 has prevented the Executive Officer from awarding a number of research contracts already approved for funding by the Board during FY 81-82;

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 1099-89 entitled "Rest and Work During Carbon Monoxide Exposure at Altitude", submitted by the University of California at Santa Barbara, for a total amount not to exceed $144,147 (year 1) and $142,450 (year 2), a total amount not to exceed $286,597;

BE IT FURTHER RESOLVED, that should the prohibition on awarding new contracts contained in the Governor's Executive Order B97-82 be partially removed so that some portion, but less than the full amount, of the remaining 1981-82 extramural research funds is made available for expenditure by the Board, the staff is directed to present to the Board the recommendations of the Research Screening Committee regarding which of the projects already approved are to be supported with those funds; and

BE IT FURTHER RESOLVED, that, should the prohibition in awarding new contracts contained in Executive Order B97-82 be removed in its entirety, the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $144,147 (year 1) and $142,450 (year 2), a total amount not to exceed $286,597.

I certify that the above is a true and correct copy of Resolution 82-19 as passed by the Air Resources Board

Harold Holmes
Board Secretary

State of California
AIR RESOURCES BOARD

ITEM NO: 82-8-3b1
DATE: March 31, 1982

ITEM: Research Proposal No. 1099-89(R) entitled "Rest and Work During Carbon Monoxide Exposure at Altitude."

RECOMMENDATION: Adopt Resolution 82-19 approving Research Proposal No. 1099-89(R) for funding in an amount not to exceed $144,147 (year 1) and $142,450 (year 2), a total amount not to exceed $286,597.

SUMMARY: Carbon monoxide (CO) is a pollutant known to have subtle as well as clinically observable effects on the nervous system, heart, blood, and possibly other organs. Present ambient air quality standards for CO set by the federal government are 9 ppm, averaged over eight hours, and 35 ppm for one hour. The State of California has a somewhat more complex standard because the Lake Tahoe Basin is protected separately from the state as a whole. The State's 12-hour standard is 10 ppm, and the 1-hour standard is 40 ppm. The 8-hour Lake Tahoe Basin standard is more stringent at 6 ppm.

This high-altitude standard is based on the concept that the carbon monoxide exposure at altitude should be kept below the value acceptable for sea level. Some question has been raised about the detailed validation of the basis for the Lake Tahoe CO standard. It is thus timely to resolve the question of whether residents or visitors to high altitude locations, such as Lake Tahoe, are at increased risk to CO. To do this, human exposure studies under appropriate conditions are required. Such studies could accomplish two objectives. The first is to validate or invalidate the present calculation-based adjustments for altitude. The second is to provide real, observational data as a basis for a more traditional effects-based standard.

The proposed study is comprised of two basic exposure regimes. Both are designed to provide information on how CO and altitude may interact to reduce work ability and cardiac function, the effects thought to be attributable to CO exposure. Data on CO absorption and elimination under various pollutant-workload regimes will be generated. Such information would be used to validate (or invalidate) theoretical calculations of altitude-CO interactions which serve as the basis for current standards. The two regimes to be employed are: 1) 8-hour, 9 ppm exposures, and 2) 1-hour exposures at 25 and 35 ppm. These regimes were selected to provide information pertinent to current ambient air quality standards. Several parameters will be common to both regimes. They will use ten male subjects in the age range 18-30 years in each group. Altitude exposures will be carried out at a simulated 7000 ft. in a very large hyperbaric chamber. Sea level CO exposures will be done in the same chamber under sham altitude conditions that will not allow subjects to discriminate between the two altitude parameters. In both regimes there will be two types of protocols: subjects at rest and subjects exercising. Cardiac output, blood carboxyhemoglobin, expired oxygen, CO2 and minute ventilation will be monitored in all subjects. Following exposure, subjects will exercise on a bicycle ergometer to determine maximal work output levels. They will then be allowed to rest for two to four hours, during which time blood samples will be taken to measure CO elimination rates.

Eight-hour protocols:

Two CO levels (CO-free and 9 ppm) would be employed in two different protocols designed to provide information on the intermediate time effects of multi(several) hour exposures to CO both at sea level and at altitude. The first protocol would involve exposure to the CO-free or 9 ppm level while subjects are at rest. The second would employ intermittent, moderate exercise in CO-free air or 9 ppm CO. The purpose of these exposures will be to determine whether exercise accelerates carboxy-hemoglobin formation and whether cardiac output is adversely affected by the altitude and/or CO exposure. A total of 80 8-hour subject exposures will be carried out for these studies.

One-hour protocol:

Three CO levels (0, 25 and 35 ppm) would be employed in two different protocols designed to provide information

pertinent to short-term exposure at altitude. The first protocol would involve a one-hour exposure while at rest to the three pollutant levels at altitude and at sea level. During the last ten minutes of exposure, subjects would be tested for maximum work output. The second study would employ continuous moderate work for 50 minutes, followed by a ten-minute maximal work test. The course of CO elimination would be followed, as in the 8-hour study. Approximately 120 one-hour subject exposures would be carried out in this group of studies.

Statistical analysis of data would consist of repeated measures analysis of variance. When significant effects and/or interactions are observed simple main effects analysis would be performed. Multiple regression analysis would be carried out to determine relative contributions of altitude and CO in causing any observed effects.

State of California
AIR RESOURCES BOARD

Resolution 82-20

March 31, 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 1107-90 entitled "Economic Assessment of the Effects of Air Pollution on Agricultural Crops in the San Joaquin Valley", has been submitted by Energy Resource Consultants, Inc. to the Air Resources Board; 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 1107-90 entitled "Economic Assessment of the Effects of Air Pollution on Agricultural Crops in the San Joaquin Valley", submitted by Energy Resource Consultants, Inc., for a total amount not to exceed $125,000;

WHEREAS, the Governor's Executive Order B97-82 has prevented the Executive Officer from awarding a number of research contracts already approved for funding by the Board during FY 81-82;

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 1107-90 entitled "Economic Assessment of the Effects of Air Pollution on Agricultural Crops in the San Joaquin Valley", submitted by Energy Resource Consultants, Inc., for a total amount not to exceed $125,000;

BE IT FURTHER RESOLVED, that should the prohibition on awarding new contracts contained in the Governor's Executive Order B97-82 be partially removed so that some portion, but less than the full amount, of the remaining 1981-82 extramural research funds is made available for expenditure by the Board, the staff is directed to present to the Board the recommendations of the Research Screening Committee regarding which of the projects already approved are to be supported with those funds; and

BE IT FURTHER RESOLVED, that, should the prohibition in awarding new contracts contained in Executive Order B97-82 be removed in its entirety, the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $125,000.

I certify that the above is a true
and correct copy of Resolution 82-20
as passed by the Air Resources Board

Harold Holmes
Board Secretary

STATE OF CALIFORNIA
AIR RESOURCES BOARD

ITEM NO: 82-8-3b2
DATE: March 31, 1982

ITEM: Research Proposal No: 1107-90 entitled "Economic Assessment of the Effects of Air Pollution on Agricultural Crops in the San Joaquin Valley"

RECOMMENDATION: Adopt Resolution 82-20 approving Research Proposal No. 1107-90 for funding in an amount not to exceed $125,000.

SUMMARY: This research project is needed to extend and augment the results of controlled experimental studies of air pollution on plants to estimate directly the economic damage to crops growing in the field. The objective of this research project is to assess the total economic damage to nine major crops in the San Joaquin Valley attributable to ozone and SO_2 occurring over the years 1970 to 1980 and to quantify the economic benefits of reducing ozone and SO_2. The San Joaquin Valley is to be the focus of the project because it is the leading area in California in terms of agricultural production and many crops grown there are susceptible to ozone and SO_2 damage.

In Task 1, the contractor will establish a model for each crop which relates ambient ozone and SO_2 levels and other environmental factors to crop yield using air quality data, seasonal crop yield data and environmental data for the ten year period 1970 to 1980. In Task 2, the contractor will estimate the crop yield loss and economic welfare loss due to SO_2 and ozone. The contractor will esimate the change in welfare loss (i.e., the benefit) that would occur if: 1) the ambient ozone levels (alone) were reduced by 10 percent; 2) the ambient SO_2 levels (alone) were reduced by 10 percent; and 3) both the SO_2 and ozone levels were reduced by 10 percent.

The RFP was approved by the Research Screening Committee with the provision that, owing to the complexity of the project, the participation of specialists in diverse fields (such as plant physiology, economics, aerometric measurements, etc.) be encouraged. Eight proposals were received. The proposal submitted by Energy and Resource Consultants, Inc. (ERC) was concluded to be the best response by the staff and the Research Screening Committee. The Committee recommended that Dr. John Trijonis of Santa Fe Research collaborate in the project by providing assistance and peer review in air quality data analysis. The Committee recommended funding ERC for a total amount not to exceed $125,000, of which not more than $14,000 is to be used to retain a subcontractor (Dr. Trijonis) who will carry out the review and analysis of air quality data in the San Joaquin Valley.

State of California
AIR RESOURCES BOARD

Resolution 82-22

March 31, 1982

Agenda Item No.: 82-8-1

WHEREAS, the Air Resources Board (Board) and/or the federal Environmental Protection Agency have adopted ambient air quality standards for ozone (oxidant), nitrogen dioxide, particulate matter, and visibility, and these standards are consistently exceeded in several of the state's air basins, including notably the South Coast Air Basin;

WHEREAS, Health and Safety Code Sections 39003, 39500, 39602, and 41500 authorize the Board to coordinate, encourage, and review efforts to attain and maintain state and national ambient air quality standards;

WHEREAS, Health and Safety Code Sections 39600 and 39605 authorize the Board to act as may be necessary to execute the powers and duties granted to and imposed upon the Board and to assist local air pollution control districts;

WHEREAS, a suggested control measure for the control of emissions of oxides of nitrogen from boilers and process heaters in refineries was developed by the staffs of the Air Resources Board and the South Coast Air Quality Management District;

WHEREAS, the California Environmental Quality Act and Board regulations require that action not be taken as proposed if mitigation measures or alternatives exist which would substantially reduce any significant adverse environmental effects of the proposed action, and further require the Board to respond in writing to significant environmental issues raised;

WHEREAS, on November 18, 1981 and March 31, 1982, the Board held duly noticed public meetings to hear and consider the evidence and comments presented by the staff, affected industries, and other interested persons and agencies;

WHEREAS, the Board received testimony and evidence that the estimated cost of compliance at individual facilities varies widely from about $1.50 per pound to over $8.00 per pound considering various control methods, site specific costs, and substantial contingency factors; and that technologies exist which can achieve reductions at costs as low as $0.50 per pound for individual units; and

WHEREAS, the Board finds that:

Emissions of oxides of nitrogen (NOx) from boilers (including CO boilers) and process heaters in refineries contribute to the formation of ozone and contribute significantly to ambient concentrations of nitrogen dioxide (NO_2), total suspended particulate matter (TSP), and visibility reducing particles;

NOx emissions also contribute to the formation of acid deposition including acid rain, an issue of increasing concern in the South Coast Air Basin;

NOx emissions also contribute to the formation of peroxyacetyl nitrate, PAN, an air pollutant which is a potent eye-irritant to people and causes damage to vegetation, including leaf damage to certain crops;

The air quality management plan for the South Coast Air Basin has identified the control of NOx emissions from refinery boilers (including CO boilers) and process heaters as a measure which can help achieve the federal nitrogen dioxide standard, and other areas which may find it appropriate to adopt this suggested control measure to achieve and maintain federal and state ambient air quality standards include Ventura County, the San Francisco Bay Area, and Kern County;

With currently available and near future technology, it should be feasible and economically reasonable to reduce the refinery-wide average NOx emissions from boilers (including CO boilers) and process heaters in refineries to 0.10 pound per million British thermal units (Btu) of rated heat input when operated on gaseous fuel, and 0.22 pound per million Btu of rated heat input when operated on liquid fuel;

If refinery operators devise their compliance plans to achieve the most efficient and least costly NOx reductions, the proposed measure will be cost-effective and the costs of compliance are expected to be at the low end of the range of estimates presented in testimony, especially with the flexibility provided to each refinery operator to choose the units to be controlled and to select control technology from a number of available methods;

Implementation of the suggested control measure would reduce NOx emissions from these units by approximately 50 percent in the South Coast Air Basin alone; and

The October 1981 and March 1982 staff reports and the information presented at the November 18, 1981 and March 31, 1982 public meetings adequately address the environmental issues associated with this suggested control measure, and the Board concurs in the staff's finding that no significant adverse environmental effects are likely to result from the adoption and implementation of the suggested control measure.

NOW, THEREFORE, BE IT RESOLVED that the Board approves the suggested control measure for the control of emissions of oxides of nitrogen from boilers and process heaters in refineries, as set forth in Attachment A to this resolution.

BE IT FURTHER RESOLVED that the Executive Officer is directed to forward the suggested control measure to air pollution control and air quality management districts with the recommendation that they consider adopting the measure or a similar measure to the extent that such districts need further reductions in emissions of oxides of nitrogen to attain or maintain ambient air quality standards.

BE IT FURTHER RESOLVED that the Executive Officer is directed to provide assistance to any district requesting assistance in adopting, interpreting, or implementing the suggested control measure.

I certify that the above is
a true and correct copy of
Resolution 82-22, as adopted
by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

ATTACHMENT A

SUGGESTED CONTROL MEASURE FOR THE CONTROL OF EMISSIONS OF OXIDES OF NITROGEN FROM BOILERS AND PROCESS HEATERS IN REFINERIES

(a) Definitions

For the purpose of this rule, the following definitions shall apply:

(1) BOILER means any combustion equipment fired with liquid and/or gaseous fuel and used to produce steam, including a carbon monoxide boiler.

(2) PROCESS HEATER means any combustion equipment fired with liquid and/or gaseous fuel and which transfers heat from combustion gases to process fluids.

(3) REFINERY-WIDE RATE OF NITROGEN OXIDES EMISSIONS means the ratio of the total mass rate of discharge into the atmosphere of nitrogen oxides from units (subject to the rule) when firing at maximum rated capacity to the sum of the maximum rated capacities for those units.

(4) UNIT means any petroleum refinery boiler or process heater, as defined in subsections (1) and (2) of this section, with an authority to construct or a permit to operate as of (date of adoption of this rule).

(5) NITROGEN OXIDES means the sum of nitric oxide and nitrogen dioxide in the flue gas, collectively expressed as nitrogen dioxide and averaged over a period of three consecutive hours.

(6) COMBUSTION MODIFICATION means any modification of the burner, combustion air flow, or fuel flow system that reduces nitrogen oxides emissions.

(7) MAXIMUM RATED CAPACITY means maximum design heat input at the higher heating value of the fuel unless the boiler/process heater is limited by permit condition to a lesser heat input, in which case the limiting condition shall be used as the maximum rated capacity.

(8) EMISSIONS RATE means the ratio of the mass rate of discharge into the atmosphere of nitrogen oxides from a unit to the heat input for that unit.

(9) HEAT INPUT means the chemical heat released due to fuel combustion in a unit, using the higher heating value of the fuel. This does not include the sensible heat of incoming combustion air, except in the case of carbon monoxide boilers where the heat input includes the sensible heat of incoming gases and the chemical energy of the incoming carbon monoxide.

(b) Requirements

(1) The owner or operator of any petroleum refinery shall reduce emissions of nitrogen oxides from units subject to this rule so that if all such units were operated at their maximum rated capacity the refinery-wide rate of nitrogen oxides emissions from these units would not exceed:

(A) 0.10 pound of nitrogen oxides per million Btu of heat input when operated on gaseous fuel, or

(B) 0.22 pound of nitrogen oxides per million Btu of heat input when operated on liquid fuel, or

(C) The weighted average of the limits of subsections (b)(1)(A) and (b)(1)(B), when operated on both liquid and gaseous fuel.

(2) The owner or operator shall operate each unit subject to this rule such that the assigned maximum nitrogen oxides emissions rate for each unit (pound per million Btu heat input, expressed as nitrogen dioxide) is in accordance with the list approved by the Executive Officer/Air Pollution Control Officer pursuant to subsection (b)(6)(B).

(3) The owner or operator of any petroleum refinery which has units subject to this rule shall submit to the Executive Officer/Air Pollution Control Officer a control plan for installation of nitrogen oxides emissions control equipment to meet the requirements of subsection (b)(1). Such plan shall contain as a minimum:

(A) A list of all units with the maximum rated capacity for each unit,

(B) A list of units to be controlled and the type of control to be applied for all such units, including a construction schedule, and

(C) The method of calculation of the mass rate of nitrogen oxides emissions for each unit to achieve the refinery-wide emissions rates specified in subsection (b)(1).

(4) All units which are identified in the control plan of subsection (b)(3) shall be tested for nitrogen oxides emissions while firing gaseous fuel at the maximum rated capacity (or as nearly as practicable) and, where so equipped, while firing liquid fuel. Such tests shall be performed:

(A) Within 180 days after completion of modifications, but no later than _____, for units which are to be modified with nitrogen oxides control equipment, and

(B) By _____, for units which do not require modification. Tests conducted after January 1, 1980, upon approval by the Executive Officer/Air Pollution Control Officer, can be used to satisfy the requirements of this subsection.

(5) Total nitrogen oxides emissions (pounds per hour) and total heat input rates (million Btu per hour) during the tests required by subsection (b)(4), while firing gaseous fuel and while firing liquid fuel, shall be used for determination of initial compliance with the refinery-wide rate of emissions limits of subsection (b)(1).

(6) After verification of initial compliance with the limits of subsection (b)(1):

(A) The owner or operator shall assign to each unit subject to this rule the maximum nitrogen oxides emissions rates (pound per million Btu heat input, expressed as nitrogen dioxide), while firing gaseous fuel and/or liquid fuel, which are allowable for that unit under the requirements of subsection (b)(1).

(B) The owner or operator shall submit to the Executive Officer/ Air Pollution Control Officer for approval a list of the maximum allowable nitrogen oxides emissions rates identified

in subsection (b)(6)(A) above and a copy of the approved list shall be maintained for verification of continued compliance with the requirements of subsection (b)(2).

(C) Compliance with this rule shall be determined by source testing one or more units. No unit subject to this rule shall be operated at an emissions rate (pound per million Btu heat input, expressed as nitrogen dioxide) higher than that approved by the Executive Officer/Air Pollution Control Officer pursuant to subsection (b)(6)(B).

(c) Revision of Control Plan

A revised control plan may be submitted by the owner or operator. Such a plan must also meet the emissions limits and compliance dates of the rule.

(d) Exemptions

The requirements of Section (b) shall not apply to:

(1) Boilers or process heaters with maximum rated capacities equal to or less than 40 million Btu per hour heat input; but, at the applicant's option and upon approval by the Executive Officer/Air Pollution Control Officer, such units may be controlled in lieu of nonexempt units. In such cases, the refinery-wide rate of nitrogen oxides emissions shall be calculated from the total nitrogen oxides emissions from nonexempt units, less nitrogen oxides emissions reductions for controlled units with maximum rated capacities less than or equal to 40 million Btu per hour, and the total heat input rate for nonexempt units only.

(2) Sulfur plant reaction boilers.

(3) Gas turbines.

(4) Upon approval by the Executive Officer/Air Pollution Control Officer, units which are operated with a total heat input in a 12 month period of less than 10 percent of the maximum rated capacity for that period.

(e) Compliance Schedule

The owner or operator of a petroleum refinery having units subject to this rule shall fulfill the following increments of progress:

(1) By _____, submit a control plan pursuant to subsection (b)(3) of the rule.

(2) Within _____ years after approval of the control plan by the Executive Officer/Air Pollution Control Officer, install all combustion modification type control equipment, if any, as specified in the control plan.

(3) Within five years from the date of adoption of this rule, demonstrate final compliance with the rule.

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Meeting to Consider a Suggested Control Measure for the Control of Emissions of Oxides of Nitrogen from Boilers and Process Heaters in Refineries

Agenda Item No.: 82-8-1

Public Meeting Dates: November 18, 1981 and March 31, 1982

Response Date: March 31, 1982

Issuing Authority: Air Resources Board

Comment: No comments were received identifying any significant environmental issues pertaining to this item. The staff report identified no adverse environmental effects.

Response: N/A

CERTIFIED: Marvel Holmes
Board Secretary

Date: 04/16/82

State of California
AIR RESOURCES BOARD

Resolution 82-23

April 22, 1982

Agenda Item No.: 82-10-1

WHEREAS, the California Legislature has declared its intention to encourage the development of cogeneration projects to reduce the waste of energy resources in California, in part by providing relief from emissions offset requirements to cogeneration projects to the extent they reduce demand on existing utility combustion generating facilities in the same air basin;

WHEREAS, the Air Resources Board (the "Board") and local air pollution control districts together are required by Assembly Bill 1862 (Stats. 1981, Ch. 952) to develop by May 1, 1982 a procedure to calculate the incremental emissions benefit derived from the electrical generating portion of a cogeneration project in comparison to the displaced emissions of hydrocarbon combustion utility generating facilities, and also to assure that state and federal ambient air quality standards are achieved and maintained or reasonable further progress achieved toward meeting those standards;

WHEREAS, the Board recognizes the need and desirability of implementing a uniform statewide procedure for calculating displaced electrical generation emissions for the siting of cogeneration projects, pursuant to AB 1862;

WHEREAS, a committee of local district staff representatives and the Board staff developed a recommended procedure following discussions with utilities, cogeneration project proponents, and other interested persons and a public workshop on February 11, 1982;

WHEREAS, the staff prepared a report describing the procedure drafted by the committee, which has been made available for public review and comment; and

WHEREAS, on April 22, 1982, the Board conducted a public meeting to discuss the procedure and consider testimony from industry representatives, interested agencies, and the public.

NOW, THEREFORE, BE IT RESOLVED that the Board concurs with the procedure drafted by the committee and attached hereto as Appendix A and recommends that districts use this procedure as the basis for determining the utility electrical generation emissions offset credit available for siting cogeneration projects.

I hereby certify that this is
a true and correct copy of
Resolution 82-23, as adopted
by the Air Resources Board.

Harold Holmes, Board Secretary

Joint CAPCOA/ARB Recommended Calculation Procedure
for Cogeneration Siting Under AB 1862

A. DEFINITIONS

ACCOUNTING MECHANISM - a procedure required under AB 1862 to periodically track utility and cogeneration emissions, and utility offset credits.

AVERAGE EMISSIONS RATES - the annual averages for the most recent 3 years of complete data. Emission rates for utilities are only calculated for oxides of nitrogen, sulfur oxides, and particulate matter.

AVERAGING PERIOD - most recent 3 years for which complete utility operation data is available.

BACT/LAER - Best Available Control Technology and Lowest Achievable Emissions Rate as defined by the rules of the district.

DISTANCE FACTOR - a fraction equal to or less than 1 which considers the distance between the cogenerator and utility power plants.

IN-BASIN POWER PLANTS - oil and gas fired steam turbines or combined cycle electrical generation units operated by the utility in the same air basin as the cogeneration project. If no purchases occur, in-basin power plants are those of the utility serving the location of the cogenerator.

OWNER/OPERATOR OFFSETS - offsets provided by the project proponent to the extent they are available from facilities the proponent owns or operates in the district and would mitigate the project's impacts.

IN-STATE POWER PLANTS - oil and gas fired steam turbines or combined cycle electrical generation units operated by the purchasing utility in the State of California. If no purchases occur, in-state power plants are those of the utility serving the location of the cogenerator which are in the State of California.

B. STEPS IN CALCULATION PROCEDURE
Figure 1 summarizes these steps.

1. Calculate the UNCONTROLLED PROJECT EMISSIONS.

2. Determine if BACT/LAER is required based on UNCONTROLLED PROJECT EMISSIONS and district rules.

3. Determine, after application of BACT/LAER, the PROJECT OFFSET REQUIREMENTS. This is based on district rules.

4. Determine PROJECT PARAMETERS (see Figures 2 and 3)

   Fp = PRIMARY FUEL (Btu/day)
   Fs = SECONDARY FUEL (Btu/day)
   Pp = PRIMARY POLLUTION (lb/day)
   Ps = SECONDARY POLLUTION (lb/day)
   Pp + Ps = PROJECT OFFSET REQUIREMENTS (lb/day)
   E = USEFUL ELECTRICAL OUTPUT (MWH/day)
   Δ = HEAT ENERGY OF EXHAUST (Btu/day)
   T = USEFUL THERMAL OUTPUT (Btu/day)

5. Divide the PROJECT OFFSET REQUIREMENTS into COGENERATION and NON-COGENERATION EMISSIONS PORTIONS

   o COGENERATION EMISSIONS PORTION = Pp (TOPPING CYCLE)

   $$= \left(\frac{\Delta}{Fp}\right) Pp \text{ (BOTTOMING CYCLE)}$$

   o NON-COGENERATION EMISSIONS PORTION = Ps (TOPPING CYCLE)

   $$= \left(\frac{Fp - \Delta}{Fp}\right) Pp + Ps \text{ (BOTTOMING CYCLE)}$$

6. Regardless of the size of the project, the NON-COGENERATION EMISSIONS PORTION must be offset by the project proponent according to the rules of the local district.

7. Calculate the AVERAGE EMISSIONS RATES (lb/MWH) of NOx, SOx Particulate Matter, HC* and CO* for all IN-BASIN POWER PLANTS:

   $$\frac{\text{lb of pollutant emitted by all IN-BASIN POWER PLANTS during averaging period}}{\text{MWH generated by all IN-BASIN POWER PLANTS during averaging period}}$$

8. Calculate the BASIN/SYSTEM FRACTION:

   $$\frac{\text{MWH generated by all IN-BASIN POWER PLANTS during averaging period}}{\text{MWH generated by all IN-STATE POWER PLANTS during averaging period}}$$

* AVERAGE EMISSION RATES (lb/MWH) of carbon monoxide and hydrocarbons for all IN-BASIN POWER PLANTS may be calculated if information satisfactory to the district and the ARB is available from the utility, district, or project proponent.

9. Calculate the IN-BASIN DISPLACED UTILITY EMISSIONS*:

   USEFUL ELECTRICAL OUTPUT, E (MWH/day) x

   BASIN/SYSTEM FRACTION x

   AVERAGE EMISSIONS RATE FOR IN-BASIN POWER PLANTS (lb/MWH) =

   IN-BASIN DISPLACED UTILITY EMISSIONS (lb/day)

10. Multiply IN-BASIN DISPLACED UTILITY EMISSIONS (lb/day) by the DISTANCE FACTOR.

11. Credit the lower of the product calculated in 10 or the COGENERATION EMISSIONS PORTION. This credit is called the UTILITY OFFSET CREDITS.

12. Submit amount of UTILITY OFFSET CREDITS to ACCOUNTING MECHANISM.

13. Calculate REMAINING COGENERATION EMISSIONS =

    COGENERATION EMISSIONS PORTION - UTILITY OFFSET CREDITS

    Note that the REMAINING COGENERATION EMISSIONS will be either zero or a positive quantity.

14. For projects of 50 megawatts or larger the REMAINING COGENERATION EMISSIONS become the responsibility of the project proponent to offset.

15. For projects of less than 50 megawatts REMAINING COGENERATION EMISSIONS are offset in the following order:

    a. available offsets from facilities owned or operated by the project proponent in the same district as the cogeneration project are first procured.

    b. if additional offsets are required after owner/operator offsets are provided, the local district assumes the responsibility for providing these.

16. The offset responsibilities outlined in Steps 14 and 15 are in addition to the responsibility outlined in Step 6.

* If the purchasing utility will demonstrate and certify to the satisfaction of the district and the ARB that displacement would occur in a different manner, then a different method may be used.

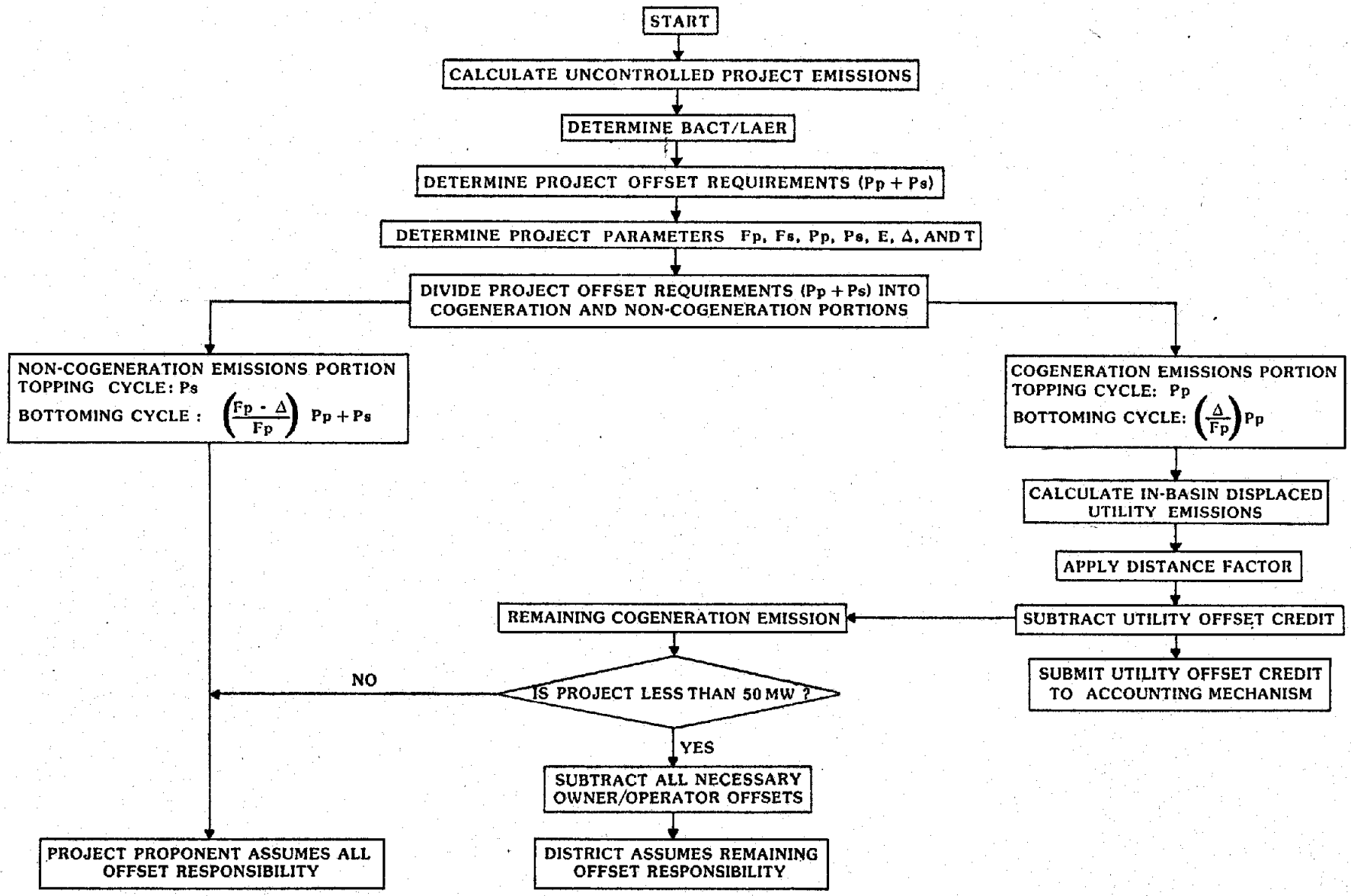
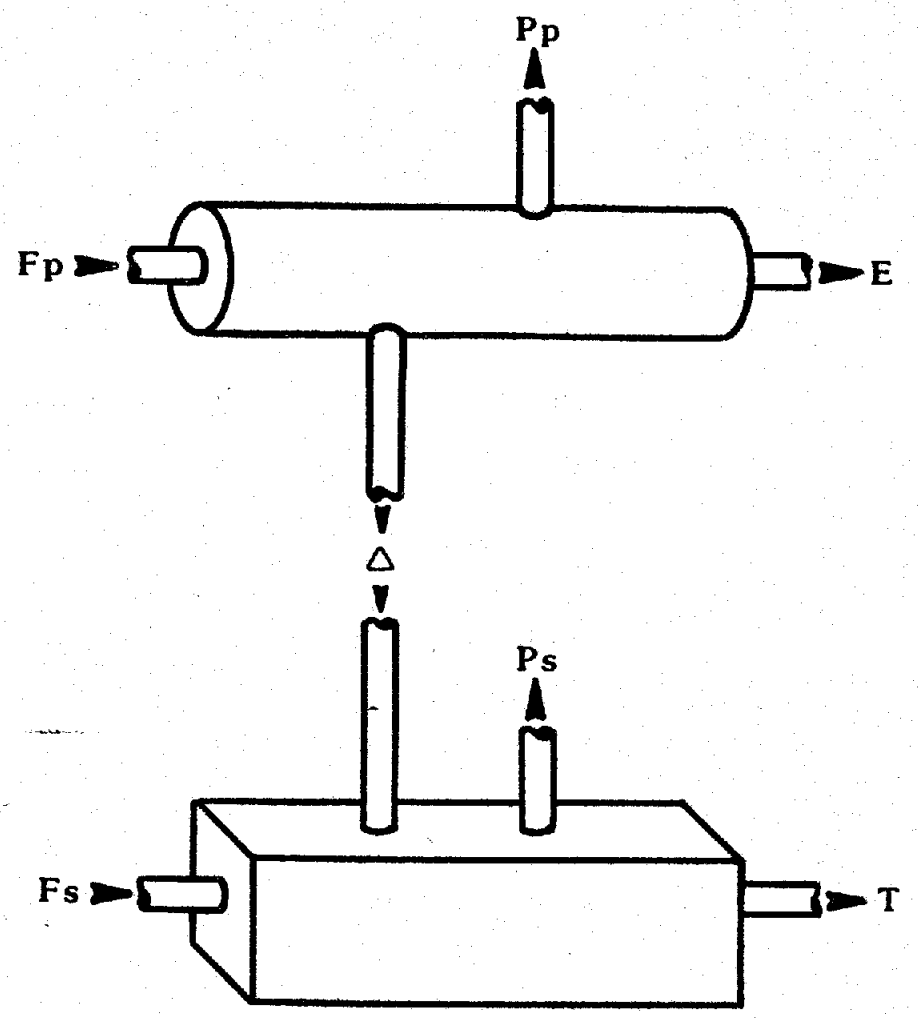

START
CALCULATE UNCONTROLLED PROJECT EMISSIONS
DETERMINE BACT/LAER
DETERMINE PROJECT OFFSET REQUIREMENTS (Pp + Ps)
DETERMINE PROJECT PARAMETERS Fp, Fs, Pp, Ps, E, Δ, AND T
DIVIDE PROJECT OFFSET REQUIREMENTS (Pp + Ps) INTO COGENERATION AND NON-COGENERATION PORTIONS
NON-COGENERATION EMISSIONS PORTION
TOPPING CYCLE: Ps
BOTTOMING CYCLE : ((Fp - Δ)/Fp) Pp + Ps
COGENERATION EMISSIONS PORTION
TOPPING CYCLE: Pp
BOTTOMING CYCLE: (Δ/Fp) Pp
CALCULATE IN-BASIN DISPLACED UTILITY EMISSIONS
APPLY DISTANCE FACTOR
SUBTRACT UTILITY OFFSET CREDIT
SUBMIT UTILITY OFFSET CREDIT TO ACCOUNTING MECHANISM
REMAINING COGENERATION EMISSION
IS PROJECT LESS THAN 50 MW ?
NO
YES
SUBTRACT ALL NECESSARY OWNER/OPERATOR OFFSETS
PROJECT PROPONENT ASSUMES ALL OFFSET RESPONSIBILITY
DISTRICT ASSUMES REMAINING OFFSET RESPONSIBILITY

Figure 1

Figure 2

TOPPING CYCLE COGENERATION SCHEMATICS



Fp ≡ PRIMARY FUEL

Pp ≡ PRIMARY POLLUTION

E ≡ USEFUL ELECTRICAL OUTPUT

Δ ≡ HEAT ENERGY OF EXHAUST

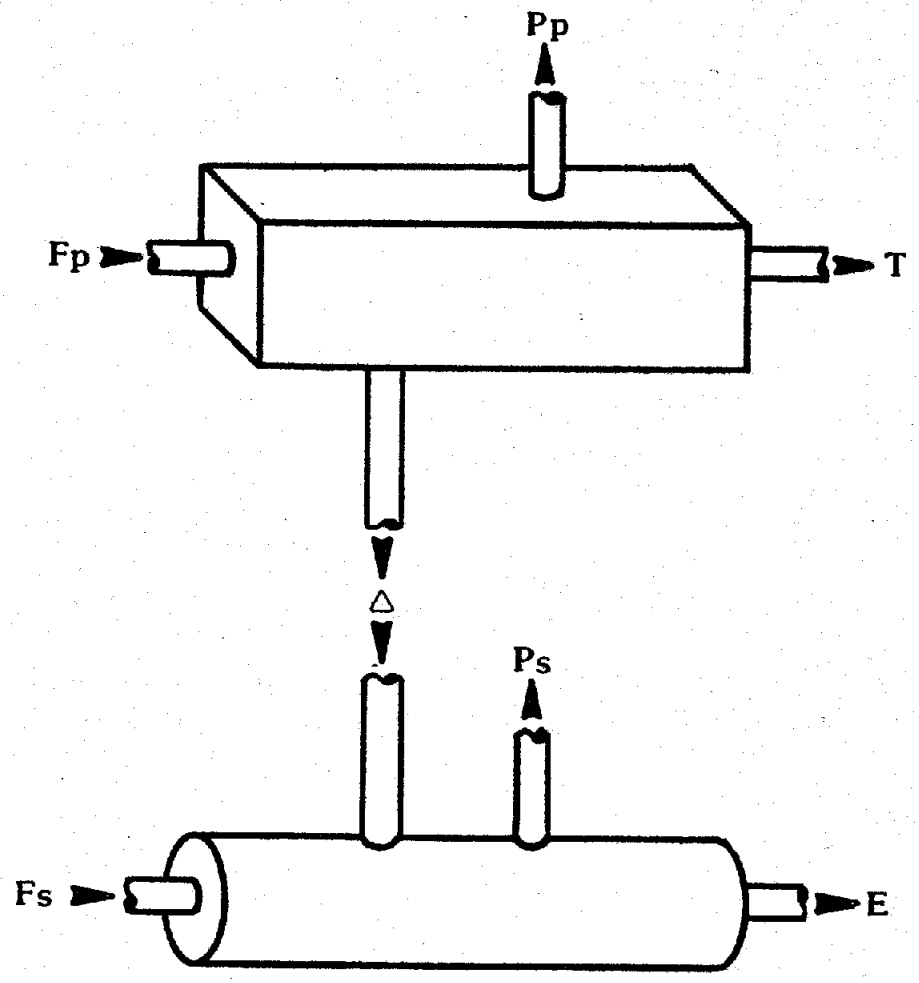
Fs ≡ SECONDARY FUEL

Ps ≡ SECONDARY POLLUTION

T ≡ USEFUL THERMAL OUTPUT

Figure 3

BOTTOMING CYCLE COGENERATION SCHEMATICS



Fp = PRIMARY FUEL

Pp = PRIMARY POLLUTION

E = USEFUL ELECTRICAL OUTPUT

Δ = HEAT ENERGY OF EXHAUST

Fs = SECONDARY FUEL

Ps = SECONDARY POLLUTION

T = USEFUL THERMAL OUTPUT

C. EXAMPLE OF CALCULATION PROCEDURE

In the following example, a hypothetical cogeneration project is sited in Oakland, California. The project consists of a 33 MW turbine and a supplementary-fired waste heat recovery boiler.

This example follows the procedure and illustrates the calculation of the utility offset credits. For the sake of simplicity, only NOx is considered in this example. Calculations for SOx and TSP can be done in a similar manner.

To qualify under AB 1862 a project must meet the following standards:

(a) At least 5 percent of the facility's total annual energy output shall be in the form of useful thermal energy.

(b) Where useful thermal energy follows power production, the useful annual power output plus one-half the useful annual thermal energy output equals not less than 42.5 percent of any natural gas and oil energy input.

Annual project parameters are listed below*:

Fp = PRIMARY FUEL (natural gas) = 3.89×10^{12} Btu/yr

Fs = SECONDARY FUEL (natural gas) = 3.96×10^{11} Btu/yr

E = USEFUL ELECTRICAL OUTPUT = 9.72×10^{11} Btu/yr

T = USEFUL THERMAL OUTPUT = 2.02×10^{12} Btu/yr

* (360 days of operation per year, 24 hours per day)

(1) $\frac{T}{T+E} = \frac{2.02 \times 10^{12} \text{ Btu/yr}}{2.02 \times 10^{12} \text{ Btu/yr} + 9.72 \times 10^{11} \text{ Btu/yr}} = 67.5\%$

(2) Applicable only to topping cycles:

$$\frac{E + 1/2\ T}{Fp + Fs} \geq 42.5\%$$

$$\frac{9.72 \times 10^{11} \text{ Btu/yr} + 1/2\ (2.02 \times 10^{12} \text{ Btu/yr})}{3.89 \times 10^{12} \text{ Btu/yr} + 3.96 \times 10^{11} \text{ Btu/yr}} = 46.2\%$$

Conditions (a) and (b) are met. Facility qualifies as cogenerator for the purposes of AB 1862.

1. UNCONTROLLED PROJECT EMISSIONS: from turbine = 4,950 lb/day; from supplemental burners = 165 lb/day (Ps).
2. BACT/LAER required: water injection with 80% NOx reduction, controlled emissions = 990 lb/day (Pp).
3. PROJECT OFFSET REQUIREMENTS: (Pp + Ps) = 1,155 lb/day.
4. PROJECT PARAMETERS:

   Fp = PRIMARY FUEL (natural gas) = 1.08×10^{10} Btu/day

   Fs = SECONDARY FUEL (natural gas) = 1.1×10^{9} Btu/day

   Pp = PRIMARY POLLUTION, NOx = 990 lb/day

   Ps = SECONDARY POLLUTION, NOx = 165 lb/day

   E = USEFUL ELECTRICAL OUTPUT = 792 MWH/day = 2.7×10^{9} Btu/day

   Δ = HEAT ENERGY OF EXHAUST = 7.0×10^{9} Btu/day

   T = USEFUL THERMAL OUTPUT = 5.6×10^{9} Btu/day
5. COGENERATION EMISSIONS PORTION = Pp = 990 lb/day, NOx

   NON-COGENERATION EMISSIONS PORTION = Ps = 165 lb/day, NOx
6. NON-COGENERATION EMISSIONS PORTION (165 lb/day, NOx) must be offset by the project proponent according to the rules of the local district.

7. AVERAGE EMISSIONS RATE*
OF IN-BASIN POWER PLANTS

PLANT	CAPACITY (MW)	NOx EMISSION (TONS/YR)	ENERGY PRODUCED (MWH/YEAR)
Contra Costa	1260	11,463	6,679,407
Hunters Point	377	7,735	2,037,702
Pittsburgh	2002	16,400	8,053,915
Potrero	323	1,988	1,066,138
BASIN TOTAL		37,586	17,837,162

Electricity produced by PG&E's IN-STATE POWER PLANTS = 34,238,520 MWH/yr

AVERAGE EMISSION RATE FOR NOx FOR ALL IN-BASIN POWER PLANTS:

$$\frac{(37{,}586 \text{ tons/yr})\ (2000 \text{ lb/ton})}{17{,}837{,}162 \text{ MWH/yr}} = 4.214 \text{ lb/MWH}$$

* Based on PG&E's data for 1979 and 1980

8. BASIN/SYSTEM FRACTION:

$$\frac{17{,}837{,}162 \text{ MWH/year}}{34{,}238{,}520 \text{ MWH/year}} = 0.521$$

9. IN-BASIN DISPLACED UTILITY EMISSIONS:

792 MWH/day (E) x 0.521 x 4.214 lb/MWH (AVERAGE EMISSION RATE)

= 1,739 lb/day

10. Multiply IN-BASIN DISPLACED UTILITY EMISSIONS (lb/day) by the DISTANCE FACTOR.

1,739 lb/day x 1.0 (distance factor for Bay Area) = 1,739 lb/day

State of California
AIR RESOURCES BOARD

Resolution 82-24

May 27, 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, contract AQ-079-32, entitled "Correlative and Sensitive Discriminants for Air Quality Control" has been submitted by Professional Staff Association of Los Angeles County, University of Southern California Medical Center to the Air Resources Board; 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 954-79(a) entitled "Correlative and Sensitive Discriminants for Air Quality Control", submitted by Professional Staff Association of Los Angeles County, University of Southern California Medical Center, for a total amount not to exceed $8,255;

WHEREAS, the Governor's Executive Order B97-82 has prevented the Executive Officer from awarding a number of research contracts already approved for funding by the Board during FY 81-82;

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 1107-90 entitled "Correlative and Sensitive Discriminants for Air Quality Control", submitted by Professional Staff Association of Los Angeles County, University of Southern California Medical Center, for a total amount not to exceed $8,255;

I certify that the above is a true and correct copy of Resolution 82-24, as as passed by the Air Resources Board.

Harold S. S. Holmes Jr.
Board Secretary

State of California
AIR RESOURCES BOARD

ITEM NO: 82-11-2b(1)
DATE: May 27, 1982

ITEM: Research Proposal No. 954-79 (a) entitled Correlative and Sensitive Discriminants for Air Quality Control

RECOMMENDATION: Adopt Resolution 82-24 approving Research Proposal No. 954-79 (a) for funding in an amount not to exceed $8,255.

SUMMARY:

The purpose of the study for which augmentation is requested is to investigate 1) alveolar cell changes after inhalation of ozone alone and an ozone-NO_2 combination and 2) the reversibility of alveolar cell damage after intermittent NO_2 exposure. The investigator is completing the second group of experiments in which newborn mice were exposed to 0.3 ppm NO_2 for 12 weeks and sacrificed at intervals of 4, 10, 20 and 32 weeks after exposure. These studies involve the removal, sectioning and examination of lung tissue for reversibility of Type 2 cell changes as well as air space measurement. The study is uniquely suited to delineate the implications of long-term air pollution exposures. The request for augmentation is necessitated by unexpected cost increases.

The investigator requests additional money to cover increased daily maintenance costs of the experimental animals and to provide service contracts for equipment essential to the experiment. The largest amount of money requested is for animal care and chamber maintenance which nearly doubled in cost to $14,154.00 (only $7,349.00 was originally budgeted). This unexpected increase left the investigator with a deficit of $6,805.00. The remaining $1,450.89 is requested to cover service contracts for routine preventive maintenance of the Quantimet (image analyzer), computer terminal, spectrophotometer and telephone answering machine. These costs were to have been borne by other funding sources that have been depleted. They are intensively employed in this study. Staff views this as a valuable effort, one that justifies this small augmentation.

BE IT FURTHER RESOLVED, that should the prohibition on awarding new contracts contained in the Governor's Executive Order B97-82 be partially removed so that some portion, but less than the full amount, of the remaining 1981-82 extramural research funds is made available for expenditure by the Board, the staff is directed to present to the Board the recommendations of the Research Screening Committee regarding which of the projects already approved are to be supported with those funds; and

BE IT FURTHER RESOLVED, that, should the prohibition in awarding new contracts contained in Executive Order B97-82 be removed in its entirety, the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $8,255.

State of California
AIR RESOURCES BOARD

Resolution 82-25

May 27, 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 1125-91 entitled "Formaldehyde: A Survey of Airborne Concentrations and Sources", has been submitted by Science Applications, Inc., to the Air Resources Board; 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 1125-91 entitled "Formaldehyde: A Survey of Airborne Concentrations and Sources", submitted by Science Applications, Inc., for a total amount not to exceed $174,519; and

WHEREAS, the Governor's Executive Order B97-82 has prevented the Executive Officer from awarding a number of research contracts already approved for funding by the Board during FY 81-82;

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 1125-91 entitled "Formaldehyde: A Survey of Airborne Concentrations and Sources", submitted by Science Applications, Inc., for a total amount not to exceed $174,519; and

BE IT FURTHER RESOLVED, that should the prohibition on awarding new contracts contained in the Governor's Executive Order B97-82 be partially removed so that some portion, but less than the full amount, of the remaining 1981-82 extramural research funds is made available for expenditure by the Board, the staff is directed to present to the Board the recommendations of the Research Screening Committee regarding which of the projects already approved are to be supported with those funds; and

BE IT FURTHER RESOLVED, that, should the prohibition in awarding new contracts contained in Executive Order B97-82 be removed in its entirety, the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $174,519.

STATE OF CALIFORNIA
AIR RESOURCES BOARD

ITEM: 82-11-2b(2)
DATE: May 27, 1982

ITEM: Research Proposal entitled "Formaldehyde: A Survey of Airborne Concentrations and Sources"

RECOMMENDATIONS: Adopt Resolution 82-25 approving Research Proposal 1125-91 for funding not to exceed $174,519.

SUMMARY: This research project is a continuation of a program initiated by the Research Division to inventory and quantify the carcinogens of greatest potential concern as pollutants in the ambient air in California.

Recent studies from both the Chemical Industry Institute of Toxicology (CIIT) and the Institute of Environmental Medicine, New York University, have found evidence of nasal cancer in rats exposed to concentrations of formaldehyde. The California Department of Health Services (DOHS) has estimated that the formaldehyde exposure level, at which 40% of the rat test population developed nasal cancer is only five times the current maximum allowable worker exposure concentration in California. These results underscore the urgent need for a reliable inventory of formaldehyde emissions and the assessment of population exposure.

The contractor will inventory formaldehyde emissions from point, area, and residual/fugitive sources and estimate ambient concentrations using data culled from validated published and unpublished literature. Using these data the contractor will identify the most probable sources of formaldehyde emissions to the ambient air and rank these in order of probable average emissions. The contractor will quantify formaldehyde emissions from those sources for which data may be lacking or considered deficient, researching analytical methods for sampling and assaying the emissions from those sources.

The objectives of this research project are to measure and to inventory formaldehyde emissions from stationary, area and fugitive/residual sources and to establish worst-case ambient concentrations in a representative cross section of California locations. Areas with high concentrations of

formaldehyde and a small exposed population, as well as areas with low concentration of formaldehyde and a large exposed population, are to be included in the study. In addition, since considerable levels of exposure to formaldehyde have been found in residences and elsewhere indoors, the contractor also will quantify fugitive/residual concentrations and emissions in the indoor environment under a range of conditions including but not limited to residential and commercial settings.

State of California
AIR RESOURCES BOARD

Resolution 82-26
May 27, 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 1129-92 entitled "Diagnosis of Emission Control Component Malfunctions on Catalyst Equipped Motor Vehicles" has been submitted by Energy and Environmental Analysis, Inc. for an amount not to exceed $120,725;

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 1129-92 entitled "Diagnosis of Emission Control Component Malfunctions on Catalyst Equipped Motor Vehicles" submitted by Energy and Environmental Analysis, Inc. for an amount not to exceed $120,725;

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 1129-92 entitled "Diagnosis of Emission Control Component Malfunctions on Catalyst Equipped Motor Vehicles" submitted by Energy and Environmental Analysis, Inc. for an amount not to exceed $120,725;

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 $120,725.

I certify that the above is a true and correct copy of Resolution 82-26 as passed by the Air Resources Board.

Harold Holmes
Board, Secretary

State of California

AIR RESOURCES BOARD

ITEM NO.:
DATE: May 27, 1982

ITEM: Research Proposal 1129-92 entitled "Diagnosis of Emission Control Component Malfunctions on Catalyst-Equipped Motor Vehicles"

RECOMMENDATION: Adopt Resolution 82-26, approving Research Proposal 1129-92 for funding in an amount not to exceed $120,725.

SUMMARY: The introduction of electronic emission controls on many post-1979 domestic vehicles brought about a major change in the cause of high vehicular emission and the methods required to identify and correct malfunctions in most high emitting vehicles. Maintenance of 1975-1980 model year vehicles consisted primarily of readjusting idle setting to the manufacturer's specifications. Maintenance of many post-1979 vehicles will consist primarily of replacing malfunctioning or defective components. Furthermore, in later model year vehicles the failure modes induced by some defective components cannot be identified by the idle exhaust measurements presently used in inspection and maintenance (I/M) programs.

The objective of this study is to develop simple standardized diagnostic procedures to be used by service industry mechanics for detecting malfunctions of each of the contemporary emission control system components (air pumps, exhaust gas recirculation systems, oxidation and three-way catalyst systems, including electronic microprocessors, sensors and actuators) without the need for extensive training or use of specialized diagnostic equipment.

In the first phase of the study, emission control technologies will be organized into groups having common components and diagnostics. Malfunction/emission control technology combinations will be ranked according to emissions impact and the automobile manufacturer's recommended diagnostic procedures will be organized into a matrix of common procedures. On site interviews will be

conducted with mechanics at 60 repair facilities (dealerships, chain and independent), to determine the diagnostic equipment and procedures used by field mechanics for identifying emission control component malfunctions. The recommended procedures will be organized into an iterative framework. Initially, a preliminary diagnosis will be made based upon idle emissions measurements, visual inspection, and owner complaints regarding driveability. Second, the mechanic will be directed to the appropriate detailed prcedures for diagnosis of the secondary air, EGR, fuel, and catalyst systems. Separate chemical tests will be developed for evaluating catalyst operation.

The newly developed procedures will be validated in the second phase of the study after ARB review and approval. This phase will consist of three parts: pretest, training of mechanics and validation. The pretest will involve four cars that will be disabled by EEA and sent to one experienced mechanic. The proposed diagnostic procedures and the training program will be modified based on the reactions of the mechanics and the observations of EEA engineers. Following this pretest, five journeymen mechanics with varying experience will be selected in the SCAB area. After a short training course each mechanic will diagnose ten vehicles that have been intentionally disabled. Final validation will consist of analysis and documentation of results from testing of the trained mechanics.

State of California
AIR RESOURCES BOARD

Resolution 82-27
May 27, 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 1135-92 entitled "Characterization of Reactants, Reaction Mechanisms and Reaction Products in Atmospheric Water Droplets: Fog, Cloud, Dew and Rain Water Chemistry" has been submitted by the California Institute of Technology for an amount not to exceed $404,130;

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 1135-92 entitled, "Characterization of Reactants, Reaction Mechanisms and Reaction Products in Atmospheric Water Droplets: Fog, Dew and Rain Water Chemistry" submitted by the California Institute of Technology, for a total amount not to exceed $404,130;

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 1135-92 entitled, "Characterization of Reactants, Reaction Mechanisms and Reaction Products in Atmospheric Water Droplets: Fog, Dew and Rain Water Chemistry" submitted by the California Institute of Technology, for a total amount not to exceed $404,130;

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 $404,130.

I certify that the above is a true and correct copy of Resolution 82-27 as passed by the Air Resources Board.

Harold Holmes
Board, Secretary

ITEM NO.:
DATE: May 27, 1982

ITEM: Research Proposal No. 1135-92 entitled "Characterization of Reactants, Reaction Mechanisms and Reaction Products in Atmospheric Water Droplets: Fog, Cloud, Dew and Rain Water Chemistry"

RECOMMENDATION: Adopt Resolution 82-27 approving Proposal No. 1135-92 for funding in an amount not to exceed $404,130

SUMMARY: Fog water collected in Los Angeles and Bakersfield has been found to have higher concentrations of major chemical species than previously observed in atmospheric water droplets. The level of pH values found thus far has been in the range of 2.20 to 5.78, with values about pH 3 most common. The extreme pH value of an individual fog water sample from Upland, 2.20, is more than 2500 times more acidic than "background" CO_2 equilibrium solubility in pure water. The chemistry of fog water at the several locations sampled to date, has tended to reflect available emissions inventory data for the respective air basins.

Major objectives of this project are to: 1) explain the mechanisms for the incorporation of chemical species into atmospheric water droplets; 2) determine relationships between fog and smog-derived aerosol in the South Coast Air Basin; 3) monitor fog, rain, and cloud water and pollution precursors in various California locations; 4) develop and calibrate fog and dew collectors and atmospheric liquid water content devices; 5) develop physical thermodynamic and kinetic models for fog, cloud and rain water chemistry.

During this two-year study, ground-based sampling will be carried out during conditions appropriate for fog and dew formation in several California locations such as the South Coast Air Basin, Bakersfield, San Francisco, San Nicolas Island and San Diego. Previously developed fog water collectors will be employed in the study, and new dew collection devices will be fabricated. Acid precursors will be measured before, during and after fog episodes in order to provide information on the oxidation of nitrogen and sulfur oxides and their incorporation into atmospheric water droplets.

This work will help the ARB to elucidate mechanisms for the formation of acid precipitation and acidic aerosols in the atmosphere. The research will enable quantitation of the flux of atmospheric acidity by rainfall, fog and dews in the South Coast Air Basin. The results from this study will assist the Board and the districts in developing plans to avoid potential damage from acid precipitation and atmospheric acidity.

State of California
AIR RESOURCES BOARD

Resolution 82-28
May 27, 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 1137-92 entitled "Identification of Particulate Mutagens in California" has been submitted by the University of California, Riverside for an amount not to exceed $169,484;

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 1137-92 entitled, "Identification of Particulate Mutagens in California" submitted by the University of California, Riverside, for a total amount not to exceed $169,484;

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 1137-92 entitled, "Identification of Particulate Mutagens in California" submitted by the University of California, Riverside, for a total amount not to exceed $169,484;

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 $169,484.

I certify that the above is a true and correct copy of Resolution 82-28 as passed by the Air Resources Board.

Harold Holmes
Board, Secretary

ITEM NO.:
DATE: May 27, 1982

ITEM: Research Proposal No. 1137-92 entitled "Identification of Particulate Mutagens in California"

RECOMMENDATION: Adopt Resolution 82-28 approving Proposal No. 1137-92 for funding in an amount not to exceed $169,484.

SUMMARY: Previous studies by this investigator have shown that mutagenic and carcinogenic chemicals are present in the urban atmosphere in California. This has raised concerns as to potential adverse effects of these chemicals on the health of the general public. Unfortunately, there is now little information available on the sources, ambient levels, and chemical composition of these potentially harmful chemicals. In the absence of this information, it is impossible to assess reliably the risks to the general public and to specified populations having an elevated incidence of cancers which may be linked to atmospheric pollutants.

The proposed study is a logical extension of current research into the chemical nature of particulate atmosperic mutagens in California's South Coast Air Basin and would complement studies of the mutagenicity of ambient aerosols in Contra Costa County in northern California.

The first objective of the study would include a broadened search for specific mutagenic compounds, including nitroarenes and lactones, using state-of-the-art analytical and isolation techniques.

The second objective would include simultaneous twenty-four hour sampling with three-hour resolution at two sites. One site would be close to a heavily-travelled freeway and the other site would be removed from local sources of particle emissions. The collected samples would be assayed for mutagenicity, lead and elemental carbon. This information will be used to determine the exposure of several million freeway commuters to primary freeway aerosol emissions. In addition, the aerosol signatures would be compared at the two sites to determine the mutagenicity changes that may occur during aerosol transport and aging.

The third objective is to establish the effect of long distance transport upon aerosol mutagenicity in the eastern portion of the South Coast Air Basin. In this experiment, suspended particulate matter would be sampled as it leaves

the Basin in a northerly, northeasterly or easterly direction, in an area where the injection of fresh primary aerosols is low. The changes in mutagenic loading thus should reflect whether mutagenic aerosols are created, destroyed, or remain constant during longer transport regimes in polluted urban atmospheres.

The proposed research is needed to provide to the ARB, to the Department of Health, and to others concerned with air pollution risks to public health, detailed chemical characterizations of atmopheric mutagens, including quantitative information necessary for risk assessment.

State of California
AIR RESOURCES BOARD

Resolution 82-29
May 27, 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 1148-92 entitled "Air Pollution Studies on Ozone and Sulfur Dioxide", has been submitted by the University of California at San Francisco, to the Air Resources Board; 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 1148-92 entitled "Air Pollution Studies on Ozone and Sulfur Dioxide", submitted by the University of California at San Francisco, for a total amount not to exceed $107,246;

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 1148-92 entitled "Air Pollution Studies on Ozone and Sulfur Dioxide", submitted by University of California at San Francisco, for a total amount not to exceed $107,246;

BE IT FURTHER RESOLVED, that the Executive Officer shall initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed in an amount not to exceed $107,246.

I certify that the above is a true and correct copy of Resolution 82-29 as passed by the Air Resources Board.

Harold Holmes
Board, Secretary

State of California
AIR RESOURCES BOARD

ITEM NO: 82-29
DATE: May 27, 1982

ITEM: Research Proposal No. 1148-92 entitled "Air Pollution Studies on Ozone and Sulfur Dioxide".

RECOMMENDATION: Adopt Resolution 82-29 approving Research Proposal No. 1148-92 for funding in an amount not to exceed $107,246.

SUMMARY:

Sulfur dioxide has long been known to affect adversely the human respiratory system. Persons with existing lung diseases appear to be most sensitive to this pollutant. The proponent 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 significant bronchoconstriction in two asthmatics and 0.25 ppm resulted in a significant bronchoconstriction for a small group of asthmatics.

Animal studies have also been underway for many years at UCSF to determine the mechanisms that produce bronchoconstriction. The results of this work with both ozone and SO_2 have contributed greatly to our knowledge of bronchoconstriction. Dr. Nadel has employed dogs for many of these experiments and had done so in a fashion that is painless to the animals.

The proponent recently received (Feb. 82) RSC approval to carry out studies of how subjects with more severe asthma respond to low-level SO_2 exposures, how higher levels of exercise enhance the effects of a given SO_2 exposures i.e., face mask, mouthpiece or open chamber.

The investigators are at the forefront of the SO_2 controversy. The results of their studies, done under ARB funding, have stirred the scientific and regulatory communities. Several new and important aspects of the SO_2 broncho constriction are now identified for study and are the subject of this proposal. The ideas are important extensions of what has been completed or is planned for the near future. In addition to human studies, animal studies are proposed to help explain the nature of hyper-reactivity through the study of cell changes and inflammation. The specific cells observed after inflammation are called

neutrophils. Such cellular influx is a common factor in inflammation-induced asthma. Inflammation can be induced by respiratory infection and by SO_2 and ozone. These pilot studies also indicate a link between inflammation of airways and hyperactivity. ?

Two main study areas are proposed. The first and largest consists of human exposure studies to determine the implications of combines low humidity, cold air and SO_2 ? protocols on the bronchoconstriction response in asthmatics. Previous studies have carefully avoided the effects of cold dry air on the bronchoconstriction response, since the factors can induce asthma attacks in many subjects. Warm humidified air is often provided for subjects to breathe. This procedure may well impose artificial conditions that prevent the observation of asthma responses at even lower SO_2 levels than seen at present. Cold, dry air conditions are, of course, common in ordinary environments.

The second study group consists of protocols designed to clarify the mechanisms that elicit hyperreactivity, a dominant characteristic of asthmatics. Hyperreactivity is a condition where many common agents such as cold, allergens, irritants (ozone, SO_2, etc.) induce bronchoconstrictions while in the absences of these agents, no such responses are seen. Recent findings have shed considerable light on what may be an underlying factor to explain hyperreactivity. Further studies are needed to understand more completely how these agents cause the asthma response.

State of California
AIR RESOURCES BOARD

Resolution 82-30
May 27, 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 1138-92 entitled "Health Effects from the Inhalation of Oxidant Air Pollutants as Related to the Immune System", has been submitted by University of California, Davis, to the Air Resources Board; 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 1138-92 entitled "Health Effects from the Inhalation of Oxidant Air Pollutants as Related to the Immune System", submitted by University of California, Davis, for a total amount not to exceed $105,843;

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 1138-92 entitled "Health Effects from the Inhalation of Oxidant Air Pollutants as Related to the Immune System", submitted by University of California, Davis, for a total amount not to exceed $105,843;

BE IT FURTHER RESOLVED, that the Executive Officer shall initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed in an amount not to exceed $105,843.

I certify that the above is a true and correct copy of Resolution 82-30 as passed by the Air Resources Board.

Harold Holmes
Board, Secretary

State of California
AIR RESOURCES BOARD

ITEM NO:
DATE: May 27, 1982

ITEM: Research Proposal No. 1138-92 entitled "Health Effects from the Inhalation of Oxidant Air Pollutants as Related to the Immune System"

RECOMMENDATION: Adopt Resolution 82-30 approving Research Proposal No. 1138-92 for funding in an amount not to exceed $105,843.

SUMMARY: Ozone is a powerful oxidizing agent which damages the membranes of epithelial cells that line the respiratory tract. These membranes provide an effective barrier to the entrance of antigens or foreign substances from the air into the body. When the integrity of these membranes is lost, leakage of antigens or other substances into the under lying tissues of the respiratory tract can occur. This may cause an immunological response of increased antibody production against the foreign substance. In fact, injury to the tissue of the respiratory system can be assessed by the response of the immune system. The lung produces antibodies upon exposure to antigens and they can be classified into four distinct groups - IgM, IgG, IgA, and IgE.

This investigator was the first to provide proof that immunological activity is increased upon exposure to ozone. His group has used mice for their experimental model, since immunological mechanisms have been thoroughly studied in the mouse and knowledge of the immune responses of man has been derived from studies using this animal. They observed that concentrations of ozone as low as 0.16 ppm caused immunological changes in the lungs of mice, changes manifested by elevated amounts of IgA antibodies, IgA producing cells, and accumulations of new lymphoid tissue in the airways. IgA antibodies are also called "secretary antibodies" because they are found in lung secretions, they are produced by the cells that line the respiratory tract and they function to neutralize viruses.

IgE is an antibody which is responsible for asthma. After stimulation with an antigen, IgE is synthesized by cells which line the respiratory tract and are "fixed" to mast cells which then become "sensitized" to the allergen. The

investigator has found that ozone can increase the allergic response to obalbumin by increasing the amount of cells that produce IgE by 34.2 fold. Furthermore, if mice are dosed with an inactivated proparation of Bordetella pertussis (whooping cough bacteria), the IgE-antibody response after continuous ozone inhalation is exaggerated. The investigator has observed that this can occur at concentrations of ozone as low as 0.1 ppm. Since many individuals are exposed to this bacterium either during pediatric immunization or via the ambient air, the investigator proposed to lower the ozone exposure concentration to 0.07 ppm and repeat the experiment in order to establish a threshold for increases in the IgE allergic reaction to inhalation of this bacterium.

The protocol of previous experiments utilized a continuous inhalation of 0.16 ppm ozone for a period of 10 days before administration of the allergen. Under these conditions, the animals showed an increased allergic response. Since human exposure to ozone is not continuous but intermittent, a more realistic exposure is suggested. The investigator proposes to study the effects of alternate and intermittent ozone and filtered air exposure on the sensitization to ovalbumin.

