State of California
AIR RESOURCES BOARD

RESOLUTIONS

No.	Item	Staff	Hearing Scheduled	Date Adopted	+ EIS to Resources
91-1	TEST METHODS: EMISSIONS/NONVEHICLES	MLD	2/14/91	2/14/91	
91-2	Research Proposal #1822-160, $186,707, "Development of Tech. to Est. Ambient ----Roadways", Valley Research Corp.	RD	2/14/91	2/14/91	
91-3	Research Proposal #1811-160, $106,796, "Emissions & Control of Stratos. Ozone ---in CA", ICF Consulting Assoc., Inc.	RD	2/14/91	2/14/91	
91-4	Research Proposal #1804-160 $130,290 "Composition & Concentrations of Semi-Volatile Hydrocarbons", Desert Research	RD	2/14/91	2/14/91	
91-5	Research Proposal #1835-161R $650,000 "A Multi-Year Observationsl Study of Atmospheric-----in CA", Wave Propagation Lab.	RD	2/14/91	2/14/91	
91-6	Research Proposal #1939-161 $20,000, "Improvement of Models for Emissions Analyses ---Project Assess., Univ.CA/Berkeley	RD	2/14/91	2/14/91	
91-7	Research Proposal #1808-160 $115,695, "The Effect of Ozone on Photosynthesis, Vegetative---of CA", Univer.CA/Davis	RD	2/14/91	2/14/91	
91-8	Research Proposal #1816-160 $149,996, "Sierra Cooperative Ozone Impact Study (Year Two)", Univ.CA/Davis	RD	2/14/91	2/14/91	
91-9	Research Proposal # 1829-160 $672,735, "Indoor Concentrations of Polycyclic Aromatic---Residences", Research Triangle Inst.	RD	2/14/91	2/14/91	
91-10	Atmospheric Acidity Protection Act Fees	RD	4/11/91	4/11/91	
91-11	Research Proposal #1843, "Evaluation of Emission Controls for Locomotives," Engine, Fuel, & Emission.. $144,223.	RD	4/11/91	4/11/91	
91-12	Research Proposal #1850-162, "Development of Intermedia Transfer Factors.." Univ./CA at LA $132,599.	RD	4/11/91	4/11/91	
91-13	Research Proposal #1830-160R, "Modeling of Pesticide Concentrations in Ambient Air", Univer./CA at Davis, $49,967.	RD	4/11/91	~~HELD OVER~~ Cancelled per Dan Cordill	
91-14	Research Proposal #1857-162, "Measurement of Particulate Exposures/Rice.." Univer./CA at Davis, $74,800.	RD	4/11/91	4/11/91	
91-15	Research Proposal #1852-162, "Incidence of Chronic disease & Long-Term/PM10.." Loma Linda Univer./ $50,062.	RD	4/11/91	4/11/91	
91-16	Research Proposal # 1340-162, "Effects of Ozone on Proteases & Protease/Lungs" Univer./CA/Irvine, $157,858.	RD	4/11/91	4/11/91	

State of California
AIR RESOURCES BOARD

RESOLUTIONS

No.	Item	Staff	Hearing Scheduled	Date Adopted	+ EIS to Resources
91-17	Research Proposal # 1853-162, "Neurological Effects of Low-Level Methanol..." Univer./CA/S.F., $339,968.	RD	4/11/91	4/11/91	
91-18	Research Proposal # 1854-162, "Crop & Forest Losses from Air Pollutants..." Univer./CA,Riverside, $97,905.	RD	4/11/91	4/11/91	
91-19	Research Proposal # 1840-162, "Effects of Acute Ozone Inhalation in Young.." Univer./CA/Davis, $15,729.	RD	4/11/91	4/11/91	
91-20	Research Proposal # 223-41, "Assessment of Acidic Deposition & Ozone Effects.." U.S. Forest Service, $698,680.	RD	4/11/91	4/11/91	
91-21	Report to the Legislature: Tier II	EO/TSD	4/11/91	4/11/91	
91-22	Research Plan -- 1991 Update	RD	4/11/91	4/11/91	
91-23	Rpt. to Legis/Gove. Atmospheric Acidity Protection Prog.	RD	4/11/91	4/11/91	
91-24	Permit Fee Regs/Nonvehicular Sources	TSD	4/11/91	4/11/91	
91-25	Research Proposal #A932-159, "Effects of Use of Low-Oxygenate Gasoline..." Automotive Testing Lab, Inc. $960,000	RD	5/9/91	5/9/91	
91-26	HDD Smoke Inspection	EO	5/9/91	5/9/91	
~~91-27~~	~~South Coast AQMP~~ NOT USED	~~EO~~	~~5/9/91~~		
91-28	Transportation	EO	5/9/91	5/9/91	
91-29	"Hot Spots" Fee Regulation	SSD	6/13/91	6/13/91	
91-30	NOT USED				
91-31	Research Proposal # 1868-163, "Epidemiologic Investigation to Identify Chronic.." Univer/SoCA, $2,613,838.	RD	6/13/91	6/13/91	
91-32	Research Proposal # 226-42, "Regional Source-Receptor Relationships for Atmos'.. ~~ENSR Consulting & Engineering, $175,817.~~	RD	6/13/91	6/13/91	

State of California
AIR RESOURCES BOARD

RESOLUTIONS

No.	Item	Staff	Hearing Scheduled	Date Adopted	+ EIS to Resources
91-33	Research Proposal # 228-42, "Comparative Analyses of High-Altitude Lakes & Catch." Univer/CA/S.Barbara, $525,539.	RD	6/13/91	6/13/91	
91-34	Research Proposal # 229-42, "Monitoring for Acidic Snowmelt Episodes in Sierra." EPA, $278,456.	RD	6/13/91	6/13/91	
91-35	Research Proposal # 1859-163, "Analysis of Data from the Lynwood Carbon Monoxide.." Desert Research Inst./$169,632.	RD	6/13/91	6/13/91	
91-36	Research Proposal # 1866-163, "Incentives for Trip Reduction Thru Housing Location." Univer/CA/Berkeley, $47,803.	RD	6/13/91	6/13/91	
91-37	Research Proposal # 1865-163, ""Measurement of Breathing Rate & Volume in Rout." Univer/CA/Davis, $84,251.	RD	6/13/91	6/13/91	
91-38	Research Proposal # 1864-163, "Effects of Canopy Structure & Open-top Chamber Tech." Univer/CA, Riverside, $75,039.	RD	6/13/91	6/13/91	
91-39	Jude Lounsbury Retirement Resolution former Board Secretary	EO	7/10/91	7/10/91	
91-40	ID Nickel as a TAC	SSD	8/8/91	8/8/91	
91-41	Agricultural Burning Requirements	TSD	8/8/91	8/8/91	
~~91-42~~	No Resolution for this item ~~Locomotive Emissions Control~~	~~MSD~~	~~8/8/91~~		
91-42	OBD II	MSD	9/12/91	9/12/91	
91-43	ID PERCHLOROETHYLENE AS A TAC	SSD	10/10/91	10/10/91	
91-44	24-HR SO_2 AAQS	RD	10/11/91	10/11/91	
91-45	Research Proposal # 1917-165, "Development of Land Use/Travel Model," Univer/CA/Davis, $151,445.	RD	10/11/91	10/11/91	
91-46	Research Proposal # 1869-164R,"Formation of Mutagens from Atmospheric Reactions.." Univ/CA/Riverside, $69,963.	RD	10/11/91	10/11/91	
91-47	Research Proposal # 1881-165, "Analysis of Indirect Source Trip Activity," JHK & Assoc., $159,997.	RD	10/11/91	10/11/91	