Finally, ozone can also change the pattern of defenses against an infecting virus. Fatal influenza infections have been observed by the investigator to be less frequent in mice breathing 0.4 ppm and 0.64 ppm ozone than those breathing ambient air. The investigator by hypothesized that this resulted from inactivation of virus with continuous high ozone concentrations. The edema which results from a viral infection is believed to have an important role in the death of mice infected by influenza. Since ozone also causes edema the investigators propose to conduct an experiment on the effects of lower concentration of ozone administered after the virus on the progression of the infection. The RSC recommended approval of this proposal to allow for completion of this multi-year project.

State of California
AIR RESOURCES BOARD

Resolution 82-31
May 27, 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 1149-92 entitled "The Effect of Heavy, Sustained Exercise in Combination with Low Levels of O_3 Concentration in Inducing Acute Pulmonary Function Impairment in Humans: Interaction of Ambient Heat and Multiple Pollutant Exposures", has been submitted by the University of California, Davis, to the Air Resources Board; 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 1149-92 entitled, "The Effect of Heavy, Sustained Exercise in Combination with Low Levels of O_3 Concentration in Inducing Acute Pulmonary Function Impairment in Humans: Interaction of Ambient Heat and Multiple Pollutant Exposures", submitted by University of California, Davis, for a total amount not to exceed $118,787;

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 1149-92 entitled "The Effect of Heavy, Sustained Exercise in Combination with Low Levels of O_3 Concentration in Inducing Acute Pulmonary Function Impairment in Humans: Interaction of Ambient Heat and Multiple Pollutant Exposures", submitted by University of California, Davis, for a total amount not to exceed $118,787;

BE IT FURTHER RESOLVED, that the Executive Officer shall initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed in an amount not to exceed $118,787.

I certify that the above is a true and correct copy of Resolution 82-31 as passed by the Air Resources Board.

Harold Holmes
Board, Secretary

State of California
AIR RESOURCES BOARD

ITEM NO: 82-31
DATE: May 27, 1982

ITEM: Research Proposal No. 1149-92 entitled "The Effect of Heavy, Sustained Exercise in Combination with Low Levels of O_3 Concentration in Inducing Acute Pulmonary Function Impairment in Humans: Interaction of Ambient Heat and Multiple Pollutant Exposures"

RECOMMENDATION: Adopt Resolution 82-31 approving Research Proposal No. 1149-92 for funding in an amount not to exceed $118,787.

SUMMARY:

Very limited information is available on the effects of ozone on pulmonary function (PF) during exercise. Exercise changes the ventilatory pattern and increases the total amount of ventilation to meet elevated metabolic demands. Therefore, during exercise, the amount of ozone inhaled also increases, thus enhancing the adverse effects. Many persons whose occupations require vigorous physical activity are thus subject to elevated ozone inhalation. In addition, the trend to vigorous outdoor exercise in recreation has stimulated a more complete knowledge of ozone effects during exercise, as needed for reviewing our ambient air quality standards.

Most of the knowledge of ozone and exercise effects has come from studies on young adult males exposed at room temperature. There is an absence of information on potentially more sensitive groups of the population, i.e., females and older individuals. Furthermore, episodes of high ozone levels are generally accompanied by high ambient temperature on pulmonary function is of relevant application in light of the Olympics planned for the summer of 1984 in Los Angeles. Athletic and other exercise activities are also common in the high ozone areas, such as Los Angeles.

The air of populated areas contains, in addition to ozone, nitrogen dioxide, carbon monoxide and other compounds. The effects of a combination of ozone and these other air pollutants on pulmonary function during exercise are essentially unknown and relevant to an understanding of air pollution effects on the general population.

The investigator proposes a series of experiments to study the effects of ozone on pulmonary function during exercise in males and females and in combination with heat stress, carbon monoxide and nitrogen dioxide. Funds will also be provided to upgrade the investigators facilities to allow for future studies that could be carried out using multiple pollutants.

State of California
AIR RESOURCES BOARD

Resolution 82-32
May 27, 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 1139-92 entitled "Determination of Acidity in Ambient Air" has been submitted by the Air and Industrial Hygiene Laboratory, California Department of Health Services to the Air Resources Board for an amount not to exceed $291,222;

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 1139-92 entitled "Determination of Acidity in Ambient Air" submitted by the Air and Industrial Hygiene Laboratory, California Department of Health Services, for a total amount not to exceed $291,222;

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 1139-92 entitled "Determination of Acidity in Ambient Air" submitted by the Air and Industrial Hygiene Laboratory, California Department of Health Services, for a total amount not to exceed $291,222.

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 $291,222.

I certify that the above is a true and correct copy of Resolution 82-32 as passed by the Air Resources Board.

Harold Holmes
Board, Secretary

ITEM NO.:
DATE: May 27, 1982

ITEM: Research Proposal No. 1139-92 entitled "Determination of Acidity in Ambient Air"

RECOMMENDATION: Adopt Resolution 82-32 approving Proposal No. 1139-92 for funding in an amount not to exceed $291,222.

SUMMARY: Efforts to elucidate the causes and levels of acidity in the atmosphere have been frustrated by the lack of a fully satisfactory analytical technique(s) for determining the concentrations of sulfuric, nitric and hydrochloric acids in ambient air. In addition, several of the newly reported sampling techniques, while improved in accuracy, are labor intensive and sample analysis is extremely expensive. Atmospheric acidity is significant as a general class of air pollution for several reasons: as a health-related inhalation hazard, as a precursor of visibility-degrading particles, as a contributor to acid precipitation, and (acids formed from NOx emissions) as a nitrating agent in forming airborne mutagenic compounds.

The objectives of this proposed research project are to: 1) develop a continuous measurement technique for sulfuric acid which does not require filters; 2) develop a method for nearly real time measurement of nitric acid and ammonia, 3) evaluate techniques for the determination of ammonia and hydrochloric acid; 4) measure gaseous and aerosol acids and total particulate acidity in the South Coast Air Basin; and 5) assess the contribution of sulfuric, nitric and hydrochloric acids to aerosol total strong acidity.

A two-year study is proposed to develop and validate real time measurement techniques for atmospheric acidity. During the first eighteen months, sampler development and calibration will be performed under laboratory conditions, and the final six months of the project will be devoted to atmospheric sampling and analysis.

A major benefit of the work will be to provide a sampling technique(s) and chemical analyses for the sum of all the acidic species present in the Los Angeles atmosphere using up to date sampling and analytical capabilities. This information is needed to help establish a basis for evaluating and avoiding the adverse consequences of atmospheric acidity.

State of California
AIR RESOURCES BOARD

Resolution 82-33
May 27, 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 1140-92 entitled "Dry Acid Deposition on Materials and Vegetation: Particulate Concentrations in Ambient Air" has been submitted by the Air and Industrial Hygiene Laboratory, California Department of Health Services for an amount not to exceed $322,825;

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 1140-92 entitled, "Dry Acid Deposition on Materials and Vegetation: Particulate Concentrations in Ambient Air" submitted by the Air and Industrial Hygiene Laboratory, California Department of Health Services for a total amount not to exceed $322,825;

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 1140-92 entitled, "Dry Acid Deposition on Materials and Vegetation: Particulate Concentrations in Ambient Air" submitted by the Air and Industrial Hygiene Laboratory, California Department of Health Services for a total amount not to exceed $322,825;

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 $322,825.

I certify that the above is a true and correct copy of Resolution 82-33 as passed by the Air Resources Board.

Harold Holmes
Board, Secretary

ITEM NO.:
DATE: May 27, 1982

ITEM: Research Proposal No. 1140-92 entitled " Dry Acid Deposition on Materials and Vegetation: Particulate Concentrations in Ambient Air"

RECOMMENDATION: Adopt Resolution 82-33 approving Proposal No. 1140-92 for funding in an amount not to exceed $322,825.

SUMMARY: Acid precipitation has been linked to serious ecological damage in Scandinavia and the Northeast. Recent studies have documented the occurrence of acid rain in California. Nearly all studies to date have measured wet deposition, because dry deposition--that occurring in the absence of rain or snow--is difficult to measure. A recently released ARB report on acid deposition in California estimates that dry deposition of sulfate in Orange County was nearly five times larger in magnitude than the wet sulfate flux during a two-year period. Since rainfall occurs only 3.5 percent of the total time during an average year in Los Angeles, dry deposition may be the significant pathway for the flux of acidic materials in California. Moreover, dry deposition of acidic particles is expected to impart a strong, localized dose of acid to a receptor surface.

The objectives of this two-year research program are: 1) to investigate surface damage to various surface types resulting from acid deposition; 2) investigate dry acid deposition on plants; 3) develop and calibrate a technique for measuring the size distribution of ambient acidic particles. This study, which is the continuation of a study previously funded by the ARB, will provide important information on the magnitude and extent of the dry flux of acidic particles and gases in California. The proposed study also will increase our understanding of the formation and occurrence of atmospheric acidity. The data obtained during this study will enable the Board to develop standards and strategies to avoid potential damage.

State of California
AIR RESOURCES BOARD

Resolution 82-34
May 27, 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 1141-92 entitled "A New, Single Particle Approach to Source Identification and Apportionment: Particulate Matter Analysis by Electron Microscopy" has been submitted by the Air and Industrial Hygiene Laboratory, California Department of Health Services for an amount not to exceed $100,000;

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 1129-92 entitled, "A New, Single Particle Approach to Source Identification and Apportionment: Particulate Matter Analysis by Electron Microscopy" submitted by the Air and Industrial Hygiene Laboratory, California Department of Health Services for an amount not to exceed $100,000;

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 1129-92 entitled, "A New, Single Particle Approach to Source Identification and Apportionment: Particulate Matter Analysis by Electron Microscopy" submitted by the Air and Industrial Hygiene Laboratory, California Department of Health Services for an amount not to exceed $100,000;

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 $100,000.

I certify that the above is a true and correct copy of Resolution 82-34 as passed by the Air Resources Board.

Harold Holmes
Board, Secretary

ITEM NO.:
DATE: May 27, 1982

ITEM: Research Proposal No. 1141-92 entitled "A New, Single Particle Approach to Source Identification and Apportionment: Particulate Matter Analysis by Electron Microscopy"

RECOMMENDATION: Adopt Resolution 82-34 approving Proposal No. 1141-92 for funding in an amount not to exceed $100,000.

SUMMARY: In order to develop a cost-effective control strategy for reducing the concentrations of airborne particles, a thorough understanding of their multiple origins is necessary. This can be done by measurement and chemical analysis of particulate matter and precursors at sources and correspondingly detailed analysis of samples from receptor locations. Recent technological advances with computer controlled scanning electron microscopy and related analytical capabilities now make single particle identification and elemental analysis a computerized, rapid analytical tool. Accordingly, this technique can become a powerful aid in the development of source apportionment models, which relate ambient concentrations of particles at a receptor site to sources of airborne particles from pollution point sources.

In the first phase of this project, aerosol samples will be taken at a major primary particle emission source in the State. The samples will be subjected to automated particle analysis with the scanning electron microscope. Computer programs and statistical analysis capabilities will be developed for obtaining the emission source "fingerprint" from the source samples. In the project's second phase, airborne particle samples will be obtained at a receptor site downwind of the emission source whose particulate emissions were previously sampled. Source apportionment techniques will then be applied to determine the impact of that particular emission source on the ambient aerosol composition at the designated receptor site.

This study is needed to assist the ARB and local districts in developing cost-effective control strategies for primary particle emissions which are a major contributor to excessive particulate concentrations in California's highly polluted urban areas.

State of California
AIR RESOURCES BOARD

Resolution 82-35
May 27, 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 1142-92 entitled "Carcinogens and Mutagens in Ambient Air Particulate Matter: Identification of Sources in Contra Costa County" has been submitted by the California Department of Health Services for an amount not to exceed $290,000;

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 1142-92 entitled, "Carcinogens and Mutagens in Ambient Air Particulate Matter: Identification of Sources in Contra Costa County" submitted by the California Department of Health Services for an amount not to exceed $290,000;

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 1142-92 entitled, "Carcinogens and Mutagens in Ambient Air Particulate Matter: Identification of Sources in Contra Costa County" submitted by the California Department of Health Services for an amount not to exceed $290,000;

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 $150,000 (year 1) and $140,000 (year 2), a total amount not to exceed $290,000.

I certify that the above is a true and correct copy of Resolution 82-35 as passed by the Air Resources Board.

Harold Holmes
Board, Secretary

ITEM NO.:
DATE: May 27, 1982

ITEM: Research Proposal No. 1142-92 entitled "Carcinogens and Mutagens in Ambient Air Particulate Matter: Identification of Sources in Contra Costa County"

RECOMMENDATION: Adopt Resolution 82-35 approving Proposal No. 1142-92 for funding in an amount not to exceed $290,000;

SUMMARY: The proposed study is an extension of work being performed by the contractor under ARB sponsorship to identify the nature and sources of chemical mutagens and carcinogens in ambient air collected in Contra Costa County. Contra Costa has been identified as one of 39 industrial counties in the U.S. which has an unusually high mortality rate from lung cancer. This proposal addresses the problem of identifying the nature and, potentially, the sources of chemical mutagens and carcinogens in ambient particulate matter collected in Contra Costa County.

The specific objectives of the proposal are:

1. To collect aerosol samples at four Contra Costa locations during seasonal pollution episodes when conditions for source reconciliation are favorable;

2. To measure the mutagenic activity of particulate extracts using standard tester strains and nitroreductase-deficient strains in the Ames/Salmonella assay;

3. To validate a new, modified microsuspension Ames test with greatly increased sensitivity and to apply it to obtain diurnal mutagenicity patterns;

4. To develop improved chromatographic methods for the detection of mutagens and carcinogens;

5. To determine the inorganic "signatures" of particulate samples through multielement analyses using X-ray fluorescence;

6. To characterize particulate samples by means of automated scanning electron microscopy;

7. To integrate mutagenic and chemical results with gaseous pollutant data and meteorological information by means of computerized statistical procedures in order to better resolve sources of particulate mutagens and carcinogens; and

8. To integrate the chemical and mutagenic data base into the ongoing epidemiological cancer study in Contra Costa County.

The proposed study will entail intensive sampling and analysis designed to investigate sources and possible atmospheric formation of airborne mutagens and carcinogens. Sampling will be carried out at four sites in Contra Costa County (Richmond, Martinez, Concord and Pittsburg) when meteorological conditions are favorable. Samples will be analyzed for mutagenic activity using a new protocol with high sensitivity. Samples will be characterized chemically for organic compounds (e.g., polycyclic aromatic hydrocarbons and their nitro-derivitives) and for inorganics (e.g., nitrates, sulfates and forty trace elements). Selected particulate samples will be analyzed using powerful, new automated scanning electron microscopic methods.

These data will be combined with meteorological information and evaluated by statistical analysis, including multivariate correlation and factor analysis, to better resolve sources and possible chemical transformation of atmospheric mutagens and carcinogens. The results will be made available to the Department of Health Services Resource for Cancer Epidemiology for integration into ongoing cancer studies in Contra Costa County.

State of California
AIR RESOURCES BOARD

Resolution 82-36

May 27, 1982

WHEREAS, James N. Pitts, Jr., has served as Director of the Statewide Air Pollution Research Center of the University of California, Riverside since 1970;

WHEREAS, Dr. Pitts has had a long and distinguished career in research in the fields of chemical kinetics and photochemistry;

WHEREAS, he has worked tirelessly and effectively to apply the results of scientific research to the solution of air pollution problems in California by serving as an advisor to the State Legislature, the Governor, and the Air Resources Board; and

WHEREAS, he has been selected by the Air Pollution Control Association to receive the Frank A. Chambers Award for "Outstanding Achievement in the Science and Art of Air Pollution Control";

NOW, THEREFORE, BE IT RESOLVED that the Air Resources Board extends its commendation and deep appreciation to James N. Pitts, Jr., for his outstanding research, accomplishments in the field of atmospheric chemistry and his dedicated service to the State of California, and we offer our heartfelt congratulations upon his selection as recipient of the Frank A. Chambers Award.

Mary D. Nichols, Chairperson

Laurence S. Caretto, Member

Alvin S. Gordon, Member

James G. Leathers, Member

Alfred A. McCandless, Member

Sam T. Chapman, Member

Gary A. Patton, Member

Intro [for Pitts resolution]

Post

April 6, 1982

TO: SAPRC Personnel

FROM: Arthur M. Winer
Edgar R. Stephens

It is a pleasure to announce that, at its March 16th meeting, the Board of Directors of the Air Pollution Control Association selected Dr. Pitts as the 1982 recipient of the Frank A. Chambers Award of APCA. This Award is for "outstanding achievement in the science and art of air pollution control" and recognizes "achievement in lines of technical endeavor in air pollution from pure research to applied science." Selection for the Frank A. Chambers Award "requires accomplishment of a technical nature on the part of the recipient which is considered to be a major contribution to the science and art of air pollution control, the merit of which has been widely recognized by persons in the field." Frank A. Chambers was the principal driving force behind the establishment of the present Air Pollution Control Association, an organization primarily for professionals from industry and control agencies, as well as from universities and research institutions.

Among the distinguished past recipients of this award were Professor Arie Jan Haagen-Smit (1958), Professor Philip A. Leighton (1961), Sir Oliver Graham Sutton (1968), and Dr. A. Paul Altshuller (1970).

Dr. Pitts was nominated for the Frank A. Chambers Award in part for "his vigorous program of research in photochemistry and kinetics over the past 25 years and for the application of these fundamental studies, particularly during the past decade, to answering a number of crucial questions relevant to major air pollution problems."

The Award will be presented to Dr. Pitts at the 75th Annual Meeting of the Air Pollution Control Association in New Orleans. The formal presentation will be made on June 21st at the President's Luncheon to be held at the New Orleans Hilton Hotel.

I am sure that all of you will join us in congratulating Dr. Pitts on receiving this prestigous award.

NEWS

University of California, Riverside
OFFICE OF PUBLIC INFORMATION • RIVERSIDE, CA 92521 • (714)

IMMEDIATE RELEASE

SUBJECT: SCIENTIST WINS AIR POLLUTION CONTROL AWARD

RIVERSIDE -- James N. Pitts, director of the Statewide Air Pollution Research Center of the University of California, Riverside campus, has been selected to receive one of the Air Pollution Control Association's highest honors.

Pitts will receive the 1982 Frank A. Chambers Award, for "outstanding achievement in the science and art of air pollution control," at the APCA's 75th annual meeting in New Orleans on June 21.

The Chambers Award recognizes "achievement in lines of technical endeavor in air pollution from pure research to applied science." The selection is based upon "accomplishment of a technical nature on the part of the recipient, which is considered to be a major contribution to the science and art of air pollution control, the merit of which has been widely recognized by persons in the field."

The award's namesake was the principal driving force behind the establishment of the present Air Pollution Control Association, an organization primarily composed of professionals from industry and control agencies, universities and research institutions.

Previous Chambers Award winners include Dr. Arie Jan Haagen-Smit (1958), Dr. Philip A. Leighton (1961), Sir Oliver Graham Sutton (1968) and Dr. A. Paul Altshuller (1970).

--more--

The APCA Board of Directors cited Pitts for "his vigorous program of research in photochemistry and kinetics over the past 25 years and for the application of these fundamental studies, particularly during the past decade, to answering a number of crucial questions relevant to major air pollution problems."

Pitts, 61, has been a member of the Chemistry Department at UCR since 1954, when the campus opened. He served as chairman of the department in 1961-63 and since 1970 has been director of the Statewide Air Pollution Research Center at UCR.

For more than 30 years, he has conducted fundamental and applied research in the areas of photochemistry, atmospheric chemistry and photochemical smog. In addition to his teaching and research functions, he has served in an advisory capacity on numerous regional and national pollution and environment committees. His scientific publications number more than 200.

-30-

EDITORS NOTE: PHOTO AVAILABLE ON REQUEST

April 16, 1982
Ron Kolb

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-30-

EDITORS NOTE: PHOTO AVAILABLE ON REQUEST

April 16, 1982

Ron Kolb

State of California
AIR RESOURCES BOARD

Resolution 82-37

June 16, 1982

Agenda Item No. 82-12-1

WHEREAS, Section 39601 of the Health and Safety Code authorizes the Air Resources Board (the "Board") to adopt standards, rules, and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, Section 43100 of the Health and Safety Code authorizes the Board to certify new motor vehicles;

WHEREAS, Section 43102 of the Health and Safety Code, as amended in 1981 (Stats. 1981, ch. 1185), directs the Board to adopt certification and enforcement regulations, no later than for the 1983 model year, which will allow a manufacturer to certify in California federally certified light-duty motor vehicles which are unavailable in this state provided that their emissions are offset by the manufacturer's California-certified vehicles whose emissions are below the applicable California standard;

WHEREAS, the California Environmental Quality Act (CEQA) and Board regulations require that no project having significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of Chapter 3.5 (commencing with Section 11340), Part 1, Division 3, Title 2 of the Government Code; and

WHEREAS, the Board finds:

That there is insufficient lead time for manufacturers to achieve before introduction of 1983 model vehicles actual reductions in emissions from California-certified vehicles to offset emissions from federally certified vehicles imported into California;

That the importation into California of new vehicles certified to federal standards which are less stringent than California standards will result in an increase in vehicular emissions within the state unless there is a reduction of emissions from vehicles certified to California standards;

That no feasible alternatives to the proposals approved or adopted exist because Section 43102 requires the Board to adopt regulations to allow certification of nonavailable federally certified vehicles in California as soon as practicable, but not later than for the 1983 model year; and

That incorporating measures which limit federally certified vehicles certified in California to those necessary to satisfy the unavailability problem and applying the regulations to the 1983 model year only will mitigate the adverse environmental impacts as much as possible while satisfying the requirements of Section 43102.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves:

Section 1960.5, Title 13, California Administrative Code, as set forth in Attachment A;

"Guidelines for Certification of 1983 Model Year Federally Certified Light-Duty Motor Vehicles for Sale in California", as set forth in Attachment B; and

Amendments to Section 2061, Title 13, California Administrative Code, as set forth in Attachment C.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to adopt Attachments A, B, and C after making them available to the public for a period of 15 days.

BE IT FURTHER RESOLVED that the Board hereby amends Section 1965, Title 13, California Administrative Code, as set forth in Attachment D.

BE IT FURTHER RESOLVED that the Board hereby amends "California Motor Vehicle Tune-up Label Specifications" adopted March 11, 1978, as set forth in Attachment E.

BE IT FURTHER RESOLVED that the Board finds that the regulations as approved and amended herein, individually and in the aggregate, are at least as protective of public health and welfare as comparable federal regulations and are consistent with Section 202(a) and (b) of the federal Clean Air Act.

BE IT FURTHER RESOLVED, that the regulations approved and amended hereby be forwarded to the Environmental Protection Agency with a request for confirmation that they are covered by an existing waiver of federal preemption pursuant to Section 209(b)(1) of the Clean Air Act.

BE IT FURTHER RESOLVED that the Board hereby directs the staff to develop regulations for 1984 and subsequent model years which satisfy the requirements of Section 43102 and which also are consistent with CEQA and with the legislative intent of Section 43102 that there be no deterioration in air quality.

I certify that the above is a true and correct copy of Resolution 82-37, as adopted by the Air Resources Board.

Harold Holmes, Board Secretary

ATTACHMENT A

Proposed Amendments to Title 13, California Administrative Code

Scheduled for Consideration: June 16, 1982

Adopt Section 1960.5, Title 13, California Administrative Code, as follows:

1960.5. Certification of 1983 Model Year Federally Certified Light-Duty Motor Vehicles for Sale in California.

(a) The exhaust emissions from new 1983 model year federally certified passenger cars and light-duty trucks, subject to registration and sold and registered in this state pursuant to Section 43102(b) of the California Health and Safety Code, shall not exceed the applicable federal emissions standards as determined under applicable federal test procedures.

(b) With respect to any new vehicle required to comply with the standards set forth in paragraph (a), the manufacturer's written maintenance instructions for in-use vehicles shall not require scheduled maintenance more frequently than or beyond the scope of maintenance permitted under the test procedures referenced in paragraph (a). Any failure to perform scheduled maintenance shall not excuse an emissions violation unless the failure is related to or causes the violation.

(c) The standards and procedures for certifying in California 1983 model year federally certified light-duty motor vehicles are set forth in "Guidelines for Certification of 1983 Model Year Federally Certified Light-Duty Motor Vehicles for Sale in California", adopted _____.

NOTE: Authority cited: Sections 39601, 43100 and 43102, Health and Safety Code. Reference: Section 43102, Health and Safety Code.

GUIDELINES FOR CERTIFICATION OF 1983 MODEL YEAR FEDERALLY CERTIFIED LIGHT-DUTY MOTOR VEHICLES FOR SALE IN CALIFORNIA

I. APPLICABILITY

These guidelines adopted pursuant to Section 43102(b) of the California Health and Safety Code are applicable to 1983 model year federally certified light-duty motor vehicles proposed for sale in California. These guidelines are not applicable to medium-duty trucks, motorcycles, heavy-duty engines, heavy-duty vehicles, emergency vehicles, or vehicles with engines having a displacement less than 50 cubic inches.

II. DEFINITIONS

For the purposes of these guidelines:

1. Light-duty motor vehicle means a vehicle having a manufacturer's maximum gross vehicle weight rating of under 6,001 pounds (California Health and Safety Code Section 39035).
2. "California vehicle" means a motor vehicle originally certified in California by an Executive Order.
3. "Equivalent inertia weight (EIW)" is defined under subparagraph 86.129-79(a), Title 40, Code of Federal Regulations.
4. "Federal vehicle" means a motor vehicle originally certified federally by a Certificate of Conformity.
5. "Model" means a unique combination of car line, basic engine, and transmission class, or as defined by a manufacturer with the approval of the Executive Officer.
6. "Car Line" means a name denoting a group of vehicles within a make or car division which has a degree of commonality in

construction (e.g., body, chassis). Car line does not consider any level of decor or opulence and is not generally distinguished by characteristics as roof line, number of doors, seats, or windows, except for station wagons or light-duty trucks. Station wagons and light-duty trucks are considered to be different car lines than passenger cars.

7. "Basic Engine" means a unique combination of manufacturer, engine displacement, number of cylinders, fuel system (as distinguished by use of carburetor or fuel injection), and catalyst usage.

8. "Transmission Class" means a group of transmissions having the following common features: basic transmission type (manual, automatic, or semi-automatic) and number of forward speeds (e.g., manual four-speed, three-speed automatic, two-speed semi-automatic).

III. CERTIFICATION OF FEDERAL VEHICLES

To receive certification for federal vehicle sales in California, a manufacturer shall:

A. Provide to the Executive Officer evidence of federal certification, and a statement that the model(s) for which certification is requested are not available in California.

B. Provide a five year/50,000 mile warranty on emissions-related parts in accordance with Section 2035 et seq., Title 13, California Administrative Code. Federal vehicles which are offset by California vehicles certified to a 100,000 mile optional standard shall provide a ten year/100,000 mile warranty.

C. Provide: 1) certification emission levels of federal models intended for sale in California, 2) quarterly production reports, by model and engine family, of vehicles intended for sale or sold in California, and 3) other information which the Executive Officer deems necessary to calculate emissions offset credits, emission deficits, or air quality impacts.

D. Label each vehicle on the assembly-line with the statement "conforms to federal regulations and is certified for sale in California," to distinguish federal vehicles certified for sale in California from other federal vehicles and from California vehicles.

IV. ASSEMBLY-LINE AND ENFORCEMENT TESTING

A. All federal vehicles certified and intended for sale in California shall comply with all provisions of the applicable California Assembly-Line Test Procedures, except that:

1. The Executive Officer, at his or her discretion, may accept quality audit emissions data from other sources in lieu of a 2 percent quality audit of federal vehicle production intended for sale in California.

2. Manufacturers which have projected sales of less than 1,000 federal vehicles in California shall be exempt from the 2 percent quality audit requirement. However, such manufacturers shall submit to the Executive Officer any other similar data which may be available.

3. The Executive Officer, at his or her discretion, may waive the requirement for 100 percent steady state emissions testing of federal vehicles intended for sale in California in cases where lack of test facilities or other factors would place undue burden on vehicle manufacturers.

B. All federal vehicles certified for sale in California shall be subject to the compliance testing requirements of Title 13, California Administrative Code.

V. OFFSETTING PROCEDURE

A. Emissions offsetting shall be limited as follows:

1. By manufacturer. A manufacturer shall not trade, sell, transfer, or in any other manner exchange emissions credits with another manufacturer, except that a manufacturer which supplies engines to a vehicle manufacturer may also supply offsetting emission credits if the vehicle manufacturer's total production for California is less than 200 units.

2. By vehicle category. Vehicle categories are: (a) passenger cars and (b) light-duty trucks (less than 6001 pounds gross vehicle weight rating). Emission credits from vehicles in one category shall not offset vehicles in the other category.

3. By fuel type. Offsetting shall be conducted only among vehicles with like fuels (e.g., gasoline to gasoline, diesel to diesel, etc.).

4. By durability option. Federal vehicles which are offset by California vehicles certified to the optional 100,000 mile emissions standards must demonstrate 100,000 mile durability, or the equivalent, subject to the approval of the Executive Officer.

5. By model. No federally certified vehicle shall be certified or sold in California if a comparable California vehicle of the same manufacturer is offered for the 1983 model year.

5. By pollutant. Oxides of nitrogen (NOx) is the only pollutant which may be offset for passenger cars. Hydrocarbons, carbon monoxide, and NOx may be offset for light-duty trucks. Evaporative hydrocarbons and particulates are not eligible for offsets. Total hydrocarbon data shall be compared directly to non-methane hydrocarbon data for purposes of calculating offsets.

B. Each manufacturer shall submit to the Executive Officer at ~~the beginning of the model year~~ by October 1 of each year, or as soon thereafter as is practicable: (1) an estimate of the emissions credits which it will accrue based upon California certified emissions levels and projected sales of California vehicles; and (2) an estimate of the emissions credits which it will use based upon federal certification emissions levels and estimated sales of federal vehicles in California. These estimates may be changed at any time within the model year, subject to the approval of the Executive Officer.

C. Within the bounds of Part A, emissions credits that can be accrued by a California certified vehicle shall be the difference between the applicable California standard and the certification emissions level:

$$\text{Estimated Credits} = \sum_{i=1}^{n} \text{Calsales}_i \, (\text{Calstd} - \text{Calcert}_i)$$

Where:

n = Number of California engine families certified to a set of California standards (passenger cars, 0-3999 pounds EIW trucks, 4000-5999 pounds EIW trucks) for a given manufacturer.

Calsales = Manufacturer's projected sales by engine family.

Calstd = Applicable California standard.

Calcert = California engine family certification level listed on the Executive Order for the applicable engine family.

D. Within the bounds of Part A, the emissions required to offset a federal vehicle shall be the difference between the federal certification level and the sales-weighted mean certification level of all California engine families as of February 1, 1982, for passenger cars or the appropriate light-duty truck group as applicable.

$$\text{Estimated Withdrawals} = \sum_{j=1}^{n} \text{Fedsales}_j \, (\text{Fedcert}_j - \text{Calmean})$$

Where:

n = Number of unavailable passenger car and light-duty trucks by model types.

Fedsales = Estimated sales of unavailable federal model types in California.

Fedcert = Federal certification level of the engine family containing the unavailable model. Federal certification level shall be taken as the highest level, for each pollutant, of any emission data vehicle in an engine family.

Calmean = Sales weighted mean certification emission level of all engine families within the appropriate standards category.

E. The estimates referred to in Parts B, C, and D shall be corrected at year-end using vehicle production and assembly line emissions data, if available.

F. For the purposes of withdrawals, the 0 to 3999 lbs. and 4000 to 5999 lbs. EIW groups may be combined for light-duty trucks.

G. Manufacturers shall individually be limited to withdrawing the following percentages of accrued credits for offsetting federal vehicles:

Passenger Car NOx	- 8%
Light-Duty Truck HC	- 74%
Light-Duty Truck CO	- 17%
Light-Duty Truck NOx	- 39%

H. An emission deficit caused by misjudging sales of California vehicles shall be offset in the 1984 model year.

I. Sales of federal vehicles in excess of a manufacturer's final estimate shall cause the manufacturer to be subject to a maximum civil penalty of $5,000 per vehicle pursuant to Section 43154 of the Health and Safety Code, regardless of whether or not a deficit was incurred.

J. Vehicles with engine family emission levels which are equal to or less than the appropriate "Calmean" value are not eligible for offsetting.

ATTACHMENT C

Amend Section 2061, Title 13, California Administrative Code, to read as follows:

2061. Assembly-Line Test Procedures - 1983 and Subsequent Model Years.

New 1983 and subsequent model year passenger cars, light-duty trucks and medium-duty vehicles subject to certification and manufactured for sale in California shall be tested in accordance with the "California Assembly-line Test Procedures for 1983 and Subsequent Model Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," adopted November 24, 1981, including federally certified light-duty motor vehicles, except as provided in "Guidelines for Certification of 1983 Model Year Federally Certified Light-Duty Motor Vehicles for Sale in California", adopted _____.

NOTE: Authority cited: Sections 39515, 39601 and 43210, Health and Safety Code. Reference: Sections 43102, 43105, 43210, 43211 and 43212, Health and Safety Code.

ATTACHMENT D

Amend Section 1965, Title 13, California Administrative Code, to read as follows:

1965. Tune-up Labels - 1979 and Subsequent Model Motor Vehicles.

In addition to all other requirements, tune-up labels required by California certification procedures shall conform to the "California Motor Vehicle Tune-up Label Specifications," adopted March 1, 1978 and amended June 16, 1982.

NOTE: Authority cited: Sections 39600 and 39601, Health and Safety Code. Reference: Sections 39002, 39003, 43000, 43100, 43101, 43102, 43104, 43107 and 43200, Health and Safety Code.

State of California
AIR RESOURCES BOARD

California Motor Vehicle Tune-Up
Label Specifications

1. Purpose. The Air Resources Board recognizes that certain emissions-critical or emissions-related parts must be properly adjusted in order for vehicles and engines to meet the applicable emission standards. The purpose of these specifications is to require motor vehicle or motor vehicle engine manufacturers to affix a label on each production vehicle in order to provide the vehicle owner with information necessary for the proper adjustment of these parts.

2. Applicability. These specifications shall apply to each new 1979 and subsequent model-year passenger car, light-duty truck, medium-duty vehicle, heavy-duty gasoline-fueled engine, and heavy-duty diesel-fueled engine, and to each new 1982 and subsequent model year motorcycle sold or offered for sale in California. Any vehicles or classes of vehicles exempt from exhaust emission standards pursuant to Article 2, Chapter 3, Title 13 of the California Administrative Code shall also be exempt from the requirements of these specifications. The responsibility for compliance with these specifications shall rest with the motorcycle, light-duty vehicle, medium-duty vehicle, or heavy-duty engine manufacturer who certified such vehicles or engines.

3. Label Content and Location

   (a) A plastic or metal label shall be welded, riveted or otherwise permanently attached to an area within the engine compartment (if

any) or to the engine in such a way that it will be readily visible to the average person after installation of the engine in a vehicle. In selecting an acceptable location, the manufacturer shall consider the possibility of accidental damage (e.g., possibility of tools or sharp instruments coming in contact with the label). The label shall be affixed in such a manner that it cannot be removed without destroying or defacing the label, and shall not be affixed to any part which is likely to be replaced during the vehicle's useful life. For motorcycles, passenger cars, light-duty trucks, and medium-duty vehicles, the label shall not be affixed to any equipment which is easily detached from the vehicle.

(b) The label shall contain the following information lettered in the English language in block letters and numerals which shall be of a color that contrasts with the background of the label:

i. The label heading: "Emission Control Information."

ii. Full corporate name and trademark of the manufacturer.

iii Engine family identification, model designation (for heavy-duty diesels), and engine displacement (in cubic inches, cubic centimeters or liters).

iv. Exhaust Emission Control System: Initials may be used such as EM - engine modification, AI - air injection, FI - fuel injection.

v. Engine tune-up specifications and adjustments as recommended by the manufacturer, including but not limited to valve lash, ignition dwell, ignition timing, idle air fuel mixture setting procedure and valve (e.g., idle CO, idle speed drop), high idle

speed, and, for diesels, initial injection timing, advertised horsepower, and fuel rate (in mm^3/stroke) at advertised horsepower (all as applicable). These specifications shall indicate the proper transmission position during tune-up and what accessories, if any (e.g. air conditioner), should be in operation, and what systems, if any (e.g. vacuum advance, air pump), should be disconnected during the tune-up. For gasoline-fueled vehicles, the instructions for tune-up adjustments shall be sufficiently clear on the label so as to preclude the need for a mechanic or vehicle owner to refer to another document in order to correctly perform the adjustments.

vi. A vacuum hose routing diagram showing all emissions-related and emissions-critical parts that are actuated by vacuum and the correct routing of vacuum hoses. This diagram shall contain no more than two different vacuum hose routing patterns; however, if there are two routings on a single diagram each routing must be easily understandable. The hose diagram may be separated from the "Emission Control Information" label provided that the vacuum hose diagram is placed in a visible and accessible position.

vii. For motorcycles only, any specific fuel or engine lubricant requirements (e.g., lead content, research octane number, engine lubricant type).

viii For heavy-duty engines, the date of engine manufacture (month and year).

ix. An unconditional statement of compliance with the appropriate model year California regulations; for example, "This vehicle (or engine, as applicable) conforms to California regulations applicable to _____ model year new _____ (specify motorcycles, passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty gasoline engines, or heavy-duty diesel engines, as applicable)." For federally certified vehicles certified for sale in California the statement must include the phrase "conforms to federal regulations and is certified for sale in California". For incomplete light-duty truck and incomplete medium-duty vehicles the label shall contain the following statement in lieu of the above:

"This vehicle conforms to California regulations applicable to _____ model-year new vehicles when completed at a maximum curb weight of ____ pounds and a maximum frontal area of _____ square feet."

Such a statement shall not be used on labels placed on vehicles or engines which, in fact, do not comply with all applicable California regulations, including assembly-line test requirements, if any.

4. The provisions of these specifications shall not prevent a manufacturer from also reciting on the label that such vehicle or engine conforms to any applicable federal emission standards for new motor vehicles or new motor vehicle engines or any other information that such manufacturer deems necessary for, or useful to, the proper operation and satisfactory maintenance of the vehicle or engine.

5. As used in these specifications, readily visible to the average person shall mean that the label shall be readable from a distance of eighteen inches (46 centimeters) without any obstructions from vehicle or engine parts (including all manufacturer available optional equipment) except for flexible parts (e.g., vacuum hoses, ignition wires). Alternatively, information required by these specifications to be printed on the label shall be no smaller than 8 point type size provided that no vehicle or engine parts, (including all manufacturer available optional equipment), except for flexible parts, obstruct the label.

6. The label and any adhesives used shall be designed to withstand for the vehicle's total expected life, typical vehicle environmental conditions in the area where the label is attached. Typical vehicle environmental conditions shall include, but are not limited to, exposure to engine lubricants and coolants (e.g. gasoline, motor oil, brake fluids, water, ethylene glycol), underhood temperatures, steam cleaning, and paints or paint solvents. The manufacturer shall submit, with its certification application, a statement attesting that its label comply with this requirement.

7. The manufacturer shall obtain approval from the Executive Officer for all label formats and locations prior to use. Approval of the specific tune-up settings is not required; however, the format for all such settings and tolerances, if any, is subject to review. If the Executive Officer finds that the information on the label is vague or subject to misinterpretation, or that the location does not comply with these specifications, he or she may require that the label or its location be modified accordingly.

8. Samples of all actual production labels used within an engine family shall be submitted to the Executive Officer within thirty days after the start of production.

9. (a) The Executive Officer may, upon request, waive or modify any part of the requirements of these specifications for the 1979 model year if a vehicle or engine manufacturer does not have adequate lead time to comply with the aforementioned requirements.

   (b) The Executive Officer may approve alternate label locations or may, upon request, waive or modify the label content requirements provided that the intent of these specifications are met.

10. If the Executive Officer finds any motor vehicle or motor vehicle engine manufacturer using labels which are different from those approved or which do not substantially comply with the readability or durability requirements set forth in these specifications, the Executive Officer may invoke Secton 2109, Article 2, Subchapter 2, Chapter 3, Title 13, California Administrative Code.

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider the Adoption of Section 1960.5 and Amendment of Sections 1965 and 2061, Title 13, California Administrative Code, and the Adoption and Amendment of Documents Incorporated in those Sections, Regarding Certification of Federally Certified Light-Duty Motor Vehicles for Sale in California

Agenda Item No: 82-12-1

Public Hearing Date: June 16, 1982

Response Date: June 16, 1982

Issuing Authority: Air Resources Board

Comment: The staff and others identified a potential increase in oxides of nitrogen emissions of 0.7 tons per day for passenger cars and 0.8 tons per day for light-duty trucks and a potential increase of 5.8 tons per day of carbon monoxide and 0.8 tons per day of hydrocarbon for light-duty trucks.

Response: The proposed action incorporates all feasible mitigation measures. It applies for one year only and allows importation into California of no more federal vehicles than are needed to solve the unavailability problem. No technologically feasible alternatives are available, and no further mitigation measures are feasible due to the constraints of Health and Safety Code Section 43102(b).

Certified: Harold Holmes
Board Secretary

Date: 6/21/82

Office of the Secretary
JUL 27 1982
Resources Agency of California

STATE OF CALIFORNIA
AIR RESOURCES BOARD
1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812

EDMUND G. BROWN JR., Governor

Re: Public Hearing to Consider the Adoption of Section 1960.5 and Amendment of Sections 1965 and 2061, Title 13, California Administrative Code, and the Adoption and Amendment of Documents Incorporated in those Sections, Regarding Certification of Federally Certified Light-Duty Motor Vehicles for Sale in California

I certify that the record in the above-referenced proceeding was closed June 16, 1982, and that the enclosed is a complete true and correct copy of the rulemaking file in that proceeding.

Harold Holmes, Board Secretary

Enclosures

State of California
AIR RESOURCES BOARD

Executive Order G-147

WHEREAS, on June 16, 1982, the Air Resources Board (the "Board") conducted a public hearing to consider adoption and amendment of regulations regarding certification of federally certified light-duty motor vehicles for sale in California;

WHEREAS, at the close of the hearing, the Board adopted Resolution 82-37, appended hereto as Attachment 1, in which the Board approved Section 1960.5, Title 13, California Administrative Code, "Guidelines for Certification of 1983 Model Year Federally Certified Light-Duty Motor Vehicles for Sale in California", and amendments to Section 2061, Title 13, California Administrative Code, as set forth in Attachments A, B, and C thereto, and in which the Board directed the Executive Officer to adopt Attachments A, B, and C after making them available to the public for a period of 15 days; and

WHEREAS, following the June 16, 1982 public hearing, Attachments A, B, and C were made available to the public for a period of 15 days, with the changes to the originally proposed text clearly indicated.

NOW, THEREFORE, IT IS HEREBY ORDERED that the recitals and findings contained in Resolution 82-37 are incorporated herein.

IT IS FURTHER ORDERED that Section 1960.5, Title 13, California Administrative Code is adopted, as set forth in Attachment A to Resolution 82-37.

IT IS FURTHER ORDERED that "Guidelines for Certification of 1983 Model Year Federally Certified Light-Duty Motor Vehicles for Sale in California" are adopted, as set forth in Attachment B to Resolution 82-37.

IT IS FURTHER ORDERED that Section 2061, Title 13, California Administrative Code is amended, as set forth in Attachment C to Resolution 82-37.

Executed at Sacramento, California, this 20 day of July, 1982.

James D. Boyd
Executive Officer

State of California
AIR RESOURCES BOARD

Resolution 82-38

July 21, 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 1107-90 entitled "Improvement of Emission Inventories for Reactive Organic Gases and Oxides of Nitrogen in the South Coast Air Basin", has been submitted by Systems Applications Inc., to the Air Resources Board; 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 1107-90 entitled "Improvement of Emission Inventories for Reactive Organic Gases and Oxides of Nitrogen in the South Coast Air Basin", submitted by Systems Applications, Inc., for a total amount not to exceed $249,752;

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 1107-90 entitled "Improvement of Emission Inventories for Reactive Organic Gases and Oxides of Nitrogen in the South Coast Air Basin", submitted by Systems Applications, Inc., for a total amount not to exceed $249,752;

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $249,752.

I certify that the above is a true and correct copy of Resolution 82-38 as passed by the Air Resources Board.

Harold Holmes, Board Secretary

ITEM NO.: 82-14-3b1
DATE: July 21, 1982

ITEM: Research Proposal No. 1107-90 entitled "Improvement of Emission Inventories for Reactive Organic Gases and Oxides of Nitrogen in the South Coast Air Basin"

RECOMMENDATION: Adopt Resolution 82-38 approving Proposal No. 1107-90 for funding in an amount not to exceed $249,752

SUMMARY: Ambient concentrations of ozone in the South Coast Air Basin have remained steady or have decreased only slightly over the past ten years despite programs to control emissions of the primary ozone precursors, reactive organic gases (ROG) and oxides of nitrogen (NOx). Among the potential reasons for this trend are one or more of the following: population growth and/or increased use of motor vehicles has produced an increase in reactive organic gas emissions such that existing controls effectively are maintaining a constant ozone concentration; or, uncertainties exist in the emissions inventory so that the inventory does not reflect actual emissions of pollutants, particularly ROG and NOx, into the atmosphere. These and other uncertainties have led to the identification of a need to improve the emission inventory for ROG and NOx in the Basin.

Inaccuracies in the Basin inventory could result from the use of inappropriate emission factors particularly for the highly volatile and reactive organic species such as olefins in gasoline; omission of important sources and deficiencies in source data; and overestimation of the effectiveness of emission control equipment. The primary objectives of this research project are to develop improved, modeling-quality inventories for ROG and NOx from stationary sources in the Basin. To accomplish these objectives, the contractor will: review the current inventories for reactive organic gas emissions; randomly select and systematically survey a number of represenative 5 km x 5 km grid cells in the Basin; perform source tests and speciation analyses for selected emission sources; then, applying the newly developed emission factors, upgrade the inventories for all other grid cells in the Basin to produce on magnetic tape a new Basin-wide gridded inventory; determine the uncertainty in the new inventory; and document operating perturbations that can affect the yearly emission totals.

State of California
AIR RESOURCES BOARD

Resolution 82-39

July 21, 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 1154-93 entitled "Visibility Model Verification by Image Processing Techniques", has been submitted by the California Institute of Technology to the Air Resources Board; and

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

WHEREAS, The Research Screening Committee has reviewed and recommmends for funding:

> Proposal Number 1154-93 entitled "Visibility Model Verification by Image Processing Techniques", submitted by the California Institute of Technology for a total amount not to exceed $72,463;

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 1154-93 entitled "Visibility Model Verification by Image Processing Techniques", submitted by the California Institute of Technology for a total amount not to exceed $72,463;

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $72,463.

I certify that the above
is a true and correct copy
of Resolution 82-39 as passed
by the Air Resources Board.

Harold Holmes, Board Secretary

ITEM NO.: 82-14-3b2
DATE: July 21, 1982

ITEM: Research Proposal No. 1154-93 entitled "Visibility Model Verification by Image Processing Techniques"

RECOMMENDATION: Adopt Resolution 82-39 approving Proposal No. 1154-93 for funding in an amount not to exceed $72,463.

SUMMARY: Visibility degradation that is caused by air pollution may result in significant economic losses, either direct or indirect, as well as the loss or diminution of scenic vistas. Such degradation is caused by airborne particles and gases that attenuate light. A modeling approach recently developed at the California Institute of Technology consists of taking ambient air quality measurements and calculating visual properties from the measurements in regional haze situations.

The objective of this project is to develop a mathematical model that will relate pollutant characteristics to visual air quality based on radiative transfer theory and ambient measurements. Ambient air quality measurements will be made at the same time that photographs are taken during smoggy and clear conditions in the South Coast Air Basin. The clear condition photograph will be digitized for input to a computer, and the model will be applied with the ambient data taken during the study to compare the simulated smoggy photograph with the one taken during actual smoggy conditions. This will provide validation of the model that has been constructed.

The proposed modeling procedure is based on fundamental light scattering principles, and thus could be applied to other areas of the state experiencing extreme visibility problems. Because the Air Resources Board is responsible for air quality standards based on visibility and fine particle concentrations, a reliable mathematical model that relates the chemical and physical characteristics of pollutants to visibility would provide to the Board a useful basis for understanding and documenting the visual effects of proposed standards on visual air quality.

P R O P O S E D

State of California
AIR RESOURCES BOARD

Resolution 82-40

July 21, 1982

Will recall later NOT adopted see 82-48

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 1157-93 entitled "Control of Atmospheric Aerosol Nitric and Nitrate Acid Concentrations", nas been submitted by the California Institute of Technology to the Air Resources Board; and

WHEREAS, tne 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 1157-93 entitled "Control of Atmopheric Aerosol Nitrate and Nitric Acid Concentrations", submitted by the California Institute of Technology for a total amount not to exceed $375,620;

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 1157-93 entitled "Control of Atmospheric Aerosol Nitrate and Nitric Acid Concentrations", submitted by the California Institute of Technology for a total amount not to exceed $375,620;

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $375,620.

ITEM NO: 82-14-3b3
DATE: July 21, 1982

ITEM: Research Proposal No. 1157-93 entitled "Control of Atmospheric Aerosol Nitric and Nitrate Acid Concentrations"

RECOMMENDATION: Adopt Resolution 82-40 approving Research Proposal No. 1157-93 for funding in an amount not to exceed $375,620.

SUMMARY: It has been estimated that up to 40% of the visibility reduction in the eastern part of the South Coast Air Basin may be caused by aerosol nitrate, most of which is ammonium nitrate. Development of a control strategy to reduce fine particles and to improve visibility must, therefore, address the question of aerosol nitrates, and the relationship of pollutant emission to nitrate levels.

The precursors for ammonium nitrate formation are gaseous ammonia and nitric acid. Nitric acid is itself a secondary pollutant and is formed by a number of chemical reactions involving both oxides of nitrogen and reactive hydrocarbons, which are also responsible for ozone formation. Thus the implications of any control strategy for nitric acid control must be considered with respect to ozone formation.

Ammonia, the other precursor for aerosol nitrate formation arises from a number of anthropogenic as well as biogenic sources and to date a well-validated inventory has not been prepared. The reaction of ammonia and nitric acid to form nitrate aerosol is also affected by temperature and relative humidity. The project, to develop a control strategy for aerosol nitrate, will consist of the following tasks:

1. Modification of the Caltech photochemical airshed model to include nitrate aerosol formation;

2. Field sampling of ambient concentrations of NH_3, NO_2 and NO_3 to aquire a data base for model validation;

3. Preparation of emission inventories for NH_3, NOx and RHC for time periods corresponding to the ambient sampling;

4. Model Evaluation and Validation; and

5. Development of a strategy to reduce aerosol nitrate formation.

State of California
AIR RESOURCES BOARD

Resolution 82-41

July 21, 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 1102-90 entitled "Mobile Source Emissions Analysis for California", has been submitted by Energy and Environmental Analysis, Inc. and Sierra Research to the Air Resources Board; and

WHEREAS, an idependent panel of experts in vehicle pollution control and 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 1102-90 entitled "Mobile Source Emissions Analysis for California", submitted by the Energy and Environmental Analysis, Inc. and Sierra Research for a total amount not to exceed $169,859;

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 1102-90 entitled "Mobile Source Emissions Analysis for California", submitted by Energy and Environmental Analysis, Inc. and Sierra Research for a total amount not to exceed $169,859;

BE IT FURTHER RESOVLED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $169,859.

I certify that the above
is a true and correct copy
of Resolution 82-41 as passed
by the Air Resources Board.

Harold Holmes, Board Secretary

ITEM NO.: 82-14-3b4
DATE: July 21, 1982

ITEM: Research Proposal 1102-90 entitled "Mobile Source Emissions Analysis for California"

RECOMMENDATION: Adopt Resolution 82-41 approving Research Proposal 1102-90 for funding in an amount not to exceed $169,859.

SUMMARY: Automotive emission control systems have increased in complexity and sophistication over the past decade as a result of increasingly stringent standards for emissions and fuel-economy. At the same time, the burden of maintaining these emission controls also has increased, and as a result, regulatory efforts have been shifted in the direction of developing the measures necessary to ensure the proper performance of emission control systems now in use.

This proposal by Engergy and Environmental Analysis, Inc. and Sierra Research addresses the needs of the Air Resources Board for a critical analysis of the impact of present and future automobile emission control technologies and the effects of recently enacted and pending state and federal legislation upon present and future mobile source emission levels in California.

Current (in-use) and projected emission control technology for passenger cars and light-duty trucks covering model years 1975-1987 will be catalogued and differences in calibration and approach between the various emission control systems will be identified. The current California sales mix of each technology type will be obtained and the future sales mix will be projected to 1987. Effects on emission of common malperformance modes for each emission control system will be estimated and used to derive California-specific emission factors for each emission control technology type. This information is to be used subsequently for analyses of motor vehicle emissions and controls relative to proposal for:

1. Clean Air Act revision.

2. Motor Vehicle Inspection and Maintenance programs, and

3. AB 965, which allows automobile manufacturers to offset California vehicles that are cleaner than applicable state standards with federal 49-state vehicles.

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider Amendments to Title 13, California Administrative Code, Section 1960.1 and Related Test Procedures, Regarding the Adoption of Particulate Exhaust Emission Standards for 1985 and Subsequent Model Year Diesel-Powered Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles

Agenda Item No.: 82-16-2

Public Hearing Date: August 25, 1982

Response Date: August 26, 1982

Issuing Authority: Air Resources Board

Comment: The staff and others identified a potential increase in sulfate emissions resulting from the use of catalysts with particulate control technology.

Response: The staff report noted that manufacturers would probably use trap oxidizer emission control systems to comply with the particulate exhaust emission standards. Some of the trap oxidizer systems could contain catalysts which would increase sulfate emissions from the vehicles. Catalyst manufacturers are developing new formulas which could limit sulfate emission increases to a nominal amount. Any increase in sulfate emissions could be mitigated by lowering the sulfur content of the diesel fuel. Since the Air Resources Board has already adopted regulations that limit the sulfur content of diesel fuel sold in the South Coast Air Basin, the staff does not anticipate a significant increase in sulfate emissions from the use of catalyzed trap oxidizers within that Basin. These regulations could be extended to other areas of the state if sulfates become a problem.

CERTIFIED: Harold Holmes
Board Secretary

Date: September 16, 1982

State of California

Memorandum

To : Huey D. Johnson
Secretary
Resources Agency

Date : November 4, 1982

Subject: Filing of Notice of Decision of the Air Resources Board

From : Air Resources Board

Pursuant to Title 17, Section 60007 (b), and in compliance with Air Resources Board certification under section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decision and response to environmental comments raised during the comment period.

Harold Holmes
Board Secretary

attachments
Resolution 82-50
Resolution 82-55
S.E.I. for Diesels

State of California
AIR RESOURCES BOARD

Resolution 82-44

August 25, 1982

Agenda Item No: 82-16-3b(1)

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 1159-94 entitled "Effects of Acid Rain on Plant-Microbial Associations in California: (a) The Influence on Mycorrhiza and Legume Growth; and (b) The Field Study of Acid Rain Effects on Soil and Vegetation" has been submitted by the University of California, Berkeley, to the Air Resources Board; 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 1159-94 entitled "Effects of Acid Rain on Plant-Microbial Associations in California: (a) The Influence on Mycorrhiza and Legume Growth; and (b) The Field Study of Acid Rain Effects on Soil and Vegetation" submitted by the University of California, Berkeley, for an amount not to exceed $83,524;

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 1159-94 entitled "Effects of Acid Rain on Plant-Microbial Associations in California: (a) The Influence on Mycorrhiza and Legume Growth; and (b) The Field Study of Acid Rain Effects on Soil and Vegetation" submitted by the University of California, Berkeley, for an amount not to exceed $83,524.

BE FURTHER RESOLVED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed in an amount not to exceed $83,524.

I certify that the above is a true and correct copy of Resolution 82-44 as passed by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

State of California
AIR RESOURCES BOARD

Agenda Item No: 82-16-3b(1)
Date: August 25, 1982

ITEM: Research Proposal No. 1159-94 entitled "Effects of Acid Rain on Plant-Microbial Associations in California: (a) The Influence on Mycorrhiza and Legume Growth; and (b) The Field Study of Acid Rain Effects on Soil and Vegetation".

RECOMMENDATION: Adopt Resolution 82-44 approving Research Proposal No. 1159-94 for funding in an amount not to exceed $83,524.

SUMMARY: The damage that acid precipitation causes to aquatic ecosystems has been documented in Scandinavia and Eastern North America. The Air Resources Board has sponsored research showing that acid precipitaton occurs widely in California and that soils and vegetation face potential adverse effects from acid precipitation. The nature of these effects and the important question of reversibility have not yet been studied.

Acid precipitation may adversely affect beneficial microbial processes such as nitrogen fixation and nutrient mobilization. Nitrogen and phosphorus are supplied to many plants through symbiotic relationships between mycorrhizal fungi and bacteria. Such plants supply energy to the microbes and the microbes supply phosphorus, nitrogen or other nutrients in a form usable to the plants. These symbiotic relationships are very important sources of nutrients to plants, especially forest and range plants. Serious consequences to ecosystems can result through reduced growth and ability of the plant to compete for nutrients if acid deposition interferes with the symbiosis.

California has within its borders examples of the devastating effects of acid and metallic deposition on vegetation and soils. A metal smelter operated near Redding from 1905-1919 caused deforestation and subsequent severe erosion downwind from the operation. Even today, this area is in various stages of recovery and could yield valuable information about long term effects of acid deposition on vegetation and soil. The proponent plans to coordinate laboratory and greenhouse studies with field studies near the smelter to determine the effects of acid deposition on important plant-microbe relationships.

The first part of the proposal is concerned with laboratory and greenhouse studies on the effect of acid precipitation

on the relationship of mycorrhizal fungi to two grasses, clover and soft chess. These plants are already being exposed to simulated acid rain by Drs. John McColl and Mary Firestone under an existing ARB contract. The proponent would also use lupine to investigate carbon flow and nutrient mobility between the plant and mycorrhizal fungi and rhizobia bacteria as they are affected by simulated acid precipitation. Plant growth as well as the extent of mycorrhizal infection, rate of nitrogen fixation, soil pH and the concentration of manganese and aluminum in the soil available to the plant will be recorded.

The second part of the proposal consists of a field study of the soil and vegetation and the fungi and bacteria associated with the plant roots in the area around the smelter near Redding. Field sites will be chosen along the gradient of smelter effects, from the most heavily impacted out to areas that were never impacted. A survey of vegetation occurring over the range of severity of smelter effects will be carried out. Vegetation will be analyzed for the elements, nitrogen, phosphorus, manganese, iron, zinc, nickel, calcium, magnesium, sulfur and copper. Soils will be analyzed for pH, cation exchange capacity, organic matter, microbial biomass and the elements nitrogen, phosphorus, copper, zinc and manganese. The extent of infection of plant roots by mycorrhizal fungi as well as the types of fungi present will be determined. Results of the laboratory and greenhouse studies will be compared with field observations to elucidate the mechanisms by which acid deposition affects soil and vegetation-microbe relationships.

The proposed work will provide valuable information to the ARB for assessing the impact of acid deposition on California soil-plant-microbe systems. The study would extend our knowledge in two areas: 1) the potential long term effect of acid deposition on soil and its reversibility; and 2) the effects of acid deposition on important plant-microbe relationships.

State of California
AIR RESOURCES BOARD

Resolution 82-45

August 25, 1982

Agenda Item No.: 82-16-3b(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, an unsolicited research Proposal Number 1160-94 entitled "Development of Methods to Estimate the Benefits of Visibility Improvement" has been submitted by the Santa Fe Research Corporation to the Air Resources Board; 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 1160-94 entitled "Development of Methods to Estimate the Benefits of Visibility Improvement" submitted by Santa Fe Research Corporation, for a total amount not to exceed $54,783;

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 1160-94 entitled "Development of Methods to Estimate the Benefits of Visibility Improvement" submitted by Santa Fe Research Corporation, for a total amount not to exceed $54,783;

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $54,783.

I certify that the above is
a true and correct copy of
Resolution 82-45 as passed by
the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

State of California
AIR RESOURCES BOARD

Agenda Item No.: 82-16-3b(2)
Date: August 25, 1982

ITEM: Research Proposal Number 1160-94 entitled "Development of Methods to Estimate the Benefits of Visibility Improvement"

RECOMMENDATION: Adopt Resolution 82-45 approving Research Proposal Number 1160-94, for funding in an amount not to exceed $54,783.

SUMMARY: This research project will provide estimates of the current cost of visibility degradation and the potential benefits of visibility improvement. Recent air quality benefit studies suggest that visibility degradation may be one of the greatest costs of air pollution; however these studies have not provided a methodology to estimate visibility benefits on a systematic basis. The objective of this project is to develop systematic procedures for use in assessing the benefits of improved visibility.

The procedures for estimating visibility benefits will be based on an analysis of the relationship between housing values (sales prices) and measured visibility. Spatially detailed data sets for four Los Angeles area counties and for five San Francisco area counties covering two time periods, 1973-74 and 1978-79, will be used to develop the relationships for the analysis.

Task 1 of the proposed project will assemble, process and organize data for four visibility indices in a format consistent with the data for housing values and various market parameters. Task 2 will derive, test, and correct statistical relationships between housing values, visibility indices, and various other factors. Task 3 will formulate and apply an economic procedure for estimating visibility benefits based on the statistical relationships.

The project is very cost-effective, in that it represents a synthesis of visibility research previously conducted by SFRC with housing value data previously organized by the project economists. This synthesis will permit analysis to be performed on bountiful and detailed data sets at relatively little cost.

State of California
AIR RESOURCES BOARD

Resolution 82-46

September 22, 1982

Agenda Item No.: 82-18-2

WHEREAS, Health and Safety Code Section 39601 requires the Air Resources Board (the "Board") to adopt rules and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the state board;

WHEREAS, Health and Safety Code Section 39606(b) requires the Board to adopt standards of ambient air quality for the protection of the public health, safety and welfare, including but not limited to health, illness, irritation to the senses, aesthetic value, interference with visibility, and effects on the economy;

WHEREAS, the Board has received and reviewed a substantial body of evidence and testimony, in both written and oral form, from its staff, other scientists, and members of the public at a duly-noticed public hearing to consider the proposed standards;

WHEREAS, Health and Safety Code Section 39606(b) states that standards relating to health effects shall be based upon the recommendation of the State Department of Health Services;

WHEREAS, the Board has received and considered a recommendation from the Department of Health Services, dated June 30, 1982;

WHEREAS, the current statewide ambient air quality standard for carbon monoxide, as set forth in Title 17, California Administrative Code, Section 70200, is 10 parts per million (ppm) averaged over 12 hours and 40 ppm averaged over 1 hour;

WHEREAS, in consideration of the recommendation of the Department of Health Services and in consideration of the staff's analysis of relevant data and studies, the staff has proposed amendments to the sea level ambient air quality standards for carbon monoxide, applicable statewide, as follows: 9.0 ppm averaged over 8 hours and 20 ppm averaged over 1 hour;

WHEREAS, the California Environmental Quality Act and Board regulations require that action not be taken as proposed if feasible mitigation measures or alternatives exist which would substantially reduce any significant adverse environmental effects of the proposed action; and

WHEREAS, the Board finds that:

Carbon monoxide reduces the oxygen carrying capacity of the blood by binding to hemoglobin, the principal oxygen carrier of the blood, to form carboxyhemoglobin;

Carbon monoxide's affinity for hemoglobin is 210-250 times greater than that of oxygen for hemoglobin;

Reductions in the oxygen-carrying capacity of the blood are critical to the health of certain groups of sensitive persons; there is evidence of greater than normal risk from exposure to carbon monoxide for persons with angina pectoris or other cardiovascular diseases, chronic obstructive lung disease, persons with anemia, pregnant women, and fetuses;

The lowest mean level of carboxyhemoglobin linked to adverse effects on health is in the range of 2.0 to 3.0 percent, expressed as percent saturation of hemoglobin with carbon monoxide;

Two percent carboxyhemoglobin is the lowest group mean level at which an earlier onset of angina has been demonstrated based upon a recent study by Aronow (1981). Other studies by Aronow et al. and Anderson et al. have found earlier onset at slightly higher group mean COHb levels;

Carbon monoxide is also known to affect the central nervous system by causing decrements in alertness and visual function at carboxyhemoglobin levels of 4.0 to 6.0 percent.

Eight-hour average measurements of carbon monoxide are higher than twelve-hour averages;

Predictions of carboxyhemoglobin levels show that exposure to carbon monoxide concentrations of no higher than 9.0 ppm for 8 hours and 20 ppm for 1 hour will ordinarily prevent carboxyhemoglobin levels from rising above 2 percent, and thereby prevent the noted adverse health effects;

The current California ambient air quality standards for carbon monoxide do not adequately protect sensitive segments of the population from adverse effects on health;

The recommendation of the Department of Health Services does not adequately take into account all available evidence, including the 1981 study by Aronow, and for this reason, the Board finds, in light of all the evidence presented to it, that the standards recommended by the Department of Health Services will not adequately protect the public health;

The standards adopted by this resolution are necessary to protect the public health; and

There exist technologically feasible and cost-effective measures to reduce emissions of carbon monoxide; and

The standards adopted by this resolution will have a beneficial effect on air quality and will have no adverse environmental impacts.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby amends the regulations contained in Title 17, California Administrative Code, Section 70200, as set forth in Attachment A.

BE IT FURTHER RESOLVED that the Board directs the staff to continue to study the effects of CO on COHb levels of susceptible groups in the population, such as pregnant and menstruating women, fetuses, and persons with anemia and cardiovascular disorders.

I certify that this is a
true and correct copy of
Resolution 82-46, as adopted
by the Air Resources Board

Harold Holmes, Board Secretary

Amend Title 17, California Administrative Code, Section 70200, to read as follows:

70200. Table of Standards, Applicable Statewide.

Substance	Concentration and Methods*	Duration of Averaging Periods	Most Relevant Effects	Comments
Oxidant (as ozone)	0.10 ppm ultraviolet photometry	1 hour	Aggravation of respiratory diseases	This level is below that associated with aggravation of respiratory diseases.
Carbon Monoxide	~~10 ppm NDIR~~ 9.0 ppm NDIR** ~~40 ppm NDIR~~ 20 ppm NDIR**	~~12 hours~~ 8 hours ~~1 hour~~ 1 hour	~~2-2 1/2% COHb~~ 2-2 1/2% COHb a. Aggravation of angina pectoris and other aspects of coronary heart disease. b. Decreased exercise tolerance in persons with peripheral vascular disease and lung disease. c. Impairment of central nervous system functions. d. Possible increased risk to fetuses.	~~This level is below those associated with impairment in time discrimination, visual function, and psychomotor performance.~~ The relevant effects were found to be due to decreased capacity of the blood to carry oxygen, as measured by carboxyhemoglobin content.
Carbon Monoxide (Applicable only in the Lake Tahoe Air Basin)	6 ppm NDIR	8 hours	Will increase COHb by 1-1 1/2%	At altitude the lowered oxygen tension leads to greater absorption of CO. Persons participating in strenuous recreational activities at higher altitudes are often unacclimated.
Sulfur Dioxide (SO_2)	0.5 ppm conductimetric method	1 hour	a. Approximate odor threshold. b. Possible alteration in lung function.	Alteration in lung function was found at this level in only one study. Other studies reported higher concentrations to cause this effect.
	0.05 ppm conductimetric method with oxidant, (ozone) equal to or greater than the state standard, or with suspended particulate matter equal to or greater than the state 24-hour suspended particulate matter standard.	24 hours	a. Will help prevent respiratory disease in children b. Higher concentrations associated with excess mortality.	a. Further studies on cocarcinogenic role are necessary. b. Does not include effects on vegetation, ecosystems and materials. c. May not include a margin of safety.

Visibility Reducing Particles	In sufficient amount to reduce visibility*** to less than 10 miles when relative humidity is less than 70%	1 observation	Visibility impairment on days when relative humidity is less than 70%.	
Visibility Reducing Particles (Applicable only in Lake Tahoe Air Basin)	In sufficient amount to reduce the prevailing visibility*** to less than 30 miles when relative humidity is less than 70%	1 observation	Reduction in scenic quality on days when the relative humidity is less than 70%	
Suspended Particulate Matter	60 $\mu g/m^3$ high volume sampling	24 hour samples, annual geometric mean	Long continued exposure may be associated with increase in chronic respiratory disease.	This standard applies to suspended particulate matter in general. It is not intended to be a standard for toxic particles such as asbestos, lead, or beryllium. Because size distribution influences the effect of particulate matter on health, the standard will be reevaluated as data on health effects related to size distribution become available.
	100 $\mu g/m^3$ high volume	24 hour sample	Exposure with SO_2 may produce acute illness.	
Lead (Particulate)	1.5 $\mu g/m^3$ AIHL Method No. 54, or equivalent	30 day average	Increased body burden, impairment of blood formation and nerve conduction	
Hydrogen Sulfide	0.03 ppm cadmium hydroxide STRactan Method	1 hour	Exceeds the odor threshold	
Nitrogen Dioxide	0.25 ppm, Saltzman	1 hour	a. At slightly higher dosage effects are observed in experimental animals, which imply a risk to the public health. b. Produces atmospheric discoloration.	
Sulfates	25 $\mu g/m^3$ total sulfates, AIHL #61	24 hours	a. Decrease in ventilatory function b. Aggravation of asthmatic symptoms c. Aggravation of cardiopulmonary disease d. Vegetation damage e. Degradation of visibility f. Property damage	This standard is based on a Critical Harm Level, not a threshold value.

* Any equivalent procedure which can be shown to the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

** These standards are violated when concentrations exceed those set forth in the body of the regulation.

*** Prevailing visibility is defined as the greatest visibility which is attained or surpassed around at least half of the horizon circle, but not necessarily in continuous sectors.

NOTE: Authority cited: Sections ~~39601(a)~~, 39600, 39601, and 39606(b), Health and Safety Code. Reference: Sections ~~70200~~ 39606(b) and 39701, Health and Safety Code.

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider Amendments to Section 70200, Title 17, California Administrative Code, Regarding the State Ambient Air Quality Standards for Carbon Monoxide (Sea Level)

Agenda Item No.: 82-18-2

Public Hearing Dates: August 26, 1982, and September 22, 1982

Response Date: September 22, 1982

Issuing Authority: Air Resources Board

Comment: No comments were received identifying any significant environmental issues pertaining to this item. The staff report identified no adverse environmental effects.

Response: N/A

CERTIFIED: Harold Holmes
Board Secretary

Date: 11-10-82

State of California
AIR RESOURCES BOARD

Public Hearing to Consider Amendments to Section 70200, Title 17, California Administrative Code, Regarding the State Ambient Air Quality Standards for Carbon Monoxide (Sea Level)

Scheduled for Consideration: August 26, 1982
Agenda Item No.: 82-18-2

FINAL SUMMARY AND STATEMENT OF REASONS FOR PROPOSED RULEMAKING

A. BACKGROUND

The Air Resources Board (the "Board") revised the California ambient air quality standards for carbon monoxide on September 22, 1982. The standards adopted were 9.0 ppm averaged over 8 hours and 20 ppm averaged over 1 hour. The Board conducted a public hearing on August 26, 1982. Testimony and written comments were received in the public hearing. The hearing record was left open for additional comment until September 15. Staff was directed to respond to comments received by the close of the comment period.

The initial summary and statement of reasons is attached hereto and incorporated by reference herein.

B. OPPOSING CONSIDERATIONS AND AGENCY RESPONSE

Opposing Consideration: Comment submitted by Gregory R. McClintock on behalf of Western Oil & Gas Association: The Air Resources Board (ARB) did not comply with the provision in Health and Safety Code Section 39606(b) that the standard be "based upon the recommendation of the Department of Health Services", as interpreted in WOGA v. ARB, California Court of Appeal (2d. Dist.), Civil No. 63339 (March 10, 1982).

Agency Response: This comment rests in large part on the cited decision of the California Court of Appeal (WOGA v. CARB, No. 2 Civil 63339). This decision is presently of no force and effect, since on May 27, 1982, the California Supreme Court by a vote of 7-0 granted a hearing in the case. One of the issues which the Supreme Court will decide when it hears the case is the effect of the statutory mandate that health-related standards be "based on the recommendation of the Department of Health Services."

It is the position of the ARB that in giving the Department of Health Services (DHS) a recommending function only, the statute left with the ARB the discretion to depart from the DHS recommendation if the evidence before it warranted such a departure.

The phrase "based upon" as used in the statute does not equate with "identical to". If the Legislature had intended the ARB standard to be identical to that recommended by DHS, it would have so stated. On the contrary, the ARB was given authority to hold hearings which require it to exercise its discretion based upon all the evidence presented. (Health and Safety Code Section 39601(a); Government Code Section 11346.8(a)). The public hearing process, which is designed to permit persuasion of the decision makers by those testifying, would be a total sham if the outcome had to be adoption of a standard identical to that recommended by DHS.

It is also relevant that the ARB is presently required by statute (Health and Safety Code Section 39510(b)(3)) to have among its members a person who is either "a physician and surgeon or an authority on health effects of air pollution." This is an indication that the Legislature intends the ARB to have the final discretion regarding health-based ambient standards.

Agency Response: This comment rests in large part on the cited decision of the California Court of Appeal (WOGA v. CARB, No. 2 Civil 63339). This decision is presently of no force and effect, since on May 27, 1982, the California Supreme Court by a vote of 7-0 granted a hearing in the case. One of the issues which the Supreme Court will decide when it hears the case is the effect of the statutory mandate that health-related standards be "based on the recommendation of the Department of Health Services."

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The ARB complied fully with the statute in adopting this regulation in that it based the adopted standard on the DHS recommendation. The Board fully considered the recommendation and departed from it only to the extent called for by scientific evidence introduced into the record.

Even were the cited case to apply, the ARB complied with the criteria set forth in the decision and quoted by Mr. McClintock. The DHS was looked to as a primary source of information and the decision to set a standard necessary to prevent carboxynemoglobin (COHb) levels from exceeding 2 percent (rather than 2.5 percent) was based upon evidence that the lower level of COHb was necessary to prevent adverse health effects on sensitive groups, as discussed elsewhere in this document. (See below, page 12.)

Opposing Consideration: Comment submitted by Gregory R. McClintock on behalf of WOGA: The ARB has failed to consider the "effects on the economy" of adopting the standard, as required by Health and Safety Code Section 39606(b).

Agency Response: Here again the commenter has relied on a judicial decision which is of no force and effect because of the grant of hearing in the case by the California Supreme Court. It is the Board's position that Section 39606 requires it to consider the effects of air pollution on the economy (e.g. damage to materials, injury to agriculture), not the effects of setting the standard on the economy. Indeed, when adopting a health-based standard, the ARB is directed to assure that the levels of the pollutant in the ambient air will not adversely affect public health; economic considerations are not relevant in this inquiry, but are extensively analyzed when individual control measures are considered so that the most cost-effective methods practicable are implemented in order to attain the ambient standards.

A full discussion of the Board's position on this issue is contained in the Petition for Hearing filed before the California Supreme Court in WOGA v. CARB. A copy of this Petition is attached hereto.

Opposing Consideration: Comment submitted by Mr. McClintock on behalf of WOGA: The discussion of what additional air pollution controls, if any, would be needed to achieve the 20 parts per million (ppm) hourly standard is inadequate because it does not discuss whether more stringent controls would be needed, what types of controls are available, their relative costs, and whether such costs are reasonable.

Agency Response: The discussion in the staff report regarding cost-effectiveness is not required by law because the standard is to be set at a level to protect the public health. Consideration of control measures, their relative costs, and their relative effectiveness, takes place either at the local level when the air pollution control districts adopt specific measures to attain the standard, or when the ARB adopts emission standards for the control of motor vehicle emissions. It is not possible at this time to know the amount of additional control, if any, necessary to meet the standard and it is not appropriate to consider control measures in detail in a proceeding to adopt an ambient air standard, which simply indicates how healthy air is to be defined. The brief discussion in the staff report is solely intended to provide information that there are in fact cost-effective controls which could be implemented if needed.

Opposing Consideration: Comment submitted by Mr. McClintock on behalf of WOGA: The standard for carbon monoxide (CO) is not yet ripe for ARB consideration since the DHS has failed to hold any notice and comment proceedings with respect to its recommendations.

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Opposing Consideration: Comment submitted by Mr. McClintock on behalf of WOGA: The standard for carbon monoxide (CO) is not yet ripe for ARB consideration since the DHS has failed to hold any notice and comment proceedings with respect to its recommendations.

Agency Response: There is no statutory requirement that the DHS hold public hearings in the preparation of its recommendation to the ARB. The DHS is not adopting a standard, the ARB is, based upon but not necessarily identical to the DHS recommendation. The DHS recommendation is subject to comment at the ARB proceeding, as are all other scientific data, which serves to emphasize the importance of the ARB hearing and the need for the decision makers to consider all the testimony presented rather than rely solely on DHS. The DHS recommendation represents the result of mandatory consultation between two state agencies; a public hearing by the consulted agency is simply not part of the legally required scheme. WOGA has cited no authority to support its position, because none exists.

Opposing Consideration: Testimony presented by William E. Lambert: The ARB and DHS reports do not adequately estimate COHb levels in susceptible populations and also underestimate the response of the general population to CO exposure. For example, in Table XI-1 of the staff report (p. 44) hemoglobin and blood volume values are representative of a normal adult male while values for women are not adequately considered. Also, the selected endogenous CO production rate of 0.007 ml/min. is a value at the lower end of a range cited by the USEPA (0.007 - 0.014 ml/min). A more appropriate value would be 0.010 ml/min, the midpoint of the range.

Agency Response: Table XI-1 has been expanded to include parameters representative of women. The results are shown in the attached Table XI-1 - (Revised).

Opposing Consideration: Testimony presented by William E. Lambert: In Table XI-2 of the staff report, the physiological parameters used in the important hypothetical Case 3 are typical of the normal adult male and thus

underestimate COHb levels for the adult female segment of the population. Some of the female population with coronary artery disease will manifest levels of COHb that exceed 2 percent. Probably no margin of safety is afforded to either sex at the 20 ppm level.

Agency Response: Staff agrees that the appropriate parameters for women should be considered and recognizes the importance of using those values to afford adequate protection of public health. Staff has recalculated Table XI-2 in light of the above suggestions, and the results are shown in the attached revised table. Case 3 in Table XI-2 represents persons exposed to CO with an elevated COHb level. The margin of safety will vary depending upon an individual's initial COHb level. This case was intended to demonstrate that persons may not be adequately protected if they have an initial COHb level approaching 1.5 percent. The revised table indicates that women are indeed at higher risk, for example, as initial COHb levels increase.

Opposing Consideration: Testimony present by William E. Lambert: Tables XI-2 and XI-3 in the ARB staff report (and Table 4 and 5 in the DHS recommendation) identify Case 2 as representing extreme conditions, i.e., where each physiological parameter is adjusted in the direction of increasing the resulting COHb level. However, it could be argued that values for each of the parameters are typical of a large segment of the adult female population and not truly "extreme" conditions. It is more appropriate to consider Case 2 in Tables XI-2 and XI-3 as representative of a large part of the adult female population.

Agency Response: As noted above, Tables XI-1 and XI-2 have been revised to include parameters representing women. In Table XI-2 (Revised) two additional cases (4 and 5) have been added. Case 4 represents a baseline case

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Agency Response: As noted above, Tables XI-1 and XI-2 have been revised to include parameters representing women. In Table XI-2 (Revised) two additional cases (4 and 5) have been added. Case 4 represents a baseline case

for women. Case 5 for women is similar to Case 3 for men. Case 5 indicates that women are predicted to reach 2 percent COHb when initial COHb levels are slightly below 1.5 percent. Case 2 in Table XI-2 is still shown as representing an extreme case where all physiological parameters have been adjusted to increase resulting COHb levels.

In a revision to Table XI-3, an additional case (3) has been calculated for a standard level of 9.0 ppm for eight hours, using actual air quality profiles that had been adjusted to simulate attainment. In one air quality profile the predicted COHb level for women rose to 2.1 percent. In the other air quality patterns COHb levels remained below 2.1 percent.

Opposing Consideration: Testimony presented by William E. Lambert: The ARB and DHS reports have identified high risk subgroups of the population most affected by the proposed CO standard revisions. The Board should consider effects on hypersusceptible groups such as women, fetuses and newborns, persons with certain genetic blood disorders, users of certain medications, persons with certain nutritional deficiencies, pregnant and menstruating women, and high altitude populations.

Agency Response: Obtaining information on the physiological parameters of some of these groups is quite difficult. Staff believes that the major sensitive groups, such as women (including pregnant women), fetuses, and persons with heart and lung disease, have been considered in the proposed standards. As noted in the staff report, populations residing or visiting high altitudes will be specifically addressed in an upcoming report next year concerning the Lake Tahoe Air Basin carbon monoxide standard. Staff is proposing to be directed by Board resolution to seek additional information

concerning the other hypersusceptible groups identified in the comment for consideration in the next review of the carbon monoxide standards.

Opposing Consideration: Comment submitted by M. M. Hertel on behalf of Southern California Edison (SCE): The proposed standards are not based on the DHS recommendation as required by statute, since the ARB proposal is not identical to the DHS recommendation.

Agency Response: See above response to Gregory R. McClintock.

Opposing Consideration: Comment submitted by M. M. Hertel on behalf of SCE: The Coburn equation (used to predict COHb levels relative to ambient CO levels) has not been adequately evaluated at low doses of CO and in people considered unusual (sensitive). The accuracy of predictions derived from this equation using "sensitive" physiological parameters is not known.

Agency Response: The consensus of expert scientific opinion, as summarized by the EPA in its August 18, 1980 proposal, is that the equation is the best tool available for estimating COHb levels resulting from short-term (1-8 hours) exposures to ambient CO concentrations (USEPA, 1980). Peterson and Stewart (1970 and 1975) have reported good correlation between COHb values measured in both male and female subjects and those predicted by the Coburn equation.

Not setting a standard because of imperfect knowledge can always be argued. The Board must consider whether the evidence presently available is sufficiently supported to warrant taking action to protect persons who may be more sensitive to CO. Using the best evidence available, the Board has decided that public policy requires protecting such subgroups.

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Opposing Consideration: Comment submitted by M. M. Hertel on behalf of SCE: The public health significance of the earlier occurrence of angina (chest pain) when exercising, at COHb levels near 2.5 percent, is not known at present. The health basis for the proposed standards is overstated.

Agency Response: Earlier onset of angina pectoris (incapaciting pain in the chest) is significant to public health because it is an indication that the heart muscle is not receiving sufficient oxygen. Persons suffering such attacks must usually cease activity. The EPA (1980) noted that increased duration of angina attacks has also been reported (e.g., Anderson et al., 1973). Thus, earlier onset of angina or reduced time (during exercise) to onset of angina is an indication that persons suffering from cardiovascular disease and exposed to CO may have their ability to carry out normal daily activities impaired or have angina attacks prolonged.

The EPA concluded that aggravation of angina is an adverse health effect because it may result in cardiovascular damage, which is unquantifiable using present technology (USEPA, 1980). Aggravation of angina may be the first in a series of increasingly more serious symptoms accompanying cardiovascular disease. At higher levels of oxygen deprivation, angina patients experience more serious symptoms such as coronary insufficiency. Coronary insufficiency is sometimes accompanied by changes in enzyme levels and electrocardiographic irregularities. Myocardial infarction is the most serious symptom in this continuum of effects. Infarction is accompanied by irreversible heart damage as revealed by changes in enzyme levels and electrocardiographic irregularities. The staff concurs with the EPA and therefore considers aggravation of angina an adverse effect and an indicator that more serious effects may occur in some individuals at the same COHb levels.

Opposing Consideration: Comment submitted by Donald R. Buist on behalf of Ford Motor Company: The 1-hour/20 ppm standard is unneccessary because the 8-hour standard is the controlling factor with respect to attainment of both standards. Because the proposed 1-hour standard will have no impact on ambient air CO levels, it is reasonable to conclude that there would not be any public health benefits either.

Agency Response: Although the 8-hour standard is usually the controlling standard, this fact does not negate the need to define when a health hazard may occur from short-term exposures. One expert witness (Dr. Steven Horvath) at the August 1982 public hearing stated his concern about effects of short-term, high level CO peaks. (Transcript, August 26, 1982, pp. 101-103).

These transient peaks may not be accurately measured by fixed monitoring stations. Because CO emissions are chiefly due to motor vehicles, localized high concentrations or "hotspots" may occur near major traffic arteries or in downtown urban streets. A five day study performed in Los Angeles County by Peterson and Allen (1982) showed that the average ratio of traffic artery to fixed site measurements was 3.9:1. Although this ratio decreased with increasing ambient CO levels, it demonstrates that fixed site measurements of CO concentration may significantly underestimate acute human exposures.

Opposing Consideration: Comment submitted by Donald R. Buist on behalf of Ford Motor Company: With respect to the proposed change from a 12-hour standard of 10 ppm to an 8-hour standard of 9 ppm, Ford recommends that one allowable exceedance per year (on an expected statistical basis) be permitted.

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Agency Response: The ARB is required to adopt a CO standard as necessary to protect the public health. The ARB has determined that the CO ambient levels represented by the standard must not be exceeded at all, even under worst case conditions, or the public health will not be adequately protected. If the ARB had intended to allow exceedances of the standard, it is possible that the standard itself would have been more stringent in order to achieve the goal of health protection. The method of achieving this goal (e.g. a "no exceedance" standard) is within the discretion of the ARB, and since the level in either case will equate to the same degree of protection of public health, there will not be different compliance burdens on regulated sources. All that changes is the way of expressing the standard, not the stringency of the standard itself. The fact that the EPA has chosen a "multiple exceedance" standard is a feature of the federal regulatory structure which has no relevance to the ARB program, since Section 39606(b) requires the ARB to adopt ambient air quality standards for California.

Opposing Consideration: Comment submitted by Gregory R. McClintock on behalf of WOGA: The staff report failed to address allowable exceedances.

Agency Response: See above response to Donald R. Buist.

Opposing Consideration: Comment submitted by M. M. Hertel on behalf of SCE: Both proposed standards are more stringent than federal standards even though the 8-hour standard is numerically the same as the federal standard. The federal standards can be exceeded once per year. On the other hand, California standards are violated if they are equalled or exceeded.

Agency Response: See above response to Donald R. Buist.

Opposing Consideration: Comment submitted by Gregory R. McClintock on behalf of WOGA: The ARB staff proposal to change the 1-hour standard is

contrary to the overwhelming weight of expert opinion. The Aronow study on which the ARB staff is basing its proposal has been subjected to critical analysis by public health experts in California and has been determined to be an inadequate basis on which to base regulatory action. It has received the same reception at the federal level.

The Clean Air Scientific Advisory Committee (CASAC) was well aware of the Aronow 1981 study. The Aronow study did not cause CASAC to change their recommendation to EPA. The lowest COHb levels associated with adverse effects range from 2.7 to 2.9 percent, as determined by CASAC and the EPA. Taken alone, Aronow (1981) cannot support the ARB staff recommended standard.

Agency Response: The proposal to change the 1-hour standard is not "contrary to the overwhelming weight of expert opinion". WOGA has submitted no specific substantive evidence that the consensus of expert opinion in California is opposed to the use of the Aronow study other than a reference to a recent Clean Air Scientific Advisory Committee (CASAC) meeting. To the contrary, several expert witnesses who appeared at the Board hearing testified in support of the ARB staff proposal and one witness testified that the standards may not be stringent enough because of the lack of a adequate margin of safety.

The ARB staff considers the Aronow 1981 study significant enough that it should not be ignored in establishing a standard designed to protect public health. The ARB proposal was supported by several witnesses who appeared at the August 26, 1982 public hearing, including Dr. Aronow himself, who explained and discussed his findings in great detail before the Board.

Regarding the July 1982 CASAC meeting WOGA refers to, it should be noted that this meeting was one in a series of CASAC meetings dating back to

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Agency Response: The proposal to change the 1-hour standard is not "contrary to the overwhelming weight of expert opinion". WOGA has submitted no specific substantive evidence that the consensus of expert opinion in California is opposed to the use of the Aronow study other than a reference to a recent Clean Air Scientific Advisory Committee (CASAC) meeting. To the contrary, several expert witnesses who appeared at the Board hearing testified in support of the ARB staff proposal and one witness testified that the standards may not be stringent enough because of the lack of a adequate margin of safety.

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Regarding the July 1982 CASAC meeting WOGA refers to, it should be noted that this meeting was one in a series of CASAC meetings dating back to

January 1979 on the federal CO standards. Contrary to WOGA's assertion - that CASAC disapproved the Aronow 1981 study - the transcripts clearly state that CASAC could not reach a consensus, for or against including the Aronow 1981 study. CASAC was divided as to the weight to be given the study and concluded that it must be a judgment by the EPA Administrator. WOGA implies in their comments that CASAC disapproved or rejected the Aronow study. This simply was not the case.

Opposing Consideration: Comment submitted by Marilyn M. Stanton representing the Spokane County Air Pollution Control Authority (SCAPCA): The Coburn Prediction Table (Federal Register, August 18, 1980 (corrected date)) fails to accurately predict COHb levels resulting from CO exposures (for example, in the Anderson et al., 1973 study) and therefore cannot be used to support an ambient standard. The results of studies by Aronow et al., and Anderson et al., cited by the EPA (USEPA, 1980) and the ARB in its August 26, 1982 report do not show a significant correlation when graphed (Stanton comment, Appendices A_2,B_1,B_2).

Agency Response: Ms. Stanton has assumed that subjects in the Anderson et al. (1973) study were exposed continuously to 50 ppm and 100 ppm for four hours which would have resulted in higher COHb levels than were measured. The EPA Air Quality Criteria for Carbon Monoxide (USEPA, 1979) states that patients breathed CO intermittently which resulted in lower than predicted COHb levels. This fact was also confirmed by Dr. Aronow at the August 26, 1982 hearing (Transcript, pages 153-4).

Ms. Stanton apparently believes that a necessary prerequisite for using the Aronow et al. and Anderson et al. angina-related studies is that the

results of all the studies must be significantly correlated. Such a requirement is untenable and certainly not appropriate for standard-setting. It might be appropriate to examine studies that used the same or matched subjects and measured similar endpoints in similar experimental protocols. Ms. Stanton, however, believes this constitutes a "pick and choose match" and is simply incorrect. The staff in its evaluation of the literature relating effects to CO exposures examined the completeness of the stated experimental protocols, the biological plausibility of the results and whether the results were consistent with the investigator's results found in earlier experiments or in the results of other investigators. The ARB staff did not suggest as Ms. Stanton states (page 4) that experiments by Aronow in 1973 and Anderson et al. in 1973 "should show significant correlation".

Opposing Consideration: Comment submitted by Marilyn M. Stanton on behalf of SCAPCA: There are problems involving the Aronow et al. and Anderson et al. studies that make it illogical to base national (and presumably state) standards upon them.

Agency Response: Ms. Stanton has listed several concerns which lead her to the conclusion above. Careful review of her statements, however, reveal errors or misinterpretations which undermine her conclusion. For example, Ms. Stanton states (Testimony, page 5, part IIA) that there are no animal data at COHb levels below 7 percent and cites page 1 of her supporting paper attached to SCAPCA's letter to the EPA Administrator dated September 3, 1981. This support paper claims that EPA has erred in not correctly citing Lindenberg (EPA reference 53) and Tumasonis and Baker (EPA reference 101). Reading the Air Quality Criteria Document for Carbon Monoxide (USEPA, 1979) and EPA's earlier criteria document (USDHEW, 1969) shows that Ms. Stanton has

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misread these documents. The earlier criteria document, on the following page (8-25), states that Lindenberg also studied dogs with COHb levels of 2.6 to 5.5 percent. Similarly, she has confused Tumasonis and Baker (EPA reference 101) with Baker and Tumasonis (EPA reference 9).

Ms. Stanton also misses the most important conclusion that the EPA draws from its review of the animal studies. Following the paragraph that she quoted, the EPA goes on to conclude that the particular levels of CO in animal studies are less important than the generalizations about the variables that are likely to be important to humans. Knowledge from animal studies allows us to predict specially sensitive populations, anticipate new effects not yet seen in human studies or effects too dangerous to experiment for in humans, and to study mechanisms.

Ms. Stanton's concern about the consistency of Aronow's results ("too consistent"), lack of replication, the subjects used by Aronow in his 1981 study and the use of exposure regimes with high CO levels have been addressed in letters to the EPA by researchers who were asked to review her earlier comments (see letters from Dr. Wilbert S. Aronow, Dr. Steven M. Horvath and Dr. Stephen M. Ayres to Mr. Joseph Padgett dated October 9, 1981, November 9, 1981 and December 8, 1981 respectively). Also, as discussed by Dr. Horvath in the August 26, 1982 hearing, persons in metropolitan areas certainly may be exposed to extremely high, short-term peak concentrations of CO.

As discussed in the preceeding response, staff has concluded that the 1973 study by Anderson et al. is indeed consistent and supportive of the Aronow studies and does not contradict those findings. What the Board must decide is the weight to be given to the most recent Aronow study. The effect observed was less severe when compared to results at higher COHb levels but nevertheless consistent with the earlier results.

Opposing Consideration: Comments submitted by Ms. Marilyn Stanton on behalf of the SCAPCA: There are problems with the California "key studies" listed in Table 1 of the DHS report (p. A-1). The Federal Register, set forth in the August 18, 1980 EPA proposal for the national standards, lists only the Aronow and Anderson studies as pertinent (Table 2). Other studies listed in Table 1 of the DHS report are ambiguous or only partially positive.

Agency Response: The purpose of Table 1 in the DHS recommendation is not to list "key studies" to be relied upon for standard-setting. Rather, it is intended to illustrate levels of COHb at which effects have been observed. Table 2 in the EPA proposal of August 18, 1980 (FR 8-18-80) lists "key studies" relied upon by that agency for standard setting.

The DHS listed the EPA's "key studies" in its table in addition to other studies summarized by the EPA in its staff paper (USEPA, 1979b). Ms. Stanton recommends these studies be eliminated because they are only "partially positive". These studies, however, do offer evidence of effects at various levels of COHb, and staff recommends that they remain in the table. For example, these studies do support the staff conclusion, stated on page 3 of the staff report, that adverse effects on the central nervous system have been demonstrated at COHb levels of about 4 to 6 percent.

Staff has also noted that Ms. Stanton has expressed doubt as to the validity of the Aronow studies because the results are highly consistent and positive. Some of the studies in this table represent the converse of that situation, i.e., studies that demonstrate both positive and negative results from CO exposure. Ms. Stanton suggests that because of the inconsistencies, these studies also are suspect and should be eliminated. This seems to require that research results always be consistent but not too consistent, a

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standard that cannot be met. Staff has concluded that, for standard-setting purposes, each research study must be evaluated as to its own merit and a judgment made as to the weight to be given to that study.

Opposing Consideration: Comment submitted by T. M. Fisher on behalf of General Motors Corporation: The DHS and ARB staff recommendations are based upon worst case calculations (a highly improbable combination of events). No perspective is provided as to the actual risks involved. The EPA has attempted to put risk in a meaningful perspective in two recent documents (USEPA, 1982a; USEPA, 1982b). Somewhat relaxed standards (more so than the ones recommended) would assure that COHb levels would seldom rise above 2 percent.

Agency Response: The staff has considered the EPA "Senstivity Analysis" (USEPA, 1982a) and "NAAQS Exposure Model" (USEPA, 1982b). Staff supports such efforts that attempt to put into perspective the risk associated with various standard levels but urges that caution be exercised in drawing conclusions from them. The conclusions drawn from such analyses, including the risk estimates cited by Mr. Fisher, are dependent upon numerous assumptions. As the ARB staff has pointed out in comments to the EPA (Holmes, 1982), not even all the assumptions are stated in the analyses. The "Sensitivity Analysis" fails to discuss adequately how the analysis was done, why various values are used as parameters in the Coburn model and, finally, how the percentages of the sensitive population with different COHb levels (referred to by Mr. Fisher) were arrived at.

Similar limitations have been noted with the "NAAQS Exposure Analysis" (Holmes, 1982; Colome and Lambert, 1982). Staff has noted that the "Sensitivity Analysis" concludes (Table 5) that 61 percent of the sensitive

population would have a peak COHb level of 2.1 percent or greater when exposed to air quality associated with a 8-hour/12 ppm (one expected exceedance) ambient standard. A 12 ppm ambient standard is approximately equal to a 8-hour/9 ppm/5 exceedance standard. Table 8-8 of the EPA "NAAQS Exposure Analysis" concludes that 405,000 out of a total of 5 million sensitive persons, or approximately 8 percent, would have COHb levels exceeding 2 percent associated with a 8-hour/9 ppm/5 exceedance standard. These two divergent conclusions are an example of the great variability dependent upon assumptions and the methodology utilized.

Opposing Consideration: Comment submitted by T. M. Fisher on behalf of General Motors Corporation: Until more data are available to corroborate Dr. Aronow's clinical findings or epidemiological evidence becomes available to demonstrate carbon monoxide effects on the sensitive population in the real world, it would seem inappropriate to use Dr. Aronow's 1981 study to identify a critical effect level.

Agency Response: The ARB staff report concludes that Dr. Aronow's results published in 1981 are consistent with earlier findings and therefore should be included by the Board in this standard-setting proceeding.

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Agency Response: The ARB staff report concludes that Dr. Aronow's results published in 1981 are consistent with earlier findings and therefore should be included by the Board in this standard-setting proceeding.

TABLE XI-1 (Revised)

PREDICTED COHb RESPONSE TO
EXPOSURE TO CONSTANT CO CONCENTRATIONS
(Percent COHb based on Coburn Equation)

	1-hour Exposure				8-hour Exposure			
	Light Activity		Moderate Exercise		Light Activity		Moderate Exercise	
CO (ppm)	Men	Women	Men	Women	Men	Women	Men	Women
7.0	0.7	0.8	0.7	0.8	1.2	1.4	1.2	1.3
9.0	0.7	0.8	0.8	1.0	1.5	1.7	1.6	1.7
12.0	0.8	1.0	1.0	1.2	1.9	2.1	2.0	2.2
15.0	0.9	1.1	1.1	1.4	2.3	2.6	2.5	2.6
20.0	1.1	1.4	1.3	1.7	3.0	3.4	3.2	3.4
25.0	1.2	1.6	1.6	2.0	3.6	4.1	4.0	4.2
35.0	1.6	2.1	2.0	2.7	5.0	5.6	5.4	5.7
50.0	2.1	2.8	2.7	3.6	6.9	7.9	7.6	8.0

Parameters:

Men:

Ventilation rates = 10L/min. and 20L/min. (light activity/moderate exercise);
Hemoglobin (g/dl) = 15 ; Blood Volume (ml) = 5500;
Haldane Constant = 246; Lung Diffusivity (ml/min/mmHg) = 30;
Endogenous CO production (ml/min) = 0.007: Initial COHb (%) = 0.5;
Altitude (ft.) = 0.

Women:

Ventilation rates = 10L/min. and 20L/min. (light activity/moderate exercise);
Hemoglobin (g/dl) = 13.5 ; Blood Volume (ml) = 4000;
Haldane Constant = 246 ; Lung Diffusivity (ml/min./mmHg) = 30;
Endogenous CO production (ml/min.) = 0.010; Initial COHb (%) = 0.5;
Altitude (ft.) = 0.

Source: ARB, Research Division, September 1982

TABLE XI-2 (Revised)

COBURN MODEL ESTIMATES OF COHb LEVELS
ASSOCIATED WITH ALTERNATIVE 1-HOUR CO STANDARD LEVELS

CO Concentration (ppm)	Case 1		Case 4		Case 2		Case 3		Case 5	
	Light Activity	Moderate Exercise	Light Activity	Moderate Exercise	Light Activity	Moderate Exercise	Light Activity	Moderate Exercise	Light Activity	Moderate Exercise
15.0	0.9	1.1	1.1	1.4	1.4	1.7	1.7	1.8	1.8	2.0
20.0	1.1	1.3	1.4	1.7	1.7	2.1	1.9	2.0	2.1	2.3
25.0	1.2	1.6	1.6	2.0	2.0	2.5	2.1	2.3	2.3	2.6
35.0	1.6	2.0	2.1	2.7	2.6	3.3	2.4	2.7	2.8	3.7
50.0	2.1	2.7	2.8	3.6	3.4	4.5	2.9	3.4	3.5	4.2

Parameters:

Case 1: Alveolar ventilation rates = 10L/min. 20L/min. (light activity/moderate exercise); hemoglobin = 15g/dl; blood volume = 5500 ml; Haldane constant 246; lung diffusivity = 30 ml/mmHg; endogenous CO production = 0.007 ml/min; initial COHb = 0.5%; altitude = 0.0 ft.

Case 2: Alveolar ventilation rates = 10L/min. 20L/min. (light activity/moderate exercise); hemoglobin = 13g/dl; blood volume = 3500 ml; Haldane constant 246; lung diffusivity = 40 ml/min/mmHg; endogenous CO production = 0.014 ml/min; initial COHb = 0.7%; altitute = 0.0 ft.

Case 3: Same as Case 1 except initial COHb = 1.5%.

Case 4: Alveolar ventilation rates = 10L/min. 20L/min.(light activity/moderate exercise); hemoglobin = 13.5g/dl; blood volume = 4000 ml; Haldane constant = 246; lung diffusivity = 30 ml/min/mmHg; endogenous CO production = 0.010 ml/min; initial COHb = 0.5%; altitude = 0.0 ft.

Case 5: Same as Case 4 except initial COHb = 1.5%.

Source: ARB Research Division September 1982

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COBURN MODEL ESTIMATES OF COHb LEVELS
ASSOCIATED WITH ALTERNATIVE 1-HOUR CO STANDARD LEVELS

CO Concentration (ppm)	Case 1		Case 4		Case 2		Case 3		Case 5	
	Light Activity	Moderate Exercise	Light Activity	Moderate Exercise	Light Activity	Moderate Exercise	Light Activity	Moderate Exercise	Light Activity	Moderate Exercise
15.0	0.9	1.1	1.1	1.4	1.4	1.7	1.7	1.8	1.8	2.0
20.0	1.1	1.3	1.4	1.7	1.7	2.1	1.9	2.0	2.1	2.3
25.0	1.2	1.6	1.6	2.0	2.0	2.5	2.1	2.3	2.3	2.6
35.0	1.6	2.0	2.1	2.7	2.6	3.3	2.4	2.7	2.8	3.7
50.0	2.1	2.7	2.8	3.6	3.4	4.5	2.9	3.4	3.5	4.2

Parameters:

Case 1: Alveolar ventilation rates = 10L/min. 20L/min. (light activity/moderate exercise); hemoglobin = 15g/dl; blood volume = 5500 ml; Haldane constant 246; lung diffusivity = 30 ml/mmHg; endogenous CO production = 0.007 ml/min; initial COHb = 0.5%; altitude = 0.0 ft.

Case 2: Alveolar ventilation rates = 10L/min. 20L/min. (light activity/moderate exercise); hemoglobin = 13g/dl; blood volume = 3500 ml; Haldane constant 246; lung diffusivity = 40 ml/min/mmHg; endogenous CO production = 0.014 ml/min; initial COHb = 0.7%; altitute = 0.0 ft.

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Case 5: Same as Case 4 except initial COHb = 1.5%.

Source: ARB Research Division September 1982

TABLE XI-3 (Revised)

COBURN MODEL ESTIMATES FOR CARBOXYHEMOGLOBIN LEVELS ASSOCIATED WITH ATTAINMENT OF ALTERNATIVE EIGHT-HOUR CARBON MONOXIDE STANDARD LEVELS[a]

Standard Level	Maximum COHb Levels (%) Predicted on a Day when 8-hour CO Concentration Just Attains Standard Level, for a Range of Actual Air Quality Patterns Adjusted to Simulate Attainment of the Specified Standard[b,c]		
	Case 1	Case 3	Case 2
	Baseline physiological parameters (men)	Baseline physiological parameters (women)	High range of physiological parameters for normal persons at sea level
ppm			
7	1.1 - 1.4		1.5 - 1.9
9	1.3 - 1.8	1.8 - 2.1	1.9 - 2.4
12	1.7 - 2.3		2.4 - 3.2
15	2.1 - 2.8		2.9 - 3.9

[a]A daily maximum standard with one expected exceedance per year.

[b]COHb responses to fluctuating CO concentrations were dynamically evaluated using the Coburn model prediction of the COHb level for the next hour. Twenty sets of 1-hour average CO concentration patterns were evaluated to obtain the ranges of COHb shown for a given case and standard.

[c]Coburn model prameters: (All cases: ventilation rate = 10L/min)

Case 1: Hemoglobin = 15 g/dl; initial COHb = 0.5%; endogenous rates = 0.007 ml/min; blood volume = 5500 ml; CO lung diffusivity = 30 ml/min/mmHg; Haldane constant = 218.

Case 2: Hemoglobin = 13 g/dl; initial COHb = 0.7%; endogenous rate = 0.014 ml/min; blood volume = 3500 mL; CO lung diffusivity = 40 ml/min/mmHg; Haldane constant = 246.

Case 3: Hemoglobin = 13.5 g/dl; initial COHb = 0.5%; endogenous rate = 0.010 ml/min; blood volume = 4000 ml; CO lung diffusivity = 30 ml/min/mmHg; Haldane constant = 246.

Source: Adapted from USEPA, 1980b.

State of California
AIR RESOURCES BOARD

PUBLIC HEARING TO CONSIDER AMENDMENTS TO SECTION 70200, TITLE 17, CALIFORNIA ADMINISTRATIVE CODE, REGARDING THE STATE AMBIENT AIR QUALITY STANDARDS FOR CARBON MONOXIDE (SEA LEVEL)

Scheduled For Consideration: August 26, 1982

SUMMARY AND STATEMENT OF REASONS FOR PROPOSED RULEMAKING

The Air Resources Board (ARB) is required by Section 39606(b) of the Health and Safety Code to adopt ambient air quality standards to protect the public health and welfare. Standards are to be adopted in consideration of a number of factors "including, but not limited to, health, illness, irritation to the senses, aesthetic value, interference with visibility, and effects on the economy."

Ambient air quality standards in California represent goals of satisfactory air quality. The ambient standards specify concentrations and averaging times chosen to prevent adverse effects. Health-related standards are adopted on the basis of recommendations of the Department of Health Services at levels so that sensitive groups in the general population will not suffer adverse effects.

Both the ARB and the federal Environmental Protection Agency (EPA) have adopted ambient standards for carbon monoxide (CO). The ARB adopted a standard of 20 ppm averaged over 8 hours in 1969. The standard was revised in 1970 to 10 ppm averaged over 12 hours and 40 ppm averaged over 1 hour. In 1971, acting pursuant to the Clean Air Act, the EPA promulgated national primary (health-related) standards of 9 ppm (8 hours) and 35 ppm (1 hour). The EPA has proposed reducing the one-hour standard on the basis of new health

effects data, but no action has been taken since the proposal was issued in late 1980. States are permitted to adopt more stringent standards than the national standards.

Mobile sources are the major contributor (about 85 percent) to ambient CO levels. Most of the remaining CO in urban areas is contributed by industrial processes, combustion processes, fires and agricultural burning.

Carbon monoxide is a colorless, odorless gas. It is toxic because of its strong tendency to combine with hemoglobin in the blood to form carboxyhemoglobin (COHb). Hemoglobin in this form is unable to transport oxygen, and the oxygen-carrying capacity of the blood is reduced. Also, the presence of COHb in the blood inhibits or slows the release of the oxygen from the remaining hemoglobin.

Reductions in the oxygen-carrying capacity of the blood may be critical for certain groups of sensitive persons. Groups for which there is substantial evidence of greater risk to exposure to CO are angina patients, persons with other cardiovascular diseases or with chronic obstructive lung disease, persons with anemia, and fetuses. Women may be more sensitive to CO exposure due to the lower hemoglobin content and lower blood volume. Visitors to high altitude locations may also be more sensitive to CO. A review of the California Lake Tahoe Air Basin standard for CO is being considered separately and will be noticed at a later date.

An estimated five percent of the adult population has definite or suspected coronary heart disease. A large fraction of this group suffers from angina, especially among older persons. Angina is a cardiovascular disease in which mild exercise or excitement produces symptoms of pressure and pain in the chest. These symptoms are caused by insufficient oxygen supply to the

effects data, but no action has been taken since the proposal was issued in late 1980. States are permitted to adopt more stringent standards than the national standards.

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An estimated five percent of the adult population has definite or suspected coronary heart disease. A large fraction of this group suffers from angina, especially among older persons. Angina is a cardiovascular disease in which mild exercise or excitement produces symptoms of pressure and pain in the chest. These symptoms are caused by insufficient oxygen supply to the

heart muscle. Aggravation of angina or other cardiovascular diseases is an adverse effect because it may result in cardiovascular damage and may represent initial step in a series of increasingly serious symptoms.

Animal studies have provided information that indicates that fetuses may be more sensitive to CO than is the general population. After long-term CO exposure, the animal fetus has been shown to develop a higher COHb concentration than the pregnant mother. Reduced birth weight, increased newborn mortality, and behavioral effects have been observed in experimental animal studies.

Persons with anemia have reduced hemoglobin levels. For this reason, such persons may reach higher COHb levels or attain equilibrium levels more quickly than normal persons.

A series of studies by Aronow and others has demonstrated aggravation of angina and other cardiovascular diseases following exposure to CO. These studies have reported decreases in the duration of exercise until onset of angina (Aronow and Isbell, 1973; Aronow et al., 1974; Aronow, 1981; and Anderson, et al., 1973). The lowest group mean level of COHb linked to adverse effects on health is in the range of 2.0 to 3.0 percent. Individual adverse effects levels of COHb in these studies were as low as 1.8 percent (Aronow, 1981). An additional study (Aronow, 1978) reported angina aggravation in the range of 1.8 to 2.3 percent group mean COHb. The CO exposure, however, was through a passive smoking regime, and there may have been confounding factors (USEPA, 1980).

Carbon monoxide is also known to affect the central nervous system. Decreases in vigilance are estimated to occur at about four to six percent COHb (Horvath, 1971; USEPA, 1980). Vigilance is the ability to detect small

changes in one's environment that take place at unpredictable times. Visual function and sensitivity are affected at COHb levels as low as four to five percent. These effects on the central nervous system are significant since functions such as vigilance are important to carrying out more complex tasks.

The Department of Health Services (DHS) has recommended that air quality standards for CO for the protection of the public health be designed to prevent the accumulation of more than 2.5 percent COHb. This level of COHb is principally to avoid aggravation of angina pectoris, the disabling chest pain that arises when the heart has an insufficient supply of oxygen. On this basis, the DHS has recommended ambient standards of 9 ppm averaged over 8 hours and 25 ppm averaged over 1 hour.

The ARB staff believes 2.0 percent COHb level to be the lowest level at which aggravation of angina has been demonstrated based upon a recent study by Aronow (1981). While the DHS believes that COHb measurement is difficult and may be less accurate at such low concentrations, ARB staff has found that measurements made by Aronow at very low levels of COHb have been confirmed as both accurate and precise by any interlaboratory comparison of COHb measurement methods (Case, 1980).

Therefore, in order to protect the health of the public and especially the health of sensitive populations, the staff proposes that the Board amend the present sea-level carbon monoxide standards for the state as follows: 9.0 ppm averaged over 8 hours and 20 ppm averaged over 1 hour. These standards were chosen to assure that individual carboxyhemoglobin levels in the blood will seldom rise above the level of 2.0 percent of saturation. This level was determined principally from an identification of risk of angina attack in moderately exercising individuals with impaired hearts.

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The eight hour period was chosen as a convenient duration to prevent any excess accumulation of carboxyhemoglobin due to prolonged exposure. That duration is sufficient to approach equilibrium in most subjects, even at rest. The one hour period was chosen as a convenient duration to prevent any excessive accumulation of carboxyhemoglobin due to short exposures to high peak values of carbon monoxide such as can occur during rush hour traffic.

Carboxyhemoglobin values for nonequilibrium situations resulting from various CO exposures have been calculated using a model developed by Coburn, et al. (1965). While further experimental verification may be needed, this model has been cited by the EPA in its 1980 proposal (USEPA, 1980) as the best tool available for nonequilibrium predictions.

The staff does not propose to change the present measurement method of nondispersive infrared spectroscopy.

Once ambient standards are adopted, source-specific control strategies to attain and maintain the standards are adopted by the ARB (mobile sources) and the local and regional air pollution control districts (stationary sources). Cost-effective control strategies that focus on reducing emissions from motor vehicles are available. If necessary, such strategies could include implementation of a 3.4 g/mile CO exhaust emission standard and inspection/maintenance programs. vehicles are available, including implementation of a 3.4 g/mile CO exhaust emission standard and inspection/maintenance programs.

The staff has also concluded that the adoption of the proposed standards will not result in adverse environmental impacts and will have a beneficial effect on air quality.

The staff has prepared a staff report which contains a more detailed description of the proposal; its rationale and necessity; its environmental impacts; and a list of the studies, reports, and similar documents on which the staff relied in developing its proposal.

2 CIVIL No. 63339

IN THE SUPREME COURT OF THE STATE OF CALIFORNIA

WESTERN OIL AND GAS ASSOCIATION, a nonprofit corporation; CALIFORNIA INDEPENDENT PRODUCERS ASSOCIATION, a nonprofit corporation; ATLANTIC RICHFIELD COMPANY, a corporation; CHEVRON U.S.A., INC., a corporation; CONTINENTAL OIL COMPANY, a corporation; GETTY OIL COMPANY, a corporation; GULF OIL CORPORATION, a corporation; MOBIL OIL CORPORATION, a corporation; SHELL OIL COMPANY, a corporation; TEXACO INC., a corporation; and UNION OIL COMPANY OF CALIFORNIA, a corporation,	)
Plaintiffs and Respondents,	)
v.	)
CALIFORNIA STATE AIR RESOURCES BOARD, a body corporate and politic; TOM QUINN, Chairman of the California State Air Resources Board; WILLIAM H. LEWIS, JR., Executive Officer of the California State Air Resources Board; and DOE I through X,	)
Defendants and Appellants.	)

PETITION FOR HEARING

After a Decision of the Court of Appeal
For the Second Appellate District Affirming
a Decision of the Los Angeles Superior Court

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PETITION FOR HEARING

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a Decision of the Los Angeles Superior Court

TO THE HONORABLE CHIEF JUSTICE AND ASSOCIATE JUSTICES OF THE SUPREME COURT OF THE STATE OF CALIFORNIA:

The Air Resources Board respectfully requests that a hearing be ordered in this case to secure uniformity of decision and settle important questions of law.

The decision of the Court of Appeal will directly and immediately eliminate a critical substantive element in the framework of California's environmental protection laws; standards of ambient air quality which are set at levels which

will protect public health. It will also cast a shadow over the validity of the procedures employed by all state agencies in their rulemaking proceedings, leaving the question of the procedural requirements of regulatory adoption in a state of perpetual uncertainty.

The Court of Appeal has decreed that society's only interest in human life and health is its monetary value; that no regulation designed to protect the public can ever be adopted by any agency of government unless the societal value to be protected is reduced to monetary terms, and proven to exceed the cost of compliance. Claiming that only this will satisfy its free-floating and newly-minted definition of "reasonableness," the Court of Appeal has invalidated air quality standards designed to protect the lives and health of the young, the elderly and those with chronic lung disease, because their suffering was not (and could not be) reduced to a monetary sum which was found to exceed the possible costs to oil companies.

The substantive effect of the decision of the Court of Appeal is far greater than the elimination of the ambient air quality standards for sulfur dioxide and sulfates. The public health effects of doing away with standards for these two pollutants, great as it is, is overshadowed by the fact that the Court of Appeal's decision effectively wipes out all of the state's ambient air quality standards.

Since 1969, the Board has adopted ambient air quality standards for nine air pollutants. These standards are primarily based on the harmful health consequences of pollutants in excess of the standards. All of the standards were adopted solely in

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Since 1969, the Board has adopted ambient air quality standards for nine air pollutants. These standards are primarily based on the harmful health consequences of pollutants in excess of the standards. All of the standards were adopted solely in

consideration of their adverse effects, with no consideration being given to the costs of measures local air pollution control districts might in the future select to achieve compliance with the standards. These standards have been continuously in effect for as long as 12 years, and, with the exception of the case at bar, have never been the subject of judicial challenge. The opinion of the Court of Appeal would, at a single blow, wipe out each and every one of the state's standards.

The insistence of the Court of Appeal that "due process" standards govern quasi-legislative proceedings of California administrative agencies contravenes many decisions of this Court and other appellate courts. Its application of the "due process" analysis to require pre-hearing discovery of staff reports is the first case, state or federal, to require such pre-hearing discovery, and is contrary to many decisions of this Court and other appellate courts. Its holding that a regulation finally adopted may not substantially differ from the regulation proposed (even in a manner more favorable to the objector) is directly contrary to other appellate decisions. Its conclusion that an agency may not consider any evidence, even cumulative evidence, not subject to rebuttal is contrary to a host of decisions of this Court and other appellate courts.

It is rare that one decision can at once do so much legal damage, can be contrary to so much precedent, can so endanger the public health, and can have such broad effects beyond the regulations at bar. If the decision of the Court of Appeal has no legitimate antecedents it will inevitably spawn numerous progeny. We urge the Court to grant a hearing.

I

THE COURT OF APPEAL ERRED IN ADOPTING AN ARBITRARY STANDARD OF "REASONABLENESS" AND MISINTERPRETING THE STATUTES TO REQUIRE THAT, IN SETTING STANDARDS WHICH DEFINE HEALTHFUL AIR, THE BOARD MUST REDUCE HUMAN HEALTH TO ITS MONETARY VALUE AND BALANCE THAT UNKNOWABLE SUM AGAINST THE SPECULATIVE COSTS OF HYPOTHETICAL LOCAL DISTRICT MEASURES.

A. Introduction.

The Court of Appeal has demanded that the Air Resources Board determine the monetary value of human health and then balance that sum against the hypothetical costs to polluters from pollution control measures which might later be adopted by local districts. It claims that only by reducing the suffering of asthmatic children and "excess mortalities" of family members to a monetary denominator, and then seeing if pollution control is "worth it", can an air quality standard be "worthy of the appellation 'reasonable.'" (Slip Op., pp. 19, 26.) Even if society's only interest in human life and health were its monetary value, itself a barbaric notion, the task set by the Court of Appeal is impossible in principle, as is developed below, and is inconsistent with the governing legislation. The Court's demand that its analysis be applied to all administrative proceedings, even absent statutory mandate, makes it even more imperative that this Court intervene and grant a hearing in this case.

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I

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B. By Statutory Definition, Long-Standing Administrative Interpretation and Legislative Ratification, an Ambient Air Quality Standard is Simply a Definition of Acceptable Air Quality Which is not Self-Executing and Which in and of Itself Imposes no Costs on Anyone.

The only rational starting place in deciding what the Air Resources Board ought to consider in setting an ambient air quality standard is the statute which sets forth explicitly what an ambient air quality standard is. Health and Safety Code § 39014 provides:

> "'Ambient air quality standards' means specified concentrations and durations of air pollutants which reflect the relationship between the intensity and composition of air pollution to undesirable effects established by the state board or, where applicable, by the federal government." (Emphasis supplied.)

In other words, all an ambient air quality standard does is to relate the level of a pollutant to undesirable effects.

What are the "undesirable effects" that the Board should consider? They are set forth in Health and Safety Code § 39606:

> "The state board shall:
>
> ". . . . . .
>
> "(b) Adopt standards of ambient air quality for each basin in consideration of the public health, safety and welfare, including, but not limited to, health, illness, irritation to the senses, aesthetic value, interference with visibility, and effects on the economy."

As long ago as 1969, and consistently thereafter, the Air Resources Board interpreted those two statutes together to mean the following:

> "The objective of ambient air quality standards is to provide a basis for preventing or abating the effects of air pollution, including effects on health, esthetics and [the] economy." 1/

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1. Title 17, California Administrative Code, § 70101.

The contemporaneous construction of a statute by an administrative agency charged with its enforcement and interpretation is entitled to great weight and the courts generally will not depart from such construction unless it is clearly erroneous or unauthorized. (Rivera v. City of Fresno (1971) 6 Cal.3d 132, 140; Standard Oil Co. of California v. State Bd. of Equalization (1974) 39 Cal.App.3d 765, 769; People ex Rel. Dept. Pub. Wks. v. Ryan Outdoor Advertising, Inc. (1974) 39 Cal.App.3d 804, 810.

It should be noted that Title 17, California Administrative Code, section 70101, quoted above, which contains the Board's interpretation, was first enacted in 1969 (Reg. 69, No. 52.) In 1975, the Legislature reenacted the language under consideration. (Stats. 1975, Ch. 957, § 12.) As was said in Universal Eng. Co. v. Bd. of Equalization (1953) 118 Cal.App.2d 36, 43:

> "It has been held that where an administrative officer or board has adopted a regulation defining . . . the scope of a . . . statute, and the Legislature subsequently reenacts the statute without amendment in this regard, the reenactment amounts to a legislative confirmation of the prior existing rules of interpretation. [Citations.]."

See also Division of Industrial Safety v. Municipal Court (1976) 61 Cal.App.3d 696, 701; Action Trailer Sales, Inc. v. State Bd. of Equal. (1975) 54 Cal.App.3d 125, 133-134.)

This rule was likewise approved in Wotton v. Bush (1953) 41 Cal.2d 460, 468:

> "Settled administrative interpretation at the time of such reenactment is entitled to consideration as legislative approval of that interpretation . . . [Citations.]."

See also Richfield Oil Corp. v. Crawford (1952) 39 Cal.2d 729, 736; Nelson v. Dean (1946) 27 Cal.2d 873, 882; Rivera v. Division of Industrial Welfare (1968) 265 Cal.App.2d 576, 601. See SO$_2$ Rec., Book 16, p. 17 for the Board's findings concerning legislative ratification.

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Since 1969, the Board has been acting consistently with its understanding that "effects on the economy," the last term in a list of undesirable effects of air pollution,[2] itself refers to an undesirable effect of air pollution.[3]

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2. As was said in Pasadena University v. Los Angeles Co. (1923) 190 Cal. 786, 790:

> "It is the rule of construction that where general words follow the enumeration of particular classes of persons or things, the general words will be construed as applicable only to persons or things of the same general nature or class as those enumerated. [Citations]."

See Hart v. City of Beverly Hills (1938) 11 Cal.2d 343, 347. Moreover, "the meaning of a word may be enlarged or restrained by reference to the object of the whole clause in which it is used. [Citations]." Vilardo v. County of Sacramento (1942) 54 Cal.App.2d 413, 420; In re Marquez (1935) 3 Cal.2d 625, 629; Coffee-Rich, Inc. v. Fielder (1972) 27 Cal.App.3d 792, 812.

3. We note that the effect of pollution on the economy is no trivial matter, and in fact was a central concern of Congress in considering air pollution legislation. As was noted in Motor and Equipment Mfrs. Ass'n., Inc. v. E.P.A. (D.C. Cir. 1979) 627 F.2d 1095, 1118 n.47:

> "The House Report on the 1977 amendments noted:
>
> "The committee recognizes that air pollution causes significant economic costs to the public by damaging health and welfare. Such costs include an increased incidence of illness, premature death, increased expenditures for health care and insurance and loss of tax revenues. Additionally, it causes damage to real estate and crops (and other vegetation), and could result in huge economic losses for tourist-related industries. While quantifications of these losses is obviously difficult, some estimates range as high as $16.1 billion annually (in 1968 dollars).
>
> "H.R. Rep. No. 294, 95th Congr., 1st Sess. 34 (1977)."

A statutory declaration concerning these effects is set forth at 42 United States Code section 7401.

The Court of Appeal, however, wrenches the words "effects on the economy" from their context, and strikes down these state air quality standards, and all state air quality standards, for failure to consider the "effects on the economy" of the standards themselves. (Slip Op., p. 17 et seq.)

The starting point in our statutory analysis, then, is the realization that the potential costs associated with future local efforts to achieve the goal of clean air has nothing whatever to do with the "relationship between the intensity and composition of air pollution to undesirable effects". (§ 39014.) In construing what the Board must "consider" in establishing such standards, an interpretation which is relevant to the question at hand should be preferred to one which is irrelevant.

As is detailed below, economic effects of implementation measures are considered at the time and place those measures are proposed, and only "reasonable" measures are required to be utilized. The hypothetical costs of future local regulations, however, have nothing to do with the definition of clean air.

C. Neither Congress in Enacting the Clean Air Act nor the Courts in Construing it Have Required the Environmental Protection Agency to take Costs of Compliance into Account in Adopting National Ambient Air Quality Standards. California's Parallel Statute Should be Construed to be Consistent With Federal Authority.

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The starting point in our statutory analysis, then, is the realization that the potential costs associated with future local efforts to achieve the goal of clean air has nothing whatever to do with the "relationship between the intensity and composition of air pollution to undesirable effects". (§ 39014.) In construing what the Board must "consider" in establishing such standards, an interpretation which is relevant to the question at hand should be preferred to one which is irrelevant.

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motivated by linguistic considerations, but rather by its own philosophic orientation:

> "Even if we were to assume that the phrase 'effect on the economy' as used in the statute meant only the effects of pollution, or if that phrase were deleted from the stature entirely, we would still conclude that consideration of the effect of compliance on the economy is a necessary ingredient of 'reasonableness.'"

If this remarkable statement is true, then Congress and the federal courts have for years been "unreasonable":

The Clean Air Act provides, and the federal courts have consistently held, that the costs of achieving the standards are not to be balanced against the economic "value" of human health.[4/]

In Lead Industries Ass'n v. Environmental Protection (D.C. Cir. 1980) 647 F.2d 1130, it was argued that "reasonableness" requires consideration of the cost of achieving air quality standards prior to the promulgation of those standards. (Id. at 1150-1151.) The Court forcefully rejected this argument, holding that "economic considerations play no part in the promulgation of ambient air quality standards under Section 109." (647 F.2d at 1148.) The Court said:

> "Where Congress intended the Administrator to be concerned about economic and technological feasibility, it expressly so provided. For example, Section 111 of the Act, 42 U.S.C. § 7411, directs the Administrator to consider economic . . . feasibility in establishing standards of performance for new stationary sources of air pollution . . . .

/ / /

4. Moreover, the federal standards, unlike the state standards, must be achieved by statutory deadlines. South Terminal Corp. v. Environmental Protection Agcy. (1st Cir. 1974) 504 F.2d 675-676; see Union Electric Co. v. EPA (1975) 427 U.S. 246, 260-261.

In contrast, Section 109(b) speaks only of protecting the public health and welfare."[5/]

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5. Likewise, the Legislature had no difficulty in telling the Board to consider the effects of its actions on the economy when it wanted the Board to do so. Health and Safety Code § 43101 contains an especially significant contrast to the language of section 39606:

> "The state board shall adopt and implement emission standards for new motor vehicles for the control of emissions therefrom, which standards the state board has found to be necessary and technologically feasible to carry out the purposes of this division. Prior to adopting such standards, the state board shall consider the impact of such standards on the economy of the state, including, but not limited to, their effect on motor vehicle fuel efficiency." (Emphasis supplied.)

It is also noteworthy, in considering the claim of the court below that section 39606 requires a "cost-benefit analysis," that the Legislature also knows how to require such an analysis when it wants one. Section 43630 deals with certification of pollution control devices:

> "(c) After one or more such devices are initially certified, no device shall be certified pursuant to this section which is substantially less effective than any device previously certified, unless the state board determines, pursuant to a cost-benefit analysis, that such less effective device is also substantially less costly and therefore merits certification."

Not only does the language of these statutes contrast starkly with that of § 39606, but the statutory schemes in which they appear also contrast tellingly.

As is explained below, in adopting an ambient air quality standard, the Board is only defining clean air. It is the primary task of other agencies--the local districts--to take "reasonable" action to attain and maintain those standards given the technological and economic feasibility presented at the hearings of those agencies. The Board, however, cannot know in advance what actions the scores of local agencies might find "reasonable," or what the cost of their then-nonexistent regulations might be.

By contrast, the Board's vehicle emission standards and certifications are immediately self-executing. (See Health & Saf. Code § 43105.) The Board need not speculate what some other agency might do at some future time, and what the hypothetical costs of hypothetical technology might then be.

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No suggested difference in the wording of the federal and state statutes concerning this identical question would account for the opposite conclusion reached by the Court of Appeal, without even a nod to the federal cases.[6/]

As in the federal Act, "effects in the economy" in section 39606 is given as merely an example of what is included in "public health, safety and welfare." When the phrase "health, safety and welfare" is introduced in the state Act,

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(Footnote 5 continued):

Totally skipping the contrasts in language and legislative schemes, the Court of Appeal actually cites § 43101 for the proposition "[t]hat the Legislature is concerned with economic impact in the area of regulating air quality . . . ." (Slip Op., p. 20.) Of course it is, but it hardly follows that the Legislature effectuated that concern in the manner demanded by the Court in achieving air quality standards. Rather, implementing air quality standards is only achieved to the degree the costs are "reasonable," as is explained below. Moreover, if the costs of implementation are still too severe, a variance procedure is available. (Health & Saf. Code § 42352.)

6. The issue at bar is also similar to that before the United States Supreme Court in its recent decision in American Textile Manufacturers Institute, Inc. v. Donovan (1981) 452 U.S. 490 , 69 L.Ed.2d 185, 101 S.Ct. 2478. In that case, the petitioners contended that in setting a health standard for cotton dust, OSHA was required "to demonstrate that its Standard reflects reasonable relationship between the costs and benefits associated with the Standard." 101 S.Ct. at 2483. The Supreme Court disagreed, holding:

> "When Congress passed the Occupational Safety and Health Act in 1970, it chose to place preeminent value on assuring employees a safe and healthful working environment limited only by the feasibility of achieving such an environment." (101 S.Ct. at 2506.)

In the statutory scheme at bar, as is explained below, the Legislature placed preeminent value on protecting the public health in defining clean air, limited by the requirement that only "reasonable" actions be taken by the local districts in achieving it. Thus, economics are considered, but not at the time nor in the manner demanded by the Court of Appeal.

it unambiguously refers to detrimental effects of pollution. Health and Safety Code § 39000, the first section of the Act, sets forth the legislative declaration of policy:

> "The Legislature finds and declares that the people of the State of California have a primary interest in the quality of the physical environment in which they live, and that this physical environment is being degraded by the waste and refuse of civilization polluting the atmosphere, thereby creating a situation which is detrimental to the health, safety, welfare, and sense of well-being of the people of California." (Emphasis supplied.)

The words "health, safety, and welfare" are repeated in Health and Safety Code section 39606 and, as in section 39000, clearly demand that the Air Resources Board consider the effects of pollution which are "detrimental to the health, safety, [and] welfare" of the people. Importantly, the phrase "effects on the economy" is only an example of detrimental effects on "public health, safety, and welfare" so the obvious inference is that "effects on the economy" denotes the detrimental effects of pollution on the economy. And as noted above, the Legislature defined air quality standards as reflecting "undesirable effects" of air pollution. (Health & Saf. Code § 39014.)

The air quality standards set by the Air Resources Board were authorized pursuant to the Legislature's declaration, in Health and Safety Code section 39001 "that this public interest [delineated in Section 39000] shall be safeguarded by an intensive, coordinated state, regional, and local effort to protect and enhance the ambient air quality of the state." There is no hint in any of these declarations

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of any requirement that polluters' economic interests be taken into account in determining a definition of clean air, so as to determine the requirements of the public health, safety or welfare.

D. Even if the Costs of Attaining a Standard may be "Considered" When the Standard is Adopted, the Cost-Benefit Analysis Mandated by the Court of Appeal is Without even Colorable Support in the Statute.

Not only does the Court write the words "balancing the benefit of the standard against the cost of achievement and the level of resources available for control" (Slip Op., p. 19.) into the statute, it ignores the words that are there already. Most particularly, the statute provides that the Board must "consider" effects on the economy.

Federal cases interpreting statutes which require an agency to "consider" a factor have never required the agency to assign a dollar amount to each of the factors listed for consideration and then compare these figures to decide if the regulation should be adopted.[7/] Under the ruling of

7. In Weyerhaeuser Co. v. Costle (D.C. Cir. 1978) 590 F.2d 1011 a statute called upon EPA to "consider" cost and environmental impacts. The plaintiff contended "that the Agency should have more carefully balanced costs versus the effluent reduction benefits of the regulations, and that it should have also balanced these benefits . . . to arrive at a 'net' environmental benefit conclusion." Noting that the statute calls for consideration of the factors and not comparison in relation to each other, the court held:

> "[W]e do not believe that EPA is required to use any specific structure such as a balancing test in assessing the consideration factors, nor do we believe that EPA is required to give each consideration factor any specific weight." (590 F.2d at 1045.)

See also Homestake Min. Co. v. U.S. Environ. Protection (D.S.D. 1979) 477 F.Supp. 1283.

the trial court in this case, however, the Board would be charged with ascribing monetary sums to "health, illness, irritation to the senses, aesthetic value, interference with visibility, and effects on the economy."

E. Benefits to Human Health which Attainment of an Ambient Air Quality Standard will Provide are Inherently not Susceptible to Quantification in Monetary Terms.

It is at once obvious that the Court of Appeal demands an impossible task. How is one to place a price tag on "aesthetic value" or "interference with visibility"? More importantly here, how is one to place a price tag on the value of health? This point was forcefully brought out at the hearing.