State of California
AIR RESOURCES BOARD

RESOLUTIONS

No.	Item	Staff	Hearing Scheduled	Date Adopted	+ EIS to Resource
91-48	Research Proposal # 1871-165, "Feasibility of Reducing Nitrogen Oxide Emissions.." Acurex Corp., $170,599.	RD	10/11/91	10/11/91	
91-49	Research Proposal # 1906-165, "Assessment of Airborne Emissions from Biore.." Univer/CA/Davis, $88,301.	RD	10/11/91	10/11/91	
91-50	Research Proposal # 230-43, "The Development of a Modular System for Acidic.." Univer/CA/Davis, $45,346.	RD	10/11/91	10/11/91	
91-51	Research Proposal # 231-43, "Gas Exchange in Ponderosa Pine in Response to Atmos..." Univer/CA/Berkeley, $186,907.	RD	10/11/91	10/11/91	
91-52	Area Designation	TSD	11/14/91	11/14/91	
91-53	Reactivity Adjustment Factors	MSD	11/14/91	11/14/91	
91-54	Reformulated Gasoline PHASE II	SSD	11/21/91	11/21/91	
91-55	Research Proposal # 1916-165, "Development of Species Profiles for Emissions..." Energy/Environmental Res., $98,719.	RD	11/14/91	11/14/91	
91-56	Research Proposal # 1870-165, "A Collaborative Owens Lake Aerosol Study..." Univer/CA/Davis, $99,785.	RD	11/14/91	11/14/91	
91-57	Wintertime Oxygen Content for Gas	SSD	12/12/91	12/12/91	
91-58	NOT USED-POSTPONED TO 3/12/92 Specifications for Alternative Fuels	SSD	12/12/91	Postponed 12/12/91	
91-59	Research Proposal # 1890-165, "Investigation of Halogenated Solvent Use..." Battelle, $184,634	RD	12/12/91	12/12/91	
91-60	Research Proposal #1911-165. "Development of Particle Size Test Methods..." Southern Research Institute, $149,852.	RD	12/12/91	12/12/91	

State of California
AIR RESOURCES BOARD

RESOLUTIONS

No.	Item	Staff	Hearing Scheduled	Date Adopted	+ EIS to Resources

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider Amendments to Regulations Regarding Test Methods for Determining Emissions from Nonvehicular Sources

Agenda Item No.: 91-1-1

Public Hearing Date: February 14, 1991

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: Pat Hutchens
Pat Hutchens
Board Secretary

Date: 12/9/91

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RESOURCES AGENCY OF CALIFORNIA

State of California
AIR RESOURCES BOARD

Resolution 91-1

February 14, 1991

Agenda Item: 91-1-1

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 39607(d) of the Health and Safety Code requires the Board to adopt test procedures to measure compliance with its nonvehicular emission standards and those of the air pollution control and air quality management districts ("districts");

WHEREAS, the Board has previously adopted Sections 94100-94146 and 94148-94149, Title 17, California Code of Regulations, which establish 48 test methods for determining whether a nonvehicular (stationary) source is in compliance with the district emission standards;

WHEREAS, the Board's staff is proposing amendments to three existing nonvehicular source test methods, Methods 421, 422 and 430, and amendments to Sections 94131, 94132, and 94142, Title 17, California Code of Regulations which reference these methods;

WHEREAS, the proposed amendments have been thoroughly evaluated by the Board's staff;

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

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

WHEREAS, the Board finds that the amendments to the three existing test methods set forth in Attachment A, with the modifications set forth in Attachment B, and the amendments to the regulations referencing the test methods set forth in Attachment C are necessary and appropriate to expand the applicability of the methods, to improve their accuracy, and to clarify their provisions; and

WHEREAS, the Board further finds that the amendments set forth in Attachments A, B, and C will have no significant adverse environmental impacts.

NOW THEREFORE, BE IT RESOLVED that, in accordance with the supplemental notice of public hearing dated January 23, 1991, the Board directs the Executive Officer to schedule an additional hearing of the Board on this matter if requested to do so by any interested person or his authorized representative by February 27, 1991;

BE IT FURTHER RESOLVED, that unless a timely request for an additional hearing is received, the Board directs the Executive Officer to consider any additional written comments on the proposed amendments received by March 13, 1991; to compile the amendments to the nonvehicular source test methods set forth in Attachment A, with the modifications set forth in Attachment B and with such further modifications as the Executive Officer deems appropriate in light of the comments received, and the amendments to Sections 94131, 94132, and 94142, Title 17, California Code of Regulations, as set forth in Attachment C; and to adopt such amendments after making them available to the public for a period of fifteen days, with such further modifications as may be appropriate, provided that the Executive Officer shall present the regulations to the Board for further consideration if the Executive Officer determines that this is warranted in light of the written comments received.

I hereby certify that the above is a true and correct copy of Resolution 91-1, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-2
February 14, 1991

Agenda Item: 91-1-5

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 1822-160 entitled "Development of a Technique to Estimate Ambient Asbestos Concentrations Downwind from Serpentine-Covered Roadways," has been submitted by Valley Research Corporation;

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 1822-160, entitled "Development of a Technique to Estimate Ambient Asbestos Concentrations Downwind from Serpentine-Covered Roadways," submitted by Valley Research Corporation, for a total amount not to exceed $186,707.

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 1822-160, entitled "Development of a Technique to Estimate Ambient Asbestos Concentrations Downwind from Serpentine-Covered Roadways," submitted by Valley Research Corporation, for a total amount not to exceed $186,707.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $186,707.

I hereby certify that the above is a true and correct copy of Resolution 91-2, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-3

February 14, 1991

Agenda Item: 91-1-5

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 1811-160, entitled "Emissions and Control of Stratospheric Ozone-Depleting Compounds in California," has been submitted by ICF Consulting Associates, Inc.;

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 1811-160, entitled "Emissions and Control of Stratospheric Ozone-Depleting Compounds in California," submitted by ICF Consulting Associates, Inc., for a total amount not to exceed $106,796.