As "proof" that a "cost-benefit" analysis "is not impossible" the trial court below praised "a most detailed presentation on behalf of WOGA analyzing methods of cost evaluation involved in a reduction of the SO_2 standard from the federal standard of .14 ppm down to the proposed standard of .04 ppm." (10 C.T. 2592, lines 19-22, emphasis supplied.) What the trial court obliquely conceded here, however, is that this report does not even attempt to quantify the "benefits," but only the supposed "cost." Thus, the author of the report, Mr. Clark was asked:

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> "What do you do in terms of [quantifying], for example, a child whose asthma is being aggravated?

"MR. CLARK: Well, we have not looked at any health effects. The health is excluded." (SO_2 Rec., Book 4, Item 5, p. 164, lines 22-25, emphasis supplied.)

The same attorney for plaintiffs and petitioners whose firm appears for them in this case then admitted that the benefits could not be quantified for comparison with the costs:

"Mr. McCLINTOCK: . . . As I said at the beginning, we would not for a second say that the benefits have been definitively quantified. No one has been able to do that to date and it may be a considerable time before we ever, if ever, that we do quantify benefits." (Id., p. 180, lines 22-25, emphasis supplied.)

The unexamined premise of the court below is that performing "cost-benefit balancing" is inherently a good idea in all proceedings, and that the Board should therefore be required to that. (Slip Op., p. 19.) While this apparent personal opinion of the court is irrelevant to the question of the legislative intent, it cannot go unquestioned. The usefulness of "cost-benefit analysis" was examined at length in American Federation of Labor, etc. v. Marshall (D.C. Cir. 1979) 617 F.2d 636, aff'd 452 U.S. 490 , 69 L.Ed.2d 185, 101 S.Ct. 2478:

"Further, cost-benefit analysis would not necessarily improve agency health and safety determinations. These techniques require the expression of costs, benefits and performance in often arbitrary, measurable terms. They may hide assumptions and

> qualifications in the seeming objectivity of numerical estimates. Especially where a policy aims to protect the health and lives of thousands of people, the difficulties in comparing widely dispersed benefits with more concentrated and calculable costs may overwhelm the advantages of such analysis." (617 F.2d at 665, footnotes omitted.)

In the words of one writer quoted by the Court:

> "Cost-benefit analyses are also invariably flawed. The reasons for this are well-known: the difficulty of indentifying and quantifying many costs and benefits; the inevitably arbitrary nature of valuations of human life or health. . . . and many others." (617 F.2d at 665, n.170.)

The Court notes that the National Academy of Sciences has also noted these "serious shortcomings of cost-benefit analysis." (617 F.2d at 665, n.171.) As the senator who sponsored the OSHA bill put it:

> "We are talking about people's lives, not the indifference of some cost accountants." (617 F.2d at 664.)

As the Board's chairman asked during the hearings: What is a child's case of asthma "worth"?

The insoluble problems with "cost-benefit analyses" were fully demonstrated in the case at bar as was discussed above. Given that such analyses are, in principle "invariably flawed," the insistence of the trial court that the Board has the burden to produce such an analysis which is <u>not</u> flawed is tantamount to a judicial repealer of the legislation. "Certainly, [the Legislature] would not have wanted administrative paralysis caused by debate over a standard's costs and benefits. (617 F.2d at 666 n.172.)

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F. Costs Associated with Attaining an Ambient Air Quality Standard are Properly Considered when Local Districts Adopt Future Measures Limiting Emissions from Specific Categories of Sources. Because such Measures may vary Widely from District to District and over time, the Costs of Attaining a Standard Can only be the Subject of Speculation When the Standard is Adopted.

In requiring the Board to determine the costs of attaining an ambient air quality standard, which must then be balanced against expected benefits of the standard, the Court of Appeal ignores the reality of California air quality regulatory programs. As discussed above, an ambient standard is simply a definition of acceptable air quality. (§ 39014.) In and of itself, it imposes no costs on anyone or on the economy in general. It is not self-executing. Only when specific measures designed to achieve and maintain a standard are adopted do any costs arise. An understanding of the process by which such rules and regulations are developed and adopted demonstrates that the Court of Appeal has, in misinterpreting the requirements of the Health and Safety Code, sought to impose upon the Board a burden that is both unsupported and impossible to meet.

California is divided into 46 local air pollution control and air quality management districts. Once an ambient air quality standard is adopted by the State Board, it is the responsibility of these districts to adopt a program of reasonable rules and regulations limited emissions from stationary sources of air pollution which will result in compliance with the standards. (§ 40001.)

Local district programs to attain state standards depend on numerous factors which, far from being uniform or constant, may differ greatly from one district to another and which may change greatly over time. Different districts contain different types of sources of air pollution. It is the function of local districts to plan and develop regulations to control emissions from some or all of those sources to attain the state standards. Which sources the districts choose to control and the level of controls imposed are matters to be determined by the local districts, which the Board cannot know or predict when it considers an ambient standard. A district may, as an example, choose to require a 40 percent emission reduction from all sources emitting a pollutant, or to require a 20 percent reduction from some sources and a 60 percent reduction from others. One district may choose one solution, other districts may choose others. Until the methods of meeting the standards are chosen by the districts and embodied in the form of specific rules and regulations, there is simply no way of knowing what the costs of attaining an ambient standard may be.[8/]

8. The variation between districts also accounts for the provision that air quality standards themselves might vary from district to district. (§ 39606.) The Court of Appeal argues that "the only significant variable between the various air basins would be the impact on the economy in achieving and maintaining a particular level of air quality." (Slip Op., p. 20.) This is clearly false. The Court had before it examples of such variations in 17 Cal.Admin. Code § 70200, which provides for more stringent visibility standards in a relatively clean basin, and a lower carbon dioxide standard in a high altitude basin because of heightened health effects at high altitudes. And, of course, effects of pollution on the economy vary widely from basin to basin. Agriculture might be adversely affected in Kern County, but not in a more urbanized county. In short, the impacts of air pollution

Local district programs to attain state standards depend on numerous factors which, far from being uniform or constant, may differ greatly from one district to another and which may change greatly over time. Different districts contain different types of sources of air pollution. It is the function of local districts to plan and develop regulations to control emissions from some or all of those sources to attain the state standards. Which sources the districts choose to control and the level of controls imposed are matters to be determined by the local districts, which the Board cannot know or predict when it considers an ambient standard. A district may, as an example, choose to require a 40 percent emission reduction from all sources emitting a pollutant, or to require a 20 percent reduction from some sources and a 60 percent reduction from others. One district may choose one solution, other districts may choose others. Until the methods of meeting the standards are chosen by the districts and embodied in the form of specific rules and regulations, there is simply no way of knowing what the costs of attaining an ambient standard may be.[8/]

8. The variation between districts also accounts for the provision that air quality standards themselves might vary from district to district. (§ 39606.) The Court of Appeal argues that "the only significant variable between the various air basins would be the impact on the economy in achieving and maintaining a particular level of air quality." (Slip Op., p. 20.) This is clearly false. The Court had before it examples of such variations in 17 Cal.Admin. Code § 70200, which provides for more stringent visibility standards in a relatively clean basin, and a lower carbon dioxide standard in a high altitude basin because of heightened health effects at high altitudes. And, of course, effects of pollution on the economy vary widely from basin to basin. Agriculture might be adversely affected in Kern County, but not in a more urbanized county. In short, the impacts of air pollution

Moreover, the costs of attaining and maintaining a given air quality standard may vary greatly over time. Depending on economic and other factors, sources of emissions in any district, and throughout the state, will almost certainly change from year to year. Factories which emit certain pollutants will close, perhaps to be replaced by others which emit more or less of that pollutant or other pollutants. To the extent that a large source of emissions of a pollutant may shut down in a district, the level of controls required on other sources of the same pollutant in the district will be correspondingly decreased. Conversely, if there is an increase in mobile or stationary sources of emissions of a pollutant, it will likely be necessary for the district to impose a greater level of controls on other sources. In both cases, the costs of control will obviously change and will only be able to be determined on the basis of future developments.

Similarly, the nature and costs of equipment to reduce emissions will vary greatly over time. Air pollution control technology is in a constant and rapid state of development. While there may at present be no technologically feasible means of controlling emissions from a given source, such technology may well be developed in the future. As emission control technology develops, its costs is likely to vary. Present technologies may require $10.00 to remove a

(Footnote 8 continued):

upon health, aesthetic value, interference with visibility and the economy <u>all</u> vary from one basin to another.

pound of a given pollutant, while more developed technologies may reduce emissions for only $5.00 or $2.00 per pound.

It is the function of local districts to evaluate the availability and costs of control technologies and to adopt rules and regulations accordingly. Until specific rules and regulations are identified, there is simply no rational or logical basis on which to calculate the costs of attaining and maintaining an ambient standard.[9/]

In contrast to ambient standards, which impose costs only indirectly and in future years, vehicular emission standards, which the Board is also required to adopt, impose costs directly and on a yearly basis. California's vehicular

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9. Contrary to the assertion of the Court of Appeal that local districts are required to achieve air quality standards regardless of cost (Slip Op., p. 18), local districts in fact need only see that "reasonable provision is made to achieve and maintain the state ambient air quality standards." (Health & Saf. Code § 40001, emphasis supplied.) This necessarily involves questions of costs of compliance, and where costs are unreasonable (as they are for some pollutants in the South Coast Air Basin) the standards are not met, as the Court may judicially notice.

The State Board reviews local regulations only to see "whether the plans contain reasonable provision to achieve and maintain the state's ambient air quality standards." (Health & Saf. Code § 41500.) If they do not, the State Board may establish a program or regulation which "shall have the same force and effect as a program, rule or regulation adopted by the district. . . ." (Id., §§ 41503-41504.) The Board does not understand rules adopted by the State Board for a local district to be governed by different standards or considerations than those applicable to the districts in the first instance. (See id., § 41505.)

That costs of compliance are reasonable is a prime consideration in deciding whether and to what extent air quality standards will be achieved. That consideration, however, can only be intelligently considered in the context of a specific proposal, in a specific area, and at a specific time. It can be no part of the definition of clean air.

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emission standards are adopted for different classes of vehicles for each specific model year. (See Title 13, California Administrative Code, Section 1960.1). The standards reflect emissions levels achievable with different types of technology (e.g., catalytic converter, exhaust gas recirculation), the costs of which can be specifically evaluated by the Board when it considers the adoption of a particular vehicular emission standard. This is reflected in the precise language in Health and Safety Code section 43101, which mandates the Board to "consider the impacts of the standards on the economy of the state." (Emphasis added. See footnote 5, ante.)

G. Conclusion.

In short, the notion of the Court of Appeal that even in the absence of statutory directive, the Board must "balance" the costs of compliance with regulations which might be adopted by local agencies against the monetary "value" of human health is unsupportable. The Court of Appeal cites no authority save its own ipse dixit that "reasonableness" requires this. (Slip Op., p. 19.) Yet it ignores all of the federal authority on this precise question, apparently concluding, without analysis, that Congress and the federal courts are all "unreasonable."

Nor does the Court of Appeal ever address the fundamental defect of its opinion--that the effects of air quality standards on the economy has nothing whatever to do with "the relationship between intensity and composition of

air pollution to undesirable effects." (§ 39014.) Given two interpretations of "effects on the economy," one which would direct the Board to consider something utterly irrelevant to the question at hand, and one of which comports precisely with the statutory context, this Court's choice should not be difficult. The Court should not allow all of the State's air quality standards to fall, future standards to be compromised, and the public health endangered based on the Court of Appeal's analysis.

While the procedural issues addressed below may have broader implications, few issues this court has considered will have a deeper impact on the health, safety and welfare of the millions of citizens not before the Court. We ask the Court to grant a hearing on this issue.

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II

QUASI-LEGISLATIVE HEARINGS COMPORTING WITH ALL APPLICABLE REQUIREMENTS OF THE A.P.A. MAY NOT BE REVERSED FOR FAILURE TO OBSERVE "DUE PROCESS" REQUIREMENTS. THE OPINION OF THE COURT OF APPEAL TO THE CONTRARY CONFLICTS WITH NUMEROUS PRIOR DECISIONS.

A. Introduction and Summary of Argument.

The decision of the Court of Appeal subjects quasi-legislative proceedings not only to the panoply of requirements outlined in the Administrative Procedure Act, but also to summary reversal for failure to apply such further procedures which a reviewing court, in retrospection, thinks might have been helpful under a "due process/fundamental fairness" analysis.

In so concluding, the Court of Appeal placed itself in conflict with decisions of this Court, and other appellate courts, which hold that "due process/fundamental fairness" is not a standard which can be utilized to reverse decisions resulting from quasi-legislative proceedings held in full compliance with the A.P.A. The Court's decision is also contrary to the United States Supreme Court's decision in Vermont Yankee Nuclear Power Corp. v. NRDC (1978) 435 U.S. 519, which was based on the federal A.P.A., upon which California's A.P.A. was molded.

Every state court which has considered the application of "due process" standards to quasi-legislative proceedings, and every state court which has considered the Vermont Yankee decision has rejected the view expressed by the Court of Appeal.

The vital importance of this case to California's administrative agencies is simply this:

Procedural predictability, while the most humble of virtues, is not the least important. Administrative agencies have been charged by the Legislature to protect a number of vital public interests; in the instant case, what is at stake is protection of the public health. Unless an agency can know in advance what procedures it must employ, carrying out the legislative will is transformed into a procedural game, where competing interests delay implementation of public policy, and disparate judges impose their own notions of the "best procedures" for the particular hearing after the hearing has been held. As the Supreme Court said:

> "This sort of Monday morning quarterbacking not only encourages but almost compels the agency to conduct all rulemaking proceedings with the full panoply of procedural devices normally associated only with adjudicatory hearings." 435 U.S. at 547.

This, as the Court rightly said, would disrupt the statutory scheme, which clearly differentiates between quasi-legislative, and adjudicatory proceedings.[10/]

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10. "In the first place, if courts continually review agency proceedings to determine whether the agency employed procedures which were, in the court's opinion, perfectly tailored to reach what the court perceives to be the 'best' or 'correct' result, judicial review would be totally unpredictable. And the agencies, operating under this vague injunction to employ the

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An agency should not be put to the Hobson's choice of holding its hearings subject to years of later litigation concerning whether "more" procedures might have been "better," or to conduct its quasi-legislative hearings as though they were trials. To posit that the Legislature intended to put its agencies to this choice is not only unsupported, but pure folly, as it sacrifices the substantive mission of the agencies to years of litigation, as the present case illustrates.

Finally, the Court of Appeal cannot find legitimate solace from the fact that subsequent to the administrative proceedings at bar the Legislature amended the A.P.A. to require additional (and largely unrelated) procedures. (Slip Op. pp. 6-8.) The only legitimate lesson from the amendments is that the Legislature is capable of responding to any needed changes in the A.P.A. without the uncertainty and consequent litigation engendered by the Court of Appeal's case-by-case, post hoc, "due process/fundamental fairness" analysis. Far from settling the question at bar, the Court of Appeal has thrown open the amended A.P.A. to uncertainty by holding that even procedures additional to the additional procedures may be any time required in any given case.

(Footnote 10 continued):

> 'best' procedures and facing the threat of reversal if they did not, would undoubtedly adopt full adjudicatory procedures in every instance. Not only would this totally disrupt the statutory scheme, through the [the Legislature] enacted 'a formula upon which opposing social and political forces have come to rest,' Wong Yang Sung v. McGrath, 339 U.S., at 40, but all the inherent advantages of informal rulemaking would be totally lost." (435 U.S. at 546-547, footnote omitted.)

In the pages which follow, the Board will demonstrate that the "due process/fundamental fairness" analysis utilized by the Court of Appeal may not be employed to strike down a quasi-legislative decision adopted in conformity with the A.P.A. The Board will then demonstrate that its procedures in the case at bar did, in fact conform to the A.P.A., to prior and conflicting decisions and to the "due process/fundamental fairness" analysis which the Court of Appeal invented and then misapplied.

B. The Application of a "Due Process/Fundamental Fairness" Standard to Quasi-Legislative Proceedings Conflicts with Numerous Decisions of This Court, and of Other Appellate Courts.

California decisions are unanimous in holding that quasi-legislative actions are not subject to "due process" requirements.[11/]

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11. In Horn v. County of Ventura (1979) 24 Cal.3d 605, 612-6133, this Court restated the governing principle attested by a long line of cases:

> "Due process principles require reasonable notice and opportunity to be heard before governmental deprivation of a significant property interest. [Citations.]
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> "It is equally well settled, however, that only those governmental decisions which are adjudicative in nature are subject to procedural due process principles. Legislative action is not burdened by such requirements. [Citations.]." (Emphasis in original.)

See also Franchise Tax Board v. Superior Court (1950) 36 Cal.2d 538, 549; Darley v. Ward (1980) 103 Cal.App.3d 207, 216; Building Code Action v. Energy Resources Conservation & Dev. Com. (1980) 102 Cal.App.3d 577, 584 ["It is important to note at the outset that the Commission's adoption of regulations was a quasi-legislative proceeding, and notions of fairness or due process associated with judicial or even

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Nevertheless, the Court of Appeal has announced the rule that an administrative proceeding held in full compliance with the A.P.A. may nevertheless be reversed after "superimposing on the 'quasi-legislative' function and the prescribed statutory procedure a notion of 'fairness' which a court must define on a case-by-case basis." (Slip Op., p. 10.) The standards at bar were thus reversed, inter alia, because there was an asserted "lack of fundamental

(Footnote 11 continued):

quasi-adjudicatory proceedings are not applicable. [Citations]."]; City of Santa Cruz v. Local Agency Formation Com. (1978) 76 Cal.App.3d 381, 388-389; California Optometric Assn. v. Lackner (1976) 60 Cal.App.3d 500, 505 ["[T]he promulgation proceeding is statutory and does not arouse the demands of procedural due process [Citations.]."]; Rivera v. Division of Industrial Welfare (1968) 265 Cal.App.2d 576, 587 ["There is no constitutional requirement for any hearing in a quasi-legislative proceeding; hence, the procedural requirements for conduct of the agency's hearings stem from the particular statute rather than the constitutional demands of due process"]; Brock v. Superior Court (1952) 109 Cal.App.2d 594, 606.

This rule has been held to be grounded in the doctrine of separation of powers. Stauffer Chemical Company v. California State Air Resources Board, ____ Cal.App.3d ____ (February 16, 1982) 1 Civil 52134, Slip Op., p. 6:

> "The limited scope of review of quasi-legislative administrative action is grounded upon the doctrine of separation of powers."

See also Anti-Facist Committee v. McGrath (1950) 341 U.S. 123, 167, Frankfurter, J., concurring; Brock v. Superior Court (1952) 109 Cal.App.2d 594, 603.

The decision of the Court of Appeal conflicts with these authorities, curiously holding that the doctrine of separation of powers applies only to members of the coordinate branches who are "individuals directly elected by the people." (Slip Op., p. 11; contra Zetterberg v. State Dept. of Public Health (1974) 43 Cal.App.3d 657, 663 [applying the doctrine of separation of powers to a state agency].) If this Opinion is allowed to become law, the Court of Appeal's novel restriction on the separation of powers doctrine to directly "elected individuals" could well take on a mischievous life of its own.

fairness" in the proceedings (id. at 17). "Fundamental fairness," of course, is the very definition of "due process."[12/]

The Court of Appeal, then, is the first court in this State to hold that the same "due process" analysis which it acknowledges to have been repeatedly escorted out the front door by our Courts (Slip Op., p. 10) has somehow reentered by the back door.

The Court below thus placed itself in direct conflict with the many cases holding that "notions of fairness or due process associated with judicial or even quasi-adjudicatory proceedings are not applicable . . ." (Building Code Action v. Energy Resources Conservation & Dev. Com. (1980) 102 Cal.App.3d 577, 584), and that "'[a]n administrative order, legislative in character, is subject to the same tests as to validity as an act of the Legislature.' (Knudsen Creamery Co. v. Brock, 37 Cal.2d 485, 494; Board of Supervisors v. California Highway Commission, 57 Cal.App.3d 952, 960.)" (City of Santa Cruz v. Local Agency Formation Com. (1978) 76 Cal.App.3d 381, 389). (Cf. Slip Op., p. 11, and the Opinion's metamorphosis of the separation of powers doctrine, discussed at note 11, ante.)

How did "due process," reenter the arena? According to the Court of Appeal, permission to apply a case-by-case due process analysis was somehow obscurely conveyed by the

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12. [F]undamental fairness [is] the touchstone of due process". In re Love (1973) 11 Cal.3d 179, 191; People v. Superior Court (Greer) (1977) 19 Cal.3d 255, 268 ["'[F]undamental fairness [is] assured by the Due Process Clause'"]; In re Saunders (1970) 2 Cal.3d 1033, 1041; see McKeiver v. Pennsylvania (1971) 403 U.S. 528, 543 ["[T]he applicable due process standard . . . is fundamental fairness."].

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Legislature in the A.P.A. itself, although the Legislature never exactly said so.[13]

An identical argument was recently made to the United States Supreme Court in Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council (1978) 435 U.S. 519, wherein it was held:

> "In short, nothing in the APA, NEPA, the circumstances of this case, the nature of the issues being considered, past agency practice, or the statutory mandate under which the Commission operates permitted the court to review and overturn the rulemaking proceeding on the basis of the procedural devices employed (or not employed) by the Commission so long as the Commission employed at least the statutory minima, a matter about which there is no doubt in this case." (Emphasis in original, 435 U.S. at 548.)

This holding should have inspired considerable deference, as California's A.P.A. was patterned on the federal act[14] and in such a circumstance the attribute of 'great

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weight' which attaches to federal decisions[15] and particularly those of the United States Supreme Court[16] finds special application.[17]

Moreover, every state court which has considered the Vermont Yankee opinion has adopted it as its own.[18]

Indeed, the case for following Vermont Yankee was even stronger under the California A.P.A., as all of the textual criticisms which were directed by Professor Davis against the Supreme Court's decision are wholly inapplicable

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18. E.g., Grocery Mfrs. of Am. v. Dept. of Public Health (Mass., 1979) 393 N.E.2d 881, 889; Northern Plains v. Board of Natural Resources (Mont., 1979) 594 P.2d 297, 303; Somer v. Woodhouse (Wash.App. 1981) 623 P.2d 1164, 1171; Tri-State Generation v. Environmental Quality (Wyo., 1979) 590 P.2d 1324, 1331-1332.

weight' which attaches to federal decisions[15] and particularly those of the United States Supreme Court[16] finds special application.[17]

Moreover, every state court which has considered the Vermont Yankee opinion has adopted it as its own.[18]

Indeed, the case for following Vermont Yankee was even stronger under the California A.P.A., as all of the textual criticisms which were directed by Professor Davis against the Supreme Court's decision are wholly inapplicable

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15. People v. Bradley (1969) 1 Cal.3d 80, 86; San Diego Unified Port Dist. v. Superior Ct. (1977) 67 Cal.App.3d 361, 371; Debtor Reorganizations, Inc. v. State Bd. of Equalization (1976) 58 Cal.App.3d 691, 696; People v. Cummings (1974) 43 Cal.App.3d 1008, 1019; Silman v. Reghetti (1935) 7 Cal.App.2d 726, 729.

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to the California Act.[19]

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19. Professor Davis' major argument against Vermont Yankee is that it overlooks section 559 of the A.P.A. which, as he quotes it, provides:

> "Nothing in this Act shall be held to diminish the constitutional rights of any person or to limit or repeal additional requirements imposed by statute or otherwise recognized by law." (1 Administrative Law Treatise 68 (1980 Supp), emphasis added.)

Professor Davis argues that the reference to "recognized by law," as opposed to "imposed by statute" or constitutional provision, clearly referred to court-made law. (Id.)

To the extent that argument has force in interpreting the federal Act, it is equally forceful in supporting the argument that the California Legislature, in omitting the language on which Professor Davis focuses, intended itself, and not the courts, to be the source of any additional requirements imposed upon the agencies. Speaking of the provision in the federal Act, Professor Davis insists:

> "The final word is 'law,' not 'statute.'" (Supp. at 68, emphasis supplied.)

In the California provisions, the final word is "statute."

> "[N]othing in this article repeals or diminishes additional requirements imposed by any such statute." (Govt. Code § 11350, emphasis added.)

Professor Davis makes a similar argument with respect to § 706 of the federal Act, which provides in pertinent part that "The reviewing court shall . . . set aside agency action . . . found to be without observance of procedure required by law." Again, Professor Davis insists:

> "The final word is 'law,' not 'statute.'" (1980 Supp. at 68.)

But the California analog to § 706 is Government Code § 13350, which provides in pertinent part:

> "Such regulation may be declared to be invalid for a substantial failure to comply with the provisions of this chapter . . ."

The Court of Appeal responds that these provisions are intended simply to avoid an inference of repeal of other statutes. (Slip. Op., p. 13.) The Court of Appeal takes no note of the contrast with the federal statute, on which the California statute was otherwise patterned, nor the undercutting of the basis of Professor Davis' argument engendered by this difference in language.

There is no valid distinction at all between the federal and state A.P.A.s. The Court of Appeal does not even profess to find any differences, noting merely that "the federal Administrative Procedure Act . . . is similar to California's Act". (Slip Op., p. 12.) The federal Act, like the California Act, was designed to impose "'minimum requirements of fair administrative procedure.'"[20] The question at bar is whether the Courts were designated as the source of additional requirements. The Supreme Court concluded that "the Act established the maximum procedural requirements which Congress was willing to have the Courts impose upon agencies conducting rulemaking procedures." (435 U.S. at 524.) Rather, requirements additional to the minima are to arise from the Legislature itself, as the California statute provides.

Nor does the Court of Appeal pay any attention to the policies which moved the Supreme Court to its decision, including the need for procedural predictability, and judicial restraint.[21]

C. The Decision of the Court of Appeal is Not Supported by Any Prior Decision, or Even Applicable Dicta.

The entire discussion of the Court of Appeal, in rendering its far-reaching and sui generis disposition of the issue at bar, consisted of the following:

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20. Davis, 1 Administrative Law Treatise 69 (2d ed., 1980 Supp.). (Emphasis in original.)

21. See Moskowitz, Vermont Yankee in California's Courts, 13 Pacific L.J. 315, 328-331 (1982).

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"The rationale of Vermont Yankee . . . has previously been refused application in California. (California Optometric Assn. v. Lackner, supra.) We agree with that refusal." (Slip Op., p. 14.)

While this analysis displays the virtue of brevity, this is its only virtue. Lackner was decided two years before Vermont Yankee! No one even asked the Lackner Court to adopt the rule of Vermont Yankee, still less was the rationale for that adoption "rejected." Moreover, the portion of Lackner on which the Court of Appeal relies was carefully labelled "deliberate dicta" by the Lackner Court. 60 Cal.App.3d at 509. The Court of Appeal, moreover, misunderstands the entire thrust of the Lackner dicta, which was addressed to the need for a record adequate to informed judicial review.[22/] Still less does the Court understand the holdings in Lackner, which illuminate the dicta and strongly oppose the Court of Appeal's free-floating "due process/fundamental fairness" analysis.

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22. As the Court of Appeal relied so heavily on the dicta in Lackner, an examination of the entirety of that case, and the place of the dicta within it would be helpful to the Court.

The holdings in Lackner oppose the decision of the Court of Appeal, and leave one unequivocally of the mind that the court of appeal agreed with the decision in Vermont Yankee. The court first ruled that there is no requirement under the California Act that parties be allowed to appear in person and address the agency orally; the agency need merely fix a time and place for the receipt of written statements and then close the public portion of the hearing. (60 Cal.App.3d at 506-507.) Such a procedure would greatly limit the ability of the parties to engage in a dialogue, or rebut evidence received. The court realized this and held

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Nor could the Court of Appeal find legitimate comfort in dicta in California Hotel & Motel Assn. v. Industrial

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that such rights are not guaranteed by the Act, and that the trial court "errs by making a fixed demand for trial-like hearings" at the adoption proceedings. (Id. at 507.)

Thus, the court ruled that the Act, "which permits the agency to proceed without opportunity for oral presentation is quite inconsistent with unyielding rights of cross-examination and rebuttal." (Id. at 508.) Likewise, the court reversed the trial court's judgment "confining the agency to action based exclusively upon evidence admitted at a hearing." (Id. at 508.) These holdings cannot be reconciled with the opinion of the Court of Appeal. As the Lackner Court said:

> "To restrict the agency to evidence produced at the time and place specified in the public notice would generate undesirable inflexibility. Decisions interpreting parallel statutes have discerned no subversion of statutory purpose, no fundamental unfairness when the agency considers information received after the hearing." (Id.)

Finally, the court rejected the requirement imposed by the trial court that the agency "prepare and adopt findings as a step additional to the rule adoption." (Id.)

Having so held, and because the court was concerned that the "opinion is vulnerable to serious misinterpretation it undertook to render "some deliberate dicta" (Id. at 509.) Unfortunately, as the oil companies essay exemplifies, the dicta themselves are "vulnerable to serious misinterpretation":

> "Like the Administrative Procedure Act itself, this decision deals only with procedural minima. Fulfillment of these minimal directions does not assure procedural invulnerability.
>
> "The procedural directions of the APA are designed to promote fulfillment of its dual objectives--meaningful public participation and effective judicial review. [Citation.] Although implied rather than expressed, these objectives are just as statutory and just as binding as the APA's itemized directions. Compliance with procedural minima does not necessarily achieve these goals." (Id.)

The only examples given of the possible implementation of this ominous warning deal with inclusion of evidence in the record and opportunity for rebuttal of evidence.

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Welfare Com. (1980) 27 Cal.3d 690, 702, app. dism. ____ U.S. ____ [101 S.Ct. 602] that "a reviewing court will ask . . . did

(Footnote 22 continued):

On the first issue, the court is straightforward; evidence relied upon must be placed in a record:

> "The body of evidence upon which the agency acted is indispensable to . . . informed judicial review. A proceeding which satisfies the minimum standards of the APA may be fatally deficient if it fails to satisfy the act's guarantee of effective judicial review." (Id. at 511.)

Obviously, no such issue exists in the case at bar. All the evidence is in the record.

The dicta concerning rebuttal, however, requires closer attention. The court first opines "that reception and consideration of post-hearing evidence need not result in unfairness" so long as the public hearings are not "'paralleled by substantial "off-record" investigations.' [Citation.]" To confuse the matter, the court immediately cites dicta from another case (California Assn. of Nursing Homes etc., Inc. v. Williams (1970) 4 Cal.App.3d 800, 811) to the effect "that an agency 'may not base its decision upon evidence outside the record and not made available for rebuttal by the affected parties.'" The court then interpreted the Supreme Court decision in Olive Proration etc. Com. v. Agri. etc. Com. (1941) 17 Cal.2d 204, as requiring "a middle ground between multilateral rebuttal among the contending parties and their legitimate need to confront the body of data upon which the agency intends to act." (60 Cal.App.3d at 510.)

What, then, is required of an agency with respect to providing an opportunity for rebuttal? The court says only:

> "A prescription so vague leaves considerable to ad hoc agency practices." (Id. at 511.)

Unfortunately, a prescription so vague also leaves considerable to contentious oil companies seeking to repose that discretion in the courts, rather than the agencies.

Taken as a whole, however, and considered the context of the cases cited, the meaning of the "deliberate dicta" is not impossible to reconstruct.

In the first place, the dicta cannot be read to swallow the holdings. Any reading of the dicta to say that all material evidence must be made available for rebuttal would be directly contrary to the statement that "[n]o statutory or decisional doctrine establishes ineluctable rights of . . . rebuttal at quasi-legislative hearings." (Id. at 507.)

The best guidance to the dicta concerning rebuttal is that the court announces that its orphic pronouncements "were framed with an eye to the California Supreme Court's Olive Proration decision . . . ." (Id. at 510.)

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the agency employ fair procedures . . . ." (Slip Op., p. 12.)

The holding of the Court of Appeal that this dicta applies to all administrative proceedings is directly contrary to the recent decision of the Court of Appeal in the First District in Stauffer Chemical Company v. California State Air Resources Board, supra [at note 11], ____ Cal.App.3d ____, (February 16, 1982) 1 Civil 52134, Slip Op., pp. 7-8, wherein the Court said of this language:

"Stauffer's heavy reliance on language found in California Hotel & Motel Assn. v. Industrial

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Olive Proration was concerned with a quasi-judicial decision wherein the Court noted, in dicta, (17 Cal.2d at 209) that the decision was based, in large measure, upon an unauthorized (Id. at 211) survey conducted after the hearing, and not subjected to cross-examination and rebuttal. (Id. at 210.) The Court observed that "[u]nder such circumstances, the statutory requirement of a hearing was not met." (Id.)

What the Court in Lackner alluded to, and what Olive Proration illustrates, is that it is possible to extend the principle allowing the agencies to determine the procedure governing their hearings to the point that the "hearing" is a "facade for a private decision" or that judicial review is impossible. (60 Cal.App.3d at 510.)

The possibility of judicial intervention was not, however, precluded by Vermont Yankee when "extraordinary" (435 U.S. at 541) or "extremely compelling" (Id. at 543) circumstances were presented. See Chrysler Corp. v. Brown (1979) 441 U.S. 281, 312-313, 99 S.Ct. 1705, 60 L.Ed.2d 208, 231. The evil addressed in Vermont Yankee was the routine undertaking by the courts "to explore the procedural format or to impose upon the agency its own notion of which procedures are 'best' or most likely to further some vague, undefined public good." (435 U.S. at 549.)

Taken as a whole, then, the decision in Lackner is fully reconcilable with, indeed supportive, of Vermont Yankee and impossible to reconcile with the decision of the Court of Appeal, which professes to rely on it.

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Welfare Com., supra, 25 Cal.3d 200 [validity of wage orders] is misplaced. That case is clearly distinguishable since the governing statute involved therein expressly required the Industrial Welfare Commission to prepare 'a statement as to the basis upon which the [wage] order [was] predicated . . . .' (Lab. Code, § 1177.) No similar statutory duty existed herein; nor should such a duty be judicially fashioned in retrospect."[23/]

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23. Indeed, in California Hotel the entire discussion in question was headed "The Statement of Basis Issue (Labor Code Section 1177)" (25 Cal.3d at 209) and the Court articulated its holding as being that "the commission did not include an adequate statement of basis to support the order, as required by section 1177." (Id. at 204, emphasis supplied.) The Court closely defined the scope of its discussion:

> "In light of these considerations, we define the standard to evaluate the statement of basis required by section 1177." (Id. at 213, emphasis supplied.)

In the dicta quoted by the court, the Court undertakes to "discuss the purposes behind the statement of basic requirement, set out a standard to test a statement of basis, and apply the standard to the documents in this case." (Id. at 210.) While the dicta clearly expressed the thought that statements of basis were laudatory, it hardly undertook to require such statements in the absence of any statutory underpinning. Still less was it legislating a disembodied due process requirement.

Even Justice Newman's dissent, which argued forcefully that the opinion was too broad, had no different understanding as to whether a statutory requirement was being interpreted, rather than a free-floating policy being imposed:

> "I believe experienced observers will be astonished to learn that, when a statute requires a statement 'as to the basis' on which rules are predicated, administrative rulemaking is now to be encumbered as follows: . . ." (25 Cal.3d at 216, Justice Newman, dissenting, emphasis supplied.)

(Footnote 23 continued next page)

III

THE OPINION OF THE COURT OF APPEAL CONCERNING THE ADEQUACY OF THE HEARING NOTICE CONFLICTS WITH SCHENLEY AFFILIATED BRANDS CORP. v. KIRBY (1971) 21 Cal.App.3d 177

Three notices of the hearing on the sulfur dioxide standard were promulgated.[24/] The first and primary of these proposed the retention of standard of 04 ppm over 24 hours. (SO_2 Record, Book 1, Item 2, p. 146.) That notice went on to indicate that the Board would "review all relevant evidence, including evidence supporting a more stringent or more lenient standard." (Id.)

The second notice incorporated the former notice and rescheduled the hearing. (SO_2 Rec., Book 1, Item 1, Part C.) The third notice also incorporated the first notice, and also indicated "The Board's intention to expand the scope of its proposed actions":

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Since California Hotel, when this Court was again ruling with a majority of sitting members, it opined that quasi-legislative zoning regulations did not need to be accompanied by findings of fact. (Arnel Development Co. v. City of Costa Mesa (1980) 28 Cal.3d 511, 522.)

24. The Court of Appeal indicates that there were four notices. (Slip. Op., p. 15.) The record does not reflect this.

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"The Board will also consider the establishment of an ambient air quality standard for SO_2 in combination with other pollutants." (SO_2 Rec., Book 1, Item 1, Part A.)

Ultimately, the standard adopted was for SO_2 in combination with oxidant or particulate matter.[25/]

The standard was stricken by the Court of Appeal because:

"Needless to say, the final result had never been mentioned in the notices of hearing either in express terms or by way of an informative summary." (Slip Op., p. 16.)

But the Court of Appeal never cites Schenley Affiliated Brands Corp. v. Kirby (1971) 21 Cal.App.3d 177, which is precisely on point, despite extensive discussion of this case, in the Board's brief on appeal (at pp. 34-35) the trial court's decision (10 C.T. 2635) and Respondent's brief (at p. 22). The Court of Appeal in this case, by its very silence concerning the leading authority, forgoing even an attempt to distinguish it, is conceding that any attempt to reconcile this case with Schenley would only further reveal the conflict.

As the Court knows, Schenley held:

"[Government Code] section 11424, subdivision (c) . . . is not offended if the adoption procedure

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25. The Court of Appeal finds that the standard adopted was for SO_2 in combination with oxidant only. (Slip. Op., pp. 2-16.)[2] The record does not reflect this. (10 C.T. 2511-2513.)

culminates in a regulation differing substantially from that described in the published notice but devoted to the same subject or issue." (21 Cal. App.3d at 193.) 26/

The Court on Schenley addressed the "fairness" issue as well, and directly disagreed with the conclusion of the Court of Appeal that the procedure followed embodied "a lack of fundamental fairness." Unlike the opinion at bar, however, the Schenley Court analyzed the fairness issue:

"After an opportunity for participation in a hearing considering the subject or issue evoked by the pre-hearing draft or summary, affected interests

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26. As the Schenley court explained:

"Section 11424 [of the Government Code, the statute on which petitioners rely] is part of a statutory system designed to provide 'a method for the adoption of administrative regulations which [will] afford a reasonable opportunity for those subject to such rules to present views and argument in advance of their promulgation . . . .' (Kleps, The California Administrative Procedure Act (1947) 22 State Bar J. 391, 393.) The participatory process is initiated by a notice arousing advance awareness of the subject or issue involved in the proposed action. . . . Awareness of the subject or issue supplies affected interests an opportunity to make advance preparations for the forthcoming hearing.

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"Regulatory agencies frequently find difficulty in predicting the practical impact of regulatory proposals. The hearing not only assures public participation; it also provides the agency with an improved set of predictions. A prime objective is to persuade the agency into action differing from its pre-hearing proposal. If the persuasion is successful, the adopted regulation will necessarily diverge from that described in the pre-hearing notice.

"Thus, eventual adoption of a regulation differing from that described in the pre-hearing notice is one objective of the hearing process." (Id. at 192-193, emphasis supplied.)

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cannot claim unfairness when the agency's consideration of new information and views persuades it into a different enactment dealing with the identical subject or issue. To confine the agency to the terms of its pre-hearing proposal would negate a basic purpose of the hearing. To require a new notice and hearing would tie the agency into time-consuming, circular proceedings transcending the statutory objective." (21 Cal.App.3d at 193, emphasis supplied.) 27/

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27. Courts in other jurisdictions have followed the lead of Schenley. As was said the American Bankers, Etc. v. Div. of Con., Etc. (VA., 1980) 263 S.E.2d 867, 875-876, in direct response to the ruling of the trial court:

"Requiring an agency to provide an additional notice and comment period when it decides to change any provisions in a proposed rule would change the purpose of these notice provisions. Knowing that changes would trigger an additional round of notice and comment, agencies might be reluctant to change an original proposal even though the arguments for change offered at a hearing are persuasive. Bassett v. State Fish and Wildlife Commission, 27 Or.App. 639, 642, 556 P.2d 1382, 1384 (1976). Parties desiring to delay regulation would be inclined to point to potential weaknesses in a proposed plan without offering alternatives, knowing that an agency would be required to undertake an additional round of notice and comment before making any change. Such a process might lead to an endless round of notices and hearings before a regulation could be implemented.

". . . The Commission is not required . . . to provide additional notice and opportunity for comment where the changes in the promulgated rule, even if substantial, do not enlarge the proposed rule's subject matter, Schenley Affiliated Brands Corp. v. Kirby, 21 Cal.App.3d 177, 193, 98 Cal.Rptr. 609, 622 (1971); Bassett v. State Fish and Wildlife Commission, 27 Or.App. 639, 642, 556 P.2d 1382, 1384 (1976); East Greenwich Fire District v. Penn Central Co., 111 R.I. 303, 315-16, 302 A.2d 304, 310-11 (1973), and are a logical outgrowth of the public comments received. South Terminal Corp. v. Environmental Protection Agency, 504 F.2d 646, 658-59 (1st Cir. 1974)."

Rendering the claim of "unfairness" even more unfair itself is the fact that the regulation adopted was more lenient toward the oil companies than the regulation proposed, and was adopted in response to the oil companies' own testimony and argument.[28/]

In short, the decision of the Court of Appeal is impossible to reconcile with Schenley, and so the Court of Appeal simply issued an ipse dixit without reference to that case. The Board issued a proposal as required by the statute, and went even farther than Schenley required in giving notice that it would consider other proposals, including a combination

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28. The oil companies insisted that the effects of SO_2 alone could not be "teased out" of the effects of SO_2 acting in combination with oxidants and/or particulates. The regulation adopted, unlike the regulation it replaced, is not violated by the presence of SO_2 alone, regardless of how high a level it may be found, but is violated only by SO_2 accompanied by oxidant or particulate matter in excess of the state standards for those substances.

Thus the "unfairness" inhered in the oil companies receiving a more lenient standard in response to their own testimony. Doubtless the oil companies had hoped, when they testified against the proposal of a standard for SO_2 alone that the Board would take no action at all. If they were "misled" into "focusing" on the primary proposal (Slip Op. at p. 15) they were misled into telling the truth. Certainly the Board gave ample warning in its notices that it was interested in hearing testimony concerning a combination standard.

Rendering the claim of "unfairness" even more unfair itself is the fact that the regulation adopted was more lenient toward the oil companies than the regulation proposed, and was adopted in response to the oil companies' own testimony and argument.[28/]

In short, the decision of the Court of Appeal is impossible to reconcile with Schenley, and so the Court of Appeal simply issued an ipse dixit without reference to that case. The Board issued a proposal as required by the statute, and went even farther than Schenley required in giving notice that it would consider other proposals, including a combination

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standard. Even by the Court of Appeal's own "due process" standard, the notice of hearing was full, fair, in compliance with the statute and expressly sanctioned by case authority.

IV

THE OPINION'S REQUIREMENT OF PRE-HEARING DISCOVERY IN QUASI-LEGISLATIVE HEARINGS IS WITHOUT PRECEDENT AND CONTRARY TO ALL EXISTING AUTHORITY

The Court of Appeal found that the staff report was distributed "just three days prior to the hearing." (Slip Op., p. 15.)

The trial court held that:

> "[T]he public should have [had] a reasonable and fair opportunity to receive it in sufficient time so that interested members therof, such as the plaintiffs in this case, may have time to engage experts in the particular fields covered by the report, so that those experts may read, analyze, and digest not only the report but the voluminous references therein which also comprise the administrative record." (10 C.T. 2641, lines 18-24.) 29/

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29. The Court of Appeal's conclusion that the oil companies had only three days to review the staff report prior to the Board's decision is flagrantly contrary to the record. The hearing at bar was held in two stages: first there was an oral hearing, and then the record was held open for a month for written response to the items received. (SO_2 Rec., Book 5, Item 6, pp. 94-95.)

The oil companies, in fact, took lavish advantage of the written hearing to submit a one-inch thick stack of papers constituting their rebuttal. (Book 14, Item, 13, Pt. 12.)

The oil companies, thus, had 33 days to review the staff report and comment thereon, more than the trial court thought was required.

The hearing might, of course, have been conducted entirely in writing. California Optometric Assn. v. Lackner (1974) 60 Cal.App.3d 500, 505-506 (discussed infra). That the oil companies also were accorded an oral hearing hardly made the proceedings less fair.

The Court of Appeal agreed:

> "While there is no requirement in the law that an administrative agency obtain a staff report or follow the recommendation of such report, it is a matter of common knowledge, borne out by the above described conduct of the Board, that administrative agencies rely heavily on staff reports and that staff recommendations carry great weight.
>
> "We are of the opinion that the Board's conduct in the proceeding were contrary to the spirit and purpose of the Act and were arbitrary and capricious." (Slip Op., p. 16.)

As the Court of Appeal acknowledges, no statute required preparation of a staff report, still less pre-hearing discovery of staff reports, and the statute which listed items which were to be made available prior to the hearing[30] made no mention of staff reports or other evidentiary material.[31]

No case, state or federal has ever called for pre-hearing discovery of evidentiary material in rule-making proceedings. The Court of Appeal does not cite even one.[32]

The Court of Appeal has, without citation to any authority, opened a whole new world of litigation. And the bounds of that world are left totally undefined.

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30. Government Code section 11424 lists such items as the hearing notice, the proposed regulation, and the authority for the hearing.

31. Government Code section 11423 provides that failure to mail these items to any person would not invalidate the action taken.

32. The oil companies relied solely on cases which called for production of evidence at the hearing. Portland Cement Association v. Ruckleshaus (D.C. Cir. 1973) 486 F.2d 375,

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Thus, sua sponte discovery[33] of staff reports is required because "of common knowledge . . . that administrative agencies rely heavily on staff reports and that staff reports carry great weight." (Slip. Op., p. 16.) Apparently, any information which might "carry great weight" would have to be disclosed sufficiently prior to the hearing to allow "time to engage experts . . . so that those experts may read analyze and digest not only the report but the . . . references therein."

What about a respected expert, scheduled to testify at a hearing? Is he required to prepare a text of his testimony sufficiently before a hearing to allow for this process? Is the staff allowed to testify at a hearing even if it does not prepare a staff report? Arguably not, for staff comments would "carry great weight" whenever delivered. All of these questions go unanswered as the Court of Appeal dashes into virgin territory without a compass and with only a vague idea where it is going.[34]

(Footnote 32 continued):

393 and fn. 67, cert den. 417 U.S. 921 (1974) dealt with critical data being withheld until months after the hearing. California Optometric Assn. v. Lackner (1976) 60 Cal.App.3d 500 likewise spoke of the desideratum that "relevant evidentiary material will be compiled at the hearing." (Id. at 510, emphasis supplied.) Olive Proration etc. Com. v. Agri. etc. Com. (1941) 17 Cal.2d 204, 210 likewise spoke of "evidence which the opposite party has an opportunity to refute at the hearing." (Emphasis supplied.)

33. The Court of Appeal never contended that the staff report was available earlier, but was withheld. "Discovery" might be too weak a word for what the Court of Appeal seems to require.

34. The Court of Appeal cannot take legitimate comfort from the fact that significantly after the hearing at bar,

(Footnote 34 continued next page)

If the Court of Appeal fails to mention any precedent, it equally fails to note that its opinion conflicts with several cases which expressly deny that there is a right of "rebuttal" in quasi-legislative proceedings. As it is this "right" which the Court of Appeal seeks to protect by its inauguration of pre-hearing discovery, this unresolved conflict undercuts the

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the A.P.A. was amended to require what amounts to a "staff report" upon promulgation of the hearing notice. (Slip. Op., p. 7.)

In the first place, that later amendment did not govern these proceedings. In the second place, that amendment neither moots this issue nor confirms the Court's judgment, as a host of quasi-legislative proceedings are not governed by the A.P.A., and yet the Court's new rule would apply there too. In the third place, while the legislation is precise, and limited to staff reports, the Court's ipse dixit is not so limited, but applies to all evidence which "carries great weight." This is the essential difference between legislation, which can be precise, and the Court's opinion, which is based on abstract principle.

As the United States Supreme Court noted in Lassiter v. Department of Social Services (1981) 452 U.S. 18, 68 L.Ed.2d 640, 101 S.Ct. 1253, 1258:

> "[T]he phrase ['due process'] expresses the requirement of 'fundamental fairness,' a requirement whose meaning can be as opaque as its importance is lofty. Applying the Due Process Clause is therefore an uncertain enterprise which must discover what 'fundamental fairness' consists of in a particular situation by first considering any relevant precedents and then by assessing the several interests that are at stake."

In the arena of quasi-legislative proceedings, our courts have "wisely observed [that] the other branches of the Government 'are ultimate guardians of the liberties and welfare of the people in quite as great a degree as the courts.' [Citations]." United States v. Richardson (1974) 418 U.S. 166, 189, Justice Powell, concurring and quoting Justice Holmes. The subsequent legislation, if deserving of praise, shows that the Court of Appeal's vague judicial legislation is unneeded, not that it is wise.

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basis for the Court's invention. As this "right" of rebuttal is directly involved in the Court's next assignment of error, those cases will be cited and discussed in the argument immediately infra.

V

THE COURT OF APPEAL'S REQUIREMENT OF REBUTTAL TO INFORMATION RECEIVED AT THE WRITTEN PHASE OF A QUASI-LEGISLATIVE HEARING CONFLICTS WITH CALIFORNIA OPTOMETRIC ASSN. v. LACKNER (1976) 60 Cal.App.3d 507 AND SEVERAL OTHER DECISIONS.

As was noted above, the hearing on the SO_2 standard was held in two phases. First, an oral hearing was held, and then the record was held open for a month so that all parties could submit additional information. The Court of Appeal said:

> "At the close of the hearing, the Board announced that it would keep the record open until June 5, 1977. On June 6, 1977, the Board placed in the record a staff report based on data received from Japan concerning the effect of concentrations of .05 to .09 parts per million of sulfur dioxide in combination with high levels of oxidants - another form of pollution."
>
> "The standard adopted was, as noted, the .05 parts per million level in combination with high oxidant level. This standard was based primarily on the Japanese data. All efforts by the interested parties to obtain the right to challenge this belated material were rejected." (Slip. Op., p. 16.)

The Court of Appeal struck down the standard on the grounds that "due process/fundamental fairness" requires for all parties and all evidence the opportunity "to counter or refute input which is contrary to their position." (Slip. Op., p. 11.)

There are several problems with this analysis, besides the absence of any discussion of authority.

First, the material was not "belated," nor was it submitted "after" the hearing. Following the oral phase of the hearing, the record was held open until June 6, 1977.[35/]

On that date the oil companies themselves submitted over one-inch of new material. (SO_2 Rec., Book 14, Item 13, Part 2.). On that same date the staff submitted a telegram from the Japanese purporting to summarize pollutant readings reported in Japanese studies already in the record. The oil companies claimed before the trial court, on rebuttal, that there were discrepancies between the reports of the Japanese studies given in the staff report, the telegram in question, and the Board's own findings. (16 R.T. 2174-2186.) It was repeatedly stressed that the Board's findings were based on the original studies in the Administrative Record, not upon any of the summaries, and certainly not upon the telegram in question.

The second error of the Court of Appeal, then is that it makes no mention of the fact that the original studies were in the record all the time, and that contrary to this claim, to the extent the standard was "based primarily upon

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35. While the Court of Appeal relies on the date June 5 to support its finding that the submission was "belated," the Court may take judicial notice that June 5, 1977 was a Sunday, and by operation of law the record was actually held open until June 6. (Code Civ. Proc., §§ 10, 12b, 13.)

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the Japanese data" it was based upon those original studies and not upon the telegram. No claim has ever been raised that the Board's findings do not fully and faithfully conform to the original studies, which are in the record. The idea that "fundamental unfairness" resulted in the absence of rebuttal to secondary sources which the Board ignored is farcical, and is to be explained only by the Court of Appeal's studied failure to mention the original studies, which have never been asserted to deviate at all from the Board's findings.

The most fundamental error of the Court of Appeal, however, is its conflict with numerous decision of this Court and other appellate courts which deny any ineluctible right of rebuttal in quasi-legislative proceedings. The most telling of these cases is California Optometric Assn. v. Lackner (1974) 60 Cal.App.3d 500, from which the Court of Appeal ironically claims to derive its "due process/fundamental fairness" doctrine. (Slip. Op., pp. 11-12.) The Lackner court expressly upheld a hearing in which all parties make written submissions, without the right "to counter or refute input which is contrary to their position." (Slip. Op., p. 11.)[36/]

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36. The Lackner court said:

> "[T]he act demands of an agency only that it fix a time and place for the reception of written statements; that the agency may then close the public portion of the proceeding; that it may consult evidence not incorporated in a hearing record and made available to interested parties;

(Footnote 36 continued next page)

Even more notably contrary to the position of the Court of Appeal are the numerous cases permitting an agency to receive and consider evidence after the hearing is closed, and with no right of rebuttal.

Thus, another holding in Lackner, which the Court of Appeal overlooked was the holding that "[n]either expressly nor impliedly does [Government Code] section 11425 prohibit consideration of 'post-hearing' information." Id., 60 Cal. App.3d at p. 508. As that court said:

> "The declaratory judgment errs in a third respect by confining the agency to action based exclusively upon evidence admitted at a hearing. In directing the agency to consider 'relevant matter,' section 11425 (fn. 4, ante) impliedly obliges it to exercise good faith, to avoid fixed preconceptions and to be responsive to new insights emanating from the parties' presentations. . . . To restrict the agency to evidence produced at the time and place specified in the public notice would generate undesirable inflexibility. Decisions interpreting parallel statutes have discerned no subversion of statutory purpose, no fundamental unfairness when the agency considers information received after the hearing. (Ray v. Parker, supra, 15 Cal.2d at pp. 303-304; California Grape etc. League v. Industrial Welfare Com. (1969) 268 Cal.App.2d 692, 708-710 [74 Cal. Rptr. 313]; Rivera v. Industrial Welfare Com.,

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> that even when an oral hearing takes place, the agency need not permit cross-examination and rebuttal. '[S]ection 11425 . . . invests the agency with discretion to proceed without supplying an opportunity for oral presentation. Section 11425 permits purely documentary proceeding yet, in its last paragraph, refers to the proceeding as a "hearing." Thus, contrary to superficial assumptions, it does not necessarily demand a hearing characterized by oral testimony and oral argument. In section 11425, the California act permits a choice of oral advocacy, written presentations or a combination of both.'" (Emphasis supplied.)

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> supra, 265 Cal.App.2d at pp. 589-590; Emby Goods, Inc. v. Paul, supra, 230 Cal.App.2d at p. 695.) Neither expressly nor impliedly does section 11425 prohibit consideration of 'post-hearing' information." (Emphasis supplied.)

The Court of Appeal ignores all of this contrary authority.

The only caveat issued by the court in Lackner was:

> "that the agency may not utilize the public proceeding as a facade for a private decision resting upon privately acquired data . . . [and] that post-hearing evidence, if any, must be incorporated in an identified body of evidence and preserved for possible judicial review." (60 Cal.App.3d at 510.)

The Court of Appeal never contests that the alleged post-hearing data was "incorporated in an identified body of evidence and preserved for possible judicial review." The question then devolves to whether "the public proceeding [was] a facade for a private decision resting upon privately acquired data."

We note at the outset that the trial court nowhere found that the Board's proceedings were a mere "facade." Nor could a finding, were one to be made, be anything but ludicrous that this 1000 page record and days of testimony were a "facade" for the bit of confirmatory data obtained from the Japanese.

Even if the entire hearing were somehow only a pretext for the receipt of confirmatory data from the Japanese, the court below again overlooks the fact that the original studies were in the record, and the telegram was but a second-hand account. Another second-hand account, the

original staff report, was available before and at the hearing and was at all times susceptible to rebuttal based on the original studies. To say that the Board's findings were "based" on the telegram was obviously erroneous. Board's findings on this issue were based on the published studies, not on the staff's refutation of the oil companies' earlier attempt to criticize those studies based on claims that the conductrimetric method was not used and that other pollutants interfered with the attribution of the health effects of sulfur dioxide.

The trial court's extraction of language from California Assn. of Nursing Homes, etc. v. Williams (1970) 4 Cal.App.3d 800 (10 C.T. 2658) where the result was the product of unrecorded, secret negotiations in the absence of any record (4 Cal.App.3d at 812-813) only highlights the absurdity of the trial court's comparison of that case and this. More to the point is language of this court in Ray v. Parker (1940) 15 Cal.2d 275, 307-308, a case cited to, but ignored by, the court below:

> "'The Commission was undoubtedly justified in the exercise of its legislative function in taking into consideration not only the facts presented at the public hearing, but those which came to it subsequently from interested parties or were disclosed by its own investigation into the facts and the literature bearing upon the subject. See State Board of Milk Control v. Newark Milk Co., 118 N.J. Eq. 504, 179 A. 116, 125, 126; Norwegian Nitrogen Products Co. v. United States, 288 U.S. 294, 296, 308, 53 S.Ct. 350, 355, 77 L.Ed. 796.'" (Emphasis supplied.)

See Brock v. Superior Court (1952) 109 Cal.App.2d 594, 606.

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See Brock v. Superior Court (1952) 109 Cal.App.2d 594, 606.

In short, the Opinion of the Court of Appeal makes no distinction between submissions at a written hearing and post-hearing submissions, and more important, makes no distinction with respect to a "right" of rebuttal between secondary evidence and evidence so central that the remainder of the hearing is a "mere facade." The rule of the Court of Appeal that there is a "due process" right "to counter or refute input which is contrary to their position" (Slip Op., p. 11) is too broad and conflicts with numerous other decisions. The correct and settled rule could have no application in this case.

VI

THE COURT OF APPEAL HAS MISCAST THE ROLE OF THE HEALTH DEPARTMENT IN THE ADOPTION OF AIR QUALITY STANDARDS, AND MISPERCEIVED THE BOARD'S RESPONSE TO ITS RECOMMENDATIONS IN THIS CASE

Health and Safety Code section 39606(b) provides in pertinent part:

> ". . . Standards relating to health effects shall be based upon the recommendations of the State Department of Health Services."

The Court of Appeal concludes:

> "It seems obvious that this proviso was to insure that the Board, whose membership lacks any medical training or expertise, look to the health department as its primary source of information and expertise." (Slip Op., p. 24; emphasis supplied.)

According to the Court of Appeal, the recommendation must "constitute the central core of the regulation" and "the court must examine the basis for the health department's

recommendation and the Board's deviation from those recommendations." (Id.)

While this is certainly preferable to the trial court's odd view that "A deviation from the Health Department recommendations is not, in my opinion, a basing of the standard thereon." (10 C.T. 2612, lines 3-4.) There are still several things wrong, with this picture.

First, while the Court of Appeal was happy to look at subsequent amendments to the A.P.A. to justify its own ex post facto procedural inventions, it makes no note of Health and Safety Code section 39510(b)(3), which deals with qualifications for membership on the Air Resources Board:

> "(3) One member shall be a physician and surgeon or an authority on health effects of air pollution."

No change, however, was made in section 39606(b) concerning the Health Department's recommendation.

Second, the notion that a trial court will review the "basis" for the Health Department's recommendation and the "basis" of the Board's deviation therefrom, inevitably suggests that the Health Department must supply a Statement of Basis, as must the Board, in order to allow that review. Such a holding, however, is contrary to Stauffer Chemical Company v. California State Air Resources Board, et al., ___ Cal.App.3d ___ (February 16, 1982) 1 Civil No. 52134, discussed above, which held that in the absence of a statutory requirement, an agency need not prepare a Statement of Basis. Certainly the Health Department is not called upon by statute

recommendation and the Board's deviation from those recommendations." (Id.)

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to hold a hearing before making a recomemndation to the Board (nor does it do so). Moreover, the Health Department is not required to present an evidentiary administrative record to the Board, or to a court for review (nor does it do so). The Health Department is not under the A.P.A. in preparing recommendations, and even the post hoc amendments to the A.P.A. relied on by the Court of Appeal, would not change this result. Nor as the above case holds, is the Board required to state the basis for its actions.

Finally, and contrary to the holding of the Court of Appeal (Slip Op., pp. 24-25), there was no divergence whatsoever between the recommendation of the Health Department and the standards adopted by the Board with respect to either the sulfate[37] or

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37. The sulfate standard was set at 25 micrograms per cubic meter (25 ug/m^3) averaged over 24 hours.

As the trial court notes, the Health Department's recommendation was transmitted to the board on January 15, 1976, the same date that the Board's hearing notice was given. That recommendation reads as follows:

> "At the urgent request of Governor Brown's Special Assistant for Energy and Environment, the Health Department has reviewed the evidence concerning health implications of sulfate air pollution in the South Coast Air Basin.
>
> "The Department, after consulting with the Air Quality Advisory Committee, recommends that regulatory actions be undertaken to prevent exposures from being greater than the critical value of 25 micrograms per cubic meter of sulfate averaged over twenty-four hours." (Sulfate Record, Pt. 5, Item 4, Att. 3, quoted at 10 C.T. 2615-2616; see id., Item 1, p. 30.)

sulfur dioxide[38] standards.

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38. With respect to the sulfur dioxide standard, the Health Department recommended, in pertinent part:

> "1. Sulfur dioxide alone is not likely to produce significant health effects within the range of likely exposures. However, it appears to have produced effects in combination with particulate matter (black suspended matter) and it possibly could produce effects at presently occurring concentrations in combination with photochemical oxidants.
>
> "2. No report of which we are aware has indicated that human health effects of sulfur dioxide air pollution occur at concentrations less than 0.10 ppm averaged over 24 hours. However, long-term exposures at slightly greater than this concentration, in conjuction with black supended matter, are associated with the development or exacerbation of chronic respiratory conditions. It is therefore reasonable to apply a margin of safety in setting an air quality objective in order to prevent these long-term effects.
>
> "3. We, therefore, conclude that the present air quality standard of 0.04 ppm SO_2 for 24 hours average, is reasonable in light of what is known about human health effects and with a margin of safety as determined by the Air Resources Board. This judgment with respect to SO_2 includes consideration of presently available information on probable conversion of SO_2 to sulfates and resulting health effects." (SO_2 Record, Book 6, No. 7, pp. 1-2.)

The Health Department never recommended that the standard be at 0.10 ppm; it rather recommended that the Board apply a margin of safety and that a standard as low as 0.04 ppm is reasonable. The Department's 0.05 standard adopted by the Board takes into account the recommendation that combinations of SO_2 and particulates or oxidant constitute the major danger, and set the level of sulfur dioxide at a slightly more lenient level than that recommended as reasonable.

sulfur dioxide[38] standards.

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38. With respect to the sulfur dioxide standard, the Health Department recommended, in pertinent part:

> "1. Sulfur dioxide alone is not likely to produce significant health effects within the range of likely exposures. However, it appears to have produced effects in combination with particulate matter (black suspended matter) and it possibly could produce effects at presently occurring concentrations in combination with photochemical oxidants.
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VII

THE COURT OF APPEAL EMPLOYED ERRONEOUS TESTS IN CONSIDERING THE EVIDENCE AND ERRONEOUSLY WEIGHED THE EVIDENCE.

A. The "Cost-Benefit" Test Employed by the Court of Appeal in Weighing the Evidence is Without Authority and Conflicts with Prior Decisions of this Court and Appellate Courts.

According to the Court of Appeal, a reviewing court will review an administrative record with a view to determining not only the adequacy of the supporting evidence, but also to see if the agency did "balance the hoped-for benefits against the cost of compliance".[39] (Slip Op., p. 26.)

As was discussed in Argument I, supra, the Court of Appeal desires to incorporate a "cost/benefit" test into all judicial reviews of administrative actions, whether that test is called for by statute or not, under the aegis of deciding whether a regulation is "reasonable." (Slip Op., p. 21.)

Prior cases, however, make it clear that "[in] determining whether a regulation is reasonable, judicial

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39. As the Court of Appeal said:

> "The test, we reiterate, is whether the regulation was . . . reasonable . . . . (Davis, Admin. Law Treatise (2d ed.) Vol. 2, p. 59, § 7.13 (1979).)
>
> ". . . [This] exposes the necessity for the Board to adopt ambient air quality standards which bear some rational relationship to the scientific data and the health department's recommendations and to balance the hoped-for benefits against the cost of compliance in attempting to adopt regulations which are worthy of the appellation 'reasonable.'" (Slip Op., p. 26.)

review is limited to an examination of the proceedings before the [agency] to determine whether its actions were arbitrary, capricious, or entirely lacking an evidentiary support. [Citations.]" Young v. Department of Fish and Game (1981) 124 Cal.App.2d 257, 282.[40] "Reasonable" refers to the quantum of required evidence; it is not a catchword for "cost/benefit analysis."

This Court has also held that so long as there is some evidence supporting the decision of the agency a reviewing court will not inquire into the wisdom of the agency's decision.[41] We submit that the test articulated by the Court of Appeal, viz., whether there is a financial "balance between the hoped-for benefits against the cost of compliance", is simply another way of saying that the Court of Appeal will inquire into the wisdom of a regulation, and will measure "wisdom" in purely financial terms.

---

40. This this Court has repeatedly so held. Strumsky v. San Diego County Employees Retirement Assn. (1974) 11 Cal.3d 28, 34 n.2; Sierra Club v. City of Hayward (1981) 28 Cal.3d 840, 818; International Business Machines v. State Bd. of Equalization (1980) 26 Cal.3d 923, 931 n.7; Pitts v. Perluss (1962) 58 Cal.2d 824, 833.

41. Faulkner v. Cal. Toll Bridge Authority (1953) 40 Cal.2d 317, 329 ["'The courts have nothing to do with the wisdom or expediency of the measures adopted by an administrative agency to which the formulation and execution of state policy have been entrusted. . . .'"]; See Pitts v. Perluss (1962) 58 Cal.2d 824, 835 n.4 ["'[T]he advisibility or wisdom of the Board's regulations is not a matter to be controlled by the courts.'"]; Selby Realty Co. v. City of San Buenaventura (1973) 10 Cal.3d 110, 118; Young v. Dept. of Fish and Game, supra, 124 Cal.App.3d at 282; County of Orange v. Heim (1973) 30 Cal.App.3d 694, 721.

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As was said in American Federation of Labor, etc. v. Marshall (D.C. Cir. 1979) 617 F.2d 636, 666 n.172, aff'd. 452 U.S. 490, 69 L.Ed.2d 185, 101 S.Ct. 2478:

> "Certainly, [the Legislature] would not have wanted administrative paralysis caused by debate over a standard's cost and benefits."

The Court of Appeal has decreed administrative paralysis not only in the field of public health, but for all administrative actions.

It is opaque why the Court of Appeal finds comfort for its ipse dixit in the fact that:

> "Government Code section 11346.5 also contains a new requirement - a cost impact estimate as to the cost or savings to the state." (Slip Op., pp. 7, 20, emphasis supplied.)