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 1811-160, entitled "Emissions and Control of Stratospheric Ozone-Depleting Compounds in California," submitted by ICF Consulting Associates, Inc., for a total amount not to exceed $106,796.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $106,796.

I hereby certify that the above is a true and correct copy of Resolution 91-3, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-4

February 14, 1991

Agenda Item: 91-1-5

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 1804-160 entitled "Composition and Concentrations of Semi-Volatile Hydrocarbons", has been submitted by Desert Research Institute;

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 1804-160, entitled "Composition and Concentrations of Semi-Volatile Hydrocarbons" submitted by Desert Research Institute, for a total amount not to exceed $130,290.

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 1804-160, entitled "Composition and Concentrations of Semi-Volatile Hydrocarbons" submitted by Desert Research Institute, for a total amount not to exceed $130,290.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $130,290.

I hereby certify that the above is a true and correct copy of Resolution 91-4, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-5

February 14, 1991

Agenda Item: 91-1-5

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 1835-161R entitled "A Multi-Year Observational Study of Atmospheric Transport Corridors and Processes in California", has been submitted by the Wave Propagation Laboratory of the National Oceanic and Atmospheric Administration;

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 1835-161R, entitled "A Multi-Year Observational Study of Atmospheric Transport Corridors and Processes in California", submitted by the Wave Propagation Laboratory, for a total amount not to exceed $650,000.

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 1835-161R, entitled "A Multi-Year Observational Study of Atmospheric Transport Corridors and Processes in California", submitted by the Wave Propagation Laboratory, for a total amount not to exceed $650,000.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $650,000.

I hereby certify that the above is a true and correct copy of Resolution 91-5, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-6

February 14, 1991

Agenda Item: 91-1-5

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 1839-161 entitled "Improvement of Models for Emissions Analyses for Use in Transportation and Land Use Project Assessment", has been submitted by the University of California, Berkeley;

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 1939-161, entitled "Improvement of Models for Emissions Analyses for Use in Transportation and Land Use Project Assessment", submitted by the University of California, Berkeley, for a total amount not to exceed $20,000.

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 1939-161, entitled "Improvement of Models for Emissions Analyses for Use in Transportation and Land Use Project Assessment", submitted by the University of California, Berkeley, for a total amount not to exceed $20,000.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $20,000.

I hereby certify that the above is a true and correct copy of Resolution 91-6, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-7

February 14, 1991

Agenda Item: 91-1-5

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 1808-160, entitled "The Effect of Ozone on Photosynthesis, Vegetative Growth, and Productivity of Prunus salicina in the San Joaquin Valley of California," has been submitted by the University of California, Davis;

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 1808-160, entitled "The Effect of Ozone on Photosynthesis, Vegetative Growth, and Productivity of Prunus salicina in the San Joaquin Valley of California," submitted by the University of California, Davis, for a total amount not to exceed $115,695.

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 1808-160, entitled "The Effect of Ozone on Photosynthesis, Vegetative Growth, and Productivity of Prunus salicina in the San Joaquin Valley of California," submitted by the University of California, Davis, for a total amount not to exceed $115,695.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $115,695.

I hereby certify that the above is a true and correct copy of Resolution 91-7, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-8

February 14, 1991

Agenda Item: 91-1-5

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 1816-160 entitled "Sierra Cooperative Ozone Impact Study (Year Two)", has been submitted by the University of California, Davis;

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 1816-160 entitled "Sierra Cooperative Ozone Impact Study (Year Two)", submitted by the University of California, Davis, for a total amount not to exceed $149,996.

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 1816-160 entitled "Sierra Cooperative Ozone Impact Study (Year Two)", submitted by the University of California, Davis, for a total amount not to exceed $149,996.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $149,996.

I hereby certify that the above is a true and correct copy of Resolution 91-8, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-9

February 14, 1991

Agenda Item: 91-1-5

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 1829-160 entitled "Indoor Concentrations of Polycyclic Aromatic Hydrocarbons in California Residences", has been submitted by Research Triangle Institute;

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 1829-160 entitled "Indoor Concentrations of Polycyclic Aromatic Hydrocarbons in California Residences", submitted by Research Triangle Institute, for a total amount not to exceed $672,735.

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 1829-160 entitled "Indoor Concentrations of Polycyclic Aromatic Hydrocarbons in California Residences", submitted by Research Triangle Institute, for a total amount not to exceed $672,735.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $672,735.

I hereby certify that the above is a true and correct copy of Resolution 91-9, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Notice of Public Hearing to Consider the Adoption of Regulations Pursant to the Atmospheric Acidity Protection Act Fees

Agenda Item No.: 91-3-7

Public Hearing Date: April 11, 1991

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: Pat Hutchens
Board Secretary

Date: July 29, 1991

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AUG 27 1991

RESOURCES AGENCY OF CALIFORNIA

State of California
AIR RESOURCES BOARD

Resolution 91-10

April 11, 1991

Agenda Item No.: 91-3-7

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

WHEREAS, in the Atmospheric Acidity Protection Act of 1988 (Stats. 1988, ch. 1518, Health and Safety Code Sections 39900-39911), the Legislature declared that the deposition of atmospheric acidity resulting from other than natural sources is occurring in various regions in California, and that the continued deposition of this acidity, alone or in combination with other man-made pollutants and naturally occurring phenomena, could have potentially significant adverse effects on public health, the environment and the economy;

WHEREAS, in Section 39904 of the Health and Safety Code, the Legislature directed the Board to adopt and implement the Atmospheric Acidity Protection Act program to determine the nature and extent of potential damage to public health and the State's ecosystems which may be expected to result from atmospheric acidity, and to develop measures which may be needed for the protection of public health and sensitive ecosystems within the state;

WHEREAS, Section 39906 of the the Health and Safety Code authorizes the Board to require local air pollution control districts and air quality management districts ("districts") to impose additional permit and variance fees on nonvehicular sources which emit 500 tons per year or more of sulfur oxides or nitrogen oxides to recover the costs of acid deposition research and monitoring program which is required to provide districts and the Board with the necessary basis for evaluating the public health and environmental impact of the emissions of acid deposition precursors from large nonvehicular sources and for determining the feasibility and cost of control measures and air quality management strategies to mitigate the efforts of those emissions;

WHEREAS, the Air Resources Board staff, in consultation with representatives of the local districts and affected industry, has developed the proposed fee regulations for fiscal year 1991-92;

WHEREAS, in accordance with Health and Safety Code Section 39909, the proposed fee regulations have been designed to provide the Board net revenues in fiscal year 1991-92 in an amount which is the lesser of one million five hundred thousand dollars ($1,500,000) or the amount appropriated from state funds for acid deposition research and monitoring program by the Legislature;

WHEREAS, the proposed fee regulations specify by district the amount to be transmitted to the Board for deposit in the Air Pollution Control Fund in fiscal year 1991-92 and authorize each district to assess additional fees to recover the administrative costs of collecting the fees;