The fact that when the Legislature addressed the question of cost impact, it required only consideration of costs to the state itself, implies that no roving requirement to consider, let alone "balance," other costs is imposed.[42/]

We will not belabor this brief with a repetition of the analysis of the Court of Appeal's insistence that all human values must be reduced to their economic denominators for "balancing" in order for government action to be "reasonable." The Court announced that it used this novel and pernicious yardstick in evaluating the evidence before the Board (Slip Op., p. 26) and therefore improperly adjudged the evidence.

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42. Wildlife Alive v. Chickering (1976) 18 Cal.3d 190, 196 ["[U]nder the doctrine of expressio unius est exclusio alterius, the creation of a limited express [requirement] suggests that a broader implied [requirement] could not have been intended." Garson v. Juarique (1979) 99 Cal.App.3d 768, 775.

B. The Court of Appeal Employed an Erroneous Test to the Evidence in Considering the Health Department's Recommendation.

As the Court of Appeal notes, the trial court "found that there was simply insufficient evidence to justify the wide divergence between the material presented by the health department and the standards finally adopted. In essence this was a holding that the Board acted arbitrarily and capriciously." (Slip Op., p. 25.)

Without at all discussing the record, the Court of Appeal merely adopted this reasoning, stating "that the trial court's conclusion based on the administrative record was sound, well supported and correct." (Slip Op., pp. 25-26.)

First of all, as was set forth in the discussion of the Health Department's recommendations at Argument VI, at notes 37-38, there was no "divergence" between the Health Department's recommendation and the Board's action. The Court of Appeal's finding to the contrary is incorrect as a matter of law.

Secondly, and was elaborated above, the Board's only obligation is to have evidentiary support for its action. It need not justify its failure to take alternative courses.

C. The Court of Appeal's "Review" of the Evidence is Facially Erroneous.

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C. The Court of Appeal's "Review" of the Evidence is Facially Erroneous.

Even though the Court of Appeal obviously did not wish to discuss the evidence in the administrative record,

and thought that it could safely avoid doing so by simply stating that the trial court was right, the Court knew so little about the record that even the little it did say was enough to constitute obvious and reversible error.

1. The SO_2 Standard

In adopting whole and without reserve the trial court's view of the adequacy of the evidence, the Court of Appeal failed to note that the trial court found that there was adequate evidence to support the SO_2 standard. (10 C.T. 2697, lines 11-16.)

The trial court struck down the standard, not because of any inadequacy of evidence, but because it was assertedly unclear to the trial court whether and to what extent the Board incorporated a "margin of safety into its deliberations. (The trial court was of the bizarre view that margins of safety were somehow unlawful.)[43/]

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43. According to the trial court:

> "[It] is for CARB to set the standard just immediately below the level where any substantial health effects appear in any part of the population including the very young, the elderly, and those suffering from pulmonary or cardiac ailments." (10 C.T. 2709, lines 4-8.)

The trial court concluded:

> "Since there is no means of determining from CARB's resolutions and findings whether or to what extent CARB's SO_2 level included a margin of safety, it is impossible upon judicial review to determine whether or not it is supported by the record." (10 C.T. 2707, lines 22-25.)

While the Court of Appeal notes in passing that there was a dispute concerning the legality of a margin of safety (Slip Op., p. 21), the Court of Appeal never addressed that issue, and nowhere adopts the trial court's view.

That leaves the Court of Appeal precisely where the trial court was; with a conclusion that there was adequate evidence supporting the SO_2 standard.

For present purposes, and in view of the length of this brief, we will not attempt to review the enormous quantity of evidence supporting the Board's standards, nor the trial court's failure to command the most elementary scientific principles in reviewing that evidence.[44/] This one ground alone is clearly adequate to secure a reversal.

---

44. Two examples taken from the comprehensive analysis of the record set forth at pp. 91-117 of Appellant's Opening Brief typify the manner in which the trial court (and by its incorporation by reference, the Court of Appeal) approached the evidence.

First, the trial court examined two laboratory studies in which concentrations higher than the state standard were administered for a short period of time (in one case for 10 minutes) and this exposure produced significant health symptoms. The trial court rejected these studies outright on the sole ground that the exposure was at a level higher than the state standard adopted. (10 C.T. p. 2682, lines 4-10.) But the Board adopted a 24-hour averaging period. The trial court failed to realize that laboratory studies are designed for "demonstrating the adverse effects which occur in healthy individuals after brief exposure to relatively high concentrations" of a pollutant. (Board Findings, SO_2 Rec., Book 16, Item 16, p. 14, emphasis supplied.) When this data is used to extrapolate to a standard with a 24-hour averaging period, applying to the entire population (including the young, the elderly and those with chronic lung diseases) extrapolation to a lower concentration is required. The trial court's basis for dismissing this data ignores the averaging times and is purely fallacious. Other studies were also rejected because the trial court did not comprehend the significance of averaging periods. (10 C.T. 2684, lines 1-4.)

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(Footnote continued next page)

2. The Sulfate Standard.

Most standards, including the SO_2 standard, are set at a level considered relatively "safe" for the general population. In the case of sulfates, however, it is not

(Footnote 44 continued):

Second, and equally typical is the handling by the trial court of Dr. Nadel's laboratory experiment. As the reasoning of the trial court so neatly self-destructs, we will report this study in the words of the court:

> "Next is the study of Dr. Nadel which involved laboratory experiments with dogs (SO_2 Rec., Book 3, Item 4, Part 1, pp. 10-13). He found that by exposing dogs to ozone at concentration of .2 to .5 ppm 'the airways of the cells are damaged.' Then, on his theory that histamine is a drug that is released in the body of an asthmatic and causes asthmatic attacks, he exposed the dogs to both ozone and histamine and found that the exposure to ozone made the dogs more adversely responsive to histamine.
>
> "Since these experiments did not deal with SO_2 at all I am unable to understand how they can possibly shed any light upon exposures of the human population to So_2." (10 C.T. 2682, lines 11-22.)

But Dr. Nadel testified to the Board, and it was repeatedly pointed out to the Court that he so testified that:

> "The evidence is that this drug [histamine] in the airways works very much like sulfur dioxide." (SO_2 Record, Book III, Item 4, Part 1, P. 10, quoted at 13 R.T. 1176, lines 24-26.)

It was further pointed out to the court below that there is absolutely no evidence in the record conflicting with Dr. Nadel's testimony that histamine in the airways works very much like sulfur dioxide. The court below, however, refused to believe it:

> "THE COURT: When he uses histamine and ozone with dogs, all he is doing is finding out the effects of histamine and ozone on dogs." (13 R.T. 1780, lines 4-6.)

The court below bases its "scientific" opinion on the ground that "they are two entirely different substances. SO_2 is a gas." (13 R.T. 1780, line 28; 1781, line 1.)

It was pointed out to the court below that there was no basis for "judicial notice" that Dr. Nadel was wrong. (13 R.T. 1784, lines 14-27.) Counsel argued:

(Footnote continued next page)

known what level is safe. Therefore, as the trial court noted, the sulfates standard was designed to be set "'just below a level actually productive of disablement or significant long-term effects, rather than at a lower "safe" or "threshold" level, with a margin of safety.'" (10 C.T. 2663, lines 21-24.) The standard was thus set at the "emergency" or "critical harm level" rather than at a safe level where health risks would not be expected to occur.

(Footnote 44 continued):

> "Now, the Court can reject that as not credible simply because histamine is not sulfur dioxide, and I can't help that. But it is the evidence in the record. I don't know where the Court would come up with a contrary proposition." (Id. at lines 27-28; 1785, lines 1-3.)

In rejecting the testimony of a research medical doctor in favor of its own unsupported opinion, on the bizarre basis that "SO_2 is a gas", the court below was "weighing" the evidence. It is not even accurate to call its exercise "weighing the evidence, for there was no evidence contradicting Dr. Nadel's testimony. As was said in American Federation of Labor, etc. v. Marshall, supra, 617 F.2d at 651 n.66:

> "But once courts step beyond [their] role and endeavor to judge the merits of competing experts views, they leave the terrain they know. In so doing, the judiciary may mislead the public into believing it provides an expert check on decisions that in fact it does not fully comprehend."

Here there was not even "competing expert views." There was only the court below, which had no right to substitute its view, which was not even in the record, for that of the research physician testifying before the Board.

The bizarre and uninformed review of the trial court illustrates the need for "restraining the courts from attempting to act 'as the equivalent of a combined Ph.D. in chemistry, biology and statistics' or from applying a standard of review which is appropriate only to review of adjudications or formal fact findings." Lead Industries Association, Inc. v. Environmental Protection (D.C. Cir. 180) 647 F.2d 1130, 1155 n.50

This example typifies the trial court's handling of all of the many scientific reports in the Record.

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This elementary point is lost on the Court of Appeal, which thought that the Health Department had concluded that there was no scientific information on which to base any standard:

> "The health department as a safeguard based on a complete lack of scientific data, did recommend the adoption of an interim standard of .25 [micrograms] per cubic meters of air in the presence of elevated levels of oxidants." (Slip Op., p. 25.)

This grotesquely distorts the position of the Health Department and the testimony before the Board. As one of the experts, Dr. Carl Shy, a Research Professor of Epidemiology, put it:

> ". . . I do not believe we have sufficient evidence to recommend a stringent air quality standard for sulfates, but I do believe we have the evidence to recommend a significant harm level.
>
> "The evidence for a consistent and qualitative relationship between adverse health effects and higher levels of exposure to suspended sulfates as an index of the atmospheric transformation products of SO_2 is sufficiently compelling to recommend that we establish some guidelines for control strategy to prevent the aggravation of respiratory systems that may cause disablement or long-term health effects.
>
> "In my opinion the recommended significant harm level of 25 micrograms per cubic meter is a reasonable conservative judgment concerning a critical harm level which should not be exceeded." (Sulfate Record, Part I, p. 43, lines 4-18.)

Dr. Shy opined that, based upon the evidence:

> "The critical level is twofold greater than the estimate for the threshold sulfate concentrations at which sensitive subjects, such as asthmatics or elderly people with heart or lung disease, are likely to experience aggravation of disease status, or at which children and adults appear to have increased risk for acute and chronic respiratory disease. I'm saying we're twofold above the lowest--the estimate of the threshold level." (Id., p. 44, lines 6-14.)

Indeed, "25 micrograms per cubic meter is also the upper limit of the range estimate for the risk of increased daily mortality." (Id. at p.44.) In other words, this level is a conservative estimate of when people begin to die because of the sulfates in the atmosphere.

Dr. Shy concluded:

> "Therefore, I believe that the proposed significant harm level represents a best current judgment value above which human exposure should not be allowed because of the great risk of disease aggravation at sulfate concentrations in excess of this level." (Id. at p. 44, lines 23-27.)

Were it not for the fact that the standard struck down was designed to protect the public from death, disablement or long-term health effects, the facile error of the Court of Appeal could be overlooked, especially when accompanied by the sophistic balm of the oil company lawyers.

The trial court, for its part, manages to ignore all of the toxicological studies, as though they were not in the record and mounts fallacious criticisms against other evidence. Most critically, the trial court utterly ignores a host of epidemiological studies conducted by E.P.A. in other states which show that 24-hour sulfate concentrations well below 25 micrograms per cubic meter aggravate respiratory symptoms and affect respiratory symptoms.[45/]

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45. We summarize some of the studies reported by the ARB staff:

— Dohan's 1961 study showed that the susceptibility of working women to viral diseases of the respiratory tract is enhanced by exposure to relatively low levels of sulfate pollution. A high correlation was found between respiratory illness and sulfate levels; the four localities with the highest

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The trial court pretended these studies did not exist; certainly it gave no reason for rejecting them.

The oil companies, seeking to supply their own rationale to cover the trial court's inexplicable silence, suggested that the E.P.A. studies dealt with eastern states, and maybe the "mix" of sulfates in California might be less harmful. (Respondents' brief, p. 60.)

This explanation for the trial court's silence ignroes the trial court's own finding that in the California air "all but a tiny fraction of the sulfates are harmful."

(Footnote 45 continued):

illness rates showed sulfate levels from 13-19 ug/m^3. (Sulfates Record, Part 3, p. 240.) The Court below ignored this study.

— Numerous EPA-sponsored studies have shown that the air pollutant correlating most closely with asthma attacks and lower respiratory disease is total suspended sulfates. (Sulfates Record, Part 3, p. 240.) The court below ignored these studies.

Many of these studies were sponsored by the EPA, as part of its Community Health and Environmental Surveillance System (CHESS) program. As the staff report noted:

> "EPA scientists have interpreted the CHESS data to indicate that 24-hour sulfate concentrations of 8-10 ug/m^3 aggravate the symptom status of subjects with respiratory diseases and can affect the respiratory function in growing children." (Sulfates Record, Part 3, p. 245, emphasis added.)

The same conclusion was reiterated in the testimony of Dr. Shy, who as a former EPA scientist was personally familiar with the CHESS work. Dr. Shy reported the data as showing that "suspended sulfate levels were the only pollutant consistently associated with symptom aggravation" (Sulfates Record, Item 5, p. 3 of written testimony), and found those symptoms beginning at levels as low as 9 ug/m^3 and generally in the range of 10-15 ug/m^3 (Ibid., pp. 3-5).

Dr. Bernard Goldstein, a New York University medical researcher, reviewed the CHESS data thoroughly for the Board and concluded:

(Footnote continued next page)

(10 C.T. 2674, lines 11.)

Moreover, even if the trial court had not so concluded and we did not know, one way or the other, whether California's sulfates are as harmful as other states' sulfates, this would hardly justify not setting a standard until our citizens play the role of guinea pig, to see if they too suffer the same morbidity and mortality as those in other states. As the Health Department said, having reviewed the studies ignored by the trial court:

> "In What Way is it Appropriate to Draw Inferences from Morbidity and Mortality Data from Other Locations Concerning Health Effects of These Pollutants in California?
>
> > "The data describing these effects have been acquired over a period of many years and at a very serious health cost as well as a substantial research effort. There is no conceivable justification for replicating these costs and efforts in the South Coast Basin in California. It is appropriate only to use the knowledge already available in order to prevent such costly effects." (Sulfates Record, Part 5, Item 4, p. 2.)

(Footnote 45 continued):

> "Other CHESS studies evaluating the effects of long-term exposures have suggested 'best judgment' thresholds of 13-15 ug/m^3 for such adverse effects as increased prevalence of chronic bronchitis in adults, increased acute respiratory disease in families, decreased lung function of children, and increased acute lower respiratory tract illness in children. While there are a number of experimental difficulties with each of these studies, they tend to reinforce one another and indicate an association of adverse health effects with atmospheric suspended sulfate at levels less than 20 ug/m^3." (Sulfates Record, Item 5, Written Testimony of Dr. Goldstein, pp. 6-7.)

All these studies were not refuted by the trial court; they were ignored.

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>
> > "The data describing these effects have been acquired over a period of many years and at a very serious health cost as well as a substantial research effort. There is no conceivable justification for replicating these costs and efforts in the South Coast Basin in California. It is appropriate only to use the knowledge already available in order to prevent such costly effects." (Sulfates Record, Part 5, Item 4, p. 2.)

(Footnote 45 continued):

> "Other CHESS studies evaluating the effects of long-term exposures have suggested 'best judgment' thresholds of 13-15 ug/m^3 for such adverse effects as increased prevalence of chronic bronchitis in adults, increased acute respiratory disease in families, decreased lung function of children, and increased acute lower respiratory tract illness in children. While there are a number of experimental difficulties with each of these studies, they tend to reinforce one another and indicate an association of adverse health effects with atmospheric suspended sulfate at levels less than 20 ug/m^3." (Sulfates Record, Item 5, Written Testimony of Dr. Goldstein, pp. 6-7.)

All these studies were not refuted by the trial court; they were ignored.

We have not dealt here with the trial court's simplistic and fallacious dealings with the evidence it did consider, as that discussion would greatly prolong an already extended brief. The studies the trial court ignored, without criticizing them at all, are ample to refute the finding that the standard is without supporting scientific evidence.

The Court of Appeal's separate basis for rejecting the standard, i.e., that there is no evidence of a "safe" level of sulfates, either misunderstands the whole function of the standard--to protect the public against death and disability--or, worse, asserts that the Board cannot set a high standard to protect the public from death and disablement until it also has evidence of what level is "safe."

The twin evils of the Opinion of the Court of Appeal--the holding that society's interest in the death and disability of its members is only in the balancing of its economic cost against costs of pollution control, and then proceeding to misinterpret, equivocate on, and ignore compelling evidence of these very health effects--cannot be allowed to stand.

Before the Court are not only these two air quality standards; and not only all of the other air quality standards which will be upturned if the Court does not act in this case; and not only the possibility of the Board's enactment of future standards while bearing the burden imposed by the

Court of Appeal; and not only whether societal values must be reducible to monetary terms to be utilized in administrative rulemaking. Also before the Court by proxy are those whom these standards were designed to protect. We respectfully ask the Court to grant a hearing in this case.

DATED: April 19, 1982.

Respectfully submitted,

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Attorney General

R. H. CONNETT
Assistant Attorney General

JOEL S. MOSKOWITZ
Deputy Attorney General

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CERTIFIED FOR PUBLICATION

IN THE COURT OF APPEAL OF THE STATE OF CALIFORNIA

SECOND APPELLATE DISTRICT

DIVISION TWO

WESTERN OIL AND GAS ASSOCIATION, etc., et al., Plaintiffs and Respondents, vs. CALIFORNIA STATE AIR RESOURCES BOARD etc., et al., Defendants and Appellants.	2 CIVIL NO. 63339 (Super.Ct.No. C 246284)

COURT OF APPEAL - SECOND DIST.
F I L E D
MAR 10 1982
CLAY ROBBINS, JR. Clerk
Deputy Clerk

APPEAL from a judgment of the Superior Court of Los Angeles County. Eugene E. Sax, Judge. Affirmed.

GEORGE DEUKMEJIAN, Attorney General of the State of California, R. H. Connett, Assistant Attorney General, Joel S. Moskowitz, Deputy Attorney General, for Defendants and Appellants.

Messrs. McCutchen, Black, Verleger & Shea, Philip K. Verleger, Esq., Jack D. Fudge, Esq., Michael L. Hickok, Esq., for Plaintiffs and Respondents.

Ronald A. Zumbrun, Esq., John H. Findley, Esq., Anthony T. Caso, Esq., for Amicus Curiae Pacific Legal Foundation.

In February of 1976, the California State Air Resources Board (Board) adopted a regulation which established a standard for the maximum level of sulfates[1] in the ambient air at 25 micrograms per cubic meter of air during a 24 hour period.

In June of 1977, the Board adopted a similar regulation fixing the standard for sulfur dioxide[2] limiting the level of that substance for a 24 hour period to .05 parts per million of air in the presence of a level of oxidants exceeding the previously adopted standard for that element.

Nine oil companies and two of their trade associations challenged the validity of these regulations on substantive and procedural grounds by instituting an action for injunctive and declaratory relief along with a petition for a writ of mandate. The action was directed against the Board, its chairman and executive officer. (We will hereafter refer to the defendants collectively as the Board.)

Underlying plaintiffs' attack on the regulations were their assertions that the regulations were more stringent than necessary to achieve the goal of healthful air quality and that the cost of compliance would have a devastating impact on the public and the economy.

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1. The term sulfate is a general term applied to a number of chemical substances which are derived from sulfuric acid, which is itself referred to as a sulfate. Some sulfates are toxic, others are harmless.

2. Sulfur dioxide is produced by the burning of any fuel containing sulfur as well as other sources.

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The trial court, after a lengthy trial, concluded that the Board hearings which preceded the adoption of the regulations were unfair and that the Board was arbitrary and capricious in adopting the regulations without considering certain significant evidence and in fact relying on totally inadequate evidence. A writ of mandate issued compelling the Board to rescind the challenged regulations. We affirm.

THE ADMINISTRATIVE SCHEME FOR REGULATING AIR QUALITY

The Board, which is part of the California Resources Agency, is composed of five members appointed by the Governor. Two members are required to have training or experience in automotive engineering or a related field, two members are required to have training and experience in chemistry, meteorology or related fields, including agriculture or law, and the fifth member is required to have administrative experience in the field of air pollution control with no special technical training required. (Health & Saf. Code, § 39510.)

The Board is authorized by Health and Safety Code section 39601 to adopt standards and regulations. In so doing, it is required to comply with the Administrative Procedure Act. (Gov. Code, § 11340 et seq.)

A key function of the Board is to divide the state into "air basins" on the basis of meteorological and geographic

conditions and to adopt standards of ambient air quality for each basin. Those standards may vary from basin to basin. (Health & Saf. Code, § 39606.)

Health and Safety Code section 39014 provides:

"'Ambient air quality standards' means specified concentrations and durations of air pollutants which reflect the relationship between the intensity and composition of air pollution to undesirable effects established by the state board or, where applicable, by the federal government."

In adopting those standards, the Board is required by Health and Safety Code section 39606(b) to consider "the public health, safety, and welfare, including, but not limited to, health, illness, irritation to the senses, aesthetic value, interference with visibility, and effects on the economy. . . . Standards relating to health effects shall be based upon the recommendations of the State Department of Health Services [health department]." (Emphasis added.)

Responsibility for control of air pollution and the achieving of the standards of air quality established by the Board rests with local and regional air pollution control districts created by the Legislature. (Health & Saf. Code, § 40000 et seq.)

These local and regional districts are themselves empowered to enact rules and regulations to carry out their responsibilities, but it is at once apparent that the entire

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enforcement mechanism with its social and economic impact depends on the standards set by the Board as permissible levels for any particulant or element in the ambient air for each basin.

THE ADMINISTRATIVE PROCEDURE ACT (THE ACT)

At the time the Board adopted the regulations at issue here, the Act, (then Gov. Code, § 11370 et seq., now Gov. Code, § 11340 et seq.)[3] primarily required regulations to be consistent with the statute which authorized an agency to adopt them and reasonably necessary to effectuate their purpose. (Gov. Code, § 11342.2.)

A notice to interested parties was required, said notice to contain a statement of the time, place and nature of the proceedings. The notice was required to contain, inter alia, "either the express terms or an informative summary of the proposed action; and to be published at least 30 days prior to the date of the proposed action." (Then Gov. Code, § 11424, now Gov. Code, § 11346.5.)

Then, as now, a hearing was required to precede the adoption of a regulation at which hearing any interested person could present written statements, arguments or contentions with or without the opportunity to make an oral presentation, and

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3. We will hereafter refer to the provisions of the Act by the present Government Code section numbers unless otherwise indicated.

the agency was required to consider all relevant matters presented before taking action. (Gov. Code, § 11346.8.)

Finally, any interested person could obtain judicial review as to the validity of any regulation and in addition to any other grounds of invalidity, a regulation could be declared invalid for a substantial failure to comply with the procedural requirements. (Gov. Code, § 11350.)

Effective July 1, 1980, just prior to the decision in the court below, the Act was amended. All of the provisions previously referred to were carried forward under differently numbered statutes. In addition, significant changes were made pursuant to a declaration of purpose by the Legislature.

That declaration contained in Government Code section 11340 in pertinent part states: "The Legislature finds and declares as follows: (a) There has been an unprecedented growth in the number of administrative regulations in recent years. (b) The language of many regulations is frequently unclear and unnecessarily complex, even when the complicated and technical nature of the subject matter is taken into account. The language is often confusing to the persons who must comply with the regulations. (c) Substantial time and public funds have been spent in adopting regulations, the necessity for which has not been established." (Emphasis added.)

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Government Code section 11346.4 now requires a 45-day notice of hearing and section 11346.5 (a)(3) requires that the agency shall make available to the public upon request "a concise and clear summary of . . . the effect of the proposed action . . . in a format similar to the Legislative Counsel's digest on legislative bills." (Emphasis added.) Government Code section 11346.5 also contains a new requirement - a cost impact estimate as to the cost or savings to the state.

Another completely new requirement is contained in Government Code section 11346.7, which provides in part:

"Every agency subject to the provisions of this chapter shall prepare, and make available to the public upon request, a general statement of the reasons for proposing the adoption or amendment of a regulation. Such statement shall include, but not be limited to, the following: (a) The specific purpose of the regulation; (b) The factual basis for the determination by the agency that the regulation is reasonably necessary to carry out the purpose for which it is proposed; (c) The substantive facts or other information and the technical, theoretical and empirical studies, if any, on which the agency is relying in proposing the adoption or amendment of a regulation. The statement shall be prepared prior to the time that the notice referred to in Section 11346.5 has been published. The statement shall be updated prior to final adoption of the regulation by the agency.

The final statement shall include a summary of the primary considerations raised by persons outside the agency in opposition to the regulation as adopted, together with a brief explanation of the reasons for rejecting those considerations." (Emphasis added.)

Finally the scope of judicial review was expanded by Government Code section 11350, subdivision (b), to include the following: "In addition to any other ground which may exist, such regulation may be declared invalid if the court cannot find that the record of the rulemaking proceeding supports the agency's determination that the regulation is reasonably necessary to effectuate the purpose of the statute relied on as authority for the adoption of the regulation."

While these latest revisions of the Act were not specifically applicable to the action of the Board at the time it adopted the challenged regulations, the 1980 additions clearly indicate a recognition on the part of the Legislature of the existence of and the need to curtail the excesses and abuses which are innate to the exercise of administrative regulatory power.

This recognition and the Legislature's response is germane to and provides a background for our discussion and disposition of the claims which the Board makes in this appeal. As will later be apparent, under the Act as it is now worded, the procedures followed in the instant matter clearly would be in violation of the Act. The Board concedes that fact.

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ACTION OF THE TRIAL COURT

The trial court filed extensive written findings of fact and conclusions of law incorporating therein a lengthy and well-reasoned memorandum of intended decision in support of its conclusion that the two regulations were invalid.

These findings and conclusions can be distilled as follows:

(1) As to Regulation 76-11, setting the ambient air standards for sulfates at 25 micrograms per cubic meter of air, interested parties were denied a full and fair opportunity to meaningfully participate in the hearing in that, (a) the staff report which provided the only evidence relied on by the Board to support this standard was made available to the public only eight days before the hearing and was not received by some of the interested parties until three days before the hearing, (b) interested parties were not afforded a reasonable opportunity to comment on or rebut the staff report.

(2) As to Regulation 77.41, setting the ambient air standard for sulfur dioxide, (a) the notices for the hearing were so broad that they failed to provide either the express terms or an informative summary of the proposed action as required by then Government Code section 11424(c), (now section 11346.5) and (b) the standards were based on evidence placed in the administrative record after interested parties no longer had an opportunity to comment on or refute.

(3) That both standards were contrary to the recommendation of the State Health Department.

(4) The Board improperly refused to consider any evidence of economic impact in setting the two standards.

(5) The Board acted arbitrarily and capriciously in setting both standards in that there was no substantial evidence which would support them.

THE PROCEDURAL ISSUES

There is no question but that the Board was acting in a "quasi-legislative" capacity, hence the procedure followed presents no constitutional issue of due process. (Horn v. County of Ventura, 24 Cal.3d 605.) The procedural requirements for conducting the Board's hearings are to be gleaned solely from the Act.

Proceeding from this basic premise, the Board contends that the trial court's decision constitutes a violation of the doctrine of separation of powers in superimposing on the "quasi-legislative" function and the prescribed statutory procedure a notion of "fairness" which a court must define on a case-by-case basis.

Though the doctrine of separation of powers, of course, prevents the courts from dictating to the Legislature itself the procedure to be followed in holding hearings and enacting legislation, an administrative agency, in the exercise of what has been described as "quasi-legislative" functions is

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Though the doctrine of separation of powers, of course, prevents the courts from dictating to the Legislature itself the procedure to be followed in holding hearings and enacting legislation, an administrative agency, in the exercise of what has been described as "quasi-legislative" functions is

in no way comparable to the Legislature itself, which is composed of individuals directly elected by the people.

Administrative agencies (with some exceptions) are creatures of statute and have limited authority. The Act imposes on administrative agencies a myriad of constraints not applicable to the Legislature. The agencies' actions are specifically made subject to judicial review. Thus we wish to disabuse the Board of the notion reflected in its briefs that it enjoys a status comparable to that of the Legislature.

The role of the courts in reviewing the actions of an administrative agency is essentially that of discerning what the Legislature intended by the statute which created the agency and the Act which the agency is obliged to obey.

It is entirely consistent with the doctrine of the separation of powers for a court, as the trial court did here, to interpret the requirements of the Act as manifesting a legislative intent that an agency provide the persons to be regulated with a fair opportunity (1) to present their case, (2) to insure that the agency has available to it all relevant evidence, and (3) to counter or refute input which is contrary to their position. The California Supreme Court and the Courts of Appeal have repeatedly expressed this concept.

"The procedural directions of the APA are designed to promote fulfillment of its dual objectives--meaningful public participation and effective judicial review. (California Assn.

of Nursing Homes etc., Inc. v. Williams, 4 Cal.App.3d at pp. 810-812.) Although implied rather than expressed, these objectives are just as statutory and just as binding as the APA's itemized directions. Compliance with procedural minima does not necessarily achieve these goals." (California Optometric Assn. v. Lackner, 60 Cal.App.3d 500, at 509.)

Further the Supreme Court in California Hotel & Motel Assn. v. Industrial Welfare Com., 25 Cal.3d 200, stated at page 212:

"Although administrative actions enjoy a presumption of regularity, this presumption does not immunize agency action from effective judicial review. A reviewing court will ask three questions: first, did the agency act within the scope of its delegated authority; second, did the agency employ fair procedures; and third, was the agency action reasonable." (Emphasis added.)

The Board relies heavily on the United States Supreme Court decision in Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519. There the high court, in interpreting the federal Administrative Procedure Act, which is similar to California's Act, concluded that the procedures set forth in the federal law were "the maximum procedural requirements which Congress was willing to have the courts impose upon agencies in conducting rulemaking procedures." (Page 524.)

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We are asked by the Board to adopt that same approach in interpreting the Act and hold that literal compliance with the Act is all that is required. In making that proposal, the Board points to Government Code section 11346 (formerly § 11420) which reads:

"It is the purpose of this article to establish basic minimum procedural requirements for the adoption, amendment or repeal of administrative regulations. Except as provided in Section 11346.1, the provisions of this article are applicable to the exercise of any quasi-legislative power conferred by any statute heretofore or hereafter enacted, but nothing in this article repeals or diminishes additional requirements imposed by any such statute. The provisions of this article shall not be superseded or modified by any subsequent legislation except to the extent that such legislation shall do so expressly." (Emphasis added.)

Board contends that the use of the words "imposed by any such statute" and the further reference to subsequent legislation indicate that the Legislature intended to foreclose the courts from imposing additional requirements and reserved that power solely to itself.

We read the language in a different light. The above quoted provisions are simply an attempt by the Legislature to avoid any implied repeal of statutes previously enacted or any conflict with future statutes which may arise because of

legislative oversight. As to the subject of judicial interpretation, the statute is silent and therefore neutral. The rationale of Vermont Yankee Nuclear Power Corp. v. NRDC, supra, has previously been refused application in California. (California Optometric Assn. v. Lackner, supra.) We agree with that refusal.

Furthermore it is not at all clear that the Board complied with the letter of the Act in any event. The trial court found that insofar as the hearing on the sulfates standards was concerned, the notice did not comply with the Act as it was then written. Certainly the procedure followed did not comport with the present requirements of the Act.

In order to demonstrate the soundness of the trial court's conclusion that, assuming a compliance with the statutory mimimum, the overall procedure was arbitrary and unfair, it is necessary to set out in some detail the background of the dispute and the procedure that was followed.

On January 15, 1976, the Board noticed a public hearing for February 20 and 21, 1976, to consider the standard for sulfates and at the conclusion of the hearings adopted the standard earlier noted. The health department's presentation at the hearing contained the statement that it would require three to five years to develop the necessary scientific data for a sulfate regulatory program. This is because of the great variety of sulfates that exist in the environment, not all of which are harmful.

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Hence the evidentiary basis for the Board's action became an 84 page complex staff report which was provided to the interested parties, as the court found, just three days prior to the hearing. All requests for continuances in order to examine and comment on that report were denied.

As distinguished from the hearing on the sulfate standard, which was apparently the first attempt to set a standard for that material, the hearings in 1977 as to the standard for sulfur dioxide were conducted against a background of prior ventures into the field.

In 1969, the standard had been set at .04 parts per million. In 1974, it had been raised to .10 parts per million only to be changed back to .04 parts per million in 1975. That latter action had, however, been enjoined by the Sacramento Superior Court. That injunction apparently prompted the notice for new hearings on the subject in April of 1977.

The Board issued four separate notices of the new hearings in which it indicated that it would consider a number of wide-ranging alternatives from levels lower than the existing .04 parts per million standard to much higher concentration. Board's staff recommended the re-adoption of the .04 parts per million standard. All of the testimony at the hearing focused on that recommendation including expert testimony that implementation of such standard would cost a minimum of 44 billion dollars by the year 2000.

At the close of the hearing, the Board announced that it would keep the record open until June 5, 1977. On June 6, 1977, the Board placed in the record a staff report based on data received from Japan concerning the effect of concentrations of .05 to .09 parts per million of sulfur dioxide in combination with high levels of oxidants -another form of pollution.

The standard adopted was, as noted, the .05 parts per million level in combination with high oxidant level. This standard was based primarily on the Japanese data. All efforts by the interested parties to obtain the right to challenge this belated material were rejected. Needless to say, the final result had never been mentioned in the notices of hearing either in express terms or by way of an informative summary.

While there is no requirement in the law that an administrative agency obtain a staff report or follow the recommendation of such report, it is a matter of common knowledge, borne out by the above described conduct of the Board, that administrative agencies rely heavily on staff reports and that staff recommendations carry great weight.

We are of the opinion that the Board's conduct in the proceeding were contrary to the spirit and purpose of the Act and were arbitrary and capricious.

The entire thrust of the Act as pertains to rule making is that there be a full exposure of the issue involved

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and the agency's proposal so that the agency may have the benefit of all relevant evidence. Additionally, the persons to be regulated are to be permitted to respond in a meaningful way to the proposed action and the evidence upon which it is based. Here there was no such opportunity at either hearing.

The trial court's findings that there was a lack of fundamental fairness in the hearings and a failure to comply with minimum statutory requirements are unassailable.

ECONOMIC IMPACT

In adopting the two standards under attack the Board specifically rejected any contention that, in setting ambient air quality standards, the cost of, or the resources available to achieve, compliance be considered. The position of the Board is that its responsibility is to determine the permissible concentration levels of various pollutants in terms of the public health and welfare and that the economic impact of compliance is a consideration for the local or regional districts in adopting "reasonable" strategies in meeting those standards. It argues that the phrase "effect on the economy" as used in Health and Safety Code section 39606, refers only to the effect of pollution on the economy and not to the effect of its regulation.

Health and Safety Code section 39606 provides that the Board shall adopt standards of ambient air quality for each air basin on the basis of a number of considerations. When these

standards are adopted the local districts are mandated to adopt reasonable regulations to achieve and maintain them (Health & Saf. Code, § 40001). The Board is then empowered to review those local regulations for reasonableness and efficacy (Health and Saf. Code, § 41500).

It is evident from an examination of the statutory scheme and the application of common sense that the level at which the ambient air quality standards are set will, in large measure, predetermine at least the minimum level of the cost of compliance. The statutory scheme does not envision "reasonable attempts to achieve compliance" at the local level, instead it mandates compliance by the most reasonable method.

The Board's position that the consideration of the economic impact of achieving and maintaining a particular standard has no place in the adoption of the standard in the first instance is pure sophistry and simply ignores reality. One might ask how can the economic effects of pollution be considered without any reference to the effect on the economy of the cost of eliminating it?

The basic statute (Health & Saf. Code, § 39606), in enumerating the many factors to be considered in adopting ambient air quality standards, includes such things as "irritation to the senses", "aesthetic value" and "interference with visibility," which are, of course, matters detrimentally affected by pollution but are not health related.

standards are adopted the local districts are mandated to adopt reasonable regulations to achieve and maintain them (Health & Saf. Code, § 40001). The Board is then empowered to review those local regulations for reasonableness and efficacy (Health and Saf. Code, § 41500).

It is evident from an examination of the statutory scheme and the application of common sense that the level at which the ambient air quality standards are set will, in large measure, predetermine at least the minimum level of the cost of compliance. The statutory scheme does not envision "reasonable attempts to achieve compliance" at the local level, instead it mandates compliance by the most reasonable method.

The Board's position that the consideration of the economic impact of achieving and maintaining a particular standard has no place in the adoption of the standard in the first instance is pure sophistry and simply ignores reality. One might ask how can the economic effects of pollution be considered without any reference to the effect on the economy of the cost of eliminating it?

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It is a fact of life that in our modern industrialized and urban society an absolute pure environment under the present state of the art, is unattainable. Further, a viable, thriving industry and commerce is the life blood of our economy and thus an ingredient of the public welfare.

While it is true, as Health and Safety Code section 39606 recognizes, that air pollution detrimentally affects the public welfare and the economy in its impact, for example, in agriculture and tourism, it seems to us that it is impossible to promulgate a reasonable standard for ambient air quality, as the Board is required to do, without balancing the benefit of the standard against the cost of its achievement and the level of the resources available for control.

In considering pollution's effect on aesthetics, visibility, minor irritation of the senses or other aspects of "public welfare", the cost of eliminating the undesirable effect certainly must be a significant factor in setting the standard.

We also believe that in the area of health, for reasons which we will point out, the effect of the regulations on the economy must be considered as well. The record before us reveals that the Board, by virtue of its composition, lacks any expertise in the medical field and is operating in an area in which the scientific data is anything but exact or conclusive. Hence the standards here were not set on the basis

of medical evidence which dealt in absolute terms with certain effects upon health.

We have no clear legislative history to guide us in determining the Legislature's intent concerning economic considerations in regulating air quality insofar as it pertains to health considerations. On its face, Health and Safety Code section 39606 appears to us to call for a consideration of the economic impact of the standards themselves as well as the impact of pollution on the economy.

This interpretation is fortified by the fact that the Board is authorized to adopt different standards for each of the various air basins. It seems logical that the effect on the health or well being of human beings of a particular level of pollution would be the same throughout the state. From that it follows that the only significant variable between the various air basins would be the impact on the economy in achieving and maintaining a particular level of air quality.

That the Legislature is concerned with economic impact in the area of regulating air quality, is evidenced by the fact that in Health and Safety Code section 43101 it requires the Board to consider impact on the economy in adopting vehicle emission standards. Further, Government Code section 11346 requires a statement of the effect of all regulations in the form of the legislative council's digest which appears on bills in the Legislature. That form always includes a governmental cost impact statement.

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The very creation of the Board is evidence that the Legislature intended that there be a balancing process in setting the standards. Otherwise the Legislature could have simply set the ambient air standards at zero pollution and mandated the local districts to achieve that level.

Even if we were to assume that the phrase "effect on the economy" as used in the statute meant only the effects of pollution, or if that phrase were deleted from the stature entirely, we would still conclude that consideration of the effect of compliance on the economy is a necessary ingredient of "reasonableness."

Perhaps the strongest support for our conclusion is to be found in a portion of the Board's own brief in attacking another facet of the trial court's ruling. The trial court in several of its conclusions ruled that the Board was not authorized to adopt a standard, based on a margin of safety, more stringent than the scientific evidence would support, and that the Board was required by statute to follow the recommendations of the health department.

The Board on the other hand contends that it has a wide-ranging mandate in protecting public health to adopt safety margins and to be more stringent in setting levels of air quality than those recommended by the health department or suggested by other scientific data.

In support of that position, and in asserting the need

for flexibility, the Board points out that the area is "on the forefront of evolving scientific evidence", that the evidence before the Board consists of "highly technical and disputed scientific evidence," and that all scientific evidence is merely a matter of assessing probabilities and risks. In short, the Board concedes the lack of certainty and provable clinical harm in the scientific evidence.

From this the Board argues for broad discretion on its part and cites with approval the following language from Ethyl Corp. v. Environmental Protection Agcy., 541 F.2d 1, at pages 24, 25:

"Questions involving the environment are particularly prone to uncertainty. Technological man has altered his world in ways never before experienced or anticipated. The health effects of such alterations are often unknown, sometimes unknowable. While a concerned Congress has passed legislation providing for protection of the public health against gross environmental modifications, the regulators entrusted with the enforcement of such laws have not thereby been endowed with a prescience that removes all doubt from their decision-making. Rather, speculation, conflicts in evidence, and theoretical extrapolation typify their every action. . . .¶ Undoubtedly, certainty is the scientific ideal--to the extent that even science can be certain of its truth. But certainty in the complexities of environmental medicine may be achievable only

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after the fact, when scientists have the opportunity for leisurely and isolated scrutiny of an entire mechanism."

While we agree with the Board that because of the lack of certainty in the area it necessarily must have some flexibility, that same lack of certainty looms large as the very reason why the effects of the standards on the economy must also be considered.

Flexibility does not amount to an unbridled license under which the Board, in its quest for the elusive goal of absolutely pure air, may destroy the economy which is also necessary for our survival.

Thus it behooves the Board to be judicious in its adoption of air quality standards for the reason that the costs of compliance are ultimately borne directly and indirectly by the very public which the Board professes to protect.

THE ROLE OF THE STATE DEPARTMENT OF HEALTH SERVICES

Prior to 1967, the health department had the responsibility for establishing ambient air quality standards. In that year, the Legislature enacted the Mulford Carroll Air Resources Act. The Board was created and given responsibility for establishing ambient air quality standards with the proviso that standards relating to health effects shall be based on recommendations of the health department. (Health & Saf. Code, § 39606(b).)

It seems obvious that this proviso was to insure that the Board, whose membership lacks any medical training or expertise, look to the health department as its primary source of information and expertise.

Board contends that the trial court's findings and conclusions amounted to a holding that the Board rather than merely basing its standards on "recommendations" of the health department was required to adhere to and not deviate from such recommendations. We do not read the trial court's conclusion in that manner.

We agree with the Board that while its standards relating to health must be based on recommendations of the health department, those standards do not have to be simply a rubber stamping of the recommendations. These recommendations, however, must provide the base from which the standard is evolved and constitute the central core of the regulation.

In determining the ultimate issue of whether the Board's regulation is within the scope of its delegated authority, reasonable (California Hotel & Motel Assn. v. Industrial Welfare Com., supra) and supported by substantial evidence, the court must examine the basis for the health department's recommendation and the Board's deviation from those recommendations.

In essence that is exactly what the trial court did. The trial court found that as to the SO^2 standard, the

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essence of the health department input was that there was no demonstrable adverse health effects from a level lower than .10 parts per million [4] and as to the sulphate standard there was no present scientific data upon which to base any standard. The health department as a safeguard based on a complete lack of scientific data, did recommend the adoption of an interim standard of .25 per cubic meters of air in the presence of elevated levels of oxidants.

The trial court then, after an exhaustive examination of the administrative record, found that there was simply insufficient evidence to justify the wide divergence between the material presented by the health department and the standards finally adopted. In essence this was a holding that the Board acted arbitrarily and capriciously.

SCOPE OF REVIEW

Since we are here examining a "legislative" type of regulation purportedly adopted pursuant to a statutory grant of authority, we are not bound by the determination of the trial court, but must make our own determination of whether the record shows a reasonable basis for the Board's determination. (Lockard v. City of Los Angeles, 33 Cal.2d 453; Ralphs Grocery Co. v. Reimel, 69 Cal.2d 172.)

We are persuaded, however, that the trial court's conclusion based on the administrative record was sound, well

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4. The federal standard is .14 parts per million.

supported and correct. The test, we reiterate, is whether the regulation was within the delegated authority, reasonable and adopted pursuant to proper procedures. (Davis, Admin. Law Treatise (2d ed.) Vol. 2, p. 59, § 7.13 (1979).)

As we have indicated, the procedures followed were defective. Beyond that, given the requirement that the statute under which the Board purportedly acted, required that the ambient air quality standards be based on recommendations from the health department, we conclude that the scientific evidence underlying those recommendations and the recommendations themselves were insufficient to forms a basis for the regulations that were adopted.

Such a characterization of the evidence does not involve this court in reweighing the evidence before the Board, but simply exposes the necessity for the Board to adopt ambient air quality standards which bear some rational relationship to the scientific data and the health department's recommendations and to balance the hoped-for benefits against the cost of compliance in attempting to adopt regulations which are worthy of the appellation "reasonable."

The judgment is affirmed.

CERTIFIED FOR PUBLICATION

COMPTON, J.

We concur:

ROTH, P.J.

BEACH, J.

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BEACH

State of California
AIR RESOURCES BOARD

Resolution 82-48

September 22, 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 1157-93 entitled "Control of Atmospheric Aerosol Nitrate and Nitric Acid Concentrations", has been submitted by the California Institute of Technology to the Air Resources Board; 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 1157-93 entitled "Control of Atmospheric Aerosol Nitrate and Nitric Acid Concentrations", submitted by the California Institute of Technology for a total amount not to exceed $375,620;

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 1157-93 entitled "Control of Atmospheric Aerosol Nitrate and Nitric Acid Concentrations", submitted by the California Institute of Technology for a total amount not to exceed $375,620;

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $375,620.

I certify that the above is a true and correct copy of Resolution 82-48 as approved by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 82-49

September 23, 1982

Agenda Item No. 82-18-5

WHEREAS, the Air Resources Board (the "Board") is directed by Sections 39003, 39500, 39602, 39605, and 41500 of the Health and Safety Code to coordinate, encourage, and review the efforts of all levels of government as they affect air quality and to provide assistance to air pollution control districts;

WHEREAS, Sections 39003, 39700, and 39701 of the Health and Safety Code charge the Board with collecting research data on the causes of and solution to air pollution, including the consequences of alternative solutions to specific air pollution problems;

WHEREAS, the present land disposal of organic waste is contributing significantly to the formation of ozone and the emission of toxic air contaminants; and

WHEREAS, alternative facilities for the disposal of volatile organic wastes and the detoxification of toxic wastes are currently in use.

NOW, THEREFORE, BE IT RESOLVED that the Board finds that alternative technologies are available which in many cases are technologically feasible, economically reasonable, and environmentally superior to land disposal, and the future use of these technologies will reduce the adverse air quality impacts resulting from land disposal.

I certify that this is a
true and correct copy of
Resolution 82-49, as adopted
by the Air Resources Board.

Harold Holmes, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 82-50

September 23, 1982

Agenda Item No.: 82-18-6

WHEREAS, the Air Resources Board (the "Board") and the federal Environmental Protection Agency have adopted ambient air quality standards for ozone (oxidant), and these standards are consistently exceeded in several of the state's air basins;

WHEREAS, Health and Safety Code Sections 39003, 39500, 39602, and 41500 authorize the Board to coordinate, encourage, and review efforts to attain and maintain state and national ambient air quality standards;

WHEREAS, Health and Safety Code Sections 39600 and 39605 authorize the Board to act as may be necessary to execute the powers and duties granted to and imposed upon the Board and to assist local air pollution control districts;

WHEREAS, the California Environmental Quality Act and Board regulations require that an activity not be adopted as proposed if mitigation measures or alternatives exist which would substantially reduce any significant adverse environmental effects of the proposed activity, and further require the Board to respond in writing to significant environmental issues raised;

WHEREAS, on September 23, 1982, the Board held a duly noticed public meeting to hear and consider the views and comments presented by the staff, affected industries, and other interested persons and agencies regarding the proposed control of organic compound emissions associated with waste disposal;

WHEREAS, the Board finds that:

Emissions of organic compounds associated with volatile organic waste disposal contribute significantly to the formation of ozone;

Methods for reducing organic compound emissions associated with volatile organic waste disposal are technologically feasible and cost effective in many cases. These methods are capable of reducing emissions from land disposal by approximately 90 percent and are expected to be available in California in the near future; and

The staff report and the information presented at the September 23, 1982 public meeting adequately address the environmental issues associated with this Suggested Control Measure, and the Board concurs in the staff's finding that no significant adverse environmental effects are likely to result from the endorsement of the Suggested Control Measure and its subsequent adoption and implementation by the districts.

NOW, THEREFORE, BE IT RESOLVED that the Board endorses the Suggested Control Measure for the Control of Organic Compound Emissions Associated with Volatile Organic Waste Disposal, as set forth in Attachment A to this resolution, and directs the Executive Officer to forward this resolution to the Technical Review Group for further refinement of the Suggested Control Measure.

BE IT FURTHER RESOLVED that authority is delegated to the Executive Officer to review the final form of the Suggested Control Measure as approved by the Technical Review Group, and he is directed to forward the Suggested Control Measure to air pollution control and air quality management districts with the recommendation that they consider adoption of the measure or a similar measure to the extent that such districts need to further reduce organic compound emissions in order to attain or maintain ambient air quality standards.

BE IT FURTHER RESOLVED that the Executive Officer is directed to work with the Bay Area Air Quality Management District to adopt and implement the measure in accordance with its nonattainment plan. During this process, the questions of the test method, emission estimates, and other technical issues will be further addressed and resolved. During this period, the Board staff will continue to coordinate with the State Interagency Task Force and the districts to assure maximum compatibility between the Governor's Landfill ban and the provisions of this Suggested Control Measure.

BE IT FURTHER RESOLVED that the Executive Officer is directed to provide assistance to any district requesting assistance in adopting, interpreting or implementing the Suggested Control Measure, including:

a. Improvement of estimates of the emissions and cost-effectiveness of emission reductions;

b. Finalization of the test procedure referenced in the Suggested Control Measure or suitable alternative test methods; and

c. Coordination with other state and federal agencies dealing with waste disposal regulations.

I certify that this is a
true and correct copy of
Resolution 82-50, as adopted
by the Air Resources Board.

Harold Holmes, Board Secretary

Attachment A

Regulation _____: Volatile Organic Waste

Rule _____ Generation, Storage, Transfer, Treatment, Recovery and Disposal of Volatile Organic Waste

Section A: Rule Description

This rule establishes standards to reduce organic compound emissions associated with volatile organic waste disposal.

Section B: Applicability

This rule applies to any person who generates, stores, transfers, treats, recovers, or disposes of volatile organic wastes.

Section C: Exemptions

1. Resource Recovery Operations for Landfill Methane- Existing moisture which is extracted with recovered methane from landfills and separated for disposal shall be allowed to be placed back into the landfill from which it was derived.
2. Dry Cleaning - Still residues from dry cleaning operations shall be exempt from complying with Section E. 3 of this rule until July 1, 1987. This exemption does not constitute waiver from any other District rules or regulations affecting such still residues.
3. Household Wastes - Wastes generated by household users shall be exempt from the requirements of this rule.

4. Exempt Waste - a volatile organic waste whose organic content consists exclusively of the following compounds or various combinations of the following compounds shall be exempt from the requirements of this rule: Fluorochlorocarbons (Freon 11,12,23,113, 114,115); Methylene chloride; and 1,1,1-Trichloroethane.

Section D: Definitions

1. Dispose - To abandon, deposit, or otherwise discard any volatile organic waste contained or non-contained into or on any land or water so that such waste or any constituent of it may be emitted to the atmosphere.
2. Generator - Any person whose act or process produces volatile organic waste.
3. Incompatible Volatile Organic Wastes - Volatile organic wastes which are unsuitable for mixing under controlled conditions because the mixing could render some or all of the volatile organic wastes unsuitable for recycling or application of other resource recovery processes
4. Organic Compound - Any compound of carbon except:
   a. carbonates
   b. metallic carbides
   c. carbon monoxide
   d. carbon dioxide

e. carbonic acid

f. methane

5. Resource Recovery Processes - Any method, technique, or process which transforms a volatile organic waste into a usable material (such as a fuel supplement or recyclable solvent).

6. Storage - The containment of volatile organic waste prior to treatment, recovery, transfer, or disposal.

7. Treatment - Any method, technique, or process designed to change the properties of any volatile organic waste so as to reduce the organic compound content to one percent by weight or less.

8. Volatile Organic Waste - Any waste which is determined to contain organic compounds in excess of one percent by weight.*

9. Volatile Organic Waste Management Plan - A plan which sets forth a facility's procedure for the systematic control of emissions of organic compounds associated with the collection, source separation, storage, transportation, processing, treatment, recovery, and disposal of volatile organic wastes.

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*The determination called for by Section D.8 shall be made by the Gravimetric Purge and Trap method described in Attachment B. when such method is approved by the Air Resources Board.

Section E: Standards

1. Storage

   a. A person subject to the requirement of Section F shall not store incompatible volatile organic wastes within the same container.

   b. Unless subject to storage requirements of another District rule or regulation, volatile organic wastes shall be stored in covered containers so as to reduce the evaporation of the wastes.

2. Transfer

   Persons transferring liquid volatile organic wastes into any container larger than 500 gallons' capacity shall utilize submerge filling, bottom loading, or vacuum trucks, or an equivalent method approved by the air pollution control officer.

3. Disposal

   A person shall not dispose of any volatile organic waste as defined in Section D. 8.

4. Treatment Prior to Disposal

   Any person operating a facility for the treatment of any volatile organic waste shall eliminate as a part of the treatment process, at least 95 percent of all organic compounds volatilized in connection with such treatment.

The air pollution control officer shall establish more stringent requirements, if necessary, to ensure that emissions in such quantities as to endanger public health do not result from any incineration or other treatment process.

5. Resource Recovery

Any person operating a process for the recovery of resources from any volatile organic waste shall recover or eliminate within the process at least 95 percent of all organic compounds volatilized during such resource recovery process.

The air pollution control officer shall establish more stringent requirements, if necessary, to ensure that emissions in such quantities as to endanger public health do not result from any incineration or other treatment process.

Section F: Volatile Organic Waste Management Plan

Persons generating, storing, treating, recovering or disposing of more than 1000 kilograms/month (1.1 tons/month) of volatile organic wastes shall submit annually to the air pollution control officer for approval, a Volatile Organic Waste Management Plan. The plan shall include but not be limited to the following:

1. a complete description of each process that generates volatile organic wastes;

2. a complete list showing name, quantities, sources and concentrations of all volatile organic wastes generated, stored, treated, recovered or disposed;

3. Descriptions of methods of handling, storage, treatment, recovery, transportation, and disposal of all volatile organic wastes and residues; and

4. Explanations of methods and procedures used to identify, characterize and evaluate the volatility and compatibility of volatile organic waste.

Section G: Increments of Progress

The following are the implementation dates for the requirements of this rule:

1. Nine months following adoption of rule: File Volatile Organic Waste Management Plan. Comply with Sections E.1. and E.2.

2. January 1, 1985: Comply with Sections E.3., E.4., and E.5.

3. After July 1, 1984, the air pollution control officer shall on his or her own motion or within 60 days after receipt of a petition, conduct a public hearing to determine whether it is feasible for the petitioner or others similarly situated to comply with the disposal, treatment, and/or resource recovery standards by January 1, 1985. The determination shall be based on the availability and cost-effectiveness

of the technology required. If the air pollution control officer finds that compliance with these standards by the petitioner or others similarly situated is not feasible by January 1, 1985, he or she shall either postpone the compliance date or modify the standards to the extent supported by the evidence. Upon request by the air pollution control office or District Board of Directors, the State Air Resources Board may conduct the public hearing and recommend that the air pollution control officer make the amendments set forth above.

Section H: Manual of Procedures

See Attachment B.

ATTACHMENT B

GRAVIMETRIC PURGE AND TRAP METHOD TO DETERMINE VOLATILE ORGANIC CONTENT OF WASTE PRODUCTS

TABLE OF CONTENTS

1. SCOPE
2. APPLICABLE DOCUMENTS
   - 2.1 ASTM Standards
   - 2.2 Federal Register
   - 2.3 EPA Reports
3. PROCEDURES
   - 3.1 Sampling
   - 3.2 Liquid Sample Analysis
   - 3.3 Solid-Sludge Sample Analysis
   - 3.4 TRAPS
   - 3.5 VOC Calculations
4. INTERFERENCES
   - 4.1 Interferences from Analytical System
   - 4.2 Sample Contamination
   - 4.3 Cross Contamination
5. APPARATUS
   - 5.1 Hardware

5.2 Schematic

5.3 Setup Description

6. REAGENTS

7. QUALITY CONTROL

8. SAMPLE COLLECTION, PRESERVATION AND HANDLING

1. SCOPE

This procedure uses a purge and trap method to determine the weight percent of volatile organic compounds in organic products.

The purge method is designed to strip soluble and/or insoluble volatile organics from solid or liquid samples into an inert gas stream. The trap method collects and concentrates organic compounds while separating water.

These methods may not be applicable to some wastes or for some waste disposal procedures and other methods may be substituted with mutual agreement of the control authority and the producer.

2. APPLICABLE DOCUMENTS

2.1 ASTM Standards: Part 23

D 270 Sampling Petroleum and Petroleum Products

D 4057 Manual Sampling of Petroleum/Petroleum Products

2.2 Method 624, Purgeables, Pg. 69532, FR Volume 44, No. 233, Dec. 3, 1979

Method 602, Purgeable Aromatics, Pg. 69474; ibid.

2.3 EPA Reports

EPA-600/2-80-018: "Samples and Sampling Procedures for Hazardous Waste Streams."

3. PROCEDURE

3.1 Sampling

Using the appropriate sampling method referenced in Section 2, a representative one liter sample of waste is collected and transfered to a glass container with a foil-lined screw cap.

3.2 Liquid Sample Analysis

If the waste sample is a liquid (low viscosity) homogenize the sample with an ultrasonic homogenizer. An emulsification agent can be added if it can be shown not to cause interferences.

If the organic fraction is expected to contain less than ten percent soluble volatile organic species the procedure for insoluble organics is to be used. If the sample is expected to exceed 10% soluble volatile organics the procedures given for both soluble and insoluble organics are to be used.

3.2.1 Insoluble Organics

To purge the insoluble organics heat the purging chamber to 40^{o}C and purge with N_2 through a frit or needle into the sample at a rate of 100 ml/min. for 30 minutes.

3.2.2 Insoluble and Soluble Organics

To purge all organics heat the purging chambeer to 40^{o}C and purge with N_2 into the sample until all the liquid has vaporized or a constant liquid level is reached.

3.3 Solid or Sludge Sample Analysis

If the sample is a solid or very viscous liquid then an appropriate solvent of known amount is to be added. Water or N,N-Dimethylformamide may be useful for this purpose.The sample is to be uniformly dispersed, dissolved or

emulsified. An emulsification agent may be added if necessary, and if it can be shown not to cause interferences. The method will then follow steps 3.2.1 - 3.2.2 outlined for liquid samples.

3.4 Traps

The first adsorbent trap contains No. 3A molecular sieves for adsorption of water with minimal adsorption of organic species. The trap is designed for 90% water retention based on a 99% water sample.

The VOC is trapped on a tared adsorbent (Tenax GC or activated carbon). The adsorbent is weighed when the test is completed.

3.5 VOC Calculations

The percent of VOC in the waste sample is determined from the weight gain of the organic adsorption trap.

$$\text{Percent VOC} = \frac{\text{Trap Weight Gain}}{\text{Initial Sample Weight}} \times 100$$

4. Interferences

4.1 Interferences from Analytical System

Interferences coextracted from the samples will vary considerable from source to source. Impurities in the purge gas and organic compounds out-gassing from the plumbing ahead of the trap account of the majority of contamination problems. The analytical system must be demonstrated to be free from interferences under the conditions of the analysis by running method blanks. Method blanks are run by charging the purging device with organic-free water and analyzing it in a normal manner. The use of non-TFE plastic tubing, non-TFE thread sealants, or flow controllers with rubber components in the purging device should be avoided.

4.2 Sample Contamination

Samples can be contaminated by diffusion of volatile organics (particularly methylene chloride) into the sample during sampling, shipment and storage. A field blank prepared from organic-free water and carried through the sampling and handling protocol can serve as a check on such contamination.

4.3 Cross Contamination

Cross contamination can occur whenever high level and low level samples are sequentially analyzed. To reduce cross contamination, it is recommended that the purging device and sample syringe be scrubbed with an appropriate solvent and a bottle brush and rinsed out twice, between samples, with organic-free water. Whenever an unusually concentrated sample is encountered, it should be followed by an analysis of organic-free water to check for cross-contamination. For samples containing large amounts of water soluble materials, suspended solids, high boiling compounds, or high organohalide levels, it may be necessary to wash out the purging device with a soap solution, rinse with distilled water, and then dry in a 105^{o}C oven between analyses.

A different cleaning procedure can be used if an organic-free water sample is run to check for cross-contamination.

5. Apparatus:

5.1 Hardware

Purging system

frit or needle disperser

Stirrer

Connecting Tubing

Nitrogen

Constant Temperature Bath

Trap System

Coalescing Filter

3A Molecular Sieve

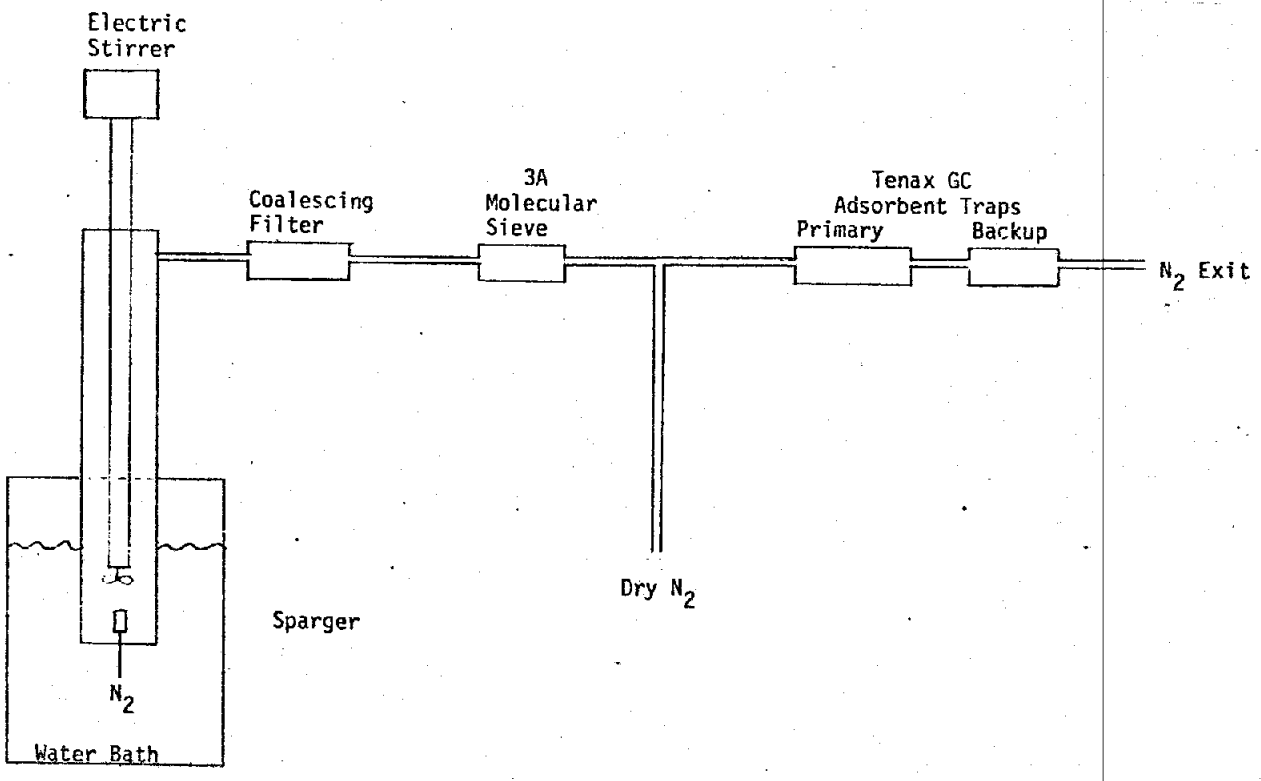
Rotameters

Tenax Tube

Activated Charcoal Tube

Analytical Balance

5.2 Schematic:



Schematic of Gravimetric Purge and Trap Method

5.3 Apparatus Description

The purging chamber discussed here is made of Teflon. Teflon is inert in contact with wastes and will deform instead of shatter should a waste explode on heating. The design of the purging chamber should permit a stirrer to be attached. Also an opening must be available to allow a sparger to be placed within the chamber. The sample of waste is stirred while a sparger distributes N_2 into the sample. The purging chamber is placed in a constant temperature bath.

A coalescing filter is used to remove water droplets or foam formed by the purging process. To remove water vapor from the gas stream a 3A molecular sieve is used.

The organic sorbent trap consists of tubing packed with Tenax - GC (60-80 mesh) and a backup tube of Tenax - GC (60-80 mesh) for breakthrough detection. Activated carbon may be used as the adsorbent if water does not interfere.

6. Reagents

6.1 Sodium thiosulfate--(ACS) Granular.

6.2 Trap Materials

6.2.1 Porous polymer packing 60/80 mesh chromatographic grade Tenax GC (2, 6-diphenylene oxide).

6.3 Organic-free water

6.3.1 Organic-free water is defined as water free of interference when employed in the purge and trap procedure described herein. It is generated by passing tap water or well water through a carbon filter bed containing about 1 lb. of activated carbon.

6.3.2 A water system (Millipore Super-Q or equivalent) may be used to generate organic-free deionized water.

6.3.3 Organic-free water may also be prepared by boiling water for 15 minutes. Subsequently, while maintaining the temperature at 90°C, bubble a contaminant-free inert gas through the water for one hour. While still hot, transfer the water to a narrow mouth screw cap bottle equipped with a Teflon seal.

7. Quality Control

7.1 Before processing any samples, the analyst should daily demonstrate, through the analysis of an organic-free water method blank, that the entire analytical system is interference-free.

7.2 Standard quality assurance practices should be used with this method. Field replicates should be collected to validate the precision of the sampling technique. Laboratory replicates should be analyzed to validate the precision of the analysis at concentrations near the standard. Fortified samples should be analyzed to validate the accuracy of the analysis. The analytical precision should be established by round-robin prior to application of the standard. Periodic interlaboratory comparisons may be required.

7.3 The analyst should maintain constant surveillance of both the performance of the analytical system and the effectiveness of the method in dealing with each sample matrix by determining the precision of the method in blank water and spiking each 5-ml sample, standard, and blank with surrogate halocarbons.

7.3.1 Determine the precision of the method by dosing blank water with the compounds selected as surrogate standards--bromochloromethane,

2-bromo-1-chloropropane, and 1.4-dichlorobutane--and running replicate analyses. Calculate the recovery and its standard deviation. These compounds represent early, middle, and late eluters over the range of the pollutant compounds.

7.3.2 The sample matrix can affect the purging efficiencies of individual componds; therefore, each sample must be dosed with the surrogate standards and analyzed in a manner identical to the internal standards in blank water. If the recovery of the surrogate standard shows a deviation greater than two standard deviations (7.3.1), repeat the dosed sample analyses. If the deviation is again greater than two standard deviations, dose another aliquot of the same sample with the compounds of interest at approximately two times the measured values and analyze. Calculate the recovery for the individual compounds using these data.