WHEREAS, the proposed emissions fee regulations are based on the most current annual emissions data available from the districts, which are for the calendar year 1989;

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

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 funds to be collected pursuant to the proposed fee regulations are needed to implement the acid deposition research and monitoring program established pursuant to the Atmospheric Acidity Protection Act;

The proposed regulations include a 10 percent adjustment factor to assure the collection of net revenues in fiscal year 1991-92 in an amount which is the lesser of one million five hundred thousand dollars ($1,500,000) or the amount appropriated from state funds for acid deposition research and monitoring program by the Legislature;

The proposed regulations provide that any excess fees collected shall be considered when setting fees in future years;

The proposed regulations are based on the most recent data available for annual emissions of sulfur oxides or nitrogen oxides from permitted sources emitting 500 tons or more of either pollutant;

The proposed fee regulations will not have a significant adverse economic impact on affected sources of sulfur oxides or nitrogen oxides, on other businesses or private persons affected, or on the districts, which are authorized to recover their administrative costs of collecting the fees; and

WHEREAS, the Board has determined, pursuant to the requirements of the California Environmental Quality Act and Air Resources Board regulations, that this regulatory action will have no significant adverse impact on the environment.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves Sections 90620, 90621, 90621.2, 90622, and 90623, Title 17, California Code of Regulations, as set forth in Attachment A.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to adopt Sections 90620, 90621, 90621.2, 90622, 90623, Title 17, California Code of Regulations, after making them available to the public for a period of 15

days, provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted.

BE IT FURTHER RESOLVED that the Board gives notice of its intention to review the status of the atmospheric acidity research and monitoring program in 1992, and to reconsider at that time the renewal and modification, as necessary, of the fee program in order to reflect changes in program needs and capabilities, base-year emissions, and such other factors as may influence atmospheric acidity research and monitoring program and funding requirements.

I hereby certify that the above is a true and correct copy of Resolution 91-10, as adopted by the Air Resources Board.

Patricia Hutchens for
Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-11

April 11, 1991

Agenda Item No.: 91-3-4

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 1843-162 entitled "Evaluation of Emission Controls for Locomotives," has been submitted by Engine, Fuel, and Emissions Engineering;

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 1843-162, entitled "Evaluation of Emission Controls for Locomotives," submitted by Engine, Fuel, and Emissions Engineering, for a total amount not to exceed $144,223.

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 1843-162, entitled "Evaluation of Emission Controls for Locomotives," submitted by Engine, Fuel, and Emissions Engineering, for a total amount not to exceed $144,223.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $144,223.

I hereby certify that the above is a true and correct copy of Resolution 91-11, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-12

April 11, 1991

Agenda Item No.: 91-3-4

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 1850-162 entitled "Development of Intermedia Transfer Factors for Toxic Air Pollutants," has been submitted by the University of California, Los Angeles,

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 No. 1850-162 entitled "Development of Intermedia Transfer Factors for Toxic Air Pollutants," submitted by the University of California, Los Angeles, for a total amount not to exceed $132,599.

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 No. 1850-162, entitled "Development of Intermedia Transfer Factors for Toxic Air Pollutants," submitted by the University of California, Los Angeles, for a total amount not to exceed $132,599.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $132,599.

I hereby certify that the above is a true and correct copy of Resolution 91-12, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

91-13
Missing
No Resolution

State of California
AIR RESOURCES BOARD

Resolution 91-14

April 11, 1991

Agenda Item No.: 91-3-4

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 1857-162 entitled "Measurement of Particulate Exposures During Rice Farming Operations," has been submitted by the University of California, Davis,

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 No. 1857-162 entitled "Measurement of Particulate Exposures During Rice Farming Operations," submitted by the University of California, Davis, for a total amount not to exceed $74,800.

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 No. 1857-162, entitled "Measurement of Particulate Exposures During Rice Farming Operations," submitted by the University of California, Davis, for a total amount not to exceed $74,800.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $74,800.

I hereby certify that the above is a true and correct copy of Resolution 91-14, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-15
April 11, 1991

Agenda Item No.: 91-3-4

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 1840-162, entitled "Incidence of Chronic Disease and Long-Term Ambient Concentrations of PM10 as Estimated from Monitored Total Suspended Particulates," has been submitted by the Loma Linda University Preventive Medicine Medical Group;
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 1852-162, entitled "Incidence of Chronic Disease and Long-term Ambient Concentrations of PM10 as Estimated from Monitored Total Suspended Particulates," submitted by the Loma Linda University Preventive Medicine Medical Group, for a total amount not to exceed $50,062.

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 1852-162, entitled "Incidence of Chronic Disease and Long-term Ambient Concentrations of PM10 as Estimated from Monitored Total Suspended Particulates," submitted by the Loma Linda University Preventive Medicine Medical Group, for a total amount not to exceed $50,062.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $50,062.

I hereby certify that the above is a true and correct copy of Resolution 91-15, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-16

April 11, 1991

Agenda Item No.: 91-3-4

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 1840-162, entitled "Effects of Ozone on Proteases and Protease Inhibitors in Human and Rat Lungs," has been submitted by the University of California, Irvine;

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 1840-162, entitled "Effects of Ozone on Proteases and Protease Inhibitors in Human and Rat Lungs," submitted by the University of California, Irvine, for a total amount not to exceed $157,858.

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 1840-162, entitled "Effects of Ozone on Proteases and Protease Inhibitors in Human and Rat Lungs," submitted by the University of California, Irvine, for a total amount not to exceed $157,858.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $157,858.

I hereby certify that the above is a true and correct copy of Resolution 91-16, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-17

April 11, 1991

Agenda Item No.: 91-3-4

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 proposal, Number 1853-162 entitled "Neurological Effects of Low-Level Methanol in Normal and Folate-Deficient Humans," has been submitted by the University of California, San Francisco;

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 1853-162, entitled "Neurological Effects of Low-Level Methanol in Normal and Folate-Deficient Humans," submitted by the University of California, San Francisco, for a total amount not to exceed $339,968.

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 1853-162, entitled "Neurological Effects of Low-Level Methanol in Normal and Folate-Deficient Humans," submitted by the University of California, San Francisco, for a total amount not to exceed $339,968.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $339,968.

I hereby certify that the above is a true and correct copy of Resolution 91-17, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-18

April 11, 1991

Agenda Item No.: 91-3-4

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 proposal, Number 1854-162 entitled "Crop and Forest Losses from Air Pollutants: A Computer- and Field-Based Assessment Program," has been submitted by the University of California, Riverside;

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

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

> Proposal Number 1854-162, entitled "Crop and Forest Losses from Air Pollutants: A Computer- and Field-Based Assessment Program," submitted by the University of California, Riverside, for a total amount not to exceed $97,905.