8. Sample Collection, Preservation and Handling

8.1 Grab samples must be collected in glass containers having a total volume greater than 1000 ml. Fill the sample bottles in such a manner that no air bubbles pass through the sample as the bottle is being filled. Seal the bottles so that no air bubbles are entrapped in it. Maintain the hermetic seal on the sample bottle until time of analysis.

8.2 The sample must be iced or refigerated from the time of collection until extraction. If the sample contains residual chlorine, add sodium thiosulfate preservative (10 ug/40 ml) to the empty sample bottles just prior to shipping to the sample site, fill with sample just to overflowing, seal the bottle, and shake vigorously for 1 minute.

8.3 All samples must be analyzed within 7 days of collection.

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item:	Public Meeting to Discuss a Suggested Control Measure to Reduce Organic Compound Emissions Associated with Volatile Organic Waste Disposal.
Agenda Item No.	82-18-6
Public Meeting Date:	September 23, 1982
Response Date:	September 23, 1982
Issuing Authority:	Air Resources Board
Comment:	Incineration of halogenated wastes may result in emissions of toxic by-products.

Response:

Toxic by-product formation and control are a function of incinerator and control system design. EPA has issued permits for incineration of PCB's, probably the most difficult chlorinated waste to destroy, in Deer Park, Texas and El Dorado, Arkansas. These permits and ARB policy regarding the incineration of PCB's are discussed in the ARB report, "An Air Resources Board Policy Regarding Incineration as an Acceptable Technology for PCB Disposal," December, 1981. Evaluations of specific incineration projects will need to be done on a case-by-case basis. The staff feels that toxic compound emissions from properly designed incineration systems will likely prove to be at acceptable levels for most waste types.

Referring to the December, 1981, report, the staff reached the conclusion, "A review of available data on PCB incineration toxic by-products (dioxins and furans) suggests that the emissions of these pollutants from cement kilns would be at acceptable levels." Since PCB's are extremely difficult to destroy, it is reasonable to assume that systems can be designed to minimize toxic by-product emissions from other waste incineration systems.

Comment: Incineration of wastes may result in residues which require land disposal or special treatment.

Response:

Negative environmental impacts of incineration residue wastes have been mitigated at facilities presently in operation. Residues of incineration are dependent on the waste stream. Heavy metals, scrubber wastes, and other undesirable residues might need to be further treated and stabilized prior to disposal. Facilities in other parts of the United States have been able to comply with all water and land quality requirements while disposing of such wastes.

Comment: Incineration results in emissions of NOx, SOx, particulate matter (PM), and hydrochloric acid (HCl) which may negatively offset the reduction of volatile organic compounds from the phase out of land disposal of volatile organic wastes.

Response:

Air pollution control systems are available for emissions of SOx, PM and HCl. Emissions of NOx are dependent on incinerator design and operation. New incinerator designs are likely to emit significantly lower levels of NOx than existing designs.

Furthermore, existing district rules and regulations will mitigate any emissions increases from siting a new hazardous waste incinerator in California. Many of the waste types subject to this measure can be incinerated in cement kilns, with no significant change in existing rates of emissions.

Comment: The Suggested Control Measure will allow an increase in disposal of VOC to landfills, landfarms, and surface impoundments at IT Corporation's Martinez and Benecia facilities because the Bay Area Air Quality Management District's (BAAQMD) existing Rule 2, Regulation 8 is more stringent. (IT Corporation)

Response:

The Suggested Control Measure when adopted by the BAAQMD, would not negate the applicability of Rule 2, Regulation 8 to the IT Corporation's two facilities, if Regulation 8 were found to be more stringent. However, it has not yet been substantiated that Regulation 8 would be more stringent than the SCM. Regulation 8 is intended to apply to air pollution sources with stacks that can be monitored for a comparison to Regulation 8's standards of 300 ppm or 15 pounds/hour. IT Corporation has stated that its facilities comply with these standards by measuring the headspace above a waste sample with a hydrocarbon analyzer to determine whether the waste should be directly ponded or treated before being ponded. However, a direct correlation between this test method presently used by IT Corporation, and the preliminary test method contained in the SCM has not been made. Until this is done, it is not possible to determine that Regulation 8 is more stringent than the SCM.

CERTIFIED: Board Secretary

Date: 10/21/82

State of California

Memorandum

To : Huey D. Johnson
Secretary
Resources Agency

Date : November 4, 1982

Subject: Filing of Notice of Decision of the Air Resources Board

From : Air Resources Board

Pursuant to Title 17, Section 60007 (b), and in compliance with Air Resources Board certification under section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decision and response to environmental comments raised during the comment period.

Harold Holmes
Board Secretary

attachments
Resolution 82-50
Resolution 82-55
S.E.I. for Diesels

State of California
AIR RESOURCES BOARD

Resolution 82-51

September 22, 1982

Agenda Item No.: 82-18-3

WHEREAS, the strikingly beautiful vistas afforded by California's deserts, mountain-valley systems and coastline are a valued treasure of all of its citizens and provide a basis for California tourism;

WHEREAS, visual air quality has other economic and social value, including the protection of existing federal flight test operations and maintenance of optical data collection capability at the instrumented test ranges of the Naval Weapons Center and Edwards Air Force Base;

WHEREAS, parts of California are currently experiencing some of the best visual conditions and other parts of California are currently experiencing some of the most severely degraded visibility conditions encountered in the United States;

WHEREAS, concentrations of visibility reducing particles frequently exceed levels specified in the state's ambient air quality standard for such particles, and as a consequence, the enjoyment of the beauty of California's vistas is frequently and significantly impaired;

WHEREAS, visibility reducing smog consists largely of particulate material within the particle size range between .01 and 2.5 micrometers diameter;

WHEREAS, fine-particle sulfates, nitrates and carbonaceous material have been shown to be especially effective in reducing visibility;

WHEREAS, equipment and methodologies for sampling and analysis of fine particulate material and its constituents are available; and

WHEREAS, currently available data in many areas of the state is insufficient to define adequately the sources and fates of the fine particles.

NOW, THEREFORE, BE IT RESOLVED that the staff of the Air Resources Board is directed to establish a network of dichotomous samplers and other instruments to measure the concentrations and composition of the visibility reducing particles at representative locations throughout the state and to relate that information to visibility, and further, to work in a coordinated fashion with local air pollution control districts and other governmental agencies in any monitoring program or study conducted by them aimed at developing a program to attain visibility standards or to prevent visibility degradation in areas where exceptional visibility conditions now exist.

BE IT FURTHER RESOLVED that the staff is directed to work with local air pollution control districts and other interested parties to accumulate this data, to develop any appropriate revisions to state visibility standards, and to develop and implement strategies to attain and maintain such standards.

I certify that this is a true and correct copy of Resolution 82-51, as adopted by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

State of California
Air Resources Board

Resolution 82-52

October 28, 1982

Agenda Item No.: 82-22-1

WHEREAS, Health and Safety Code Sections 39500 and 39605 provide that the Air Resources Board (the "Board") shall coordinate, encourage, and review the efforts of all levels of government as they affect air quality and authorize the Board to provide assistance to local air pollution control districts;

WHEREAS, Health and Safety Code Sections 39607 and 39701 require the Board to inventory sources of air pollution within the state to determine the kinds and quantities of air pollutants, monitor such air pollutants, and to coordinate and collect research data on all aspects of air pollution, including the effects of air pollution on human health, the control of nonvehicular emissions, and the consequences of alternative solutions to specific air pollution problems;

WHEREAS, Health and Safety Code Sections 39600 and 39601 require the Board to adopt rules and regulations and do such acts as may be necessary for the proper execution of the Board's powers and duties;

WHEREAS, Health and Safety Code Sections 39002 and 40000 provide that the primary responsibility to control emissions from nonvehicular sources rests with local air pollution control districts and the responsibility to control air pollution from vehicular sources rests with the Board;

WHEREAS, Health and Safety Code Section 39002 gives the Board the duty to ensure that local and regional authorities meet the responsibilities given to them by Division 26 of the Health and Safety Code or any other provision of law;

WHEREAS, Health and Safety Code Section 41700 prohibits the discharge of quantities of air contaminants which endanger the public health or safety or which cause injury to the public;

WHEREAS, several Air Pollution Control Officers have requested the Board to prepare a list of toxic air contaminants;

WHEREAS, the staff has proposed regulations which describe an approach to controlling emissions of toxic air contaminants so that they will not endanger the public health or safety;

WHEREAS, the California Environmental Quality Act and Board regulations require that action not be taken as proposed if feasible mitigation measures or alternatives exist which would substantially reduce any significant adverse environmental effects of the proposed action;

WHEREAS, a duly noticed public hearing has been held, and the Board has reviewed and considered voluminous evidence presented at this hearing by its staff, other public agencies, industry, and members of the public, including scientists; and

WHEREAS, the Board finds that:

The public health, safety, and welfare are endangered by the emission into the ambient air of substances which are determined to be carcinogenic, or otherwise toxic to human beings;

Persons residing in California are exposed to a multiplicity of air contaminants from numerous sources which act cumulatively to produce adverse effects, and this phenomenon should be taken into account when controlling individual sources of toxic air contaminants;

Ambient air monitoring in urban areas, staff investigations, and data provided by districts and others indicate that large quantities of toxic air contaminants are being emitted from a wide variety of sources in California, and these emissions result in significant ambient concentrations of potentially toxic air contaminants;

While all such exposure to potentially toxic air contaminants cannot be eliminated in the foreseeable future, Section 41700 of the Health and Safety Code requires that emissions of toxic air contaminants be controlled to levels which prevent significant harm to the public health;

A program to control toxic air contaminants through the adoption of ambient air quality standards is not appropriate in all cases;

Certain substances which may be determined to be toxic air contaminants may be emitted from a wide variety of sources and may best be subject to regulation through the adoption of ambient air quality standards;

The control of toxic air contaminants is best achieved by controlling new and existing sources of such contaminants;

A statewide program is necessary and desirable in order to provide technical and scientific assistance to local air pollution control districts, to achieve the earliest practicable control of toxic air contaminants, to promote the development and use of advanced control technology and alternative processes and materials, to identify the toxic air contaminants of concern and prioritize their control, to minimize inconsistencies in protecting the public health in various areas of the state, and to minimize the economic advantage to any area which could result from inconsistent local regulation;

Identification of individual toxic air contaminants must be based upon the best scientific evidence currently available, and that evidence should be gathered from the public, the scientific community and other state and local agencies;

While absolute and undisputed scientific evidence is not available to determine the exact nature and extent of the risk from toxic air contaminants, sufficient evidence of potential risk has been presented to begin action to prevent endangerment of the public health and safety from public exposure to such contaminants;

Technologically feasible and cost-effective means are available to reduce emissions of toxic air contaminants; and

Adoption of the proposed regulations will have a beneficial impact on air quality and on public health and safety and will result in no adverse environmental impacts.

NOW, THEREFORE, BE IT RESOLVED that the Board approves proposed Subchapter 7, for incorporation into Chapter 1, Part III of Title 17, California Administrative Code, commencing with Section 93000, as set forth in Attachment A and directs the Executive Officer to adopt the proposed regulations no sooner than November 23, 1982, after making them available to the public for review for at least 15 days and accepting written comment until 5:00 p.m. November 16, 1982, provided that the Executive Officer shall consider such written comments as may be submitted during this period, and is delegated the authority to make nonsubstantive changes to the regulations or to present the regulations to the Board for further consideration if he determines that this is warranted in light of the written comments received.

BE IT FURTHER RESOLVED that in determining which substances to propose for consideration as toxic air contaminants, the Executive Officer is directed to give priority to those substances which pose the greatest danger to the public health.

BE IT FURTHER RESOLVED that the Board may in the future consider the adoption of ambient air quality standards for substances which are or may be toxic air contaminants.

BE IT FURTHER RESOLVED that the Executive Officer is directed to monitor emissions associated with the application of pesticides which may be toxic air contaminants, to work in close cooperation with the Department of Food and Agriculture to ensure that these emissions do not endanger public health, and to propose amendments to these regulations in regard to pesticide application if such amendments are warranted.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to notify all local air pollution control districts, other affected state and local agencies, and the Environmental Protection Agency/local district/ARB Technical Review Group of the Board's action; to work with all affected agencies and industry to assure timely implementation of the regulations; and to collect and distribute information relating to specific air pollutants which are or may be toxic and to sources of such pollutants.

BE IT FURTHER RESOLVED that the Board directs the staff to develop and bring to the Board for consideration a proposal to establish the scientific review committee provided for in Section 93001 of the regulations. In developing this proposal the staff shall consider:

The number of scientists on the committee.

The term of appointment of committee members.

The qualifications of committee members including the appropriate disciplines which should be represented.

The selection of members including the possibility of nominations from professional or academic associations.

The appropriateness of utilizing any committee which might be established by the Department of Health Services and which is capable of evaluating potential toxic air contaminants.

The duration and steps involved in the public hearing process and the role of the science advisory committee in that process.

Prior to making its recommendation to the Board, the staff shall consult with other state agencies and interested members of the public, including scientists and industry representatives.

I hereby certify that the above is a true and correct copy of Resolution 82-52, as adopted by the Air Resources Board.

Harold Holmes
Board Secretary

Attachment A to Resolution 82-52

Set forth below is the text of proposed regulations approved by the Air Resources Board October 28, 1982. A copy of the regulations originally proposed by staff and contained in the September 10, 1982 staff report is attached for the purpose of identifying the changes to the original proposal.

SUBCHAPTER 7. TOXIC AIR CONTAMINANTS

The following addition to Title 17 of the California Administrative Code is proposed:

93000. Applicability. (a) This subchapter shall apply to all sources within the state of emissions of toxic air contaminants. Implementation of the control requirements contained in this subchapter shall be the primary responsibility of local and regional air pollution control districts for nonvehicular sources and of the state board for vehicular sources.

(b) This subchapter shall not apply to the application of pesticides subject to regulation by the Director of Food and Agriculture.

NOTE: This section is similar to the same section as contained in the original staff proposal. Part of the content of the original proposal has been modified and restated as a new subsection (b).

93001. Procedure for Identification of Toxic Air Contaminants. (a) "Toxic air contaminant" for the purpose of this subchapter means an air pollutant which has been determined by the state board in accordance with the procedures and criteria set forth in this subchapter to cause or contribute to air pollution which may reasonably be anticipated to result in an increase in mortality or an increase in serious or incapacitating illness.

(b) The state board shall appoint a scientific advisory committee which shall advise the board on the nature and magnitude of adverse health effects associated with substances proposed for designation as toxic air contaminants. In developing its recommendations, the committee shall consider all relevant scientific information. The committee shall submit its evaluation to the state board within 60 days of receiving a request for a recommendation from the board or the Executive Officer.

(c) The state board shall not determine that a substance is a toxic air contaminant without first holding a public hearing pursuant to the provisions of Government Code Sections 11340 et seq. At the public hearing, the board shall consider the evaluation of the scientific advisory committee made pursuant to subsection (b). The state board shall also consult with the Department of Health Services and other state agencies with jurisdiction or expertise and consider such information as they may provide. As provided in Government Code Section 11346.8, the state board shall consider all relevant matter presented to it in determining whether a substance is a toxic air contaminant.

(d) Any toxic air contaminant identified by the state board in accordance with the procedures set forth in this section shall be listed in Section 93005.

NOTE: The definitional language contained in Section 93001 is substantially identical to that found in Section 93002(a) of the original staff proposal.

93002. Criteria for Identification of Certain Air Contaminants. (a) For purposes of this subchapter, it shall be presumed that a substance is a toxic air contaminant if it meets one or more of the following criteria:

(1) a substance which has been shown, via one or more human epidemiological studies, to result in an increased incidence of cancer in humans; or

(2) a substance which has produced a positive carcinogenic response in well-conducted animal bioassays in two or more animal species, or in one species if the positive result of the bioassay has been replicated in subsequent testing in the same species; or

(3) a substance which has produced a positive carcinogenic response in a well-conducted animal bioassay in one animal species and for which there is supportive evidence that the substance produces positive results in short-term tests which measure effects on genetic material (DNA) of cultured cells, or effects on the DNA in cells of living animals.

This presumption shall be applied by both the scientific advisory committee established pursuant to Section 93001(b) and by the state board and may be overcome only by clear and convincing evidence that the substance does not present a carcinogenic risk to humans exposed to it via the ambient air.

(b) For purposes of subsection (a), "positive carcinogenic response in a well-conducted animal bioassay" means that the study method employed revealed a statistically significant increase in tumor frequency or decrease in time to tumor in the exposed group over the unexposed or control group, using a procedure which conforms reasonably with procedures recommended by the National Cancer Institute, or the International Agency for Research on Cancer.

(c) When considering whether a substance is a toxic air contaminant on the basis of the criteria contained in subsection (a), the state board shall assess the risk of harm to the public likely to result from anticipated exposure to the substance. In the case of such substances, the scientific advisory committee established pursuant to Section 93001(b) shall also include a risk assessment as part of its evaluation for the state board.

(d) For any substance which the state board determines is a toxic air contaminant, it shall also determine whether there is a threshold exposure level below which no adverse health effects are anticipated. Where the state board determines that there is such a level, it shall specify that level in the provisions of this subchapter identifying the substance as a toxic air contaminant.

NOTE: The criteria found in Section 93002(a) are the same as those set forth in Section 93002(b) of the original staff proposal. Section 93002(b) is substantially identical to Section 93002(d) of the original staff proposal.

93003. Control of Emissions of Toxic Air Contaminants. (a) In order to prevent the emission of toxic air contaminants from endangering the public health and safety within the meaning of Health and Safety Code Section 41700, the following minimum conditions must be met:

(1) For toxic air contaminants for which the state board has determined there is a threshold exposure below which no adverse health effects are anticipated, emissions from the source shall be controlled sufficiently, including a reasonable margin of safety, so that the source will not result in or contribute to ambient levels at or in excess of the threshold exposure.

(2) For toxic air contaminants for which there is no demonstrable safe level or threshold level of adverse health effects, emissions from the source shall be reduced through the use of Toxics Best Available Control Technology (T-BACT).

(b) For purposes of this section, "Toxics Best Available Control Technology" means reductions of emissions to the lowest amount possible through the application of Best Available Control Technology (BACT) as defined in air pollution control district rules and regulations, with the additional consideration for toxic air contaminants of the use of operational and maintenance conditions and limitations, closed system engineering, and the use of materials that are not toxic air contaminants, taking into account the potency of the toxic compound and its persistence in the atmosphere.

NOTE: Section 93003(a)(1) is identical in substance to Section 93001(a) of the original staff proposal.

93004. Other Requirements. (a) Nothing in this subchapter shall relieve the air pollution control districts or the state board, as the case may be, from imposing on any source of toxic air contaminants additional or more stringent requirements or permit conditions than are set forth herein which are necessary to assure that emissions will not cause or contribute to an endangerment of the comfort, repose, health, and safety of the public or to economically significant animals or plants, or to comply with any provision of applicable law.

(b) Nothing contained in this subchapter shall preclude the Air Resources Board or local districts from taking action to ensure compliance with all applicable provisions of law and regulations with respect to any air pollutant which has not been listed or is under consideration for listing as a toxic air contaminant.

NOTE: Section 93004(a) is substantially identical to Section 93001 of the original staff proposal. Section 93004(b) is in part similar to the provisions of Section 93003 of the original staff proposal.

93005. Toxic Air Contaminants. The following substances have been identified by the state board as toxic air contaminants pursuant to this subchapter:

[To be amended to list toxic air contaminants in accordance with the provisions of Section 93001(d).]

IV. PROPOSED REGULATIONS

A. TEXT OF PROPOSED REGULATION - SUBCHAPTER 7. TOXIC AIR CONTAMINANTS

The following addition to Title 17 of the California Administrative Code is proposed:

93000. Applicability. This subchapter shall apply to all sources of emissions of toxic air contaminants, for which no ambient air quality standard is applicable, within the state. This subchapter shall not apply to the application of pesticides conducted during the growing or harvesting of crops or processing of crops prior to shipment from the property on which the crops are grown. Implementation of these requirements shall be the primary responsibility of local and regional air pollution control districts for nonvehicular sources and of the Air Resources Board for vehicular sources.

93001. Minimum Conditions. In order to prevent the emission of toxic air contaminants from endangering the public health and safety within the meaning of Health and Safety Code Section 41700, the following minimum conditions must be met:

(a) For toxic air contaminants for which there is a threshold exposure below which no adverse health effects are anticipated, emissions from the source shall be controlled sufficiently, including a reasonable margin of safety, so that the source will not result in or contribute to ambient levels in excess of the threshold exposure.

(b) For toxic air contaminants for which there is no demonstrable safe level or threshold level of adverse health effects, including but not limited to carcinogens, emissions from the source shall be reduced to the maximum extent practicable.

(c) Nothing in this section shall relieve the air pollution control districts or the Air Resources Board, as the case may be, from imposing on any source of toxic air contaminants additional or more stringent requirements or permit conditions than are set forth herein which are necessary to assure that emissions will not cause or contribute to an endangerment of the comfort, repose, health, and safety of the public or to economically significant animals or plants.

93002. Definitions. (a) "Toxic air contaminant" for the purpose of this subchapter means any air pollutant which, in the judgment of the Air Resources Board or an air pollution control district, causes or contributes to air pollution which may reasonably be anticipated to result in an increase in mortality or an increase in serious or incapacitating illness. Substances that are carcinogenic and which are present in the ambient air are toxic air contaminants.

(b) "Carcinogenic substance" for purposes of this subchapter means any substance which meets one or more of the following criteria:

(1) a substance which has been shown, via one or more human epidemiological studies, to result in an increased incidence of cancer in humans; or

(2) a substance which has produced a positive carcinogenic response in well-conducted animal bioassays in two or more animal species, or in one species if the positive result of the bioassay has been replicated in subsequent testing in the same species; or

(3) a substance which has produced a positive carcinogenic response in a well-conducted animal bioassay in one animal species and for which there is supportive evidence that the substance produces positive results in short-term tests which measure effects on genetic material (DNA) of cultural cells, or effects on the DNA in cells of living animals.

(c) "Maximum extent practicable" for purposes of this subchapter means reductions of emissions to the lowest amount possible through the use of feasible control technology, imposition of operational and maintenance conditions and limitations, and the use of less harmful alternatives and materials.

(d) "Positive carcinogenic response in a well-conducted animal bioassay" for the purposes of this subchapter means that the study method employed revealed a statistically significant increase in cancer or decrease in time to tumor in the exposed group over the unexposed or control group, using a procedure which conforms reasonably with procedures recommended by the National Cancer Institute, or the International Agency for Research on Cancer.

93003. Compliance with other Requirements. Compliance with the requirements of this subchapter shall not excuse compliance with all applicable provisions of state law or district rules, regulations, and permit conditions.

State of California
AIR RESOURCES BOARD

Executive Order G-166

WHEREAS, a committee of the Air Resources Board (the "Board") conducted a public hearing on November 10 and 11, 1982, and the Board conducted a public hearing on December 1, 1982, to consider the amendment and adoption of regulations regarding lead in gasoline;

WHEREAS, on December 2, 1982, the Board adopted Resolution 82-64, in which the Board approved amendments to Title 13, California Administrative Code, Section 2253 and adoption of Title 13, California Administrative Code, Section 2253.2, and directed the Executive Officer to adopt the regulations, with such technical changes as he may deem necessary, after assuring that the regulations have been available to the public for at least 15 days;

WHEREAS, the approved regulations have been made available to the public for a period exceeding 15 days, with the changes to the originally proposed text clearly indicated.

NOW, THEREFORE, IT IS HEREBY ORDERED that the recitals and findings contained in Resolution 82-64 are incorporated herein.

IT IS FURTHER ORDERED that Title 13, California Administrative Code, Section 2253 is amended and Title 13, California Administrative Code, Section 2253.2 is adopted, as set forth in Attachment A.

Executed this 31st day of December, 1982 at Sacramento, California.

James D. Boyd
Executive Officer

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider Adopting Subchapter 7 to Chapter 1, Part III of Title 17, California Administrative Code, Commencing with Section 93000, Regarding the Application of Health and Safety Code Section 41700 to the Emission of Toxic Air Contaminants

Agenda Item No.: 82-22-1

Public Hearing Date: October 28, 1982

Response Date: November 16, 1982

Issuing Authority: Air Resources Board

Comment: No comments were received identifying any significant environmental issues pertaining to this item. The staff report identified no adverse environmental effects.

Response: N/A

CERTIFIED: Cathy L. French
Acting Board Secretary

Date: December 1, 1982

State of California

Memorandum

To : Gordon Van Vleck
Secretary
Resources Agency

Date : January 7, 1983

Subject: Filing of Notice of Decisions of the Air Resources Board

From : Air Resources Board

Pursuant to Title 17, Section 60007 (b), and in compliance with Air Resources Board certification under section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decision and response to environmental comments raised during the comment period.

Harold Holmes
Board Secretary

attachments
[redacted]
Resolution 82-64/Executive Order

State of California
AIR RESOURCES BOARD

Resolution 82-53

December 1, 1982

Agenda Item No.: 82-24-1

WHEREAS, Section 39601 of the Health and Safety Code authorizes the Air Resources Board (the "Board") to adopt standards, rules, and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, Section 43107 of the Health and Safety Code authorizes the Board to adopt emission standards and test procedures in order to control or eliminate air pollution caused by motorcycles;

WHEREAS, after public hearing and other administrative proceedings in accordance with the provisions of the Administrative Procedure Act, in 1975 the Board adopted a hydrocarbon (HC) exhaust emissions standard of 1.0 gram per kilometer (g/km) for 1982 and subsequent model year California certified Class III motorcycles (280 cubic centimeters and larger), and in 1980, in response to petitions from motorcycle manufacturers, the Board adopted an interim standard and delayed the application of the 1.0 g/km HC exhaust emissions standard until 1984 and subsequent model years for Class III motorcycles;

WHEREAS, the following motorcycle manufacturers have submitted petitions requesting the Board to relax the 1984 and subsequent model years 1.0 g/km HC exhaust emissions standard for Class III motorcycles by raising it to various specified levels, which were generally calculated by individual manufacturers to avoid the application of catalyst technology: OMC Lincoln (Cushman), Suzuki, Yamaha, Honda, Kawasaki, Harley-Davidson, and BMW;

WHEREAS, from February to August 1982, Board staff conducted a series of individual workshops with the manufacturers in order to assess the motorcycle industry's progress toward meeting the 1.0 g/km HC exhaust emissions standard;

WHEREAS, the California Environmental Quality Act and Board regulations provide that the Board must consider the environmental impacts of its actions and that a proposed project with adverse environmental impacts may not be adopted as originally proposed if feasible alternatives or mitigation measures are available;

WHEREAS, at a duly-noticed public hearing held October 28, 1982, the Board considered the motorcycle manufacturers' petitions and received and considered testimony and public comment from Board staff and interested persons; and

WHEREAS, the administrative record for this matter was held open following the October hearing for the submission of additional written comments, and the Board has reviewed and considered the comments submitted;

WHEREAS, on December 1, 1982, the Board held a further public hearing to reach a decision based on all the submittals on this matter; and

WHEREAS, the Board finds that:

The existing 1.0 g/km HC exhaust emissions standard for Class III motorcycles for 1984 and subsequent model years is necessary and technologically feasible;

For Class III motorcycles an exhaust emissions standard of 1.0 g/km HC for the 1984 and subsequent model years is attainable by the industry and implementing this standard will not significantly disrupt the availability of Class III motorcycles in the California market in 1984;

Having identified and considered the air quality impacts of the manufacturers' petitions proposals, no adverse impacts will occur from denying the manufacturers' requests and retaining the current 1.0 g/km HC exhaust emissions standard;

For small volume motorcycle manufacturers only, providing up to three additional years for compliance with the 1.0 g/km HC exhaust emissions standard for Class III motorcycles is appropriate considering the relative cost impacts of the standard on these manufacturers compared to others, and the continuing development but currently limited commercial availability of appropriate catalyst HC control technology for these manufacturers;

Although there is some evidence to suggest that higher percentages of motorcycle owners than passenger car owners work on and modify their vehicles, sufficient means exist to address actual incidents of tampering which may affect motorcycle emissions;

Based on durability data submitted by motorcycle manufacturers which currently sell the majority of motorcycles in California, durable catalyst systems exist or with some design or engineering modifications can be made available and appropriate for installation on Class III motorcycles; and

The proposal by certain manufacturers to equip some of their Class III 1984 motorcycles with control technology adequate to meet the 1.0 g/km HC exhaust standard confirms the Board's conclusion that appropriate technology is feasible, available, and safe to meet the standard, although the manufacturers' proposals were designed primarily to address consumer acceptance issues.

NOW, THEREFORE, BE IT RESOLVED that, except for the relief proposed for small volume motorcycle manufacturers as described below, the Board hereby denies the relief requested by the petitions from OMC Lincoln (Cushman), Suzuki, Yamaha, Honda, Kawasaki, Harley-Davidson, and BMW, requesting relaxation of the Board's HC exhaust emissions standards for Class III motorcycles starting with the 1984 model year.

BE IT FURTHER RESOLVED that the Board hereby delegates to the Executive Officer authority to consider and adopt as an amendment to Title 13, California Administrative Code, Section 1958 an appropriate extension of the date for compliance with the 1.0 g/km Class III motorcycle HC exhaust emissions standard for up to three years for existing small volume motorcycle manufacturers, defined as those manufacturers which currently sell or are currently in the process of obtaining certification to sell fewer than 5,000 motorcycles per year in California, including all classes of motorcycles. The Executive Officer shall place appropriate conditions on any proposed extension, including but not limited to conditions which shall require any manufacturer which qualifies for an extension (1) to continue to develop appropriate HC emissions controls for timely application, and (2) to submit to the staff annual written progress reports on HC emissions control development.

BE IT FURTHER RESOLVED that the Board hereby retains in effect the current 1.0 g/km HC exhaust emissions standard for 1984 and subsequent model years Class III motorcycles as set forth in Section 1958, Article 2, Subchapter 1, Chapter 3 of Title 13, California Administrative Code, subject to amendment by the Executive Officer to provide limited, partial relief to small volume motorcycle manufacturers, as defined.

BE IT FURTHER RESOLVED that in consultation with aftermarket parts industry representatives and small businesses the staff is directed to develop measures which are appropriate, feasible, and consistent with applicable statutory requirements to reduce costs and streamline certification procedures for generic modification parts containing or affecting motorcycle emission control devices or systems.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to transmit to each affected motorcycle manufacturer this resolution as a response to and written denial of the respective manufacturer's petition, except for the relief proposed for small volume manufacturers.

I hereby certify that this is
a true and correct copy of
Resolution 82-53, as adopted
by the Air Resources Board

Harold Holmes, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 82-54

October 14, 1982

Agenda Item No.: 82-20-1

WHEREAS, Section 39602 of the Health and Safety Code designates the Air Resources Board (Board) as the air pollution control agency for all purposes set forth in federal law and designates the Board as the state agency responsible for the preparation of the State Implementation Plan (SIP) required by the federal Clean Air Act (42 USC 7401 et seq.);

WHEREAS, the Clean Air Act as amended in 1977 mandates the revision of the SIP for designated nonattainment areas of the state in order to assure the attainment and maintenance of national ambient air quality standards for ozone and carbon monoxide;

WHEREAS, for the San Diego, South Coast, and San Francisco Bay Area Air Basins and the Sacramento Metropolitan Nonattainment area, the lead agencies designated by the Board to develop the 1982 SIP revisions pursuant to the Clean Air Act have prepared or are preparing revisions to the SIP for their respective areas;

WHEREAS, these revisions to the SIP will be finalized in the near future by the designated lead agencies and submitted to the Board;

WHEREAS, Sections 40469 and 41650 of the Health and Safety Code specify that the Board shall adopt the nonattainment area plans as revisions to the State Implementation Plan after approval by the designated air quality planning agencies and upon determining that the revisions are adequate to comply with Clean Air Act requirements;

WHEREAS, the Board staff have reviewed the plans and have presented to the Board available information relating to the SIP revisions and the SIP development process;

WHEREAS, at a public meeting held October 14, 1982, the Board heard and considered information presented by staff and interested agencies and persons concerning the status and content of 1982 nonattainment plan revisions for the San Diego, South Coast, and San Francisco Bay Area Air Basins and the Sacramento Metropolitan Nonattainment area; and

WHEREAS, the Board recognizes that it is not feasible in some instances to attain ambient air quality standards by existing Clean Air Act deadlines despite the application of reasonably available emission reduction measures which are more effective than minimum requirements prescribed by the Environmental Protection Agency.

NOW, THEREFORE, BE IT RESOLVED that the Executive Officer is authorized to review and, upon approval, to adopt and submit to the Environmental Protection Agency the 1982 SIP revisions for the San Diego, South Coast, and San Francisco Bay Area Air Basins and the Sacramento Metropolitan Nonattainment area. In reviewing the SIP revisions, the Executive Officer shall give particular consideration to whether the revisions substantially conform to the following criteria:

a. The plan provides for application of the best available technical methodologies and supporting evidence for air quality assessment;

b. The plan contains all reasonably available control measures or contains adequate commitment to adopt all such control measures for reducing ozone and carbon monoxide levels;

c. The plan provides for implementation of all adopted control measures at the earliest feasible date;

d. The plan provides for attainment of federal ambient standards as expeditiously as practicable; and

e. The plan provides for further efforts to improve air quality by the revision or addition of control measures.

BE IT FURTHER RESOLVED that the Executive Officer shall bring to the Board for future consideration and appropriate action any 1982 SIP revision covered by this resolution which is approved by the designated air quality planning agency and which he finds does not meet the above requirements.

I certify that the above is a true and correct copy of Resolution 82-54, as adopted by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution No. 82-55

October 28, 1982

Agenda Item No.: 82-22-2

WHEREAS, Sections 39500 and 39605 of the Health and Safety Code authorize the Air Resources Board (the "Board") to coordinate, encourage, and review the efforts of all levels of government as they affect air quality and to provide assistance to the air pollution control districts;

WHEREAS, Health and Safety Code Sections 39002 and 40000 provide that local and regional authorities have primary responsibility for control of air pollution from stationary sources;

WHEREAS, Section 41700 of the Health and Safety Code prohibits the discharge from any source of quantities of air contaminants which cause injury to the public or which endanger the public health or safety;

WHEREAS, many Air Pollution Control Officers and the California Air Pollution Control Officers Association have requested guidance from the Board regarding the review of new and modified sources of toxic air contaminants;

WHEREAS, Board staff has proposed a policy for the review of new and modified sources of toxic air contaminants intended to reduce emissions and prevent endangerment of the public health and safety;

WHEREAS, public comments were solicited on the proposed policy and public workshops were held on June 18, 1982, September 1, 1982, and September 2, 1982;

WHEREAS, the California Environmental Quality Act and Board regulations require that action not be taken as proposed if feasible mitigation measures or alternatives exist which would substantially reduce any significant adverse environmental effects of the proposed action;

WHEREAS, a duly noticed public meeting has been held and the Board has reviewed and considered comments and information presented by staff, other agencies, industry, and members of the public;

WHEREAS, the Board finds that:

Significant quantities of toxic air contaminants may be released into the ambient air from new and modified sources;

The uncontrolled emissions of toxic air contaminants from new and modified sources could result in significant public exposure and endanger the public health;

There are currently no specific criteria or procedures for routinely considering and controlling emissions of toxic air contaminants from new or modified sources;

This lack of specific criteria or procedures has resulted in a lack of uniformity in reviewing new or modified sources of potentially toxic air pollutants, inconsistent control requirements for those sources, and in many cases has resulted in little or no control of toxic air contaminants from new or modified sources;

Requiring the use of toxics best available control technology, including the specification of design, equipment, maintenance or operational standards or conditions for new and modified sources of toxic air contaminants will greatly reduce or eliminate emissions from those sources and the resulting exposure of the public to many toxic substances;

The endorsement of a state policy for reviewing new and modified sources of toxic air contaminants will:

provide guidance to districts on criteria and procedures to be used for the review of new and modified sources of toxic air contaminants;

expedite the development of individual district programs for the review and control of new and modified sources of toxic air contaminants;

result in more consistent application of control requirements throughout the state for new and modified sources of toxic air contaminants;

result in reduced emissions and reduced public exposure to toxic air contaminants; and

provide increased protection of the public health;

Endorsement of the proposed policy will have a beneficial impact on air quality and on public health and safety and have no adverse environmental impacts.

NOW, THEREFORE, BE IT RESOLVED that the Board approves and endorses the proposed policy for review and control of new or modified sources of toxic air contaminants, as set forth in Attachment A, and directs the Executive Officer to transmit the policy to districts as policy guidance to assist districts in the development of individual programs for toxic air contaminants.

BE IT FURTHER RESOLVED that the Executive Officer is directed to work with the districts to encourage prompt implementation of the policy, to collect and distribute information relating to sources of toxic air contaminants and to identify methods of controlling such pollutants.

I hereby certify that the above is a true and correct copy of Resolution 82-55, as adopted by the Air Resources Board.

Harold Holmes
Board Secretary

NOV 0 4 1982

STATE OF CALIFORNIA
Air Resources Board

Attachment A to Resolution No. 82-55
Policy for Reviewing New or Modified Sources of
Toxic Air Contaminants

October 28, 1982

I. Purpose

The purpose of this policy is to provide a framework for the systematic review of new sources of toxic air contaminants which promotes increased protection of the public health by:

- minimizing through the application of Toxics Best Available Control Technology (TBACT) the emissions of toxic air contaminants from new and modified sources for which there is no safe level or threshold of adverse health effects; and by
- ensuring that the emissions from new and modified sources of toxic air contaminants for which there are threshold exposure levels below which no adverse health effect is anticipated, are at a level which ensures that the thresholds will not be reached or exceeded.

It is intended that this policy be used as guidance by local air pollution control districts for the evaluation and permitting of new and modified sources of toxic air contaminants.

II. Applicability

This policy applies to any new or modified stationary source (as defined in local district rules) within the state which will or may emit a toxic air contaminant for which no ambient air quality standard is applicable. This policy is not intended to apply to the application of pesticides regulated by the Department of Food and Agriculture.

III. Definition of Toxic Air Contaminant

For the purposes of this policy, "toxic air contaminant" means any air pollutant which has been identified by the State Board in accordance with the provisions of Subchapter 7, Title 17 California Administrative Code and which can cause or contribute to air pollution which may reasonably be anticipated to result in an increase in mortality or an increase in serious or incapacitating illness. This is not intended to preclude local districts from taking action to ensure compliance with all applicable provisions of law and regulations with respect to any air pollutant which has not been listed or is under consideration for listing as a toxic air contaminant.

IV. Classification of Toxic Air Contaminants

For the purposes of new source review, toxic air contaminants should be separated into two classes: Class A and Class B. Review procedures and the degree of control for new or modified sources should depend on the classification of the toxic air contaminant to be emitted.

Those toxic air contaminants for which adverse health effects have been demonstrated, and for which a safe level or a threshold of adverse health effect does not exist or has not been demonstrated, should be designated Class A. Toxic air contaminants for which adverse health effects have been demonstrated, and for which there is a demonstrable threshold exposure level below which no adverse health effects are anticipated, should be designated Class B. The threshold of adverse health effect should be considered to be the concentration and duration of exposure at which sensitive subgroups of the public may be affected.

V. Review Levels

Review levels for new and modified sources of toxic air contaminants

should be established at the emission levels which ensure that sources with the potential to cause or contribute to ambient levels in exceedance of a threshold of adverse health effect will be reviewed. For sources of Class A toxic air contaminants, the review level should be any emissions above zero. For sources of Class B toxic air contaminants, review levels should reflect the adverse health effect threshold of each Class B compound, and should ensure that sources with the potential to exceed those thresholds are reviewed.

VI. Information Requirements

As is the case with any new source, specific information may be needed about the new facility to make a decision regarding permit approval or disapproval. For sources of toxic air contaminants, information in addition to that routinely required may be needed in order to make an informed decision. The items listed below are examples of the kinds of additional information that may be necessary. Of course the size of the new source and/or toxic compound to be emitted will determine the amount of additional information needed. The list below is provided only as guidance and not meant to imply that every source should be required to supply this information.

a) the availability of alternative processes or substitute compounds of a non-toxic nature; and

b) an estimation of the existing ambient level of any Class B toxic air contaminant to be emitted; and an analysis of the stability, persistence, transformation products, dispersion potential, and other physical and chemical characteristics of those compounds;

c) the number of persons in the area impacted by the source's emissions, and projected population growth for that area;

d) any facility for sensitive subgroups located in the area impacted by the source's emissions, such as schools, hospitals, and convalescent homes; and

e) the availability of alternate sites within the district, the population and sensitive subgroups exposed at those sites, and projected population growth for those sites.

If such information cannot be provided by the applicant, it may be necessary for the district to seek other sources of such information including environmental impact reports or other public sources of information.

VII. Determination of Appropriate Controls

For all new and modified sources of toxic air contaminants subject to review, the next step of the permitting process is the determination of the appropriate level of control. This determination is to be made on a case-by-case basis, and should be based on the classification of the toxic air contaminant to be emitted, and on the particular characteristics of the source.

Class A Compounds:

Since by definition there is no safe level of Class A toxic air contaminants, the control objective should be to minimize public exposure in all cases, and to eliminate public exposure altogether whenever possible. Therefore, for these toxic air contaminants, emissions from the source shall be reduced through the use of Toxics Best Available Control Technology as defined in Subchapter 7, Title 17 California Administrative Code ("Toxics Best Available Control Technology" means reductions of emissions through the application of Best Available Control Technology (BACT) as defined in air pollution control district rules and regulations,

with the additional consideration for toxic air contaminants of the use of operational and maintenance conditions and limitations, closed system engineering, the use of materials that are not toxic air contaminants, taking into account the potency of the toxic compound and its persistence in the atmosphere). The determination of the appropriate level of control should be made on a case-by-case basis.

If there are emissions remaining after all control requirements have been applied, the source should be required to use any available offsets provided that the offsets are for the same toxic air contaminant, are at the same source, and share the same impact zone as the point of the new emissions. Investigation of alternate siting to reduce public exposure to substantial remaining emissions after control requirements have been determined could also be considered.

In those cases where all available controls have been applied and the remaining emissions of the Class A compound still, in the judgment of the permitting agency, constitute an endangerment to public health, the permit should be denied pursuant to Section 41700 of the Health and Safety Code.

Class B Compounds:

All new or modified sources of Class B toxic air contaminants should be required to utilize, at a minimum, the degree of control necessary to ensure that emissions from those sources do not result in ambient levels which reach or exceed the adverse health effect threshold for the Class B compound to be emitted. The degree of control necessary for Class B sources may vary, depending on the adverse health effect threshold of the compound in question and on the existing ambient level of that compound.

If, after all control requirements have been applied, remaining emissions will still result in the achievement or exceedance of an adverse health effect threshold, the source could be allowed to use any available offsets to reduce its emissions below the threshold - provided that the offsets are for the same Class B compound, are at the same source, and share the same impact zone as the point of the new emissions. In no case should sources of Class B toxic air contaminants be allowed to offset emissions prior to applying best available control technology.

If the proposed Class B source cannot reduce its emissions to a level which ensures that the adverse health effect threshold would not be reached or exceeded, the permit should be denied.

For new and modified sources of either Class A or Class B toxic air contaminants, districts may want to consider requiring post-construction ambient monitoring, continuous emission monitoring, or real-time reporting to gather information or to ensure protection of the public health. Monitoring requirements could vary depending on the size of the new source, and the type and quantity of toxic air contaminants emitted.

VIII. Emergency Plans

New and modified sources of toxic air contaminants with the potential to endanger public health in process upset or equipment breakdown conditions should be required to submit an emergency plan with the permit applications. In determining which sources should submit such plans, consideration should be given to:

a) the quantity of potential accidental emissions;

b) the potency of the toxic air contaminants in question; and

c) the probable duration of the process upset or equipment breakdown conditions.

All emergency plans required should provide for the reduction of emissions to the maximum extent feasible during emergency conditions, including shutdown of the source unless continuous operation while under repair would result in fewer emissions, and for the notification of the appropriate responsible agencies during an emergency.

IX. Opportunity for Public Comment

The public should be provided a 30-day period to review and comment on any permit decision for a source of toxic air contaminants subject to review. When appropriate, a public hearing should also be held.

X. Interagency Coordination

State and local agencies which exercise jurisdiction over resources which may be affected by the source or which possess special expertise in the area of toxic substance control should be consulted during the permit review process for sources of toxic air contaminants. Such agencies include: the Water Resouces Control Board, the Solid Waste Management Board, the Department of Health Services, local health departments, and local planning agencies. Agencies that share permitting jurisdiction over proposed sources should also be consulted prior to issuance of permits for those sources. Agencies with shared jurisdiction are: the California Energy Commission, for power plant siting; and the Department of Health Services, for facilities that handle hazardous waste.

XI. Emission Reduction Credits

All emissions trading including banking, offsetting prior to review, and netting should not be allowed in the permitting of new and modified sources of toxic air contaminants.

XII. Additional Considerations

Sources currently exempt from review: Permitting provisions that

currently exempt source categories from review, should be reviewed and revised as necesary to ensure that no sources are exempt from review which may emit toxic air contaminants and may therefore constitute an endangerment to the public health, safety or repose as prohibited by Section 41700 of the Health and Safety Code.

Variances: Section 42353 of the Health and Safety Code prohibits districts from granting variances to sources which endanger the public health or safety as protected by Section 41700. Therefore, no variances should be granted to permitted sources of toxic air contaminants which would allow those sources to exceed the permitted emission levels.

Precursors: Precursor relationships have been identified for primary pollutants that react with other pollutants to form secondary pollutants. There also are pollutants which when emitted react with other pollutants in the atmosphere to form toxic air pollutants. The precursor relationships are currently recognized in district new source siting rules for criteria pollutants. Similarly, new and modified sources that emit compounds which have been identified as precursors to toxic air contaminant should be reviewed on a case-by-case basis, and should be required to apply any controls necessary to ensure protection of the public health. The requirements imposed should not be more stringent than those recommended for the toxic air contaminant to which the precursor is related, but should be equivalent if, in the judgment of the district, that degree of control is necessary to protect the public health.

Synergistic, additive, and cumulative effects: When reviewing new and modified sources of toxic air contaminants, consideration should be given to the possibility of synergistic or additive effects with other pollutants, or to any cumulative effects that may result from the increased emissions of the toxic air contaminant in question.

State of California
AIR RESOURCES BOARD

Resolution 82-56

October 14, 1982

Agenda Item No.: 82-20-1

WHEREAS, pursuant to Sections 39002, 39003, 39500, 39600, 39601, and Part 5, Division 26, of the Health and Safety Code, the Air Resources Board (Board) is authorized and directed to control motor vehicle emissions in California;

WHEREAS, existing regulations concerning control of emissions from motor vehicles are contained in Title 13, California Administrative Code;

WHEREAS, the emissions standards applicable to motor vehicles apply throughout the vehicle's useful life;

WHEREAS, the standards, rules, and regulations adopted by the Board have resulted in significant reductions in in-use emission levels of motor vehicles;

WHEREAS, despite the reductions in emission levels achieved, motor vehicles in-use emit at levels in excess of applicable emission standards;

WHEREAS, the draft implementation plan for the South Coast Air Basin indicates the need for additional reductions in emissions from all sources if the National Ambient Air Quality Standards are to be attained; and

WHEREAS, the Board finds that:

There are excess emissions from regulated motor vehicles that are attributable to manufacturer deficiencies in design;

There are excess emissions from regulated motor vehicles that are attributable to improper vehicle maintenance and care;

There are available methods of controlling and reducing excess emissions caused by both manufacturers and owner practices;

There are currently unregulated mobile sources of emissions for which emission reductions may be both feasible and practicable; and

There are potential air quality benefits that could result from encouraging the development and use in motor vehicles of certain alternative fuels and power sources.

NOW, THEREFORE, BE IT RESOLVED that the staff is directed to:

1. Prepare a staff report documenting the need for and benefits of a revised motor vehicle emission control program as set forth in Attachment A, and submit that report to the Environmental Protection Agency as part of the long-range strategy for the implementation plan of the South Coast Air Basin;

2. Increase emphasis in the emissions control program on the reduction of in-use emissions to levels which comply with applicable emission standards;

3. Examine the feasibility of further reducing new vehicle emission standards from those classes of vehicles that contribute substantially to violation of ambient air quality standards;

4. Establish cost-effective regulations for reducing emissions from unregulated mobile sources; and

5. Work cooperatively with experts outside the Board to encourage the development of alternative fuels and power sources whose use will contribute to lower emissions from mobile sources.

I certify that the above is a true and correct copy of Resolution 82-56 as adopted by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

ATTACHMENT A TO RESOLUTION 82-56

MEASURE	DESCRIPTION	PROJECTED IMPLEMENTATION
MS-1	NEW OFF-ROAD HD NON-FARM EQUIPMENT	1987
MS-2	NEW FARM EQUIPMENT	1987
MS-3	LAWN AND GARDEN EQUIPMENT (UTILITY)	1987
MS-4	OFF-ROAD MOTORCYCLES	1987
MS-5	PLEASURE CRAFT (BOATS)	1987
MS-6	ANTI-TAMPERING REGULATIONS	1982
MS-7	STRICTER EMISSION STANDARDS	1986
MS-8	WARRANTY ENFORCEMENT & RECALL REGULATIONS	1987
MS-9*	INSPECTION & MAINTENANCE HDV & MC	1984
MS-10*	INSPECTION & MAINTENANCE LDV & MDV	1984
MS-11	FAIL-SAFE 3-WAY CATALYST REGULATIONS	1985
MS-12	100,000 MILE CERTIFICATION	1986
MS-13	ANTI-TAMPERING REGULATIONS LDV & MDV	1985
MS-14	ALTERNATIVE TECHNOLOGIES/FUELS	1987

*BIENNIAL 1984; ANNUAL 1987

State of California
AIR RESOURCES BOARD

Resolution 82-57

October 28, 1982

Agenda Item No. 82-23-2b1

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 1162-95 entitled "Formation and Fate of Toxic Chemicals in California's Atmosphere", has been submitted by The Statewide Air Pollution Research Center, 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 1162-95 entitled "Formation and Fate of Toxic Chemicals in California's Atmosphere", submitted by The Statewide Air Pollution Research Center, University of California, Riverside, for a total amount not to exceed $195,104;

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 1162-95 entitled "Formation and Fate of Toxic Chemicals in California's Atmosphere", submitted by The Statewide Air Pollution Research Center, University of California, Riverside, for a total amount not to exceed $195,104.

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $195,104.

I certify that the above is a true and correct copy of Resolution 82-57 as passed by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

State of California
AIR RESOURCES BOARD

ITEM NO.: 82-23-2b1
DATE: October 28, 1982

ITEM: Research Proposal No. 1162-95 entitled "Formation and Fate of Toxic Chemicals in California's Atmosphere"

RECOMMENDATION: Adopt Resolution 82-57 approving Research Proposal No. 1162-95 for funding in an amount not to exceed $195,104.

SUMMARY: At the present time, a multitude of reactive and/or toxic organic compounds are in use and are being emitted into the atmosphere during manufacture, as a result of use, or after being discarded into toxic waste dumps. In order to assess the present and future health effects of these compounds, detailed information is needed as to their atmospheric lifetimes, decomposition intermediates and ultimate fates. This research project consists of a three-element program to study the photolysis of selected reactive organic compounds in polluted air.

The first element involves a detailed study of specific halogenated compounds, including vinyl chloride, a known carcinogen, and trichloroethane and tetrachloroethane, widely used solvents which are known or suspected carcinogens.

Elements 2 and 3 are concerned with photolytic decomposition of the higher alkanes, which are the principal components of diesel fuel, and of aromatic hydrocarbons, which are important components in unleaded gasoline. Because both diesel fuel and unleaded gasoline are used in large quantities throughout the state it is important to clearly understand the photochemical decomposition mechanisms. Accurate kinetic data concerning their chemical reactions in the atmosphere are needed so that their impact on air quality can be accurately assessed by photochemical modeling. This study will, in combination with an ARB project currently in progress at SAPRC, provide information for an assessment of the potential health risk due to atmospheric formation of organic nitrates from commercial fuels.

State of California

Memorandum

To : Mary D. Nichols, Chairwoman
Laurence S. Caretto, Ph.D., Vice-Chairman
Alvin F. Gordon, Ph.D.
Sam T. Chapman
James G. Leathers
Alfred McCandless
Gary A. Patton

Date : October 28, 1982

Subject : Mail Ballot

From : Air Resources Board

John R. Holmes, Ph.D.
Chief, Research Division

Attached are 4 yes votes. That is all we needed for unanimous vote.

At its October 26, 1982 meeting, the Research Screening Committee reviewed and recommended six proposals for funding. These were:

1. "Formation and Fate of Toxic Chemicals in California's Atmosphere", by Statewide Air Pollution Research Center, University of California, Riverside, $195,104;

2. "Maintenance and Operation of California Air Resources Board Field Fumigation Facility for Experimental Use", by University of California, Riverside, $60,297;

3. "Effects of Ozone and Sulfur Dioxide on Crop Physiology and Productivity", by University of California, Davis, $129,698;

4. "Quantitative Assessment of the Effects of Not Controlling Air Pollution in California", by Energy Resources Consultants, $172,941;

5. "The Application of Climatological Analysis to Minimize Air Pollution Impacts in California", by Meteorology Research, Inc., $84,606; and

6. "Assessment of Air Pollution Material Damage and Soiling in the South Coast Air Basin", by TRC Environmental Consultants, $95,759.

Because of the time constraints during the hearings on the toxics policy and motorcycle emission standards, we were unable to present these proposals to the Board for your consideration. Because another "freeze" appears to be in the offing, it is important to begin immediately to move these contracts through the appropriate State agencies for their approval. Accordingly, I would appreciate very much your reviewing the attached summaries and associated resolutions as soon as possible.

Please record your vote on the attached ballot, sign it and return it to us as soon as possible. In addition, I should appreciate your telephoning Laura Kinney collect at (916) 323-1524 to inform her of your decision so she can prepare the necessary documents and transmit the contracts as soon as the Board reaches a decision.

If you have questions regarding any of these projects or require further information, please feel free to call me at (916) 445-0753. Thank you very much for your assistance in this matter.

Attachments

cc: James D. Boyd

AIR RESOURCES BOARD BALLOT

1. "Formation and Fate of Toxic Chemicals in California's Atmosphere"

[X] Approved [ ] Disapproved

2. "Maintenance and Operation of California Air Resources Board Field Fumigation Facility for Experimental Use"

[X] Approved [ ] Disapproved

3. "Effects of Ozone and Sulfur Dioxide on Crop Physiology and Productivity"

[X] Approved [ ] Disapproved

4. "Quantitative Assessment of the Effects of Not Controlling Air Pollution in California"

[X] Approved [ ] Disapproved

5. "The Application of Climatological Analysis to Minimize Air Pollution Impacts in California"

[X] Approved [ ] Disapproved

6. "Assessment of Air Pollution Material Damage and Soiling in the South Coast Air Basin"

[X] Approved [ ] Disapproved

Mary D. Nichols
Signature

Nov. 3, 1982
Date

AIR RESOURCES BOARD BALLOT

1. "Formation and Fate of Toxic Chemicals in California's Atmosphere"

   ☑ Approved ☐ Disapproved

2. "Maintenance and Operation of California Air Resources Board Field Fumigation Facility for Experimental Use"

   ☑ Approved ☐ Disapproved

3. "Effects of Ozone and Sulfur Dioxide on Crop Physiology and Productivity"

   ☑ Approved ☐ Disapproved

4. "Quantitative Assessment of the Effects of Not Controlling Air Pollution in California"

   ☑ Approved ☐ Disapproved

5. "The Application of Climatological Analysis to Minimize Air Pollution Impacts in California"

   ☑ Approved ☐ Disapproved

6. "Assessment of Air Pollution Material Damage and Soiling in the South Coast Air Basin"

   ☑ Approved ☐ Disapproved

L. L. Cadle

Signature

11/2/82

Date

AIR RESOURCES BOARD BALLOT

1. "Formation and Fate of Toxic Chemicals in California's Atmosphere"

   ☑ Approved ☐ Disapproved

2. "Maintenance and Operation of California Air Resources Board Field Fumigation Facility for Experimental Use"

   ☑ Approved ☐ Disapproved

3. "Effects of Ozone and Sulfur Dioxide on Crop Physiology and Productivity"

   ☑ Approved ☐ Disapproved

4. "Quantitative Assessment of the Effects of Not Controlling Air Pollution in California"

   ☑ Approved ☐ Disapproved

5. "The Application of Climatological Analysis to Minimize Air Pollution Impacts in California"

   ☑ Approved ☐ Disapproved

6. "Assessment of Air Pollution Material Damage and Soiling in the South Coast Air Basin"

   ☑ Approved ☐ Disapproved

G. M. Gordon
Signature

Nov. 1, 1982
Date

AIR RESOURCES BOARD BALLOT

1. "Formation and Fate of Toxic Chemicals in California's Atmosphere"

   [X] Approved [ ] Disapproved

2. "Maintenance and Operation of California Air Resources Board Field Fumigation Facility for Experimental Use"

   [X] Approved [ ] Disapproved

3. "Effects of Ozone and Sulfur Dioxide on Crop Physiology and Productivity"

   [X] Approved [ ] Disapproved

4. "Quantitative Assessment of the Effects of Not Controlling Air Pollution in California"

   [X] Approved [ ] Disapproved

5. "The Application of Climatological Analysis to Minimize Air Pollution Impacts in California"

   [X] Approved [ ] Disapproved

6. "Assessment of Air Pollution Material Damage and Soiling in the South Coast Air Basin"

   [X] Approved [ ] Disapproved

Signature

11/5/82
Date

State of California
AIR RESOURCES BOARD

Resolution 82-58

October 28, 1982

Agenda Item No. 82-23-2b2

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 1181-97 entitled: "Maintenance and Operation of California Air Resources Board Field Fumigation Facility for Experimental Use", 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 1181-97 entitled "Maintenance and Operation of California Air Resources Board Field Fumigation Facility for Experimental Use", submitted by the University of California, Riverside, for an amount not to exceed $60,297;

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 1181-97 entitled "Maintenance and Operation of California Air Resources Board Field Fumigation Facility for Experimental Use", submitted by the University of California, Riverside, for an amount not exceed $60,297.

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate adminstrative procedures and execute all necessary documents and contracts for the research effort proposed in an amount not to exceed $60,297.

I certify that the above is a true and correct copy of Resolution 82-58 as passed by the Air Resources Board.

Harold Holmes, Board Secretary

State of California
AIR RESOURCES BOARD

ITEM NO: 82-23-2b2
DATE: October 28, 1982

ITEM: Research Proposal No. 1181-97 entitled "Maintenance and Operation of California Air Resources Board Field Fumigation Facility for Experimental Use".

RECOMMENDATION Adopt Resolution 82-58 approving Research Proposal No. 1181-97 for funding in an amount not to exceed $60,297.

SUMMARY: Air pollution damage to the state's crops, native plants and ornamental plants is a continuing concern of the Air Resources Board. To address this concern, the ARB contracted with the proponent and the Statewide Air Pollution Research Center to construct, operate and maintain 20 plant fumigation chambers at U.C. Riverside during 1981. The proponent has constructed and operated an excellent facility for studying air pollution effects on plants since that time. It has been used continuously since that time to study various tree and agricultural crops.

Past experience has demonstrated the need for competent technical people to maintain and operate the chambers for investigators who may not be familiar with the complex aspects of fumigation systems and air pollutant measurement. This proposal will continue the operation and maintenance of the chamber facility for investigators during 1983.

The proponent will provide day-to-day operation and/or supervision of the fumigation facility for investigators using the chambers to determine the effects of air pollution on plants. The ozone and sulfur dioxide analyzers as well as the gas dispensing system will be maintained and calibrated regularly. Dust and charcoal filters will be checked and replaced as necessary. The plastic walls of the fumigation chambers will be cleaned, repaired or replaced as necessary.

To help insure quality research, it is necessary to retain someone with technical expertise to operate the fumigation facility for plant scientists unfamiliar with the chambers.

State of California
AIR RESOURCES BOARD

Resolution 82-59

October 28, 1982

Agenda Item No. 82-23-2b3

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 1182-97 entitled "Effects of Ozone and Sulfur Dioxide on Crop Physiology and Productivity", has been submitted by the University of California, Davis, 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 1182-97 entitled "Effects of Ozone and Sulfur Dioxide on Crop Physiology and Productivity", submitted by the University of California, Davis, for an amount not to exceed $129,698;

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 1182-97 entitled "Effects of Ozone and Sulfur Dioxide on Crop Physiology and Productivity", submitted by the University of California, Davis, for an amount not exceed $129,698.

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate adminstrative procedures and execute all necessary documents and contracts for the research effort proposed in an amount not to exceed $129,698.

I certify that the above is a true and correct copy of Resolution 82-59 as passed by the Air Resources Board.

Harold Holmes, Board Secretary

State of California
AIR RESOURCES BOARD

ITEM NO: 82-23-2b3
DATE: October 28, 1982

ITEM: Research Proposal No. 1182-97 entitled "Effects of Ozone and Sulfur Dioxide on Crop Physiology and Productivity".

RECOMMENDATION Adopt Resolution 82-59 approving Research Proposal No. 1182-97 for funding in an amount not to exceed $129,698.

SUMMARY: Much of the work that makes up our current understanding of how air pollution affects plants is derived from the study of rather simple end points such as visible foliar injury or the reduction in the overall weight of plant material at the end of the growing season. More recently, we and others, have tried to consider more subtle factors like protein or carbohydrate content. This proposal would attempt to identify plant cultivars sensitive to ozone or SO_2 through the measurement of selected physiological responses and correlate these responses with plant productivity and yield. This is the third year of a projected three year study.

The proposal is in two parts, each part to be guided by a different investigator. The first part of the proposal is a study of the feasibility of using leaf water potential, stomatal conductance and ion leakage from cell membranes to identify ozone- and SO_2-sensitive bean cultivars under controlled environment conditions. The bean cultivars would also be grown and exposed to ozone field fumigation chambers and the yield correlated with the physiological measurements. This research could lead to a method that would quickly identify sensitive cultivars through a simple physiological measurement that correlated well with the effect of air pollution on yield without testing the cultivar under field conditions. The second part of the proposal will investigate the effect of ozone and water stress on nutrient uptake and yield of beans. Plants will be exposed to .08 ppm ozone every day, 5 hours per day throughout the life cycle of the plants. Plants will be grown under either optimum moisture conditions or water stress to determine what effect water stress has on the plants' response to ozone. Nutrient uptake and composition of phosphorous, potassium and nitrate will be assessed to determine the adverse effects ozone may have on the nutrient status of beans at pre-bloom, bloom and post-bloom stage. Fresh and dry weight of the plants at each stage will also be correlated with nutrient status.

State of California
AIR RESOURCES BOARD

Resolution 82-60

October 28, 1982

Agenda Item No. 82-23-2b4

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 1177-97 entitled "Quantitative Assessment of the Effects of Not Controlling Air Pollution In California ", has been submitted by Energy Resources Consultants, Inc. to the Air Resources Board, 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 1177-97 entitled "Quantitative Assessment of the Effects of Not Controlling Air Pollution", submitted by Energy Resources Consultants, Inc., for a total amount not to exceed $172,941;

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 1177-97 entitled "Quantitative Assessment of the Effects of Not Controlling Air Pollution in California", submitted by Energy Resources Consultants, Inc., for a total amount not to exceed $172,941.

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $172,941.

I certify that the above is a true and correct copy of Resolution 82-60 as passed by the Air Resources Board.

Harold Holmes, Board Secretary

State of California
AIR RESOURCES BOARD

ITEM NO.: 82-23-2b4
DATE: October 28, 1982

ITEM: Research Proposal No. 1177-97 entitled "Quantitative Assessment of the Effects of Not Controlling Air Pollution in California"

RECOMMENDATION: Adopt Resolution 82-60 approving Research Proposal No. 1177-97 for funding in an amount not to exceed $172,941.

SUMMARY: As prescribed in the Clean Air Act, primary federal standards are to be achieved by 1982 or 1987; State standards and secondary federal standards require reasonable efforts towards attainment and maintenance. Evaluating the effectiveness of past efforts and maximizing the effectiveness of current efforts to improve air quality is a major concern to government, industry, and to the general public. However, such examination is limited by a lack of detailed information as to the current and future air quality effects and benefits of controlling air pollution.

The purpose of this project is to assess the air quality effects and the specific economic costs if air pollution controls were reduced or eliminated in 1979 and in 1987, years for which detailed emission inventory estimates or projections are available or can be estimated. Ambient pollution levels shall be projected to 1987, and air pollution effects shall be evaluated for each of three emission control scenarios: 1) no emission controls, 2) curtailed emission controls, and 3) implementation of planned emission controls. An identical analysis shall be performed for 1979, but only under scenario (1).

This project consists of four main tasks: 1) estimation of annual average and maximum daily emission rates, 2) estimation of ambient pollution levels and comparison with State and federal ambient air quality standards, 3) comprehensive identification and quantification to the maximum extent possible of the various types of air pollution-induced damage, and 4) monetary evaluation of the pollution damage (in constant dollars) for each of emission control scenarios.

State of California
AIR RESOURCES BOARD

Resolution 82-61

October 28, 1982

Agenda Item No. 82-23-2b5

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 1167-96 entitled "The Application of Climatological Analysis to Minimize Air Pollution Impacts in California", has been submitted by Meteorology Research, Inc. to the Air Resources Board; 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 1167-96 entitled "The Application of Climatological Analysis to Minimize Air Pollution Impacts in California", submitted by Meteorology Research, Inc., for a total amount not to exceed $84,606;

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 1167-96 entitled "The Application of Climatological Analysis to Minimize Air Pollution Impacts in California", submitted by Meteorology Research, Inc., for a total amount not to exceed $84,606.

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $84,606.

I certify that the above is a true and correct copy of Resolution 82-61 as passed by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

State of California
AIR RESOURCES BOARD

ITEM NO.: 82-23-2b5
DATE: October 28, 1982

ITEM: Research Proposal No.1167-96 entitled "The Application of Climatological Analysis to Minimize Air Pollution Impacts in California"

RECOMMENDATION: Adopt Resolution 82-61 approving Research Proposal No. 1167-96 for funding in an amount not to exceed $84,606.

SUMMARY: The air quality effects of emissions in various regions of California are influenced by the relatively large variability of geographical and climatological factors within the state. Detailed studies to improve emission inventories have received major funding from both the Air Resources Board and local air pollution control districts. However, relatively little attention has been given to understanding and documenting the large geographical variations in air quality which are due to differences in air pollution climatology.

The objective of this research project is to develop, through literature review and through statistical and meteorological analyses, a detailed air pollution climatology for California.

Tasks 1 and 2 of this study are a detailed literature review and analysis of available climatological data and information, including analysis of the influence of climatology on air quality.