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 1854-162, entitled "Crop and Forest Losses from Air Pollutants: A Computer- and Field-Based Assessment Program," submitted by the University of California, Riverside, for a total amount not to exceed $97,905.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $97,905.

I hereby certify that the above is a true and correct copy of Resolution 91-18, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-19

April 11, 1991

Agenda Item No.: 91-3-4

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 1855-162 entitled "Effects of Acute Ozone Inhalation in Young Adult Females," has been submitted by the University of California, Davis;

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 1855-162, entitled "Effects of Acute Ozone Inhalation in Young Adult Females," submitted by the University of California, Davis, for a total amount not to exceed $15,729.

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 1855-162, entitled "Effects of Acute Ozone Inhalation in Young Adult Females," submitted by the University of California, Davis, for a total amount not to exceed $15,729.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $15,729.

I hereby certify that the above is a true and correct copy of Resolution 91-19, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-20

April 11, 1991

Agenda Item No.: 91-3-4

WHEREAS, the Air Resources Board has been directed to design and implement a comprehensive program of research and monitoring of acid deposition in California pursuant to Health and Safety Code Sections 39900 through 39911;

WHEREAS, an unsolicited research proposal, Number 223-41 entitled "Assessment of Acidic Deposition and Ozone Effects on Conifer Forests in the San Bernardino Mountains," has been submitted by the United States Forest Service, Pacific Southwest Research Station,

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

WHEREAS, the Scientific Advisory Committee on Acid Deposition has reviewed and recommends for funding:

> Proposal Number 223-41 entitled "Assessment of Acidic Deposition and Ozone Effects on Conifer Forests in the San Bernardino Mountains," submitted by the United States Forest Service, Pacific Southwest Research Station, for a total amount not to exceed $698,680.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39904, hereby accepts the recommendation of the Scientific Advisory Committee on Acid Deposition and approves the following:

> Proposal Number 223-41 entitled "Assessment of Acidic Deposition and Ozone Effects on Conifer Forests in the San Bernardino Mountains," submitted by the United States Forest Service, Pacific Southwest Research Station, for a total amount not to exceed $698,680.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $698,680.

I hereby certify that the above is a true and correct copy of Resolution 91-20, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-21

April 11, 1991

Agenda Item No: 91-3-1

WHEREAS, Section 40913 of the Health and Safety Code requires each district to achieve and maintain the state ambient air quality standards adopted by the Board pursuant to Section 39606 by the earliest practicable date;

WHEREAS, Section 39611 of the Health and Safety Code requires the Board to report to the Legislature on the prospects for achieving the state ambient air quality standards for suspended particulate matter (PM10), visibility reducing particles (VRP), lead, hydrogen sulfide, and sulfates;

WHEREAS, the Health and Safety Code sets forth a detailed approach for attaining the state standards for ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide, but does not specify a control program for PM10, VRP, lead, hydrogen sulfide, and sulfates;

WHEREAS, the Board staff has prepared a proposed report entitled Prospects for Attaining the State Standards for Suspended Particulate Matter (PM10), Visibility Reducing Particles, Sulfates, Lead, and Hydrogen Sulfide (The "Report") which addresses the extent of the nonattainment problem, the significance of natural and wind blown emissions and effectiveness, the availability of control measures to reduce emissions, impediments to development and implementation of an attainment plan, information needed with respect to monitoring and modeling, and the earliest practicable attainment dates for these pollutants;

WHEREAS, the Board has held a duly noticed public meeting to consider approval of the Report, and has heard and considered the comments presented by Board staff and other interested persons and agencies; and

WHEREAS, the Board finds:

1) That the PM10 problem is widespread, severe, and diverse.

2) That increased priority should be placed on reducing public exposure to unhealthful PM10 levels.

3) That where it is necessary to set priorities among control measures, priority should be afforded to early adoption of measures to reduce the most harmful constituents of PM10, i.e., fine particles and toxic particles.

4) That the strategy for each PM10 nonattainment area should prevent increased emissions from new and modified sources and should apply best available practices to reduce fugitive dust in or near urban areas.

5) That while ozone control strategies have a beneficial impact on PM10 concentrations, an effective PM10 control program must contain additional measures to address the specific nature of the PM10 problem in each area of the state.

6) That the districts should pursue all reasonably available and cost-effective controls to reduce direct PM10 and PM10 precursor emissions as expeditiously as practicable.

7) That although the state ambient air quality standard for lead has been attained due to measures to eliminate lead from gasoline, localized exposures may still pose significant health risks, and the Board is evaluating the identification and control of lead as a toxic air contaminant.

8) That PM10 controls will assist in achieving the state standard for Visibility Reducing Particles.

9) That the South Coast Air Basin is the only area in violation of the state sulfate standard, and has undertaken all sufficient measures to achieve that standard by the earliest practicable date.

10) That violations of the state standard for hydrogen sulfide are highly localized and result from diverse emission sources.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the report and directs the Executive Officer to forward the report to the Legislature.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to forward the report to the Districts to assist them in assessing the nature and extent of the PM10 and VRP problems and in identifying and developing additional control measures to reduce public exposure to PM10.

BE IT FURTHER RESOLVED, the Board directs the Executive Officer to monitor and encourage the South Coast Air Quality Management District's efforts to achieve and maintain ambient air quality standard for sulfates.

BE IT FURTHER RESOLVED, the Board directs the Executive Officer to work with the three affected Districts to study the nature of the hydrogen sulfide problem in their jurisdictions and to apply all cost-effective and feasible measures to achieve and maintain the state standard.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to carry out the following actions to the extent feasible, given available resources: work with all districts where the PM10 standard is exceeded to develop and adopt an active control program to reduce PM10 exposure within each area; establish an episode advisory program for PM10; systematically define and analyze control measures for PM10 and PM10 precursors and their cost-effectiveness; develop a methodology to describe and track public exposure to PM10; assure that emission trading policies account for

differences in health effects of PM10 constituents; establish a coordinated effort to evaluate practices to reduce fugitive dust emissions; quantify, to the extent possible, the effect of open burning, including agricultural burning, on PM10 and visibility problems; expand the information base for PM10 and VRP; and determine the contribution of transport and regional background to PM10 and VRP concentrations.

I hereby certify that the above is a true and correct copy of Resolution 91-21, as adopted by the Air Resources Board.

Patricia Hutchens for
Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-22

April 11, 1991

Agenda Item No.: 91-3-2

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

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

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

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

WHEREAS, the Research Screening Committee has reviewed and approved a report titled Planned Air Pollution Research: 1991 Update, dated April 1991, for air pollution research in California; and

WHEREAS, The Air Resources Board has met with the Research Screening Committee and discussed the report.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39703 and 39705, hereby concurs in the recommendation of the Research Screening Committee and approves the report Planned Air Pollution Research: 1991 Update, dated April 1991.

I hereby certify that the above is a true and correct copy of Resolution 91-22, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-23

April 11, 1991

Agenda Item No.: 91-3-5

WHEREAS, the Atmospheric Acidity Protection Act of 1988 (Stats. 1988, ch. 1518, Health and Safety Code Sections 39900-39911) directs the Board to implement the Atmospheric Acidity Protection Program to determine the nature and extent of potential damage to public health and the State's ecosystems which may be expected to result from atmospheric acidity, and to develop measures which may be needed for the protection of public health and sensitive ecosystems within the State;

WHEREAS, the Air Resources Board has been directed to implement the Atmospheric Acidity Protection Program using funds from the Motor Vehicle Account in the State Transportation Fund and from fees on nonvehicular sources of sulfur and nitrogen oxides, collected by local districts (Sections 39906-39909);

WHEREAS, the Air Resources Board has been directed to prepare and submit a report to the Legislature and Governor annually on the progress of the Atmospheric Acidity Protection Program (Section 39910);

WHEREAS, the Air Resources Board is to prepare this report with the advice and participation of the Scientific Advisory Committee on Acid Deposition pursuant to Health and Safety Code Section 39910;

WHEREAS, the Scientific Advisory Committee on Acid Deposition has reviewed and approved a report titled Atmospheric Acidity Protection Program: Annual Report to the Governor and the Legislature, 1990, dated April 1991, which reports the recent progress of the Air Resources Board towards implementing the Atmospheric Acidity Protection Program; and,

WHEREAS, the public has received a 30-day notice of the availability of the report for review prior to the public meeting (Section 39910 (b)).

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39910, hereby concurs in the recommendation of the Scientific Advisory Committee on Acid

Deposition, approves the report Atmospheric Acidity Protection Program: Annual Report to the Governor and the Legislature, 1990, dated April 1991, and submits this report to the Governor and the Legislature.

I hereby certify that the above is a true and correct copy of Resolution 91-23, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Notice of Public Hearing to Consider the Adoption of Permit Fee Regulations for Nonvehicular Sources Pursuant to the California Clean Air Act

Agenda Item No.: 91-3-6

Public Hearing Date: April 11, 1991

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: Judith M. Lounsbury
Board Secretary

Date: 6/5/91

RECEIVED BY
Office of the Secretary

AUG 27 1991

RESOURCES AGENCY OF CALIFORNIA

State of California
AIR RESOURCES BOARD

Resolution 91-24

April 11, 1991

Agenda Item No.: 91-3-6

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

WHEREAS, the Legislature in 1988 enacted the California Clean Air Act of 1988 (the "Act"; Stats. 1988, ch. 1568) to address the problem of air pollution in California;

WHEREAS, in the California Clean Air Act the Legislature declared that attainment of the Board's health-based ambient air quality standards is necessary to protect public health, particularly of children, older people, and those with respiratory diseases and directed that these standards be attained at the earliest practicable date;

WHEREAS, the California Clean Air Act directs the Board to perform numerous tasks related to both vehicular and nonvehicular sources of air pollution;

WHEREAS, section 39612 of the Health and Safety Code authorizes the Board to require air pollution control and air quality management districts ("districts"), beginning July 1, 1989, to impose additional permit fees on nonvehicular sources which emit 500 tons per year or more of any nonattainment pollutant or its precursors in order to recover costs of additional state programs related to nonvehicular sources authorized or required by the Act;

WHEREAS, the Board staff has conferred with representatives of local districts and with their assistance has developed a proposed fee program which specifies the amount of fees to be collected by each district for transmission to the Board;

WHEREAS, the proposed fee regulations have been designed to provide the Board with net revenues of three million dollars ($3,000,000) to cover budgeted expenses for Fiscal Year 1991-92 of implementing nonvehicular source related activities under the Act;

WHEREAS, the proposed fee regulations provide that any excess fees collected shall be carried over and considered when setting fees in future years;

WHEREAS, the proposed fee regulations specify by district the amount to be transmitted to the Board for deposit in the Air Pollution Control Fund in Fiscal Year 1991-92 and authorize each district to assess additional fees to recover the administrative costs to the district of collecting the fees;

WHEREAS, pursuant to section 39612 of the Health and Safety Code the proposed fee program for Fiscal Year 1991-92 is based on emissions of nonattainment pollutants or their precursors, as provided in the Act, using the most current statewide emission data available from the districts, which are for calendar year 1989;

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

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 funds which would be collected pursuant to the proposed fee regulations are needed to implement the nonvehicular source related programs established pursuant to the California Clean Air Act;

The proposed fee regulations include a 10% adjustment factor to insure collection of net revenues of $3,000,000 to cover budgeted expenses for Fiscal Year 1991-92 of implementing nonvehicular source related activities under the Act;

The excess fees collected in Fiscal Year 1989-90 have been carried over and considered in the calculation of fees in the proposed regulation;

The proposed fee regulations are based on annual emissions of nonattainment pollutants from facilities that emit 500 tons per year or more of any nonattainment pollutant or its precursors based on the most recent statewide data available;

The proposed fee regulations will not have a significant adverse economic impact on either the affected sources, on other businesses or private persons affected, or on the districts, which are authorized to recover the administrative costs of collecting the fees; and

WHEREAS, the Board has determined, pursuant to the requirements of the California Environmental Quality Act and the Board's regulations, that this

regulatory action will not have any significant adverse impact on the environment.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves sections 90800.2, 90801 and 90803, Title 17, California Code of Regulations, as set forth in Attachment A hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to adopt sections 90800.2, 90801 and 90803, Title 17, California Code of Regulations, after making them available to the public for a period of 15 days, provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to forward the attached regulations to the affected districts for appropriate action, and to the Department of Finance, the Legislative Analyst, and the State Controller, for information and for appropriate action.

BE IT FURTHER RESOLVED that the Board gives notice of its intention to review the status of the program to implement the provisions of the California Clean Air Act in 1992, and to reconsider at that time the renewal and modification, as necessary, of the fee program in order to reflect changes in program needs and capabilities, base year emissions, and such other factors as may influence funding requirements of the Act.

I hereby certify that the above is a true and correct copy of Resolution 91-24, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-25

May 9, 1991

Agenda Item No: 91-4-5

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 adjunct to Contract Number A932-159 entitled "Effects of Use of Low-Oxygenate Gasoline Blends Upon Emissions from California Vehicles," has been submitted by Automotive Testing Laboratories, Inc.;

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:

> Adjunct to Contract Number A932-159, entitled "Effects of Use of Low-Oxygenate Gasoline Blends Upon Emissions from California Vehicles," submitted by Automotive Testing Laboratories, Inc., by $220,000, for a total amount not to exceed $960,000.

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:

> Adjunct to Contract Number A932-159, entitled "Effects of Use of Low-Oxygenate Gasoline Blends Upon Emissions from California Vehicles," submitted by Automotive Testing Laboratories, Inc., by $220,000, for a total amount not to exceed $960,000.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts necessary to increase the funding of the research effort proposed herein by $220,000 for a total amount not to exceed $960,000.