Tasks 3 and 4 will be the determination and graphical presentation of climatological pollution potential throughout California with respect to both primary, i.e., directly-emitted, pollutants and for secondary pollutants, such as ozone, which are formed in the atmosphere from gaseous pollutant precursors. Pollution potential will be calculated separately for ground-based and elevated emissions, and multi-day episodes will be considered explicitly. In addition, long-range transport patterns including interbasin transport patterns will be determined and documented on the basis of both climatological data and tracer studies.

Task 5 will provide for the determination and characterization of critical emission source areas. Such areas shall be determined on the basis of relative contribution of potential emissions to: 1) air quality

which now violates ambient air quality standards, 2) sensitive areas with respect to population density 3) sensitive areas with respect to potential for direct crop damage or potential for damage to surface waters or soil as a result of acid-deposition, and 4) sensitive areas with respect to visibility protection.

The geographical scope of this study shall include all of California as well as California Coastal Waters, as has been defined by the Board.

State of California
AIR RESOURCES BOARD

Resolution 82-62

October 28, 1982

Agenda Item No. 82-23-2b6

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 1180-97 entitled "Assessment of Air Pollution Material Damage and Soiling in the South Coast Air Basin", has been submitted by TRC Environmental Consultants to the Air Resources Board, 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 1180-97 entitled "Assessment of Air Pollution Material Damage and Soiling in the South Coast Air Basin", submitted by TRC Environmental Consultants, for a total amount not to exceed $95,759;

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 1180-97 entitled "Assessment of Air Pollution Material Damage and Soiling in the South Coast Air Basin", submitted by TRC Environmental Consultants, for a total amount not to exceed $95,759.

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $95,759.

I certify that the above is a true and correct copy of Resolution 82-62 as passed by the Air Resources Board.

Harold Holmes, Board Secretary

State of California
AIR RESOURCES BOARD

ITEM NO.: 82-23-2b6
DATE: October 28, 1982

ITEM: Research Proposal No. 1180-97 entitled "Assessment of Air Pollution Material Damage and Soiling in the South Coast Air Basin"

RECOMMENDATION: Adopt Resolution 82-62 approving Research Proposal No. 1180-97 for funding in an amount not to exceed $95,759

SUMMARY: Studies have shown that air pollution accelerates the corrosion and soiling of steel, zinc, masonry, painted surfaces and other materials; these effects place an economic burden on California. Accurate estimates of the costs of soiling and air pollution damage to materials (and the benefits of avoiding such damage) are difficult to obtain. The objective of this study is to provide a methodology for and an estimate of the annual cost of materials damage due to air pollution in the South Coast Air Basin (SCAB) for the period 1978-80. In order to determine the costs associated with the exposure of materials to ambient pollution levels, the contractor will carry out the following tasks: 1) identify materials and products susceptible to damage in the South Coast Air Basin; 2) review the damage literature and recommend the most reliable damage functions; 3) determine the amount and location of exposed materials in the South Coast Air Basin; 4) estimate the physical damage occurring in the South Coast Air Basin; and 5) estimate the aggregate monetary loss resulting from materials damage in 1980.

State of California
AIR RESOURCES BOARD

Resolution 82-63

December 9, 1982

Agenda Item No.: 82-24-4
82-28-1

WHEREAS, Health and Safety Code Section 39601 requires the Air Resources Board (the "Board") to adopt rules and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the state board;

WHEREAS, Health and Safety Code Section 39606(b) requires the Board to adopt standards of ambient air quality for the protection of the public health, safety and welfare, including but not limited to health, illness, irritation to the senses, aesthetic value, interference with visibility, and effects on the economy;

WHEREAS, Health and Safety Code Section 39606(b) provides that standards relating to health effects shall be based upon the recommendation of the State Department of Health Services;

WHEREAS, the current statewide ambient air quality standards for particulate matter of 100 ug/m^3 (24-hour average) and 60 ug/m^3 (annual geometric mean), set forth in Title 17, California Administrative Code, Section 70200, apply to all suspended particles regardless of size;

WHEREAS, the Board staff has proposed that air pollution control efforts be redirected to focus on the health-related size range of particulate matter, and that the current standards for particulate matter be redefined to apply only to "inhalable" particles, i.e., those particles less than 10 micrometers aerodynamic diameter (PM_{10});

WHEREAS, the Board has received and considered a recommendation from the Department of Health Services, dated October 15, 1982, for PM_{10} standards of 50 ug/m^3 24-hour average and 30 ug/m^3 annual geometric mean;

WHEREAS, the Board has held a duly-noticed public hearing at which it has received and considered a substantial body of evidence, both written and oral, presented to it by staff, other scientists, industry representatives, and other members of the public relating to the proposed amendment of the standard;

WHEREAS, the California Environmental Quality Act and Board regulations require that action not be taken as proposed if feasible mitigation measures or alternatives exist which would substantially reduce any significant adverse environmental effects of the proposed action; and

WHEREAS, the Board finds that:

The current ambient air quality standards for total suspended particulate matter are not related precisely to adverse health effects because they include a substantial and variable fraction of particles larger in size than is considered "inhalable" by humans;

Laboratory studies in both animals and humans demonstrate that inhaled particulate matter impairs lung function. Inhaled particulate matter can increase airway resistance and result in increased mortality in laboratory animals;

Human epidemiological studies demonstrate that exposure to inhalable particulate matter is associated with adverse health effects including increased risk of asthma attack, reduced pulmonary function in children, increased risk of respiratory illness in children, worsening condition in bronchitis patients, and increased mortality;

It is not now possible to identify precisely the level at which these adverse health effects occur and below which they do not occur in all segments of the population. Evidence shows increased mortality associated with concentrations of PM_{10} of 60 ug/m^3 and suggests adverse health effects at levels of 41 ug/m^3 or below;

A standard for particulate matter which specificially addresses the inhalable fraction of total suspended particles will provide greater protection to the public health than the present standard, which applies to all particles regardless of size. Morever, such a standard will ensure that control efforts will be directed to address inhalable particles;

A 24-hour standard of 50 ug/m^3 PM_{10} and of a 30 ug/m^3 PM_{10} annual geometric mean are necessary to protect the public health from both acute and chronic health effects;

The PM_{10} standards set forth above are reasonably equivalent to the current standards for total particulate matter of 100 ug/m^3 (24 hours) and 60 ug/m^3 (annual geometric mean) and are an expression of the current standards in a form more relevant to human health;

The availability of improved methods of measurement affords the opportunity to express a standard for inhalable particles;

Proven sampling methods, for example the dichotomous sampler and the high-volume sampler with size-selective inlet, for monitoring attainment of a thoracic (i.e., less than 10 micrometers aerodynamic diameter) particle standard with a 50 percent cut point at 10 micrometers aerodynamic diameter are available;

The U.S. Environmental Protection Agency is also establishing performance criteria for sampling methods for thoracic particle monitoring;

Natural sources of inhalable particles fall into two categories, controllable and uncontrollable, and natural sources which are uncontrollable may cause or contribute to exceedances of the 24-hour standard for PM_{10};

Both natural and anthropogenic sources contribute to ambient levels of inhalable suspended particles and particles of less than 10 micrometers aerodynamic diameter, regardless of origin in excess of the PM_{10} standards, are injurious to the public health;

The annual geometric mean standard for PM_{10} recommended by the Department of Health Services is an appropriate precautionary standard to protect the public health; and

The standards adopted by this resolution will have a beneficial effect on air quality and will have no adverse environmental impacts.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves amendment of the regulations contained in Title 17, California Administrative Code, as set forth in Attachment A and directs the Executive Officer to adopt such amendments, and any other necessary conforming changes, after making them available to the public for at least fifteen days. It is the intent of the Board that the 24-hour PM_{10} standard and the annual PM_{10} standard be severable, and the validity or invalidity of one have no legal effect on the other.

BE IT FURTHER RESOLVED that the Board directs the staff to establish performance criteria for sampling equipment to collect suspended particulate matter 10 micrometers or less in aerodynamic diameter which shall be, to the maximum extent feasible, identical to the criteria established by the U.S. Environmental Protection Agency.

BE IT FURTHER RESOLVED that the Board directs the staff, in cooperation with the state's Air Monitoring Technical Advisory Committee and local districts, to determine PM_{10} levels in each of the state's air basins through a network of approved samplers. It is the intent of the Board that the most cost-effective means possible be utilized, including the modification of existing equipment and the use of available federal funds subsequent to EPA adoption of a PM_{10} standard.

BE IT FURTHER RESOLVED that the Board directs the staff, in cooperation with the local districts and the Air Monitoring Technical Advisory Committee, to develop uniform procedures for determining the relative contributions of emissions from "natural and uncontrollable" as opposed to "controllable" (both natural and anthropogenic) sources of PM_{10} and that the ARB staff and the districts shall consider such contributions to total PM_{10} concentrations when determining attainment and developing control strategies and specific control measures.

PROPOSED AMENDMENT TO TITLE 17, CALIFORNIA ADMINISTRATIVE CODE

Amend Section 70100(j), Title 17, California Administrative Code, to read as follows:

70100. Definitions.

(j) Suspended Particulate Matter. Suspended particulate matter refers to atmospheric particles, sold and liquid, except uncombined water. Atmospheric suspended particulate matter is to be measured by the high volume sampler method or by an equivalent method for purposes of determining total suspended particulate and by a PM_{10} sampler for purposes of monitoring for compliance with the Suspended Particulate Matter standard (PM_{10}).

Amend Section 70200, Title 17, California Administrative Code, to read as follows:

70200. Table of Standards, Applicable Statewide.

Substance	Concentration and Methods*	Duration of Averaging Periods	Most Relevant Effects	Comments
Oxidant (as ozone)	0.10 ppm ultraviolet photometry	1 hour	Aggravation of respiratory diseases	This level is below that associated with aggravation of respiratory diseases.
Carbon Monoxide	10 ppm NDIR	12 hours	2-2 1/2% COHb	This level is below those associated with impairment in time discrimination, visual function, and psychomotor performance.
	40 ppm NDIR	1 hour	2-2 1/2% COHb	
Carbon Monoxide (Applicable only in the Lake Tahoe Air Basin)	6 ppm NDIR	8 hours	Will increase COHb by 1-1 1/2%	At altitude the lowered oxygen tension leads to greater absorption of CO. Persons participating in strenuous recreational activities at higher altitudes are often unacclimated.
Sulfur Dioxide (SO_2)	0.5 ppm conductimetric method	1 hour	a. Approximate odor threshold. b. Possible alteration in lung function.	Alteration in lung function was found at this level in only one study. Other studies reported higher concentrations to cause this effect.
	0.05 ppm conductimetric method with oxidant, (ozone) equal to or greater than the state standard, or with suspended particulate matter equal to or greater than the state 24-hour suspended particulate matter standard.****	24 hours	a. Will help prevent respiratory disease in children b. Higher concentrations associated with excess mortality.	a. Further studies on cocarcinogenic role are necessary. b. Does not include effects on vegetation, ecosystems and materials. c. May not include a margin of safety.
Visibility Reducing Particles	In sufficient amount to reduce visibility*** to less than 10 miles when relative humidity is less than 70%	1 observation	Visibility impairment on days when relative humidity is less than 70%.	
Visibility Reducing Particles (Applicable only in Lake Tahoe Air Basin)	In sufficient amount to reduce the prevailing visibility*** to less than 30 miles when relative humidity is less than 70%	1 observation	Reduction in scenic quality on days when the relative humidity is less than 70%	

Suspended Particulate Matter (PM10)	~~60 µg/m3 high volume sampling~~	~~24 hour samples, annual geometric mean~~	~~Long continued exposure may be associated with increase in chronic respiratory disease.~~	~~This standard applies to suspended particulate matter in general. It is not intended to be a standard for toxic particles such as asbestos, lead, or beryllium. Because size distribution influences the effect of particulate matter on health, the standard will be reevaluated as data on health effects related to size distribution become available.~~
	~~100 µg/m3 high volume~~	~~24 hour sample~~	~~Exposure with SO2 may produce acute illness.~~	
	50 µg/m3 PM10**	24 hour sample	Prevention of excess deaths from short-term exposures and of exacerbation of symptoms in sensitive patients with respiratory disease. Prevention of excess seasonal declines in pulmonary function, especially in children.	This standard applies to suspended matter as measured by PM10 sampler, which collects 50% of all particles of 10 µm aerodynamic diameter and collects a declining fraction of particles as their diameter increases, reflecting the characteristic of lung deposition.
	30 µg/m3 PM10**	24 hour samples, annual geometric mean		
Lead (Particulate)	1.5 µg/m3 AIHL Method No. 54, or equivalent	30 day average	Increased body burden, impairment of blood formation and nerve conduction	
Hydrogen Sulfide	0.03 ppm cadmium hydroxide STRactan Method	1 hour	Exceeds the odor threshold	
Nitrogen Dioxide	0.25 ppm, Saltzman	1 hour	a. At slightly higher dosage effects are observed in experimental animals, which imply a risk to the public health. b. Produces atmospheric discoloration.	
Sulfates	25 µg/m3 total sulfates, AIHL #61	24 hours	a. Decrease in ventilatory function b. Aggravation of asthmatic symptoms c. Aggravation of cardiopulmonary disease d. Vegetation damage e. Degradation of visibility f. Property damage	This standard is based on a Critical Harm Level, not a threshold value.

* Any equivalent procedure which can be shown to the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

** These standards are violated when concentrations exceed those set forth in the body of the regulation.

*** Prevailing visibility is defined as the greatest visibility which is attained or surpassed around at least half of the horizon circle, but not necessarily in continuous sectors.

****The standard referred to is that adopted by the Board in 1969, of 100 µg/m3 as measured by high volume sampler.

NOTE: Authority cited: Sections 39600, 39601(a), and 39606(b), Health and Safety Code. Reference: Sections ~~70200~~, 39014, 39606(b), 39701, and 39703(g), Health and Safety Code.

State of California

Memorandum

To : Gordon Van Vleck
Secretary
Resources Agency

Date : May 5, 1983

Subject: Filing of Notice of
Decisions of the Ai
Resources Board

From : Harold Holmes
Board Secretary
Air Resources Board

Pursuant to Title 17, Section 60007 (b), and in compliance with Air Resources Board certification under section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decision and response to environmental comments raised during the comment period.

Attachments
Resolution 82-63
Resolution 83-4

State of California
AIR RESOURCES BOARD

Resolution 82-64

December 2, 1982

Agenda Item No.: 82-24-3

WHEREAS, the Board is authorized, pursuant to the authority set forth in Health and Safety Code Sections 39600, 39601, 43013, and 43101, to adopt regulations governing the composition of motor vehicle fuels as they affect motor vehicle emissions; and such regulations are necessary in order to implement, interpret, or make specific Health and Safety Code Sections 39000, 39001, 39002, 39006, 43000, 43013, and 43101, and Western Oil and Gas Ass'n v. Orange County APCD, 14 Cal.3d 411 (1975);

WHEREAS, the Air Resources Board (the "Board") adopted in 1970 and affirmed in 1976 a state ambient air quality standard for lead of 1.5 ug/m^3, computed on a 30-day average;

WHEREAS, in 1976 the Board adopted Section 2253 of Title 13, California Administrative Code, limiting the maximum average lead content of all gasoline (leaded and unleaded) produced in a calendar quarter by a refiner for sale in California;

WHEREAS, on July 22, 1982, the Board directed staff to evaluate whether the current state ambient standard for lead adequately protects the public health;

WHEREAS, on July 22, 1982, the Board appointed a committee of two of its members, L. S. Caretto and Gary Patton, to conduct a public hearing to consider proposed changes to the Board's regulation of the lead content of gasoline;

WHEREAS, on November 10 and 11, 1982, the committee of the Board conducted a duly-noticed public hearing regarding amendments proposed by staff and has heard and considered the comments of the Board staff and the public;

WHEREAS, the committee of the Board presented its recommendations to the full Board at a public hearing on December 1, 1982;

WHEREAS, the Board has received and reviewed the substantial body of comments and testimony from its staff, representatives of affected industry and environmental groups, and other interested persons;

WHEREAS, on October 27, 1982, the United States Environmental Protection Agency (EPA) issued amendments to its regulations governing the lead content of gasoline, establishing a maximum average lead content standard for all leaded gasoline produced by a refiner or sold by an importer in a calendar quarter;

WHEREAS, the California Environmental Quality Act and Board regulations require that action not be taken as proposed if feasible mitigation measures or alternatives exist which would substantially reduce any significant adverse environmental effects of the proposed action; and

WHEREAS, the Board finds with respect to issues raised in hearings on the regulations:

A. Health Issues

Studies completed since the state's ambient air quality standard for lead was adopted and affirmed have correlated adverse health effects of lead, including deficits in intelligence and abnormal brain-wave patterns, with lower blood lead levels than were believed to be the case when the standard was adopted and affirmed and appear to indicate that there is no threshold level below which these effects are not found;

The effects of lead are most damaging to children because they absorb more lead and retain more lead in the bloodstream than do adults;

Recent studies establish a correlation between a decrease in gasoline lead usage and a decrease in body lead levels;

It is necessary to reduce the concentration of lead permitted in motor vehicle gasoline as rapidly as feasible by an amount sufficient to assure that the state ambient standard is attained and maintained in all areas of the state and to assure that the public health is adequately protected from adverse effects of exposure to lead;

B. Need for Further Reduction

Although ambient lead concentrations have decreased significantly since the Board's gasoline lead content regulation was adopted, the state ambient standard for lead continues to be exceeded;

Further reduction in the amount of lead emissions is needed to achieve and maintain the air quality standard in all areas of the state;

Approximately 90 percent of all airborne lead in California comes from the combustion of motor vehicle gasoline which contains lead;

The anticipated decline in lead use under the existing regulation is not likely to result in attainment of the state ambient standard for lead until sometime after 1990;

Based on the 30-day average concentration of 3.44 ug/m^3 recorded at Lennox in December 1980, a 56 percent reduction from the volume of lead used in the fourth quarter of 1980 in the production of gasoline is necessary to achieve the state ambient standard for lead;

C. Misfueling Issues

Misfueling of motor vehicles is currently a small problem but one which could become significant even at present levels as more stringent standards for hydrocarbons and carbon monoxide come into effect;

A limitation of the lead and phosphorus content of unleaded gasoline by the Board is necessary and appropriate to help assure that vehicle exhaust emissions do not increase because of catalyst poisoning;

The prohibition of adding non-gasoline products containing lead to gasoline after the gasoline is sold at retail, and selling products advertised for such use, is necessary and appropriate to help assure that the state ambient standard for lead is achieved and maintained, and that vehicle exhaust emissions do not increase because of catalyst poisoning;

A total ban on lead in gasoline would provide maximum protection to the public health and would eliminate vehicle misfueling, but such a ban is currently not feasible because of economic considerations and the need of numerous vehicles for leaded fuel;

D. Form of Regulation

A single gasoline lead content standard applicable to all producers of gasoline is equitable because it is less likely to provide an unfair economic advantage to any class of producers;

If a single gasoline lead content standard is applied to all producers of gasoline, then a standard that applies to the leaded gasoline pool only is the least costly, particularly to small producers;

Data in the record do not demonstrate that the incidence of misfueling is dependent upon the choice of either a leaded pool average or a total pool average lead content standard;

A leaded pool gasoline lead content standard is parallel to the current EPA regulations and is favored by the majority of the regulated community;

E. Specific Regulatory Provisions

The regulations set forth in Attachment A will likely result by 1985 in the 56 percent reduction in lead emissions from the fourth quarter 1980 level necessary to assure expeditious attainment of the state ambient standard for lead and will provide protection to the public from the severe adverse health effects of lead in 1985 and thereafter;

A gasoline lead content regulation applying standards in the summer months or in various regions of the state less stringent than those contained in Attachment A would not adequately protect public health;

The variance procedures and the modified effective date for the lead content standards for leaded gasoline set forth in Attachment A adequately accommodate the special economic needs of small producers;

F. Enforcement Issues

The provisions of Section 2253.2(c) set forth in Attachment A are necessary and appropriate to enhance enforcement of the gasoline lead content standards by permitting detection of potential violators by sampling of gasoline sold or to be sold;

Specific procedures regarding Section 2253.2(c) should be developed with regard to circumstances of individual refiners;

The provisions of Section 2253.2(e) set forth in Attachment A are necessary and appropriate to assure that statutory remedies are applicable to the gasoline lead content standards in a manner which will adequately deter violation of the standards;

The reporting provisions contained in Attachment A are necessary and appropriate to enhance identification of persons violating the gasoline lead content standards and to permit accurate monitoring of gasoline and lead usage trends;

G. Benefits and Costs

The regulatory action set forth in Attachment A will achieve a reduction in lead emissions from the 1980 baseline levels of over 3200 tons per year statewide and of over 1200 tons per year in the South Coast Air Basin in 1985;

The regulatory action set forth in Attachment A will have an annual cost of about 70 million dollars to the oil industry in California in 1985, and will result in an industry-wide average cost of approximately 0.7 cents per gallon of gasoline produced or imported for consumption in California;

The regulatory action is necessary and technologically and economically feasible to fulfill the purposes of Division 26 of the Health and Safety Code;

The economic costs associated with the regulatory action set forth in Attachment A are fully justified by the substantial health benefits which will result from the regulations; and

No significant adverse environmental impacts are likely to result from the adoption and implementation of the proposed regulations.

NOW, THEREFORE, BE IT RESOLVED that the Board approves the amendment to Title 13, California Administrative Code, Chapter 3, Subchapter 5, Section 2253 and adoption of Section 2253.2, as set forth in Attachment A, and directs the Executive Officer to adopt the proposed regulations, with such technical changes as he may deem necessary, after assuring that the regulations have been available to the public for at least 15 days.

BE IT FURTHER RESOLVED that the Board recognizes the need for eliminating lead from gasoline. The Board directs the Executive Officer to now begin development of a regulation which eliminates lead from gasoline as expeditiously as feasible.

BE IT FURTHER RESOLVED that the staff is directed to consult with gasoline producers to develop the most appropriate procedures for compliance with Section 2253.2(c).

I hereby certify that the above is a true and correct copy of Resolution 82-64, as adopted by the Air Resources Board.

Harold Holmes, Board Secretary

Attachment A

State of California
AIR RESOURCES BOARD

PROPOSED AMENDMENTS TO TITLE 13, CALIFORNIA ADMINISTRATIVE CODE

Lead in Gasoline

November 24, 1982

The attached document contains modifications to the originally noticed staff proposal. Section 2253 includes, in double underline and strike-out form, changes from the original proposal noticed on September 17, 1982. Section 2253.2 includes, in underline and strike-out form, changes from the original proposal.

PROPOSED AMENDMENTS TO TITLE 13,

CALIFORNIA ADMINISTRATIVE CODE

Amend Section 2253 of Title 13, California Administrative Code, by amending the title and adding subdivision (j) to read as follows:

2253. Average Lead Content of Gasoline Manufactured Before ~~April~~ July 1, 1983.

...

(j) This section shall not apply to gasoline manufactured after the ~~first~~ second three-month period (~~January-March~~ April-June) of 1983.

Add Section 2253.2 of Title 13, California Administrative Code, to read as follows:

2253.2. Lead in Gasoline. (a) For the purpose of this section, the following definitions shall apply:

(21) "Calendar quarter" means each of the following three-month periods: January-March, April-June, July-September, and October-December.

(32) "California gasoline" means gasoline sold or intended for sale as a motor vehicle fuel in California.

(43) "California gasoline production facility" means a facility in California at which gasoline is produced, including a facility at which any combination of gasoline, blending stock, and/or lead additives are blended to produce gasoline. "California gasoline production facility" does not include a facility whose sole operation is to transfer gasoline or to blend non-lead additives, including alcohol, into purchased gasoline.

(54) "Gasoline" means any fuel which is commonly or commercially known or sold as gasoline, or which is a mixture of any fuel, commonly or commercially known or sold as gasoline, and alcohol.

(~~4~~5) "Gasoline Bblending stock" means any liquid compound which is blended~~,~~ with other liquid compounds or with lead additives~~,~~ to produce gasoline.

(6) "Importer" means any person who first accepts delivery in California of California gasoline or gasoline blending stocks imported from a foreign country or another state.

(7) "Lead additive" means any substance containing lead or lead compounds.

(8) "Leaded gasoline" means gasoline which is produced with the use of any lead additive or which contains more than 0.05 gram of lead per gallon, or more than 0.005 gram of phosphorus per gallon.

(9) "Leaded high octane gasoline" means leaded gasoline having and represented as having an Antiknock Index of at least ninety-two. The Antiknock Index is the sum of the research octane number, as determined by American Society for Testing and Materials (ASTM) Test Method D2699-81, plus the motor octane number, as determined by ASTM Test Method D2700-81, divided by two.

(10) "Produce" means to manufacture gasoline at a California gasoline production facility.

(11) "Producer" means any person who owns, leases, operates, controls, or supervises a California gasoline production facility.

(12) "Unleaded gasoline" means gasoline to which lead has not been purposefully added and which contains not more than 0.05 gram of lead per gallon, and not more than 0.005 gram of phosphorus per gallon.

(13) "Wholesale purchaser-consumer" means an organization that is an ultimate consumer of gasoline and which purchases or obtains gasoline from a non-retail supplier for use in motor vehicles.

(15) "Gasoline Bblending stock" means any liquid compound which is blended, with other liquid compounds or with lead additives, to produce gasoline.

(6) "Importer" means any person who first accepts delivery in California of California gasoline or gasoline blending stocks imported from a foreign country or another state.

(7) "Lead additive" means any substance containing lead or lead compounds.

(8) "Leaded gasoline" means gasoline which is produced with the use of any lead additive or which contains more than 0.05 gram of lead per gallon, or more than 0.005 gram of phosphorus per gallon.

(9) "Leaded high octane gasoline" means leaded gasoline having and represented as having an Antiknock Index of at least ninety-two. The Antiknock Index is the sum of the research octane number, as determined by American Society for Testing and Materials (ASTM) Test Method D2699-81, plus the motor octane number, as determined by ASTM Test Method D2700-81, divided by two.

(10) "Produce" means to manufacture gasoline at a California gasoline production facility.

(11) "Producer" means any person who owns, leases, operates, controls, or supervises a California gasoline production facility.

(12) "Unleaded gasoline" means gasoline to which lead has not been purposefully added and which contains not more than 0.05 gram of lead per gallon, and not more than 0.005 gram of phosphorus per gallon.

(13) "Wholesale purchaser-consumer" means an organization that is an ultimate consumer of gasoline and which purchases or obtains gasoline from a non-retail supplier for use in motor vehicles.

(b) No person shall sell, offer for sale, or deliver for sale any California gasoline represented as unleaded unless such gasoline meets the definition of unleaded gasoline set forth in paragraph (a)(12).

(c) No person shall sell, offer for sale, or deliver for sale any California leaded gasoline which exceeds the lead content per gallon specified below:

Effective Date of Limitation	Maximum Lead Content (grams per gallon)	
	Leaded Gasoline Other than Leaded High Octane Gasoline	Leaded High Octane Gasoline
~~April~~ July 1, 1983 through September 30, 1984	~~1.6~~ 1.1	~~2.1~~ 1.4
After September 30, 1984	~~1.2~~ 0.8	~~1.6~~ 1.0

However, a person may sell, offer for sale, or deliver for sale California leaded gasoline which exceeds the lead content specified above if the following conditions are satisfied, and the lead content of the gasoline does not exceed the lead content reported pursuant to the following conditions:

(1) A producer or importer shall notify the executive officer or his or her designee of the estimated or actual volume (in gallons) of the gasoline, the estimated or actual lead content (in grams per gallon) of the gasoline, and wnether the gasoline to be sold is leaded high octane gasoline or leaded gasoline other than leaded high octane gasoline. This notification shall be received at least 24 hours prior to the start of physical transfer of the gasoline from the California gasoline production facility. If actual values are later determined to be different from the estimated values reported,

follow-up notification of the actual values shall occur within 24 hours after the start of physical transfer of the gasoline from the California gasoline production facility.

(2) Within 90 days of the notification pursuant to paragraph (1) above, the producer or importer shall sell California leaded gasoline in sufficient quantity and at a lead content below the applicable maximum lead content limit set forth in the table in paragraph (c) to offset the total grams of lead reported in excess of the maximum limit. The producer or importer shall notify the executive officer or his or her designee of the estimated or actual volume (in gallons) of the gasoline, the estimated or actual lead content (in grams per gallon) of the gasoline, and whether the gasoline to be sold is leaded high octane gasoline or leaded gasoline other than leaded high octane gasoline. This notification shall be received at least 48 hours prior to the start of physical transfer of the gasoline from the California gasoline production facility. If actual values are later determined to be different from the estimated values reported, follow-up notification of the actual values shall occur within 24 hours after the start of physical transfer of the gasoline from the California gasoline production facility.

(d) No producer shall sell, offer for sale, or deliver for sale California leaded gasoline which the producer has produced during ~~any~~ calendar quarter and which exceeds the average lead content, for the~~at~~ calendar quarter, specified in the table below. No importer shall ~~first~~ sell, offer for sale, or deliver for sale~~,~~ California leaded gasoline which has been imported into California, which the importer first sells or transfers during a calendar quarter, and which exceeds ~~during-any-calendar-quarter~~ the average lead content, for that calendar quarter, specified in the table below.

follow-up notification of the actual values shall occur within 24 hours after the start of physical transfer of the gasoline from the California gasoline production facility.

(2) Within 90 days of the notification pursuant to paragraph (1) above, the producer or importer shall sell California leaded gasoline in sufficient quantity and at a lead content below the applicable maximum lead content limit set forth in the table in paragraph (c) to offset the total grams of lead reported in excess of the maximum limit. The producer or importer shall notify the executive officer or his or her designee of the estimated or actual volume (in gallons) of the gasoline, the estimated or actual lead content (in grams per gallon) of the gasoline, and whether the gasoline to be sold is leaded high octane gasoline or leaded gasoline other than leaded high octane gasoline. This notification shall be received at least 48 hours prior to the start of physical transfer of the gasoline from the California gasoline production facility. If actual values are later determined to be different from the estimated values reported, follow-up notification of the actual values shall occur within 24 hours after the start of physical transfer of the gasoline from the California gasoline production facility.

(d) No producer shall sell, offer for sale, or deliver for sale California leaded gasoline which the producer has produced during ~~any~~ calendar quarter and which exceeds the average lead content, for the~~at~~ calendar quarter, specified in the table below. No importer shall ~~first~~ sell, offer for sale, or deliver for sale~~,~~ California leaded gasoline which has been imported into California, which the importer first sells or transfers during a calendar quarter, and which exceeds ~~during-any-calendar-quarter~~ the average lead content, for that calendar quarter, specified in the table below.

Effective Date of Limitation	~~Maximum~~ Lead Content (grams per gallon)
~~April~~ July 1, 1983 through September 30, 1984	1.1
After September 30, 1984	0.8

(e) (1) For the purposes of paragraphs (c) and (d), each sale at retail for use in a motor vehicle, and each delivery to an individual motor vehicle by a wholesale purchaser-consumer, shall be deemed a sale by the producer or importer required under paragraph (h) to include the gasoline in its average lead content computation for a calendar quarter.

(2) Where the California leaded gasoline produced by a producer during a calendar quarter, or the imported California leaded gasoline first sold or transferred by an importer during a calendar quarter, exceeds the maximum average lead content specified in paragraph (d), each sale, offer for sale or delivery for sale of such California leaded gasoline shall be a violation of paragraph (d) regardless of the lead content of the gasoline involved in any individual sale, offer or delivery.

(ef) No person shall add a product, other than gasoline, containing lead ~~additive~~ to California gasoline after the gasoline has been sold at retail or purchased by a wholesale purchaser-consumer.

(fg) No person shall sell or offer for sale a product containing lead ~~additive~~ which is advertised for use as an additive to California gasoline at or after the time the gasoline is sold at retail or purchased by a wholesale purchaser-consumer.

(gh) The average lead content of California leaded gasoline attributable to a producer and/or importer in a calendar quarter under paragraph (d) shall be determined by the methods set forth below. For persons who are both

producers and importers, all of the California leaded gasoline attributable under paragraph (d) to such person in a calendar quarter as a producer and an importer shall be combined and the average lead content shall be computed as the weighted (by volume) average lead content ~~(by volume)~~ of all such gasoline.

(1) The producer or importer who first produces or imports a volume of California leaded gasoline meeting the definition set forth in paragraph (a)(~~5~~4) shall include the volume of California leaded gasoline and lead contained in such gasoline in its computation of average lead content, unless that producer or importer agrees in writing with another producer who subsequently processes the gasoline that the subsequent producer will count the volume attributable to the gasoline and lead contained in the gasoline as part of the subsequent producer's computation of average lead content, and the lead contained in the gasoline is included in the average lead content ~~report~~ computation of such subsequent producer~~.~~, as reflected in a report filed pursuant to paragraph (i).

(2) The average lead content of all California leaded gasoline produced in a calendar quarter shall be determined by dividing the total grams of lead used by a producer in the production of California leaded gasoline by the total gallons of California leaded gasoline produced.

(A) The total grams of lead used by a producer includes [i] the lead in lead additives used by the producer in the production of California leaded gasoline, ~~and~~ [ii] the lead in gasoline blending stocks received by the producer from another person and used by the producer in the production of California leaded gasoline, and [iii] the lead in ~~unless such~~ gasoline received from another person and further processed by the producer, unless such gasoline ~~blending stock constitutes gasoline as defined in paragraph (a)(5) and~~

producers and importers, all of the California leaded gasoline attributable under paragraph (d) to such person in a calendar quarter as a producer and an importer shall be combined and the average lead content shall be computed as the weighted (by volume) average lead content ~~(by volume)~~ of all such gasoline.

(1) The producer or importer who first produces or imports a volume of California leaded gasoline meeting the definition set forth in paragraph (a)(~~5~~4) shall include the volume of California leaded gasoline and lead contained in such gasoline in its computation of average lead content, unless that producer or importer agrees in writing with another producer who subsequently processes the gasoline that the subsequent producer will count the volume attributable to the gasoline and lead contained in the gasoline as part of the subsequent producer's computation of average lead content, and the lead contained in the gasoline is included in the average lead content ~~report~~ computation of such subsequent producer~~.~~, as reflected in a report filed pursuant to paragraph (i).

(2) The average lead content of all California leaded gasoline produced in a calendar quarter shall be determined by dividing the total grams of lead used by a producer in the production of California leaded gasoline by the total gallons of California leaded gasoline produced.

(A) The total grams of lead used by a producer includes [i] the lead in lead additives used by the producer in the production of California leaded gasoline, ~~and~~ [ii] the lead in gasoline blending stocks received by the producer from another person and used by the producer in the production of California leaded gasoline, and [iii] the lead in ~~unless such~~ gasoline received from another person and further processed by the producer, unless such gasoline ~~blending stock constitutes gasoline as defined in paragraph (a)(5) and~~

is included in the average lead content ~~report~~ computation of another producer or of an importer~~,~~, as reflected in a report filed pursuant to paragraph (i). The lead in gasoline and gasoline blending stocks received by a producer from another person shall be determined by performance by the producer of ~~the~~ an applicable test method set forth in paragraph (m) ~~Appendix-B-of-40-Code-of Federal-Regulations-Part-80,-as-it-existed-on-July-1,-1982,~~ upon a representative sample of each shipment of gasoline or gasoline blending stocks which the producer knows or reasonably should know contains lead, and multiplying the lead content of each shipment by the total gallons of the shipment.

(B) The total gallons of California leaded gasoline produced shall not include the volume of any ~~California~~ leaded gasoline, as defined in paragraphs (a)(4) and (a)(8), ~~attributable-to-gasoline-blending-stock~~ received by a producer from another person, unless such ~~gasoline-blending-stock constitutes-gasoline-as-defined-in-paragraph-(a)(5),-and~~ volume has not been and will not be included in the average lead content ~~report~~ computation of another producer or of an importer~~,~~, as reflected in a report filed pursuant to paragraph (i). In any instance in which production of a volume of gasoline is reported by more than one producer and importer, the volume shall be deemed excluded from the production of the subsequent producer in determining compliance with paragraph (d).

(3) The average lead content of California leaded gasoline first sold~~,~~ or transferred ~~offered-for-sale,-or-delivered-for-sale~~ during a calendar quarter, which has been imported into California, shall be determined by calculating:

(A) the lead content of each shipment of imported California leaded gasoline any portion of which is first sold, or transferred ~~offered-for-sale or-delivered-for-sale~~ by the importer during the calendar quarter, determined by performance by the importer of ~~the~~ an applicable test method set forth in paragraph (m) ~~Appendix-B-of-40,-Code-of-Federal-Regulations-Part-80,-as-it existed-on-July-1,-1982,~~ upon a representative sample of gasoline in the shipment;

(B) the total gallons of California leaded gasoline in each such shipment;

(C) for each such shipment, the total gallons of California leaded gasoline which are first sold or transferred during the calendar quarter;

(~~B~~D) the total grams of lead contained in the volume of California leaded gasoline identified in paragraph (h)(3)(C), ~~each-such-shipment,~~ computed by multiplying the lead content of the shipment, as determined pursuant to paragraph (~~g~~h)(3)(A), by the total gallons of leaded gasoline identified in paragraph (h)(3)(C); ~~in-the-shipment-which-is-first-sold,-offered-for-sale-or delivered-for-sale-during-the-calendar-quarter;~~

(~~C~~E) the total grams of lead contained in the volume of all such shipments first sold, or transferred ~~offered-for-sale-or-delivered-for-sale~~ during the calendar quarter;

(~~D~~F) the total gallons of leaded gasoline in all such shipments first sold, or transferred ~~offered-for-sale-or-delivered-for-sale~~ by the importer during the calendar quarter; and

(~~E~~G) the average lead content of all imported leaded gasoline first sold, or transferred ~~offered-for-sale-or-delivered-for-sale~~ by the importer during during the calendar quarter, determined by dividing the total in paragraph (~~g~~h)(3)(~~C~~E) by the total in paragraph (~~g~~h)(3)(~~D~~F).

(A) the lead content of each shipment of imported California leaded gasoline any portion of which is first sold, or transferred ~~offered-for-sale or-delivered-for-sale~~ by the importer during the calendar quarter, determined by performance by the importer of ~~the~~ an applicable test method set forth in paragraph (m) ~~Appendix-B-of-40,-Code-of-Federal-Regulations-Part-80,-as-it existed-on-July-1,-1982,~~ upon a representative sample of gasoline in the shipment;

(B) the total gallons of California leaded gasoline in each such shipment;

(C) for each such shipment, the total gallons of California leaded gasoline which are first sold or transferred during the calendar quarter;

(~~B~~D) the total grams of lead contained in the volume of California leaded gasoline identified in paragraph (h)(3)(C), ~~each-such-shipment,~~ computed by multiplying the lead content of the shipment, as determined pursuant to paragraph (~~g~~h)(3)(A), by the total gallons of leaded gasoline identified in paragraph (h)(3)(C); ~~in-the-shipment-which-is-first-sold,-offered-for-sale-or delivered-for-sale-during-the-calendar-quarter;~~

(~~C~~E) the total grams of lead contained in the volume of all such shipments first sold, or transferred ~~offered-for-sale-or-delivered-for-sale~~ during the calendar quarter;

(~~D~~F) the total gallons of leaded gasoline in all such shipments first sold, or transferred ~~offered-for-sale-or-delivered-for-sale~~ by the importer during the calendar quarter; and

(~~E~~G) the average lead content of all imported leaded gasoline first sold, or transferred ~~offered-for-sale-or-delivered-for-sale~~ by the importer during during the calendar quarter, determined by dividing the total in paragraph (~~g~~h)(3)(~~C~~E) by the total in paragraph (~~g~~h)(3)(~~D~~F).

(~~h~~i) For each calendar quarter commencing with the quarter from ~~April~~ July 1, 1983 through ~~June~~ September 30, 1983, each producer who has produced leaded gasoline, and each importer who has first sold~~,~~ or transferred ~~offered for sale or delivered for sale~~ leaded gasoline or gasoline blending stocks which has been imported into California, shall, within ~~15~~ 30 days after the close of the reporting period, submit to the executive officer a report on forms supplied by the executive officer upon request. The report shall be executed in California under penalty of perjury, and shall contain the following information:

(1) For each California gasoline production facility, and for the total of all California gasoline production facilities of a producer:

(A) the total grams of lead in lead additive inventory on the first day of the calendar quarter;

(B) the total grams of lead in lead additives received during the calendar quarter, the name and address of each person from whom the lead additive was received, and the total grams of lead received from each person;

(C) the total grams of lead shipped from the lead additive inventory to other persons during the calendar quarter, the name and address of each person to whom the lead additive was shipped and the total grams of lead shipped to each person;

(D) the total grams of lead in lead additive inventory on the last day of the calendar quarter;

(E) for each shipment of gasoline and gasoline blending stocks~~,~~ received by the producer from another person, any portion of which is used by the producer in the production of leaded gasoline during the calendar quarter, which contains lead that must be included in the determination of average lead

content of the producer's leaded gasoline under paragraph (~~g~~h)(2)(A)[ii] or [iii], and which the producer knows or reasonably should know contains lead:

[i] the lead content of each shipment, as determined by performance of an applicable test method set forth in paragraph (m) on a representative sample of gasoline or gasoline blending stocks in the shipment; ~~the method set forth in paragraph (g)(2)(A);~~

[ii] the total gallons received in each shipment;

[iii] the total gallons ~~of~~ from each shipment used by the producer in the production of leaded gasoline during the calendar quarter;

[iv] the total grams of lead contained in the volume identified pursuant to paragraph (i)(1)(E)[iii];

[~~iii~~v] the total grams of lead in the volume of all such shipments used by the producer in the production of leaded gasoline during the calendar quarter;

[~~iv~~vi] the name and address of the person from whom such shipment was received; and

[~~v~~vii] documentation clearly showing that the volume and lead content of ~~the~~ any gasoline ~~blending stock~~ has not been and will not be included in another producer's or an importer's average lead content ~~report~~ computation, as reflected in a report filed pursuant to this paragraph (i);

(F) the total grams of lead used in the production of California leaded gasoline during the calendar quarter, except for the lead in any California leaded gasoline not required by paragraph (h)(1) to be included in the producer's computation of lead content;

content of the producer's leaded gasoline under paragraph (~~g~~h)(2)(A)[ii] or [iii], and which the producer knows or reasonably should know contains lead:

[i] the lead content of each shipment, as determined by performance of an applicable test method set forth in paragraph (m) on a representative sample of gasoline or gasoline blending stocks in the shipment; ~~the method set forth in paragraph (g)(2)(A);~~

[ii] the total gallons received in each shipment;

[iii] the total gallons ~~of~~ from each shipment used by the producer in the production of leaded gasoline during the calendar quarter;

[iv] the total grams of lead contained in the volume identified pursuant to paragraph (i)(1)(E)[iii];

[~~iii~~v] the total grams of lead in the volume of all such shipments used by the producer in the production of leaded gasoline during the calendar quarter;

[~~iv~~vi] the name and address of the person from whom such shipment was received; and

[~~v~~vii] documentation clearly showing that the volume and lead content of ~~the~~ any gasoline ~~blending stock~~ has not been and will not be included in another producer's or an importer's average lead content ~~report~~ computation, as reflected in a report filed pursuant to this paragraph (i);

(F) the total grams of lead used in the production of California leaded gasoline during the calendar quarter, except for the lead in any California leaded gasoline not required by paragraph (h)(1) to be included in the producer's computation of lead content;

(G) the total gallons of California leaded gasoline produced during the calendar quarter, except for the gallons of any California leaded gasoline not required by paragraph (h)(1) to be included in the producer's computation of lead content;

(H) the average lead content of each gallon of California leaded gasoline produced during the calendar quarter, determined by dividing the total in paragraph (i)(1)(F) by the total in paragraph (i)(1)(G);

(I) the total gallons of California leaded high octane gasoline produced during the calendar quarter;

(J) the total gallons of California unleaded gasoline produced during the calendar quarter;

(K) the total grams of lead used in the production during the calendar quarter of products other than California gasoline, including gasoline which is not California gasoline, by type of product;

(L) the total gallons of products described in paragraph (hi)(1)(K) in which lead was used that were produced during the calendar quarter, by type of product;

(M) if any of the products listed in paragraph (i)(1)(K) was sold or otherwise transferred, directly, or indirectly, to another California gasoline production facility during the calendar quarter:

[i] the total gallons and lead content of each transfer, identified by type of product;

[ii] the name and address of the California gasoline production facility to which each transfer was made; and

[iii] the date of each transfer.

(MN) for each shipment of California leaded gasoline produced in the calendar quarter which ~~or gasoline blending stock containing lead~~ the producer delivers to another person, and which ~~gasoline or stock~~ the producer knows or reasonably should know will be processed or further processed by another producer to produce California leaded gasoline:

[i] the total gallons and lead content of each delivery;

[ii] the name and address of the person first accepting delivery;

[iii] the date of initial delivery;

[~~i~~iv] The name and address of the producer subsequently processing such gasoline or blending stocks to produce gasoline; and

[~~ii~~v] whether the producer making the shipment is including the volume and lead content of the shipment in its ~~determination~~ computation of the average lead content of California leaded gasoline it produces during the calendar quarter.

(NO) such other information as may be required by the executive officer to ascertain the average lead content of California leaded gasoline.

(2) For each importer:

(A) the information described in paragraphs (~~g~~h)(3)(A) through (EG);

(B) the lead content of each shipment of imported gasoline blending stocks any portion of which is first sold or transferred by the importer during the calendar quarter, determined by performance by the importer of an applicable test method set forth in paragraph (m) upon a representative sample of gasoline blending stocks in the shipment;

(C) the total gallons of gasoline blending stocks in each such shipment;

[iii] the date of each transfer.

(MN) for each shipment of California leaded gasoline produced in the calendar quarter which ~~or gasoline blending stock containing lead~~ the producer delivers to another person, and which ~~gasoline or stock~~ the producer knows or reasonably should know will be processed or further processed by another producer to produce California leaded gasoline:

[i] the total gallons and lead content of each delivery;

[ii] the name and address of the person first accepting delivery;

[iii] the date of initial delivery;

[~~i~~iv] The name and address of the producer subsequently processing such gasoline or blending stocks to produce gasoline; and

[~~ii~~v] whether the producer making the shipment is including the volume and lead content of the shipment in its ~~determination~~ computation of the average lead content of California leaded gasoline it produces during the calendar quarter.

(~~M~~O) such other information as may be required by the executive officer to ascertain the average lead content of California leaded gasoline.

(2) For each importer:

(A) the information described in paragraphs (~~g~~h)(3)(A) through (~~E~~G);

(B) the lead content of each shipment of imported gasoline blending stocks any portion of which is first sold or transferred by the importer during the calendar quarter, determined by performance by the importer of an applicable test method set forth in paragraph (m) upon a representative sample of gasoline blending stocks in the shipment;

(C) the total gallons of gasoline blending stocks in each such shipment;

(D) the total grams of lead in each such shipment, determined by multiplying the lead content of the shipment by the total gallons of gasoline blending stocks in the shipment;

(~~B~~E) for each shipment of imported California leaded gasoline or gasoline blending stocks ~~sold~~ received by the importer during the calendar quarter ~~reporting period~~: the name and address of the ~~importer~~ person from whom the gasoline or gasoline blending stocks was received; the name and address of any consignee; the date of entry; the vessel or carrier or other means of importation; the port or point of entry; the entry number (where applicable); and the total gallons of leaded gasoline in the shipment.

(~~C~~F) for any shipment of imported leaded gasoline or gasoline blending stocks containing lead the importer delivers to another person during the calendar quarter, which gasoline or gasoline blending stocks the importer knows or reasonably should know will be processed by a producer to produce California leaded gasoline:

[i] the total gallons and lead content of each delivery, identified by type of product;

[ii] the name and address of the person first accepting delivery;

[iii] the date of initial delivery;

[~~i~~iv] The name and address of the producer subsequently processing such gasoline or gasoline blending stocks to produce gasoline; and

[~~ii~~v] for any such delivery of gasoline, whether the importer making the shipment is including the volume of the shipment in its determination of the average lead content of imported California leaded gasoline it sells, offers for sale or delivers for sale.

(G) Such other information as may be required by the executive officer to ascertain the average lead content of California leaded gasoline.

(~~i~~j) For each calendar quarter commencing with ~~April~~ July 1 through ~~June~~ September 30, 1983, each lead additive manufacturer shall submit to the executive officer a report showing the total grams of lead shipped to each California gasoline production facility by such lead additive manufacturer during the calendar quarter. Reports shall be certified under penalty of perjury and submitted within ~~15~~ 30 days after the close of the reporting period, on forms supplied by the executive officer upon request.

(~~j~~k)(1) Any producer who cannot comply with the requirements set forth in paragraphs (c) or (d) because of extraordinary reasons beyond the reasonable control of the producer may apply to the executive officer for a variance. The application shall set forth:

(A) The specific grounds upon which the variance is sought;

(B) The proposed date(s) by which compliance with the lead content limitations in paragraphs (c) and (d) will be achieved; and

(C) A plan reasonably detailing the method by which compliance will be achieved.

(2) Upon receipt of an application for a variance containing the information required in paragraph (~~j~~k)(1), the executive officer shall hold a hearing to determine whether, and under what conditions and to what extent, a variance from the requirements established by paragraphs (c) or (d) is necessary and will be permitted. Notice of the time and place of the hearing shall be sent to the applicant by certified mail not less than 20 days prior to the hearing. Notice of the hearing shall also be submitted for publication in the California Administrative Notice Register and ~~shall be~~ sent to every

(G) Such other information as may be required by the executive officer to ascertain the average lead content of California leaded gasoline.

(~~i~~j) For each calendar quarter commencing with ~~April~~ July 1 through ~~June~~ September 30, 1983, each lead additive manufacturer shall submit to the executive officer a report showing the total grams of lead shipped to each California gasoline production facility by such lead additive manufacturer during the calendar quarter. Reports shall be certified under penalty of perjury and submitted within ~~15~~ 30 days after the close of the reporting period, on forms supplied by the executive officer upon request.

(~~j~~k)(1) Any producer who cannot comply with the requirements set forth in paragraphs (c) or (d) because of extraordinary reasons beyond the reasonable control of the producer may apply to the executive officer for a variance. The application shall set forth:

(A) The specific grounds upon which the variance is sought;

(B) The proposed date(s) by which compliance with the lead content limitations in paragraphs (c) and (d) will be achieved; and

(C) A plan reasonably detailing the method by which compliance will be achieved.

(2) Upon receipt of an application for a variance containing the information required in paragraph (~~j~~k)(1), the executive officer shall hold a hearing to determine whether, and under what conditions and to what extent, a variance from the requirements established by paragraphs (c) or (d) is necessary and will be permitted. Notice of the time and place of the hearing shall be sent to the applicant by certified mail not less than 20 days prior to the hearing. Notice of the hearing shall also be submitted for publication in the California Administrative Notice Register and ~~shall be~~ sent to every

person who requests such notice, not less than 20 days prior to the hearing.

(3) At least 20 days prior to the hearing, the application for the variance shall be made available to the public for inspection. Interested members of the public shall be allowed a reasonable opportunity to testify at the hearing and their testimony shall be considered.

(4) No variance shall be granted unless all of the following findings are made:

(A) that, because of reasons beyond the reasonable control of the applicant, requiring compliance with paragraphs (c) and (d) would [i] result in an extraordinary economic hardship, or [ii] result, for an applicant meeting the definition of small refiner established by the United States Environmental Protection Agency in Title 40, Code of Federal Regulations, Section 80.2(p), as it existed on December 1, 1982, in operation of the applicant's California gasoline production facility at a financial loss for the twelve-month period following the beginning date of the variance sought by the applicant;

(B) that the granting of a variance will not result in substantial increases in ambient concentrations of lead; and

(C) that the compliance plan proposed by the applicant can reasonably be implemented and will achieve compliance as expeditiously as possible.

(5) Any variance order shall specify a final compliance date by which the lead content limitations in paragraphs (c) and (d) will be achieved. Any variance order shall also contain a condition that specified increments of progress necessary to assure timely compliance be achieved, and such other conditions, including limitations on the lead content of California leaded gasoline, that the executive officer, as a result of the testimony received at

the hearing, finds necessary to carry out the purposes of Division 26 of the Health and Safety Code.

(6) The executive officer shall require, as a condition of granting a variance, that a cash bond, or a bond executed by two or more good and sufficient sureties or by a corporate surety, be posted by the party to whom the variance was granted to assure performance of any construction, alteration, repair, or other work required by the terms and conditions of the variance. Such bond may provide that, if the party granted the variance fails to perform such work by the agreed date, the cash bond shall be forfeited to the state board, or the corporate surety or sureties shall have the option of promptly remedying the variance default or paying to the state board an amount, up to the amount specified in the bond, that is necessary to accomplish the work specified as a condition of the variance.

(7) No variance based on a plan for compliance which includes the installation of major additional equipment shall have a duration of more than three years or shall have a final compliance date later than December 31, 1987.

(8) No variance which is issued due to conditions of breakdown, repair, or malfunction of equipment shall have a duration, including extensions, of more than six months.

(9) Each variance order shall provide that the producer may not produce California gasoline exceeding the applicable lead content standards established by the United States Environmental Protection Agency in Title 40, Code of Federal Regulations, Part 80.

(10) The executive officer may, after holding a hearing without complying with the provisions of paragraphs (jk)(2) and (3), issue an emergency variance to a producer from the requirements of paragraphs (c) or (d) upon a showing of

the hearing, finds necessary to carry out the purposes of Division 26 of the Health and Safety Code.

(6) The executive officer shall require, as a condition of granting a variance, that a cash bond, or a bond executed by two or more good and sufficient sureties or by a corporate surety, be posted by the party to whom the variance was granted to assure performance of any construction, alteration, repair, or other work required by the terms and conditions of the variance. Such bond may provide that, if the party granted the variance fails to perform such work by the agreed date, the cash bond shall be forfeited to the state board, or the corporate surety or sureties shall have the option of promptly remedying the variance default or paying to the state board an amount, up to the amount specified in the bond, that is necessary to accomplish the work specified as a condition of the variance.

(7) No variance based on a plan for compliance which includes the installation of major additional equipment shall have a duration of more than three years or shall have a final compliance date later than December 31, 1987.

(8) No variance which is issued due to conditions of breakdown, repair, or malfunction of equipment shall have a duration, including extensions, of more than six months.

(9) Each variance order shall provide that the producer may not produce California gasoline exceeding the applicable lead content standards established by the United States Environmental Protection Agency in Title 40, Code of Federal Regulations, Part 80.

(10) The executive officer may, after holding a hearing without complying with the provisions of paragraphs (jk)(2) and (3), issue an emergency variance to a producer from the requirements of paragraphs (c) or (d) upon a showing of

reasonably unforseeable extraordinary hardship and good cause that a variance is necessary. In connection with the issuance of an emergency variance, the executive officer may waive the requirements of paragraph (k)(6). No emergency variance may extend for a period of more than 45 days. If the applicant for an emergency variance does not demonstrate that he or she can comply with the provisions of paragraphs (c) or (d) within such 45-day period, an emergency variance shall not be granted unless the applicant makes a prima facie demonstration that the findings set forth in paragraph (4) should be made. The executive officer shall maintain a list of persons who have informed the executive officer in writing of their desire to be notified by telephone in advance of any hearing held pursuant to this paragraph (jk)(10), and shall provide advance telephone notice to any such person.

(11) A variance shall cease to be effective upon failure of the party to whom the variance was granted substantially to comply with any condition.

(12) Upon the application of any person, the executive officer may review and for good cause modify or revoke a variance from the requirements of paragraphs (c) and (d) after holding a hearing in accordance with the provisions of paragraphs (jk)(2) and (3).

(kl)(1) The executive officer may grant a producer, for a calendar quarter, or any remaining portion thereof, a waiver of the requirements of paragraphs (c) or (d) if:

(A) A state of emergency in gasoline supply for the State or any portion thereof has been declared by the Governor, and

(B) The executive officer determines that the granting of waivers to all producers who would be eligible for such waivers would not interfere with the attainment and maintenance of the State or National Ambient Air Quality Standards for lead for the period of the waiver.

(2) Prior to taking action pursuant to paragraph (k)(1), the executive officer shall consult with the Department of Health Services regarding the ambient concentrations of lead which the executive officer predicts will occur as a result of such action.

(3) The executive officer may require conditions on a waiver to enable the executive officer to determine the effect of the granting of the waiver and to minimize the adverse effects of the use of higher lead content gasoline.

(4) If a waiver is granted from the requirements of paragraph (d) for a portion of a calendar quarter, the average lead content standard in paragraph (d) shall apply to the entire portion of the quarter not covered by the waiver.

(l) The lead content of gasoline and gasoline blending stocks shall be determined in accordance with the test methods set forth in Appendix B ("Tests for Lead in Gasoline by Atomic Absorption Spectrometry") of Title 40, Code of Federal Regulations, Part 80, as it existed on July 1, 1982. The phosphorus content of gasoline shall be determined in accordance with ~~American Society for Testing and Materials~~ ASTM Test Method D3231-73. An equivalent test method for determining lead or phosphorus content of gasoline may be used after the executive officer reasonably determines that such test method provides equivalent results to the test method designated in this paragraph.

(m) Whenever a numerical limit is set forth in this section for the lead content, or average lead content, of leaded gasoline, the Absolute Method as set forth in ASTM Standard Recommended Practice E 29-67 shall be used in determining the specified limit.

(n) Each paragraph of this section shall be deemed severable, and in the event that any paragraph of this section is held to be invalid, the remainder of the section shall continue in full force and effect.

(2) Prior to taking action pursuant to paragraph (k)(1), the executive officer shall consult with the Department of Health Services regarding the ambient concentrations of lead which the executive officer predicts will occur as a result of such action.

(3) The executive officer may require conditions on a waiver to enable the executive officer to determine the effect of the granting of the waiver and to minimize the adverse effects of the use of higher lead content gasoline.

(4) If a waiver is granted from the requirements of paragraph (d) for a portion of a calendar quarter, the average lead content standard in paragraph (d) shall apply to the entire portion of the quarter not covered by the waiver.

(~~l~~m) The lead content of gasoline and gasoline blending stocks shall be determined in accordance with the test methods set forth in Appendix B ("Tests for Lead in Gasoline by Atomic Absorption Spectrometry") of Title 40, Code of Federal Regulations, Part 80, as it existed on July 1, 1982. The phosphorus content of gasoline shall be determined in accordance with ~~American Society for Testing and Materials~~ ASTM Test Method D3231-73. An equivalent test method for determining lead or phosphorus content of gasoline may be used after the executive officer reasonably determines that such test method provides equivalent results to the test method designated in this paragraph.

(~~m~~n) Whenever a numerical limit is set forth in this section for the lead content, or average lead content, of leaded gasoline, the Absolute Method as set forth in ASTM Standard Recommended Practice E 29-67 shall be used in determining the specified limit.

(~~n~~o) Each paragraph of this section shall be deemed severable, and in the event that any paragraph of this section is held to be invalid, the remainder of the section shall continue in full force and effect.

TOTAL LEAD EMISSIONS TRIGGER

Renumber §2253.2(d)(2) and (d)(3) as (d)(3) and (d)(4), respectively, and add a new section 2253.2(d)(2) which reads as follows:

(2) If, during any calendar year from 1985 to 1990, the reports required by subparagraph (h) indicate that the total grams of lead contained in all California leaded gasoline exceed the amounts shown in the table below, the limitation in subparagraph (d)(1) shall be reduced by the percent of excess lead. The revised limitation shall be calculated and rounded to the same number of significant figures as the original limitation, and shall become effective October 1 of the year following the year in which the excess was observed.

Calendar Year	Total Lead (10^3 Kilograms)
1985	2,367
1986	2,035
1987	1,704
1988	1,467
1989	1,227
1990	991

Note: Values in the above table are based on the assumption that the leaded gasoline standard is 0.8 grams per gallon. Adjustments are required if the standard adopted by the Board is different from 0.8.

State of California
AIR RESOURCES BOARD

Executive Order G-160

WHEREAS, on October 27 and 28, 1982, the Air Resources Board (the "Board") conducted a public hearing to consider the adoption of regulations regarding toxic air contaminants;

WHEREAS, at the close of the hearing, the Board adopted Resolution 82-52, in which the Board approved Subchapter 7, "Toxic Air Contaminants", for incorporation into Chapter 1, Part III of Title 17, California Administrative Code, commencing with Section 93000; directed the Executive Officer to make the regulations available for at least 15 days prior to adoption and to accept and consider further written comment; and delegated to the Executive Officer the authority to adopt the regulations with nonsubstantive changes;

WHEREAS, following the public hearing, the approved regulations were made available to the public for a period exceeding 15 days, with the changes to the originally proposed text clearly indicated; and

WHEREAS, the Board at a further hearing held December 1, 1982, affirmed its directive to the Executive Officer to adopt the regulations.

NOW, THEREFORE, IT IS HEREBY ORDERED that the recitals and findings contained in Resolution 82-52 are incorporated herein.

IT IS FURTHER ORDERED that Subchapter 7, "Toxic Air Contaminants", Chapter 1, Part III of Title 17, California Administrative Code, commencing with Section 93000, is adopted, as set forth in Attachment A.

Executed this 1st day of December, 1982.

James D. Boyd
Executive Officer

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider Amendments to Section 2253 and Adoption of Section 2253.2 of Title 13, California Administrative Code, Regarding Lead in Gasoline

Agenda Item No.: 82-24-3

Public Hearing Dates: November 10 and 11, 1982 and December 1, 1982

Response Date: December 1, 1982

Issuing Authority: Air Resources Board

Comment: Tosco Corporation asserted that a leaded pool average gasoline lead content standard would cause a greater incidence of misfueling of unleaded only motor vehicles than a total pool standard.

Response: The Board has determined that data in the record do not demonstrate that such a result is likely to occur.

CERTIFIED: Harold Holmes
Board Secretary

Date: 12/2/82

State of California

Memorandum

To : Gordon Van Vleck
Secretary
Resources Agency

Date : January 7, 1983

Subject: Filing of Notice of Decisions of the Air Resources Board

From : Air Resources Board

Pursuant to Title 17, Section 60007 (b), and in compliance with Air Resources Board certification under section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decision and response to environmental comments raised during the comment period.

Harold Holmes
Board Secretary

attachments
Resolution 82-52/Executive Order
[redacted]

STATE OF CALIFORNIA

AIR RESOURCES BOARD

Resolution 82 - 65

December 1, 1982

WHEREAS, Senators Mills, Rains and Sieroty, and Assembly members Berman, Bosco, Cramer, Imbrecht, Ingalls, Kapiloff, Lehman, Levine, McCarthy and Ryan will be leaving the Legislature in 1982; and

WHEREAS, these members of the Legislature have been especially supportive of air quality programs in California; and

WHEREAS, a review of legislative history shows that these members have, in legislative committee and floor votes, made an important and effective public commitment to improving air quality; and

WHEREAS, each of these members have made such contributions over a tenure of several years; and

WHEREAS, legislative support for improving air quality is essential to success in cleaning up the air in California;

NOW THEREFORE BE IT RESOLVED, that these members be commended and paid special tribute to thank them for all their efforts on behalf of the cause of clean air; and

BE IT FURTHER RESOLVED, that the Board through its Chairperson, transmit a letter of appreciation to these legislators thanking them for their efforts to improve air quality in California.

STATE OF CALIFORNIA

AIR RESOURCES BOARD
1102 Q STREET
P. O. BOX 2815
SACRAMENTO, CA 95812

EDMUND G. BROWN JR., Governor

TO BE WANGED

To be Sent to:

Senate	Assembly	
Mills	Berman	Lehman
Rains	Bosco	Levine
Sieroty	Cramer	McCarthy
	Imbrecht	Ryan
	Ingalls	
	Kapiloff	

Dear Assemblyman/Senator:

The Air Resources Board has voted unanimously to express its appreciation to you for your support of air quality programs during your tenure in the Legislature. The Board has reviewed voting records in committee and floor votes, as well as bills carried by members. Based on this review, the Board finds that you have been one of the strongest advocates of better air quality in California.

As Chairperson, it is my pleasure to convey these thanks to you and wish you every success in the future.

Best regards,

Mary D. Nichols
Chairperson

State of California
AIR RESOURCES BOARD

Resolution 82-67

December 9, 1982

Agenda Item No.: 82-27-3

WHEREAS, Sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (the "Board") to adopt standards, rules, and regulations necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, Sections 43013, 43101, and 43104 of the Health and Safety Code authorize the Board to adopt emissions standards and test procedures to control air pollution caused by motor vehicles;

WHEREAS, Section 43100 of the Health and Safety Code authorizes the Board to certify new motor vehicles, and Section 43102 provides that no new motor vehicle shall be certified unless it meets the emissions standards and test procedures adopted by the Board;

WHEREAS, the certification procedures require a demonstration that the vehicle complies with the applicable emission standards throughout the vehicle's certified useful life;

WHEREAS, manufacturers of new motor vehicles intended for sale in California have demonstrated, through the certification procedure, compliance with the applicable emissions standards throughout the useful life of the motor vehicle;

WHEREAS, Section 43106 of the Health and Safety Code requires that each new motor vehicle required to meet the emissions standards established pursuant to Section 43101 be, in all material respects, substantially the same in construction as the test motor vehicle certified by the Board;

WHEREAS, Section 43105 of the Health and Safety Code authorizes the Board, pursuant to regulations adopted by the Board, to require a manufacturer to recall vehicles which violate applicable emissions standards or test procedures;

WHEREAS, the Board has adopted recall regulations, contained in Title 13, California Administrative Code, Section 2109; however, manufacturers have asserted that these regulations apply only to new vehicles and cannot be used by the Board to order recall of in-use vehicles;

WHEREAS, the California Environmental Quality Act and Board regulations require that no project having significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of Chapter 3.5 (commencing with Section 11340), Part 1, Division 3, Title 2 of the Government Code; and

WHEREAS, the Board finds that:

Although test vehicles comply with the applicable emissions standards throughout the certification period, in-use vehicles often fail to meet emissions standards during their certified useful lives, despite proper use and maintenance;

Failure of a vehicle to meet emissions standards is often not apparent to the vehicle owner;

The failure of in-use vehicles to comply with applicable emissions standards during their useful lives results in a substantial increase in emissions;

Monitoring motor vehicles in the hands of consumers is an effective procedure for determining compliance with applicable laws and regulations;

Procedures for emissions-related defects reporting, in-use vehicle recall, and in-use vehicle enforcement testing will enable the Board to effect emission reductions in noncomplying in-use vehicles;

A recall program is both an effective emissions control strategy and an incentive to manufacturers to design and build durable emissions control systems;

The regulations approved herein are necessary to clarify the procedures for recall of in-use vehicles; and

The regulations approved herein will have no significant adverse environmental impacts but will have significant beneficial environmental impacts.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves:

Title 13, Sections 2100 through 2113, California Administrative Code, as set forth in Attachment A;

"California Vehicle Emissions-Related Defects Reporting Procedures for 1978 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, Medium and Heavy-Duty Vehicles, and Motorcycles", as set forth in Attachment B; and

"California In-Use Vehicle Emissions-Related Recall Procedures and In-Use Vehicle Enforcement Test Procedures for 1978 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, Medium and Heavy-Duty Vehicles, and Motorcycles", as set forth in Attachment C.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to adopt Attachments A, B, and C after making them available to the public for a period of 15 days.