I hereby certify that the above is a true and correct copy of Resolution 91-25, as adopted by the Air Resources Board.

Patricia Hutchens for
Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Notice of Public Hearing to Consider the Adoption of Regulations Establishing Procedures for Administrative Hearings for Citations Issued Under the Heavy-Duty Vehicle Roadside Smoke and Tampering Inspection Program

Agenda Item No.: 91-4-1

Public Hearing Date: May 9, 1991

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: Pat Hutchens
Board Secretary

Date: 7/8/91

RECEIVED BY
Office of the Secretary

JAN 21 1993

RESOURCES AGENCY OF CALIFORNIA

State of California
AIR RESOURCES BOARD

Resolution 91-26

May 9, 1991

Agenda Item No.: 91-4-1

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

WHEREAS, Senate Bill (SB) 1997 (Stats. 1988, ch. 1544) added section 44011.6 to the Health and Safety Code directing the Board, in cooperation with the California Highway Patrol and an ad hoc advisory committee created by the Board, to establish, by regulation, an inspection program for heavy-duty vehicles including test procedures to identify heavy-duty diesel vehicles with excessive smoke emissions, and authorizing the Board to establish procedures for identifying heavy-duty vehicles with defective emission control systems;

WHEREAS, section 44011.6(b) of the Health and Safety Code directs the Board to prohibit, by regulation, the use in California of heavy-duty vehicles which are determined, pursuant to the test procedures adopted by the Board, to have excessive smoke emissions or other emission-related defects;

WHEREAS, section 44011.6(b) of the Health and Safety Code authorizes the Board to issue a citation to the owner or operator of any vehicle in violation of the heavy-duty vehicle inspection program regulations and to require the owner to take corrective action immediately;

WHEREAS, pursuant to section 44011.6(d) of the Health and Safety Code, the owner of a motor vehicle in violation of the heavy-duty vehicle inspection program regulations is subject to a civil penalty of not more than fifteen hundred dollars ($1500) per day for each day that the vehicle is in violation;

WHEREAS, section 44011.6(d) of the Health and Safety Code authorizes the Board to adopt a schedule of reduced civil penalties to be applied in cases where violations are corrected in an expeditious manner, provided that reduced penalties shall not apply where there have been repeated incidents of emissions control system tampering;

WHEREAS, in 1989 Assembly Bill (AB) 1107 (Stats. 1989, ch. 940) added subsection (h) to section 44011.6 of the Health and Safety Code, which further requires that the owner of a vehicle cited for violation of the heavy-duty vehicle inspection program regulations shall pay an additional three hundred dollar ($300) penalty for each citation that is issued (except the first citation issued to a school bus) to be deposited in the Diesel Emissions Reduction Fund;

WHEREAS, on November 8, 1990 the Board approved regulations to implement SB 1997, establishing a test procedure for identifying heavy-duty diesel vehicles with excessive smoke emissions and heavy-duty vehicles with defective emission control systems, including a schedule of penalties and reduced penalties for vehicles cited under the program, as well as procedures for clearing citations through demonstration of correction or post-repair test inspections and procedures for the release of vehicles removed from service;

WHEREAS, in 1990 SB 1874 (Stats. 1990, ch. 1433) was enacted amending section 44011.6 by adding subsection (i) and modifying subsection (f) to provide that the owner of a vehicle cited under the heavy-duty vehicle inspection program shall be afforded an opportunity for an administrative hearing before the Board requests that a vehicle be removed from service for failure to take corrective action or to pay a civil penalty on a timely basis;

WHEREAS, staff has proposed regulations setting forth rules for the conduct of administrative hearings based on administrative hearing procedures currently in place for similar regulatory programs with modifications to meet the specific needs of the heavy-duty vehicle inspection program;

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

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:

> Principles of due process and other provisions of state law require that owners of vehicles cited under the heavy-duty vehicle inspection program shall be afforded an opportunity for an administrative hearing prior to removing a vehicle from service for failure to take corrective action or pay an assessed penalty in a timely manner;

The proposed regulations set forth rules governing the conduct of administrative hearings which provide for a full and fair hearing by an impartial hearing officer of matters relating to citations issued by the staff of this Board under the heavy-duty vehicle inspection program;

The procedural rules contained in the proposed regulations provide that the owner of a vehicle cited under the heavy-duty vehicle inspection program shall be given notice and an opportunity to be heard, an opportunity to present evidence, confront and cross-examine witnesses, the right to discover facts and things relevant to his or her case, the right to representation by an attorney or other person, the means to obtain a hearing record, and the right to a written decision based on the record and supported by findings of facts; and

The proposed regulations will have no potential adverse impact on the environment.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby adopts sections 60075.01 through 60075.47, Title 17, California Code of Regulations, as set forth in Attachment A hereto.

I hereby certify that the above is a true and correct copy of Resolution 91-26, as adopted by the Air Resources Board.

Patricia Hutchens for
Judith M. Lounsbury, Board Secretary

91-27
Void
No Resolution

State of California
AIR RESOURCES BOARD

Resolution 91-28

May 9, 1991

Agenda Item No.: 91-4-4

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 local air pollution control and air quality management districts;

WHEREAS, Health and Safety Code Section 39003 directs the Board to "systematically attack the serious problem caused by motor vehicles, which is the major source of air pollution in many areas of the state";

WHEREAS, Health and Safety Code Section 40910 states that districts shall "focus particular attention on reducing the emissions from transportation and areawide emission sources";

WHEREAS, in Sections 40918, 40919, and 40920, the California Clean Air Act requires:

areas with moderate air pollution to include in their attainment plans, reasonably available transportation control measures, provisions to develop an indirect source control program, and public education programs to promote actions to reduce emissions from transportation and areawide sources;

areas with serious air pollution to also include transportation control measures to substantially reduce passenger vehicle trips and miles traveled per trip,

areas with severe air pollution to also include transportation control measures to achieve an average during weekday commute hours of 1.5 or more persons per passenger vehicle by 1999 and no net increase in vehicle emissions after 1997;

WHEREAS, the Board adopted Resolution 88-60 on December 8, 1988, which states the Board's commitment to assist state, regional, and local efforts to reduce emissions from motor vehicles by reducing the growth in usage and by reducing dependency on the single occupancy vehicle;

WHEREAS, the Board directed staff to assist in efforts to identify and promote the implementation of reasonably available transportation control measures;

WHEREAS, the Board directed staff to work with Caltrans to define a common ground to attack both air pollution and traffic congestion and to ensure that the transportation provisions of the California Clean Air Act are successfully implemented;

WHEREAS, the Board adopted Resolution 90-11 on February 8, 1990, supporting the document, California Clean Air Act Guidance Paper #2, Transportation Requirements of the California Clean Air Act, as a basis for developing transportation control measures in response to the requirements set forth in the California Clean Air Act;

WHEREAS, the Board directed the Executive Officer to consider the above guidance when reviewing transportation control measures and policies developed and submitted to comply with the California Clean Air Act;

WHEREAS, the Board recognized that the policies set forth in Guidance Paper #2 would be subject to refinement as more is learned about transportation control measures and their implementation; and

WHEREAS, the 1990 amendments to the Federal Clean Air Act support the implementation of transportation control measures in clean air strategies and further strengthen the requirements to reduce air pollution from transportation sources.