BE IT FURTHER RESOLVED that the Board hereby determines that the regulations and procedures approved herein are individually and in the aggregate at least as protective of public health and welfare as comparable federal regulations and are consistent with Sections 202(a) and (b) of the Clean Air Act.

BE IT FURTHER RESOLVED that, to the extent a waiver is necessary, the Executive Officer shall forward the adopted and amended regulations to the Environmental Protection Agency with a request for a waiver of federal preemption or for confirmation that they are within the scope of an existing waiver, pursuant to Section 209(b)(1) of the Clean Air Act.

BE IT FURTHER RESOLVED that each part of the regulations and procedures approved herein shall be deemed severable, and in the event that any part of these regulations and procedures is held to be invalid, the remainder of the regulations and procedures shall continue in full force and effect.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to continue to work with other state agencies, especially the Department of Motor Vehicles and Bureau of Automotive Repair, to coordinate and integrate in-use vehicle recall campaigns with the state's vehicle registration and inspection and maintenance programs.

BE IT FURTHER RESOLVED that the Board delegates authority to the Executive Officer to develop and adopt appropriate procedures for the conduct of any necessary adjudicatory proceedings under the Board's programs, regulations, or other statutory authority.

I hereby certify that the above is a true and correct copy of Resolution 82-67, as adopted by the Air Resources Board.

Harold Holmes, Board Secretary

Article 2. ENFORCEMENT OF NEW AND IN-USE VEHICLE STANDARDS

2100. Purpose.

(a) It is the purpose of this article to implement authority granted the Board in Part 5, Division 26 of the Health and Safety Code in order to monitor vehicles from manufacture through distribution, to and in the hands of consumers, to determine compliance with applicable laws.

(b) This section shall apply to 1977 and subsequent model-year vehicles.

2100.5 Purpose.

(a) It is the purpose of this article to implement authority granted the Board in Part 1, Division 26 of the Health and Safety Code in order to monitor motor vehicles from manufacture through distribution, to and in the hands of consumers, to determine compliance with applicable laws.

(b) This section shall apply to 1976 and previous model-year vehicles only.

NOTE: Authority cited: Section 39601, Health and Safety Code. Reference: Section 43210, Health and Safety Code.

2100.6. Purpose.

(a) It is the purpose of this article to implement authority granted the Board in Part 5, Division 26 of the Health and Safety Code in order to monitor motor vehicles that, although properly maintained and used, are not in compliance with applicable laws and regulations.

(b) This section shall apply to 1978 and subsequent model-year passenger cars, light-duty trucks, medium and heavy-duty vehicles, and motorcycles.

NOTE: Authority Cited: Sections 39601, 43105, 43213, Health and Safety Code. Reference: Sections 43000, 43105, 43106, 43211 - 43213, Health and Safety Code.

2101. Compliance Testing and Inspection - New Vehicle Selection, Evaluation, and Enforcement Action.

(a) The Executive Officer may, with respect to any new vehicle engine family or subgroup being sold, offered for sale, or manufactured for sale in California, order a vehicle manufacturer to make available for compliance testing and/or inspection a reasonable number of vehicles, and may direct that the vehicles be delivered to the Board at the Haagen-Smit Laboratory, 9528 Telstar Avenue, El Monte, California. Vehicles shall be selected at random from sources specified by the Executive Officer according to a method approved

by him or her, which insofar as practical shall exclude (1) vehicles manufactured pursuant to the specific order of an ultimate purchaser or (2) vehicles, the selection of which, if not excluded, would result in an unreasonable disruption of the manufacturer's distribution system.

A subgroup may be selected for compliance testing only if the Executive Officer has reason to believe that the emissions characteristics of that subgroup are substantially in excess of the emissions of the engine family as a whole.

(b) If the vehicles are selected for compliance testing, the selection and testing of vehicles and the evaluation of data shall be made in accordance with the "California New Vehicle Compliance Test Procedures", adopted by the Board on June 24, 1976, and amended May 9, 1979. Motorcycles scheduled for compliance testing shall be selected, tested, and evaluated in accordance with the "California New Motorcycle Compliance Test Procedures," adopted by the Board on June 30, 1977 and amended November 24, 1981.

(c) If the Executive Officer determines, in accordance with the "California New Vehicle Compliance Test Procedures" or the "California New Motorcycle Compliance Test Procedures", that an engine family, or any subgroup within an engine family, exceeds the emission standards for one or more pollutants, the Executive Officer shall notify the manufacturer and may invoke Section 2109. Prior to invoking Section 2109, the Executive Officer shall consider quality audit test results, if any, and any additional test data or other information provided by the manufacturer.

(d) Vehicles selected for inspection shall be checked to verify the presence of those emissions-related components specified in the manufacturer's application for certification, and for the accuracy of any adjustments, part numbers and labels specified in that application. If any vehicle selected for inspection fails to conform to any applicable law in Part 5 (commencing with Section 43000) of Division 26 of the Health and Safety Code, or any regulation adopted by the Board pursuant thereto, other than an emissions standard applied to new vehicles to determine "certification" as specified in Subchapter 1, Article 2 of this Chapter, the Executive Officer shall notify the manufacturer and may invoke Section 2109. Prior to invoking Section 2109, the Executive Officer shall consider any information provided by the manufacturer.

NOTE: Authority cited: Section 39601, Health and Safety Code. Reference: Sections 43000, 43106 and 43210, Health and Safety Code.

2102. Selection of Vehicles.

(a) The Executive Officer may, with respect to any vehicle being sold, offered for sale, or manufactured for sale in California, order a vehicle manufacturer to make available inspection up to three vehicles, and may direct that the vehicles be delivered to the Board at its laboratory. If the vehicles are selected for evaluation pursuant to Section 2103, the Executive Officer shall select three vehicles from each engine family to be evaluated.

Vehicles shall be selected at random from sources specified by the Executive Officer according to a method approved by him which insofar as practical shall exclude (1) vehicles manufactured pursuant to the specific order of an ultimate purchaser or (2) vehicles the selection of which, if not excluded, would result in an unreasonable disruption of manufacturer's distribution system.

The vehicles shall not receive any mechanical, electrical or other adjustment or alteration of any kind after their selection, without the written consent of the Executive Officer, which consent shall not be unreasonably withheld where such adjustment or alteration is required to conform the vehicle to the manufacturer's written instructions for predelivery preparation.

(b) This section shall apply to 1976 and previous model-year vehicles only.

2103. Evaluation

(a) If the Executive Officer determines, by tests of three vehicles of the same engine family selected pursuant to Section 2102, that two of such vehicles exceed one or more individual standards per vehicle by 15% or that one vehicle exceeds all standards for each pollutant by 15%, he shall promptly notify the manufacturer. The manufacturer may at that time supply the Board with two additional vehicles of the same engine family which have been selected in accordance with Section 2102. The Executive Officer shall then conduct the same tests on the two additional vehicles. In determining whether a vehicle exceeds a standard, three or more official approval tests shall be performed on the vehicle and the average of the emissions obtained shall be used. Manufacturer's representatives shall be permitted to observe all tests and may, for good cause shown, request one retest of each of the original three vehicles, which retest shall be averaged with the other tests.

(b) This shall apply to 1976 and previous model-year vehicles only.

2104. Action 2103.

(a) Pursuant to Section 2103, if (a) a majority of the vehicles tested exceeds by 15% one or more individual standards or (b) one vehicle where only three were tested or two vehicles where five were tested each exceeds by 15% all standards for each pollutant, the Executive Officer shall notify the manufacturer and may invoke Section 2109.

(b) This section shall apply to 1976 and previous model-year vehicles only.

2105. Compliance With Applicable Laws.

(a) With respect to any applicable law, other than a standard as defined in subdivision (f) of Section 2100 and an assembly-line test procedure specified in Article 1 of Subchapter 2, the Executive Officer shall evaluate vehicles selected pursuant to Section 2102 to determine their compliance. If any vehicle selected fails to comply with any applicable law other than a standard or an assembly-line test procedure, the Executive Officer shall notify the manufacturer and may invoke Section 2109.

(b) This section shall apply to 1976 and previous model-year vehicles only.

2106. New Vehicle Assembly-Line Inspection Testing. If reports required by an assembly-line test procedure under Article 1 of Subchapter 2 are not in accordance with reporting requirements or if surveillance under Article 2 or Article 3 of Subchapter 2 indicates that assembly-line inspection testing is being improperly performed, or that vehicles are being manufactured which do not comply with the assembly-line emission standards or functional test requirements, the Executive Officer may order corrections of reporting or test procedures, and may, in accordance with Section 2109 or 2110, as applicable, order correction of vehicles not in compliance with applicable laws, emission standards, or test procedures.

2107. Assembly-Line Quality Audit Testing. If any official test procedure adopted by the Board specifies that the Board may find a violation of Section 43105 or 43106, of the Health and Safety Code or of this Article when a specified percentage of assembly-line vehicles exceeds a standard and when data submitted by the manufacturer indicates such percentage is being exceeded or if surveillance under Article 2 or Article 3 of Subchapter 2 indicates that assembly-line quality audit testing is being improperly performed, the Executive Officer may invoke the provisions of Section 2109 or 2110, as applicable.

2108. Order of Executive Officer. Failure to comply with any order of the Executive Officer issued pursuant to this article may result in the revocation or conditioning of certification in the manner specified in Section 2109 or 2110, as applicable.

2109. New Vehicle Recall Provisions.

(a) When this section is invoked pursuant to other sections of this Article or Health and Safety Code Section 43105, the Executive Officer shall require the manufacturer to submit a plan within 30 calendar days of receipt of the invocation order to bring all vehicles into compliance. The Executive Officer shall order execution of the plan with such changes and additions as he or she determines to be necessary. The plan may include measures to identify the cause of vehicle noncompliance and to correct noncomplying

conditions, correction of vehicles under manufacture, correction of vehicles in the possession or control of the manufacturer and dealers, and correction of vehicles in the possession of consumers (by correction upon service whether or not by warranty, by correction following notification of recall by mail, or by correction following efforts actively to locate and correct all such vehicles). The plan may include the temporary cessation of sales to dealers by the manufacturer and efforts by the manufacturer to prevent the sale of vehicles in possession or control of dealers, until the vehicles are corrected. The Executive Officer may order any one or more of the foregoing actions, or any other action reasonably necessary to bring all vehicles into compliance.

(b) The plan shall specify the percentage of vehicles subject to recall which must actually be corrected.

If, after good faith efforts, the manufacturer cannot correct the percentage of vehicles specified in the plan by the applicable deadlines, the manufacturer may request the Executive Officer to modify the percentage of vehicles specified in the plan, setting out in full the good faith efforts of the manufacturer to comply with the original plan, and the reasons it has been unable to comply. The Executive Officer shall, on the basis of this request, modify the percentage of vehicles which must actually be corrected if he or she finds in writing that the manufacturer has made a good faith effort and has shown good cause for the modification. If the manufacturer so requests, the plan shall specify the maximum incentives (such as a tune-up or specified quantity of gasoline), if any, the manufacturer must offer to vehicle owners to induce them to present their vehicles for repair, as a condition of showing that the manufacturer has made a good faith effort to repair the percentage of vehicles specified in the plan. The plan shall also include a schedule for implementing actions to be taken including, identified increments of progress towards implementation, and deadlines for completing each such increment.

(c) If a vehicle is recalled pursuant to this section, the manufacturer shall make all necessary corrections specified in the plan without charge to the registered owner of the vehicle or, at the manufacturer's election, shall reimburse the registered owner for all costs (except incidental and consequential damages) of making such necessary corrections.

The term "all costs" shall not include incidental or consequential damages, except that the manufacturer shall reimburse the registered owner for any damage to the vehicle's emissions control system proximately caused by a defect subject to a recall action under this subsection or an action by a manufacturer taken pursuant to a plan under this subsection.

(d) If the plan ordered by the Executive Officer pursuant to this subsection includes a recall, the manufacturer may, within 20 calendar days of its receipt of the plan ordered by the Executive Officer, notify the Executive Officer of its desire to contest the necessity for or scope of that order. Any such notification shall specify the basis of the manufacturer's objections. Upon receipt of such notification, the Executive Officer shall

stay the recall until the Board affords the manufacturer the opportunity, at a public hearing to be scheduled no less than 30 calendar days and no more than 60 calendar days after receipt of such notification, to present evidence in support of its objections.

A stay of a recall shall not, unless otherwise ordered, stay any other portion of a plan required herein or any other order issued pursuant to this Article.

The manufacturer may, within 20 calendar days of its receipt of the plan ordered by the Executive Officer, request a public hearing of the Board on the necessity for or scope of any other corrective action ordered by the Executive Officer. Such a hearing shall be held by the Board not less than 30 and no more than 60 calendar days after receipt of the manufacturer's request for such a hearing. The plan ordered by the Executive Officer shall remain in effect pending such hearing, unless otherwise ordered by the Executive Officer.

(e) Failure by a manufacturer to carry out all corrective actions or recall actions ordered by the Executive Officer pursuant to Section 2106 or to subsection (a) of this section according to the schedule included in the plan ordered by the Executive Officer shall constitute a violation of that order and of Health and Safety Code Section 43105. The Executive Officer shall extend any deadline in the plan if he or she finds in writing that a manufacturer has shown good cause for such extension.

If the manufacturer fails to correct the percentage of vehicles subject to recall specified in the recall plan issued by the Executive Officer (including any modifications made by him or her), by the deadline(s) included in that plan, each vehicle included in the number of vehicles by which the manufacturer falls short of such percentage shall constitute a separate violation of the order and of Health and Safety Code Section 43016.

The Board may hold a public hearing to consider whether approval of such vehicles shall be suspended or conditioned. The Board shall hold such a hearing if requested to do so by either the affected manufacturer or the Executive Officer.

After the hearing, the Board may suspend or condition approval if it finds that the corrective action ordered by the Executive Officer was reasonable and that the manufacturer failed to comply or to comply within the specified time period.

NOTE: Authority cited: Sections 39600, 39601, 43105, Health and Safety Code. Reference: Sections 43000, 43016, 43100-43102, 43104 and 43106, Health and Safety Code.

2110. Remedial Action for Assembly-Line Quality Audit Testing of Less than a Full Calendar Quarter of Production.

(a) When this section is invoked pursuant to other sections of this Article or Health and Safety Code Section 43105, the Executive Officer shall order the manufacturer to submit a remedial action plan to bring all vehicles in possession of the manufacturer into compliance. The manufacturer shall submit the plan within 30 calendar days after it receives the order. The Executive Officer may order execution of the plan with such changes and additions as he or she determines are necessary, including additional testing and reporting, consistent with the applicable assembly-line test procedures, to verify acceptability of the plan. The plan shall include a schedule for implementing actions to be taken, including identified increments of progress towards implementation, and deadlines for completing each such increment. The Executive Officer may not order a recall pursuant to this section.

(b) The manufacturer may, within 20 calendar days of its receipt of order for remedial action, request a public hearing of the Board on the necessity for or scope of any corrective action ordered by the Executive Officer. Such a hearing shall be held by the Board not less than 30 nor more than 60 calendar days after receipt of the manufacturer's request for such a hearing. The plan ordered by the Executive Officer shall remain in effect pending such hearing, unless otherwise ordered by the Executive Officer.

(c) Failure by a manufacturer to carry out all corrective actions ordered by the Executive Officer shall constitute a violation of that order and of Health and Safety Code Section 43105. The Executive Officer shall extend any deadline in the plan if he or she finds in writing that a manufacturer has shown good cause for such extension. Each vehicle required by the plan issued by the Executive Officer (including any modifications made by him or her) to receive remedial action which does not receive such action by the deadline(s) included in the plan shall constitute a separate violation of the order and of Health and Safety Code Section 43106.

The Board may hold a public hearing to consider whether approval of such vehicles shall be suspended or conditioned.

The Board shall hold such a hearing if requested to do so by either the affected manufacturer or the Executive Officer.

After such hearing, the Board may suspend or condition approval if it finds that the corrective action ordered by the Executive Officer was reasonable and that the manufacturer failed to comply or to comply within the specified time period.

NOTE: Authority cited: Sections 39600, 39601, and 43105, Health and Safety Code. Reference: Sections 43000, 43016, 43100-43102, 43104 and 43106, Health and Safety Code.

2111. In-Use Vehicle Emissions-Related Defects Reporting Procedures.

All 1978 and subsequent model-year passenger cars, light-duty trucks, medium and heavy-duty vehicles, and motorcycles, certified for sale and registered in California, shall be subject to the "California Vehicle Emissions-Related Defects Reporting Procedures for 1978 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, Medium and Heavy-Duty Vehicles, and Motorcycles", adopted . ~~Failure to report as required in these procedures shall subject the manufacturer to the penalties provided in Health and Safety Code Section 43016.~~

NOTE: Authority Cited: Sections 39601, 43105, 43213, Health and Safety Code. Reference: Sections 43000, ~~43016~~, 43105, 43106, 43211 - 43213, Health and Safety Code.

2112. In-Use Vehicle Emissions-Related Recall Regulations.

All 1978 and subsequent model-year passenger cars, light-duty trucks, medium and heavy-duty vehicles, and motorcycles, certified for sale and registered in California, shall be subject to the "California In-Use Vehicle Emissions-Related Recall Procedures and In-Use Vehicle Enforcement Test Procedures for 1978 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, Medium and Heavy-Duty Vehicles, and Motorcycles", adopted .

NOTE: Authority Cited: Sections 39601, 43105, 43213, Health and Safety Code. Reference: Sections 43000, 43105, 43106, 43211 - 43213, Health and Safety Code.

2113. In-Use Vehicle Recall Provisions.

A manufacturer shall be subject to Section 2112 and to all appropriate penalties whenever:

(a) a substantial number of a class or category of vehicles or engines contain a defect in an emissions-related component within their useful lives which is likely to result in increased emissions and which, if uncorrected, ~~may~~ is likely to result in failure to meet applicable standards; or

(b) a class or category of vehicles or engines, within their useful lives, does not conform to the applicable emission standards, on average.

NOTE: Authority Cited: Sections 39601, 43105, 43213, Health and Safety Code. Reference: Sections 43000, 43105, 43106, 43211 - 43213, Health and Safety Code.

2114. Severability.

Each part of this article shall be deemed severable, and in the event that any part of this article is held to be invalid, the remainder of this article shall continue in full force and effect.

NOTE: Authority Cited: Section 39601, Health and Safety Code. Reference: Sections 43000, 43100 - 43102, 43104 - 43106, 43210 - 43213, Health and Safety Code.

State of California
AIR RESOURCES BOARD

CALIFORNIA VEHICLE EMISSIONS-RELATED DEFECTS REPORTING PROCEDURES FOR 1978 AND SUBSEQUENT MODEL-YEAR PASSENGER CARS, LIGHT-DUTY TRUCKS, MEDIUM AND HEAVY-DUTY VEHICLES, AND MOTORCYCLES

A. GENERAL PROVISIONS

(1) These procedures shall apply to:

(a) California certified 1978 and subsequent model-year passenger cars, light-duty trucks, medium-duty and heavy-duty vehicles, and motorcycles.

(b) California certified motor vehicle engines used in such vehicles.

(2) The requirement to report emissions-related defects affecting a given class or category of vehicles or engines shall remain applicable for the useful life of the vehicles or engines.

(3) For the purposes of these procedures, the following definitions shall apply:

(a) "Useful Life" means:

(i) In the case of Class I motorcycles and motorcycle engines (50 to 169 cc or 3.1 to 10.4 cu. in.), a period of use of five years or 12,000 kilometers (7,456 miles), whichever first occurs.

(ii) In the case of Class II motorcycles and motorcycle engines (170 to 279 cc or 10.4 to 17.1 cu. in.), a period of use of five years or 18,000 kilometers (11,185 miles), whichever first occurs.

(iii) In the case of Class III motorcycles and motorcycle engines (280 cc and larger or 17.1 cu. in. and larger), a period of use of five years or 30,000 kilometers (18,641 miles), whichever first occurs.

(iv) In the case of diesel-powered heavy-duty vehicles (except medium-duty vehicles), and motor vehicle engines used in such vehicles, a period of use of five years, 100,000 miles, or 3000 hours of operation, whichever first occurs.

(v) In the case of light-duty and medium-duty vehicles certified under the Optional 100,000 Mile Certification Procedure, and motor vehicle engines used in such vehicles, a period of use of ten years or 100,000 miles, whichever first occurs.

(vi) In the case of all other light-duty, medium-duty and heavy-duty vehicles, and motor vehicle engines used in such vehicles, a period of use of five years or 50,000 miles, whichever first occurs. For those passenger cars, light-duty trucks and medium-duty vehicles certified pursuant

to Title 13, California Administrative Code, Section 1960.15, the useful life shall be seven years, or 75,000 miles, whichever first occurs; however, the manufacturer's reporting and recall responsibility beyond 5 years or 50,000 miles shall be limited, as provided in Section 1960.15.

(b) "Emissions-Related Defect" shall mean a defect in design, materials, or workmanship in a device, system, or assembly described in the approved application for certification which affects any parameter, specification, or component enumerated in Appendix A. Excepted are defects in devices, systems and assemblies which the Executive Officer has deleted from the manufacturer's list of warranted parts pursuant to Section 2036(f), Title 13, California Administrative Code.

(c) Quarterly reports shall refer to the following calendar periods: January 1 - March 31, April 1 - June 30, July 1 - September 30, October 1 - December 31.

(d) "Days" shall mean normal working days when computing any period of time, unless otherwise noted.

(e) "Vehicle or engine manufacturer" means the manufacturer granted certification for a motor vehicle or motor vehicle engine. In the case of motor vehicles for which certification of the exhaust and evaporative emission control systems is granted to different manufacturers, the defect reporting responsibility shall be assigned accordingly.

(f) "Voluntary Emissions Recall" shall mean an inspection, repair, adjustment, or modification program voluntarily initiated and conducted by a manufacturer to remedy any emissions-related defect or nonconformity for which direct notification of vehicle or engine owners has been provided.

(g) "Ordered Emissions Recall" shall mean an inspection, repair, adjustment, or modification program required by the Board and conducted by the manufacturer to remedy any emissions-related defect or nonconformity for which direct notification of vehicle or engine owners has been provided.

(h) "Ultimate purchaser" shall be defined as provided in Section 39055.5 of the Health and Safety Code.

B. DEFECT INFORMATION REPORTS

(1) A manufacturer shall file a defect information report whenever:

(a) On the basis of date obtained subsequent to the effective date of these regulations, the manufacturer determines in accordance with procedures established by the manufacturer to identify safety-related defects (pursuant to 15 U.S.C. 1381 et seq., as amended) that a specific emissions-related defect exists in twenty-five or more vehicles or engines of the same model year; or

(b) The Executive Officer, with cause, requests such report, irrespective of when the defects were detected.

(2) No report shall be filed under these procedures for any emissions-related defect corrected prior to the sale of the affected vehicles or engines to an ultimate purchaser.

(3) Defect information reports required under subsection B.(1)(a) of these procedures shall be submitted not more than 15 working days after an emissions-related defect is found to affect twenty-five vehicles or engines of the same model year. Defect information reports requested under subsection B.(1)(b) of these procedures shall be submitted not more than 30 working days after the request is received. Items of information required by subsection B.(4) of these procedures that are either not available within that period or are significantly revised shall be submitted as they become available.

(4) Except as provided in subsection B.(3) of these procedures, each defect report shall contain the following information in substantially the format outlined below:

(a) The manufacturer's corporate name.

(b) A description of the defect.

(c) A description of each class or category of vehicles or engines potentially affected by the defect including make, model, model year, and such other information as may be required to identify the vehicles or engines affected.

(d) For each class or category of vehicle or engine described in response to subsection B.(4)(c) of these procedures, the following shall also be provided:

(i) The number of vehicles or engines known or estimated to have the defect and an explanation of the means by which this number was determined.

(ii) The address of the plant(s) at which the potentially defective vehicles or engines were produced.

(e) An evaluation of the emissions impact of the defect and a description of any driveability problems which a defective vehicle might exhibit.

(f) Available emissions data which relate to the defect.

(g) An indication of any anticipated manufacturer follow-up.

C. VOLUNTARY EMISSIONS-RELATED RECALL

(1) When any manufacturer initiates a voluntary emissions recall campaign involving twenty-five or more vehicles or engines, the manufacturer shall submit a report describing the manufacturer's voluntary emissions recall plan as prescribed by these procedures within 15 working days of the date owner notification was begun. The report shall contain the following:

(a) A description of each class or category of vehicle or engine recalled including the number of vehicles to be recalled, the model year, the make, the model, and such other information as may be required to identify the vehicles or engines recalled.

(b) A description of the specific modifications, alterations, repairs, corrections, adjustments, or other changes to be made to correct the vehicles or engines affected by the emissions-related defect.

(c) A description of the method by which the manufacturer will determine the names and addresses of vehicle or engine owners and the method by which they will be notified.

(d) A description of the procedure to be followed by vehicle or engine owners to obtain correction of the nonconformity. This shall include designation of the date on or after which the owner can have the nonconformity remedied, the time reasonably necessary to perform the labor to remedy the defect, and the designation of facilities at which the defect can be remedied.

(e) If some or all of the nonconforming vehicles or engines are to be remedied by persons other than dealers or authorized warranty agents of the manufacturer, a description of the class of persons other than dealers and authorized warranty agents of the manufacturer who will remedy the defect.

(f) Three copies of the letters of notification to be sent to vehicle or engine owners.

(g) A description of the system by which the manufacturer will assure that an adequate supply of parts will be available to perform the repair under the remedial plan including the date by which an adequate supply of parts will be available to initiate the repair campaign, the percentage of the total parts requirement of each person who is to perform the repair under the remedial plan to be shipped to initiate the campaign, and the method to be used to assure the supply remains both adequate and responsive to owner demand.

(h) Three copies of all necessary instructions to be sent to those persons who are to perform the repair under the remedial plan.

(i) A description of the impact of the proposed changes on fuel consumption, driveability, and safety of each class or category of vehicles or engines to be recalled.

~~(j)~~ (2) The manufacturer shall not condition eligibility for repair on the proper maintenance or use of the vehicle except for strong and compelling reasons and with approval of the Executive Officer; however, the manufacturer shall not be obligated to repair a component which has been removed or ~~rendered unrepairable~~ altered so that the remedial action cannot be performed without additional cost.

~~(k)~~ (3) The manufacturer shall require those who perform the repair under the voluntary recall to affix a label to each vehicle or engine repaired, or, when required, inspected under the voluntary recall.

~~(l)~~ (a) The label shall be placed in such location as approved by the Executive Officer consistent with State law and shall be fabricated of a material suitable for the location in which it is installed and which is not readily removable intact.

~~(m)~~ (b) The label shall contain:

(i) the voluntary recall campaign number; and

(ii) A code designating the campaign facility at which the repair, or inspection for repair, was performed.

~~(n)~~ (4) The notification of vehicle or engine owners shall contain the following statement, "Your (vehicle or engine) (is or may be) releasing air pollutants which exceed (California or California and federal) standards. ~~These standards were established to protect your health and welfare from the dangers of air pollution,"~~ will be included in the owner notification letter.

~~(2)~~ (5) Unless otherwise specified by the Executive Officer, the manufacturer shall report on the progress of the voluntary recall campaign by submitting subsequent reports for six consecutive quarters commencing with the quarter after the voluntary emissions recall campaign actually begins. Such reports shall be submitted no later than 25 working days after the close of each calendar quarter. For each class or category of vehicle or engine subject to the voluntary emissions recall campaign, the quarterly report shall contain the:

(a) Emissions recall campaign number designated by the manufacturer.

(b) Date owner notification was begun, and date completed.

(c) Number of vehicles or engines involved in the voluntary emissions recall campaign.

(d) Number of vehicles or engines known or estimated to be affected by the emissions-related defect and an explanation of the means by which this number was determined.

(e) Number of vehicles or engines inspected pursuant to the voluntary emissions recall plan.

(f) Number of inspected vehicles found to be affected by the emissions-related defect.

(g) Number of vehicles actually receiving repair under the remedial plan.

(h) Number of vehicles determined to be unavailable for inspection or repair under the remedial plan due to exportation, theft, scrapping, or for other reasons (specify).

(i) Number of vehicles or engines determined to be ineligible for remedial action due to ~~a failure to properly maintain or use such vehicles or engines~~ removed or altered components.

(j) Three copies of any service bulletins transmitted to dealers which relate to the defect to be corrected and which have not previously been reported.

(k) Three copies of all communications transmitted to vehicle or engine owners which relate to the defect to be corrected and which have not previously been submitted.

~~(3)~~ (6) If the manufacturer determines that any of the information requested in B (4) of these procedures has changed or was incorrect, revised information and an explanatory note shall be submitted. Answers to paragraphs C.(5)(c), (d), (e), (f), (g), (h), and (i) of these procedures shall be cumulative totals.

~~(4)~~ (7) The manufacturer shall maintain in a form suitable for inspection, such as computer information storage devices or card files, the names and addresses of vehicle or engine owners:

(a) To whom notification was given;

(b) Who received remedial repair or inspection under the remedial plan; and

(c) Who were determined not to qualify for such remedial action when eligibility is ~~conditioned on proper maintenance or use~~ denied due to removed or altered components.

~~(5)~~ (8) The records described in subsection C.(7) of these procedures shall be made available to the Executive Officer or his or her authorized representative upon request.

~~(6)~~ (9) The reports required by these procedures shall be sent to: Chief, Mobile Source Control Division, 9528 Telstar Avenue, El Monte, California 91731.

~~(7)~~ (10) The information gathered by the manufacturer to compile the reports required by these procedures shall be retained for not less than one year beyond the useful life of the vehicles or engines and shall be made available to authorized personnel of the Air Resources Board upon request.

~~(8)~~ (11) The filing of any report under the provisions of these procedures shall not affect a manufacturer's responsibility to file reports or applications, obtain approval, or give notice under any provisions of law.

(i) Number of vehicles or engines determined to be ineligible for remedial action due to ~~a failure to properly maintain or use such vehicles or engines~~ removed or altered components.

(j) Three copies of any service bulletins transmitted to dealers which relate to the defect to be corrected and which have not previously been reported.

(k) Three copies of all communications transmitted to vehicle or engine owners which relate to the defect to be corrected and which have not previously been submitted.

~~(3)~~ (6) If the manufacturer determines that any of the information requested in B (4) of these procedures has changed or was incorrect, revised information and an explanatory note shall be submitted. Answers to paragraphs C.(2)(c), (d), (e), (f), (g), (h), and (i) of these procedures shall be cumulative totals.

~~(4)~~ (7) The manufacturer shall maintain in a form suitable for inspection, such as computer information storage devices or card files, the names and addresses of vehicle or engine owners:

(a) To whom notification was given;

(b) Who received remedial repair or inspection under the remedial plan; and

(c) Who were determined not to qualify for such remedial action when eligibility is ~~conditioned on proper maintenance or use~~ denied due to removed or altered components.

~~(5)~~ (8) The records described in subsection C.(4) of these procedures shall be made available to the Executive Officer or his or her authorized representative upon request.

~~(6)~~ (9) The reports required by these procedures shall be sent to: Chief, Mobile Source Control Division, 9528 Telstar Avenue, El Monte, California 91731.

~~(7)~~ (10) The information gathered by the manufacturer to compile the reports required by these procedures shall be retained for not less than one year beyond the useful life of the vehicles or engines and shall be made available to authorized personnel of the Air Resources Board upon request.

~~(8)~~ (11) The filing of any report under the provisions of these procedures shall not affect a manufacturer's responsibility to file reports or applications, obtain approval, or give notice under any provisions of law.

APPENDIX A

CALIFORNIA VEHICLE EMISSIONS-RELATED DEFECT REPORTING PROCEDURES FOR 1978 AND SUBSEQUENT MODEL-YEAR PASSENGER CARS, LIGHT-DUTY TRUCKS, MEDIUM AND HEAVY-DUTY VEHICLES, AND MOTORCYCLES

Vehicle and Engine Parameters, Components, and Specifications

A. Passenger Car, Light-Duty Truck, Medium-Duty Vehicle and Motorcycle Parameters and Specifications

I. Basic Engine Parameters--Reciprocating Engines.

1. Compression ratio.
2. Cranking compression pressure.
3. Valves (intake and exhaust).
   a. Head diameter dimension.
   b. Valve lifter or actuator type and valve lash dimension.
4. Turbocharger calibrations.
5. Camshaft timing.
   a. Valve opening (degrees BTDC).
   b. Valve closing (degrees ATDC).
   c. Valve overlap (inch-degrees).

II. Basic Engine Parameters--Rotary Engines.

1. Intake port(s).
   a. Timing and overlap if exposed to the combustion chamber.
2. Exhaust port(s).
   a. Timing and overlap if exposed to the combustion chamber.
3. Cranking compression pressure.
4. Compression ratio.

III. Air Inlet System

1. Temperature control system calibration.

IV. Fuel System.

1. General
   a. Engine idle speed.
   b. Engine idle mixture.
2. Carburetion.
   a. Air-fuel flow calibration.
   b. Transient enrichment system calibration.
   c. Starting enrichment system calibration.
   d. Altitude compensation system calibration.
   e. Hot-idle compensation system calibration.

3. Fuel injection.
   a. Control parameters and calibrations.
   b. Fuel shutoff system calibration.
   c. Starting enrichment system calibration.
   d. Transient enrichment system calibration.
   e. Air-fuel flow calibration.
   f. Altitude compensation system calibration.
   g. Operating pressure(s).
   h. Injector timing calibrations.

V. Ignition System.

1. Control parameters and calibrations.
2. Initial timing setting.
3. Dwell setting.
4. Altitude compensation system calibration.
5. Spark plug voltage.

VI. Engine Cooling System.

1. Thermostat calibration.

VII. Exhaust Emission Control System.

1. Air injection system.
   a. Control parameters and calibrations.
   b. Pump flow rate.
2. EGR system.
   a. Control parameters and calibrations.
   b. EGR valve flow calibration.
3. Catalytic converter system.
   a. Active surface area.
   b. Volume of catalyst.
   c. Conversion efficiency.
   d. Leaded fuel restrictor or constricted fuel filler neck.
4. Backpressure.

VIII. Evaporative Emission Control System.

1. Control parameters and calibrations.
2. Fuel tank.
   a. Pressure and vacuum relief settings.
   b. Fuel fill pipe and opening specifications (Reference Section 2290, Title 13, C.A.C.).

IX. Crankcase Emission Control System.

1. Control parameters and calibrations.
2. Valve calibration(s).

X. Auxiliary Emission Control Devices (AECD).

1. Control parameters and calibrations.
2. Component calibration(s).

XI. Emission Control Related Warning Systems.

1. Control parameters and calibrations.
2. Component calibration(s).

XII. Driveline Parameters.

1. Axle ratio(s).

B. Heavy-Duty Gasoline Engine Parameters and Specifications

I. Basic Engine Parameters.

1. Compression ratio.
2. Cranking compression pressure.
3. Supercharger/turbocharger calibration.
4. Valves (intake and exhaust).
   a. Head diameter dimension.
   b. Valve lifter or actuator type and valve lash dimension.
5. Camshaft timing.
   a. Valve opening (degrees BTDC).
   b. Valve closing (degrees ATDC).
   c. Valve overlap (inch-degrees).

II. Air Inlet System.

1. Temperature control system calibration.

III. Fuel System.

1. General.
   a. Engine idle speed.
   b. Engine idle mixture.
2. Carburetion.
   a. Air-fuel flow calibration.
   b. Transient enrichment system calibration.
   c. Starting enrichment system calibration.
   d. Altitude compensation system calibration.
   e. Hot-idle compensation system calibration.
3. Fuel injection.
   a. Control parameters and calibrations.
   b. Fuel shutoff system calibration.
   c. Starting enrichment system calibration.
   d. Transient enrichment system calibration.
   e. Air-fuel flow calibration.
   f. Altitude compensation system calibration.
   g. Operating pressure(s).
   h. Injector timing calibration.

IV. Ignition System.

1. Control parameters and calibrations.
2. Initial timing setting.
3. Dwell setting.
4. Altitude compensation system calibration.
5. Spark plug voltage.

V. Engine Cooling System.

1. Thermostat calibration.

VI. Exhaust Emission Control System.

1. Air injection system.
   a. Control parameters and calibrations.
   b. Pump flow rate.
2. EGR system.
   a. Control parameters and calibrations.
   b. EGR valve flow calibration.
3. Catalytic converter system.
   a. Active surface area.
   b. Volume of catalyst.
   c. Conversion efficiency.
   d. Leaded fuel restrictor or constricted fuel filler neck.
4. Backpressure.

VII. Evaporative Emission Control System.

1. Control parameters and calibrations.
2. Fuel tank.
   a. Pressure and vacuum relief settings.
   b. Fuel fill pipe and opening specifications (Reference Section 2290, Title 13, C.A.C.).

VIII. Crankcase Emission Control System.

1. Control parameters and calibrations.
2. Valve calibration(s).

IX. Auxiliary Emission Control Devices (AECD).

1. Control parameters and calibrations.
2. Component calibration(s).

X. Emission Control Related Warning Systems.

1. Control parameters and calibrations.
2. Component calibration(s).

C. Heavy-Duty Diesel Engine Parameters and Specifications

I. Basic Engine Parameters--Four Stroke Cycle Reciprocating Engines.

1. Compression ratio.
2. Cranking compression pressure.
3. Supercharger/turbocharger calibration.
4. Valves (intake and exhaust).
   a. Head diameter dimension.
   b. Valve lifter or actuator type and valve lash dimension.
5. Camshaft timing.
   a. Valve opening (degrees BTDC).
   b. Valve closing (degrees ATDC).
   c. Valve overlap (inch-degrees).

II. Basic Engine Parameters--Two-Stroke Cycle Reciprocating Engine.

1-5. Same as Section C.I.
6. Intake port(s).
   a. Timing in combustion cycle.
7. Exhaust port(s).
   a. Timing in combustion cycle.

III. Air Inlet System.

1. Temperature control system calibration.
2. Maximum allowable air inlet restriction.

IV. Fuel System.

1. Fuel injection.
   a. Control parameters and calibrations.
   b. Transient enrichment system calibration.
   c. Air-fuel flow calibration.
   d. Altitude compensation system calibration.
   e. Operating pressure(s).
   f. Injector timing calibration.

V. Exhaust Emission Control System.

1. Maximum allowable backpressure.

VI. Crankcase Emission Control System.

1. Control parameters and calibrations.
2. Valve calibration(s).

VII. Auxiliary Emission Control Device (AECD).

1. Control parameters and calibrations.
2. Component calibration(s).

State of California
AIR RESOURCES BOARD

CALIFORNIA IN-USE VEHICLE EMISSIONS-RELATED RECALL PROCEDURES AND IN-USE VEHICLE ENFORCEMENT TEST PROCEDURES FOR 1978 AND SUBSEQUENT MODEL-YEAR PASSENGER CARS, LIGHT-DUTY TRUCKS, MEDIUM AND HEAVY-DUTY VEHICLES, AND MOTORCYCLES.

A. GENERAL PROVISIONS

Section A, "GENERAL PROVISIONS", of the "California Emissions-Related Defects Reporting Procedures for 1978 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, Medium and Heavy-Duty Vehicles, and Motorcycles" is hereby incorporated in these procedures.

B. IN-USE VEHICLE RECALL PROCEDURES

(1) A manufacturer will be notified whenever the Executive Officer has determined that a substantial number of a class or category of vehicles or engines produced by that manufacturer, although properly maintained and used, contain a defect in an emissions-related component within their useful lives which is likely to result in increased emissions and which, if uncorrected, may result in failure to meet applicable standards, or a class or category of vehicles or engines within their useful lives, on average, do not conform to the standards prescribed under Part 5, Division 26 of the Health and Safety Code and applicable to the model year of such vehicles. The notification will include a description of each class or category of vehicles or engines encompassed by the determination of nonconformity, will give the factual basis for the determination of nonconformity (except information previously provided the manufacturer by the Air Resources Board), and will designate a date, no sooner than 45 days from the date of receipt of such notification, by which the manufacturer shall have submitted a plan to remedy the nonconformity.

(2) Unless a public hearing is requested by the manufacturer, the remedial plan shall be submitted to the Executive Officer within the time limit specified in the notification, provided that the Executive Officer may grant the manufacturer an extension upon good cause shown.

(3) If the manufacturer disagrees with the Executive Officer's finding of nonconformity he may request a public hearing to contest the necessity for or the scope of any ordered corrective action. Requests for such a hearing shall be filed with the Executive Officer not later than 45 days after the receipt of the notification of nonconformity unless otherwise specified by the Executive Officer. Such a hearing shall be held by the Board not less than 30 and no more than 60 calendar days after receipt of the manufacturer's request for such a hearing.

(4) If a manufacturer requests a public hearing pursuant to subsection B.(3) of these procedures, unless as a result of such hearing the Executive Officer withdraws his determination of nonconformity, the manufacturer shall submit the remedial plan within 30 days ~~of the end of such hearing~~ after receipt of Executive Officer's decision.

(5) When a manufacturer is notified by the Executive Officer of a defect or nonconformity, the manufacturer shall submit a remedial plan to the Executive Officer which contains the following:

(a) A description of each class or category of vehicle or engine to be recalled including the model year, the make, the model, and such other information as may be required to identify the vehicles or engines to be recalled.

(b) A description of the specific modifications, alterations, repairs, corrections, adjustments or other changes to be made to bring the vehicles or engines into conformity including a brief summary of the data and technical studies which support the manufacturer's decision as to the particular remedial changes to be used in correcting the nonconformity.

(c) A description of the method by which the manufacturer will determine the names and addresses of vehicle or engine owners.

(d) A description of the procedure to be followed by vehicle or engine owners to obtain correction of the nonconformity. This shall include designation of the date on or after which the owner can have the nonconformity remedied, the time reasonably necessary to perform the labor required to correct the nonconformity, and the designation of facilities at which the nonconformity can be remedied: Provided, that repair shall be completed within a reasonable time designated by the Executive Officer from the date the owner first tenders his vehicle or engine after the date designated by the manufacturer as the date on or after which the owner can have the nonconformity remedied.

(e) If some or all of the nonconforming vehicles or engines are to be remedied by persons other than dealers or authorized warranty agents of the manufacturer, a description of the class of persons other than dealers and authorized warranty agents of the manufacturer who will remedy the nonconformity, and a statement indicating that the participating members of the class will be properly equipped to perform such remedial action.

(f) The percentage of vehicles subject to recall which must actually be corrected. If, after good faith efforts, the manufacturer cannot correct the percentage of vehicles specified in the plan by the applicable deadlines, the manufacturer may request the Executive Officer to modify the percentage of vehicles specified in the plan, setting out in full the good faith efforts of the manufacturer to comply with the original plan, and the reasons it has been unable to comply. The Executive Officer shall, on the basis of this request, modify the percentage of vehicles which must actually be corrected if he or she finds in writing that the manufacturer has made a good faith effort and has shown good cause for the modification. If the manufacturer so requests, the plan shall specify the maximum incentives (such as a tune-up or specified quantity of gasoline), if any, the manufacturer must offer to vehicle owners to induce them to present their vehicles for repair, as a condition of showing that the manufacturer has made a good faith effort

to repair the percentage of vehicles specified in the plan. The plan shall also include a schedule for implementing actions to be taken including identified increments of progress towards implementation and deadlines for completing each such increment.

(g) Three copies of the letters of notification to be sent to vehicle or engine owners.

(h) A description of the system by which the manufacturer will assure that an adequate supply of parts will be available to perform the repair under the remedial plan including the date by which an adequate supply of parts will be available to initiate the repair campaign, the percentage of the total parts requirement of each person who is to perform the repair under the remedial plan to be shipped to initiate the campaign, and the method to be used to assure the supply remains both adequate and responsive to owner demand.

(i) Three copies of all necessary instructions to be sent to those persons who are to perform the repair under the remedial plan.

(j) A description of the impact of the proposed changes on fuel consumption, driveability, and safety of each class or category of vehicles or engines to be recalled and a brief summary of the data, technical studies, or engineering evaluations which support these conclusions.

(k) Any other information, reports, or data which the Executive Officer may reasonably determine is necessary to evaluate the remedial plan.

(6) (a) Notification to vehicle or engine owners shall be made by first class mail or by such means as approved by the Executive Officer: Provided, that for good cause, the Executive Officer may require the use of certified mail to ensure an effective notification.

(b) The manufacturer shall use all reasonable means necessary to locate vehicle or engine owners: Provided, that for good cause, the Executive Officer may require the manufacturer to use motor vehicle registration lists as available from State or commercial sources to obtain the names and addresses of vehicle or engine owners to ensure an effective notification.

(c) The Executive Officer reserves the right to require the manufacturer to send by first class mail or other reasonable means subsequent notification to vehicle or engine owners: Provided, that for good cause, the Executive Officer may require the use of certified mail to ensure an effective notification.

(7) (a) The manufacturer shall require those who perform the repair under the remedial plan to affix a label to each vehicle or engine repaired or, when required, inspected under the remedial plan.

(b) The label shall be placed in such location as approved by the Executive Officer consistent with State law and shall be fabricated of a material suitable for the location in which it is installed and which is not readily removable intact.

(c) The label shall contain:

(i) the recall campaign number; and

(ii) a code designating the campaign facility at which the repair, or inspection for repair, was performed.

(d) The Executive Officer reserves the right to waive any or all of the requirements of these procedures if he or she determines that they constitute an unwarranted burden to the manufacturer.

(8) The Executive Officer may require the manufacturer to conduct tests on components and vehicles or engines incorporating a proposed change, repair, or modification reasonably designed and necessary to demonstrate the effectiveness of the change, repair, or modification.

(9) If the Executive Officer finds that the remedial plan is designed and effective to correct the nonconformity, he or she will so notify the manufacturer in writing. If the remedial plan is not approved as submitted, the Executive Officer will provide the manufacturer notice of the disapproval and the reasons for the disapproval in writing. The Executive Officer shall order modification of the plan with such changes and additions as he or she determines to be necessary.

(10) Upon receipt of notice from the Executive Officer that the remedial plan has been approved, the manufacturer shall commence implementation of the approved plan. Notification of vehicle or engine owners shall be in accordance with requirements of these procedures and shall proceed as follows:

(a) When no public hearing is requested by the manufacturer, notification of ~~vehicles~~ vehicle or engine owners shall commence within 15 working days of the receipt by the manufacturer of the Executive Officer's approval unless otherwise specified by the Executive Officer.

(b) When a public hearing is held, unless as a result of such hearing the Executive Officer withdraws the determination of nonconformity, the Executive Officer shall, within 60 days after the completion of such hearing, order the manufacturer to provide prompt notification of such nonconformity.

(11) The notification of vehicle or engine owners shall contain the following:

(a) The statement: "The California Air Resources Board has determined that your (vehicle or engine) (is or may be) releasing air pollutants which exceed (California or California and federal) standards. These standards were established to protect your health and welfare from the dangers of air pollution."

(b) A statement that the nonconformity of any such vehicles or engines ~~which~~ will be remedied at the expense of the manufacturer.

(c) Eligibility may not be denied solely on the basis that the vehicle or engine owner used parts not manufactured by the original equipment vehicle manufacturer, or had repairs performed by outlets other than the vehicle manufacturer's franchised dealers.

(d) A clear description of the components which will be affected by the remedy and a general statement of the measures to be taken to correct the nonconformity.

(e) A statement that such nonconformity if not repaired may cause the vehicle or engine to fail an emission inspection test when such tests are required under State law.

(f) A description of the adverse effects, if any, that an uncorrected nonconformity would have on the performance or driveability of the vehicle or engine.

(g) A description of the adverse effects, if any, that such nonconformity would have on the function of other engine components.

(h) A description of the procedure which the vehicle or engine owner should follow to obtain correction of the nonconformity. This shall include designation of the date on or after which the owner can have the nonconformity remedied, the time reasonably necessary to perform the labor required to correct the nonconformity, and the designation of facilities at which the nonconformity can be remedied.

(i) A card to be used by a vehicle or engine owner in the event the vehicle or engine to be recalled has been sold. Such card should be addressed to the manufacturer and shall provide a space in which the owner may indicate the name and address of the person to whom the vehicle or engine was sold.

(j) The statement: "In order to ensure your full protection under the emission warranty made applicable to your (vehicle or engine) by State or Federal law, and your right to participate in future recalls, it is recommended that you have your (vehicle or engine) serviced as soon as possible. Failure to do so could legally be determined to be a lack of proper maintenance of your (vehicle or engine)."

(12) The manufacturer shall not condition eligibility for repair on the proper maintenance or use of the vehicle except for strong and compelling reasons and with approval of the Executive Officer; however, the manufacturer shall not be obligated to repair a component which has been removed or ~~rendered unrepairable~~ altered so that the remedial action cannot be performed without additional cost.

(13) No notice sent pursuant to subsection B (5) (g) of these procedures nor any other communication sent to vehicle or engine owners or dealers shall contain any statement or implication that the nonconformity does not exist or that the nonconformity will not degrade air quality.

(14) The manufacturer shall be informed of any other requirements pertaining to the notification under this section which the Executive Officer has determined are reasonable and necessary to ensure the effectiveness of the recall campaign.

(15) The manufacturer shall provide to the Executive Officer a copy of all communications which relate to the remedial plan directed to dealers and other persons who are to perform the repair under the remedial plan. Such copies shall be mailed to the Executive Officer contemporaneously with their transmission to dealers and other persons who are to perform the repair under the remedial plan.

(16) The manufacturer shall provide for the establishment and maintenance of records to enable the Executive Officer to conduct a continuing analysis of the adequacy of the recall campaign. The records shall include, for each class or category of vehicle or engine, but need not be limited to, the following:

(a) Recall campaign number as designated by the manufacturer.

(b) Date owner notification was begun, and date completed.

(c) Number of vehicles or engines involved in the recall campaign.

(d) Number of vehicles or engines known or estimated to be affected by the nonconformity.

(e) Number of vehicles or engines inspected pursuant to the remedial plan found to be affected by the nonconformity.

(f) Number of inspected vehicles.

(g) Number of vehicles actually receiving repair under the remedial plan.

(h) Number of vehicles determined to be unavailable for inspection or repair under the remedial plan due to exportation, theft, scrapping, or for other reasons (specify).

(i) Number of vehicles or engines determined to be ineligible for remedial action due to ~~a failure to properly maintain or use such vehicles or engines~~ removed or altered components.

(17) If the manufacturer determines that the original answers for subsections B.(16)(c) and (d) of these procedures are incorrect, revised figures and an explanatory note shall be submitted. Answers to subsections B.(16)(e), (f), (g), (h), and (i) of these procedures shall be cumulative totals.

(18) Unless otherwise directed by the Executive Officer, the information specified in subsection B.(16) of these procedures shall be included in quarterly reports, with respect to each recall campaign, for six consecutive quarters beginning with the quarter in which the notification of owners was initiated, or until all nonconforming vehicles or engines involved in the campaign have been remedied, whichever occurs sooner. Such reports shall be submitted no later than 25 working days after the close of each calendar quarter.

(19) The manufacturer shall maintain in a form suitable for inspection, such as computer information storage devices or card files, lists of the names and addresses of vehicle or engine owners:

(a) To whom notification was given;

(b) Who received remedial repair or inspection under the remedial plan; and

(c) When eligibility for repair is ~~conditioned on proper maintenance or use that were determined not to qualify for such remedial action~~ denied due to removed or altered components.

(20) The records described in subsection B.(19) of these procedures shall be made available to the Executive Officer or his or her authorized representative upon request.

(21) The records and reports required by these procedures shall be retained for not less than one year beyond the useful life of the vehicles or engines involved.

(22) Failure by a manufacturer to carry out all corrective actions or recall actions ordered by the Executive Officer pursuant to these procedures shall constitute a violation of that order and of Health and Safety Code Section 43105. The penalty for violation of an order or regulation or of Section 43105 is provided in Health and Safety Code Section 43016. In addition, a manufacturer is subject to the penalties provided in Health and Safety Code Sections 43211 and 43212 for violations of emission standards or test procedures.

(23) The Executive Officer shall extend any deadline in the plan if he or she finds in writing that a manufacturer has shown good cause for such extension.

C. IN-USE VEHICLE ENFORCEMENT TEST PROCEDURES

1. NONCOMPLIANCE

A vehicle's engine family is not in compliance with the applicable standards, rules and regulations when such engine family fails to pass the in-use vehicle enforcement test procedures. Corrective action, including recall of the affected vehicles, may be ordered by the Executive Officer based on the results of the enforcement testing.

2. ENFORCEMENT TEST PROCEDURES

a. Vehicle Selection

Any group or sub-group of vehicles, manufactured for sale in California and still within their useful lives, ~~are~~ is subject to these test procedures. Typically, an engine family, whose certification or New Vehicle Compliance Testing emissions levels, warranty repair history, in-use

performance, etc., are suspect, would be a proper candidate for such testing. Ten (10) in-use vehicles of a suspect engine family, determined by ARB staff to be properly maintained and used, would be tested to represent the emissions characteristics of that engine family. Up to twenty (20) additional vehicles may be tested if the initial testing is not conclusive.

b. The basic criteria for acceptance as a representative vehicle for enforcement testing are:

i. California certified and registered.

ii. Odometer indication of less than certified useful life mileage and within applicable time limit.

iii. No indication of abuse (e.g., racing, overloading, or other misuse), neglect, improper maintenance or other factors that would have a permanent effect on emissions performance and render the vehicle unrepresentative.

iv. No major repair to engine or major repair of vehicle resulting from collisson.

v. Lead content of fuel sample meets applicable standards.

vi. No indication of any problem that might jeopardize the safety of ARB personnel.

c. Enforcement Testing

Upon acceptance as a test vehicle, the fuel will be replaced with Indolene Clear or appropriate certification test fuel. Cold soak periods shall be at least 12 hours but less than 36 hours prior to testing. The following diagnosis/restorative maintenance will be performed prior to enforcement testing:

i. Identify the part numbers of all essential emission control system components.

ii. Check air filter, all drive belts, all fluid levels, radiator cap, all vacuum hoses and electrical wiring related to emissions control for integrity; check ignition, carburetion and emission control system components for maladjustments and/or tampering. Record all discrepancies.

iii. Check ignition system with oscilloscope and replace any defective components; i.e., spark plugs, wires, etc.

iv. Check compression, if indicated.

v. Check and adjust engine parameters to manufacturer's specifications.

vi. If the vehicle is within 500 miles of a scheduled maintenance service, that maintenance may be performed.

d. Restorative Maintenance Tests

After the vehicles have been accepted and restorative maintenance, if any, has been performed, the ~~following tests shall be performed~~ CVS-75 or appropriate certification test shall be performed. In addition, the following tests shall be performed as applicable:

~~i.~~ ~~CVS-75~~
~~ii.~~ i. Highway Fuel Economy Test (HFET).

~~iii.~~ ii. Three-Mode Loaded Mode Test.

~~iv.~~ iii. MVIP Test.

e. Enforcement Testing Results

If the CVS-75 test results (after restorative maintenance) indicate that the average emissions for any pollutant of the test vehicles are exceeding the applicable emissions standards, the entire vehicle population so represented will be presumed not to be in compliance with those standards. The Executive Officer will notify the manufacturer of the results and allow the manufacturer to submit a voluntary remedial plan within ~~30~~ 45 days to bring the affected vehicle population into compliance. If no such voluntary remedial plan is submitted, the Executive Officer may order corrective action including recall of the affected vehicles per Section B. above.

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider Amendments to Title 13, California Administrative Code, Sections 2100 through 2110 and Adoption of Sections 2111 through 2113, and Related Procedures Regarding Emissions-Related Defects Reporting, In-Use Vehicle Recall, and In-Use Vehicle Enforcement Testing.

Agenda Item No.: 82-27-3

Public Hearing Date: December 8, 1982.

Response Date: December 9, 1982.

Issuing Authority: Air Resources Board.

Comment: No comments were received identifying any significant adverse environmental impacts associated with this item. The staff report identified no significant adverse environmental effects.

Response: N/A

CERTIFIED: Harold Holmes
Board Secretary

Date: 12/13/82

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider Amendments to Title 13, California Administrative Code, Sections 2100 Through 2110 and Adoption of Sections 2111 Through 2113 and Related Procedures Regarding Emissions-Related Defects Reporting, In-Use Vehicle Recall, and In-Use Vehicle Enforcement Testing

Agenda Item No.: 82-27-3

Public Hearing Date: December 8, 1982

Response Date: December 9, 1982

Issuing Authority: Air Resources Board

Comment: No comments were received identifying any significant adverse environmental impacts associated with this item. The staff report identified no significant adverse environmental impacts.

Response: N/A

CERTIFIED: _____
Board Secretary

Date: 12/13/82

State of California
AIR RESOURCES BOARD

Resolution 82-69
December 8, 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 1185-98 entitled "Characterization of the Sources and Three Dimensional Distribution of Acidity in California Clouds and Precipitation" has been submitted by Sonoma Technology 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:

> Proposal Number 1185-98 entitled "Characterization of the Sources and Three Dimensional Distribution of Acidity in California Clouds and Precipitation", submitted by Sonoma Technology Inc. for an amount not to exceed $99,985;

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 1185-98 entitled "Characterization of the Sources and Three Dimensional Distribution of Acidity in California Clouds and Precipitation", submitted by Sonoma Technology Inc. for an amount not to exceed $99,985;

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 $99,985.

I certify that the above is
a true and correct copy of
Resolution 82-69 as passed
by the Air Resources Board.

Harold Holmes, Board Secretary

State of California
AIR RESOURCES BOARD

ITEM NO.: 82-27-4 b(1)
DATE: December 8, 1982

ITEM: Research Proposal No. 1185-98 entitled "Characterization of the Sources and Three Dimensional Distribution of Acidity in California Clouds and Precipitation"

RECOMMENDATION: Adopt Resolution 82-69 approving proposal 1185-98 for funding in an amount not to exceed $99,985.

SUMMARY: In the fall/winter period of 1981-82, a coordinated research effort to determine the chemical composition of fog, cloud and rain water in southern California showed that high concentrations of acidity and ionic species were present in collected samples. pH levels as low as 2.2 and 2.4 were found in fog and cloud water samples, respectively. The results of the study have potentially important implications for development of control strategies.

The objectives of this project are: 1) to determine the spatial patterns of cloud water acidity in and upwind of the Los Angeles area; and 2) to determine the speciation of sulfur, nitrogen and carbon containing compounds among the gas, aerosol and droplet phases before, during and after cloud occurrence. This program will help answer questions about the spatial relationship of acidity in clouds and its relationship to sources, the pathways for formation of acidity and the fate of cloud species after the clouds evaporate.

During this study five series of flights will be performed in the South Coast Air Basin during the foggy May-June 1983 period. Chemical analysis of the collected cloud water will be performed in order to understand the relationships between acidic particles and gases and cloud water chemistry. Mechanisms will be proposed to explain oxidation rates, pH levels and sulfate and nitrate concentrations found during this study.

The results of this work will provide valuable information on the oxidation of NOx and SO_2 and their incorporation into cloud water. This information will assist the Board in developing strategies to reduce both acid deposition and atmospheric acidity to acceptable levels.

State of California
AIR RESOURCES BOARD

Resolution 82-70

December 8, 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 1188-98 entitled "The Effects of Exercise on Lung Injury Induced by Ozone and Nitrogen Dioxide" has been submitted by the University of California at Irvine 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 1188-98 entitled "The Effects of Exercise on Lung Injury Induced by Ozone and Nitrogen Dioxide" submitted by the University of California at Irvine for an amount not to exceed $99,858;

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Secton 39703, hereby accepts the recommendation of the Research Screening Committee and approves the following:

Proposal Number 1188-98 entitled "The Effects of Exercise on Lung Injury Induced by Ozone and Nitrogen Dioxide" submitted by the University of California at Irvine for an amount not to exceed $99,858;

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $99,858.

I certify that the above is a true and correct copy of Resolution 82-70 as passed by the Air Resources Board.

Harold Holmes, Board Secretary

ITEM NO.: 82-27-4-b(2)
DATE: December 8, 1982

ITEM: Research Proposal No. 1188-98 entitled "Effects of Exercise on Lung Injury Induced by Ozone and Nitrogen Dioxide"

RECOMMENDATION: Adopt Resolution 82-70approving Proposal No. 1188-98 for funding in an amount not to exceed $99,858.

SUMMARY: Ozone exposure is known to reduce pulmonary functional performance of human subjects undergoing exercise. Because of an increase in ventilatory rate, there is an increase in the total dose of ozone. Studies have also shown that athletic performance may be adversely affected on high oxidant days because of results observed in chamber studies with ozone. What is not known is the extent of any tissue damage accompanying the changes. Such a determination requires the use of laboratory test animals which can be exposed under controlled exercise and studied for tissue damage.

Previous work by the proponent has shown that exercise greatly enhances deep lung injury in rats exposed to ozone and that the risk may be considerably greater than predicted by ventilation rate alone.

This study will follow up on such observations, employing increased exercise loads with low levels of O_3. In addition this study will assess exposures to ozone and nitrogen dioxide under exercise stress enhance lung damage above that attributable to ozone or to nitrogen dioxide presented singly.

Three specific areas of study are proposed. They are designed to examine the following questions:

1) How do different intensities of exercise affect ozone induced lung damage?
2) Are the effects of ozone and nitrogen dioxide inhaled as a mixture simply additive or does a non-additive interaction occur?
3) What is the relationship between ozone induced lung injury and exercise exposure duration?

State of California
AIR RESOURCES BOARD

Resolution 82-71

December 8, 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 1189-98 entitled "Determination of the Effects of Photochemical Oxidants and/or SO_2 on Yield of Navel Oranges" 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 1189-98 entitled "Determination of the Effects of Photochemical Oxidants and/or SO_2 on Yield of Navel Oranges" submitted by the University of California, Riverside for an amount not to exceed $300,298.

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 1189-98 entitled "Determination of the Effects of Photochemical Oxidants and/or SO_2 on Yield of Navel Oranges" submitted by the University of California, Riverside for an amount not to exceed $300,298.

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $300,298.

I certify that the above is a true and correct copy of Resolution 82-71 as passed by the Air Resources Board.

Harold Holmes, Board Secretary

ITEM NO.: 82-27-4-b(3)
DATE: December 8, 1982

ITEM: Research Proposal No. 1189-98 entitled "Determination of the Effects of Photochemical Oxidants and/or SO_2 on Yield of Navel Oranges".

RECOMMENDATION: Adopt Resolution 82-71 approving Proposal No. 1189-98 for funding in an amount not to exceed $300,298.

SUMMARY: Oranges are an important tree crop in California with 183,000 acres planted. During 1980-81 the crop was valued at 285 million dollars. Only one study on the effects of air pollution on oranges in California has been done. That study was done during the 1960's and demonstrated substantial yield losses due to ambient air pollution even though there was no visible leaf injury. Results of the study have been questioned because the trees were grown in enclosed greenhouses which significantly altered the environment around the trees and may have affected the outcome of the study. Study methods were not as sophisticated as those in use today. Furthermore, the study did not address the effects of SO_2 on oranges.

The proponent plans to study the effects of photochemical oxidants and/or SO_2 on bearing navel orange trees located on the U.C. Riverside campus for two growing seasons. Past production history of each tree is available. An open-top fumigation chamber will be constructed around each tree and test trees will be exposed to one of the following treatments: 1) ambient air; 2) carbon filtered air; 3) ½ ambient air + ½ filtered air; 4) filtered air + .05 ppm SO_2; 5) filtered air + .10 ppm SO_2; 6) ½ ambient air + ½ filtered air + .05 ppm SO_2; 7) ½ ambient air + ½ filtered air + .10 ppm SO_2. Four trees will be exposed to ambient air without chambers. The air pollution effects will be measured by determining the amount of premature drop of leaves and immature fruit. Mature fruit will also be harvested and examined. Photosynthetic and transpiration rates of the trees will be monitored also. This study will provide the Board with important information on the cost of air pollution to orange growers and the threshold of air pollution concentrations that cause damage to navel orange trees. The results should also be applicable to the San Joaquin Valley, where most of the navel oranges are grown and which is subject to oxidant (ozone) pollution and to some sulfur dioxide. It is expected that a third and final growing season exposure study will be carried out as an extension of the proposed study.

State of California
AIR RESOURCES BOARD

Resolution 82-72

December 8, 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 1186-98 entitled "The Role of Air Pollutants in Facilitation of Cancer Cell Metastasis" has been submitted by the University of Southern California 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 1186-98 entitled "The Role of Air Pollutants in Facilitation of Cancer Cell Metastasis" submitted by the University of Southern California, for an amount not to exceed $92,499;

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 1186-98 entitled "The Role of Air Pollutants in Facilitation of Cancer Cell Metastasis" submitted by the University of Southern California, for an amount not to exceed $92,499;

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $92,499.

I certify that the above is a true and correct copy of Resolution 82-72 as passed by the Air Resources Board.

Harold Holmes

Harold Holmes, Board Secretary

ITEM NO.: 82-27-4-b(4)
DATE: December 8, 1982

ITEM: Research Proposal No. 1186-98 entitled "The Role of Air Pollutants in Facilitation of Cancer Cell Metastasis"

RECOMMENDATION: Adopt Resolution 82-72 approving Proposal No. 1186-98 for funding in an amount not to exceed $92,499.

SUMMARY:

This proposal extends current research activities that established an association between cancer and air pollution. In a recently completed contract, the contractor demonstrated increased numbers of melanoma (tumor) nodules in mice exposed to nitrogen dioxide. Important questions resulted from these observations, such as: 1) Could ozone elicit a similar response? 2) Since the previous results were observed after injection of melanoma cells, do metastases develop from existing primary tumors? and 3) What is the role of the immune system in the development of cancer metastases?

A series of experiments have been designed to answer these questions. The investigators will measure the cell dose which produces lung metastases in a small number of control mice. This will allow comparison of the number of metastases which develop and the number of mice which develop them. In a second experiment, mice will be exposed to nitrogen dioxide, melanoma cells will be injected and the number of metastatic nodules in lungs, liver, spleen, and gastro-intestinal tract will be counted. The immune status of some of the mice will be measured using a natural killer assay. In the third experiment, mice will be exposed to ozone and the identical measurements will be taken. Finally, the effects of nitrogen dioxide on the growth and spontaneous metastasis of a primary tumor adenocarcinoma will be measured.