NOW, THEREFORE, BE IT RESOLVED that the Board reaffirms support for integration of air quality and transportation planning and for staff to assist in such integration at both the state and local level.

BE IT FURTHER RESOLVED that the Board encourages air pollution control districts to work with state, regional, and local transportation agencies and local jurisdictions to develop transportation control strategies that will comply with the transportation performance standards of the California Clean Air Act.

BE IT FURTHER RESOLVED that the Board directs staff to continue to work with air pollution control districts and transportation agencies to develop workable strategies to achieve the performance standards and other transportation requirements of the California Clean Air Act.

BE IT FURTHER RESOLVED that the Board supports local planning and implementation of regionwide high occupancy vehicle systems as reasonably available transportation control measures that will reduce air pollution by reducing vehicle trips and traffic congestion and by raising passenger vehicle occupancy rates.

BE IT FURTHER RESOLVED that the Board supports the adoption by air pollution control districts of employer-based trip reduction measures as a reasonably available transportation control measure that reduces emissions by reducing trips and traffic congestion and contributes to raising passenger vehicle occupancy rates.

BE IT FURTHER RESOLVED that the Board acknowledges that high occupancy vehicle systems and employer-based trip reduction measures contribute to achieving the transportation standards of the California Clean Air Act.

BE IT FURTHER RESOLVED that the Board supports the three documents, Transportation Performance Standards of the California Clean Air Act, Employer-Based Trip Reduction: A Reasonably Available Transportation Control Measure, and High Occupancy Vehicle Plans as Air Pollution Control Measures, as refinement to the review policies set forth in Guidance Paper #2, Transportation Requirements of the California Clean Air Act.

BE IT FURTHER RESOLVED that the Executive Officer is directed to forward these guidance documents to the air pollution control and air quality management districts; to state, regional, and local transportation agencies; and to local jurisdictions of nonattaining areas, for consideration in refining and implementing 1991 air quality plans and in preparing future plan updates.

BE IT FURTHER RESOLVED that the Executive Officer is directed to continue to provide assistance to any district requesting assistance in interpreting the transportation requirements of the California Clean Air Act, the three guidance documents, or the evolving review policies of this Board.

I hereby certify that the above is a true and correct copy of Resolution 91-28, as adopted by the Air Resources Board.

Patricia Hutchens for
Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Notice of Public Hearing to Consider Amendments to the Air Toxics "Hot Spots" Program Fee Regulation, List of Substances, and Emission Inventory Criteria and Guidelines Regulations.

Agenda Item No.: 91-5-2

Public Hearing Date: June 13, 1991

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: Pat Hutchens
Board Secretary

Date: 12/5/91

RECEIVED BY
Office of the Secretary

JAN 21 1993

RESOURCES AGENCY OF CALIFORNIA

STATE OF CALIFORNIA
Air Resources Board

Resolution 91-29

June 13, 1991

Agenda Item No.: 91-5-2

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

WHEREAS, the Legislature found in the Air Toxics "Hot Spots" Information and Assessment Act of 1987 ("the Act", Health and Safety Code section 44300 et seq.) that facilities manufacturing or using hazardous substances may be exposing nearby populations to toxic air releases on a routine basis and that it is in the public interest to ascertain the nature and quantity of hazardous releases from specific sources which may create air toxics "hot spots";

WHEREAS, the Act sets forth a program to develop air toxics emission inventories and to assess the risk to public health from exposure to these emissions;

WHEREAS, the Board adopted amendments on March 26, 1991 to the fee schedule set forth in sections 90700 et seq. of Title 17 of the California Code of Regulations pursuant to Health and Safety Code section 44380(a), which assessed a fee upon the operator of every facility subject to the Act in order to recover the costs to the Board, local air pollution control districts ("districts"), and the Department of Health Services to implement and administer the Act;

WHEREAS, Health and Safety Code section 44380(a) was amended in 1990 to require that the Board adopt a regulation which requires all districts, except for districts that have submitted specified information to the Board prior to April 1 of each year, to adopt rules which assess a fee upon the operator of every facility subject to the Act in order to recover the costs to the Board and the Department of Health Services to implement and administer the Act;

WHEREAS, Board staff, in consultation with representatives of the districts and the fee regulation committee originally convened pursuant to the 1987 Act, have developed amendments to the fee regulation for fiscal year 1991-92 which have been discussed with the public at two consultation meetings;

WHEREAS, Health and Safety Code section 44321 requires the Board to compile and maintain a list of specified toxic substances for use in determining which facilities are subject to the Act and the Board's implementing regulations;

WHEREAS, Health and Safety Code section 44342 requires the Board to develop, in consultation with districts, criteria and guidelines for site-specific air toxics emissions inventory plans and reports;

WHEREAS, the Board adopted amendments on June 14, 1990 and March 26, 1991 to the Emission Inventory Criteria and Guidelines Regulation set forth in sections 93300 et seq. of Title 17 of the California Code of Regulations which, among other things, divides the substances listed pursuant to Health and Safety Code section 44321 into two categories based upon those for which emissions must be quantified and those for which the production, use, or other presence must be reported but not quantified, and specifies the degree of accuracy to which these substances must be reported;

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

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, changes have been proposed to the originally noticed text of the regulations on the basis of information presented by the Districts regarding costs of implementing the Act and emission inventories, among other things;

WHEREAS, based upon the information presented by the staff and the written and oral comments received prior to and at the hearing, the Board finds that:

1. The proposed amendments to the regulation require all districts to adopt a rule to assess a fee upon the operator of every facility subject to the Act, as required by Health and Safety Code section 44380(a);

2. The proposed amendments allow the Board to establish fee schedules for districts, and specify the information that a district must submit to the Board, by April 1 of the year prior to the fiscal year for which the regulation is to be adopted, to enable the Board to include a fee schedule for that district in the Air Toxics "Hot Spots" Fee Regulation;

3. State program costs are allocated among the districts on the basis of the most recently approved ARB statewide criteria pollutant emission inventory for total organic gases, particulate matter, nitrogen oxides, and sulfur oxides;

4. The El Dorado, Glenn, Imperial, Lassen, Mendocino, San Bernardino, Santa Barbara, Shasta, Tehama, and Tuolumne Counties Air Pollution Control Districts (APCDs), the Great Basin and San Joaquin Valley Unified APCDs, and the South Coast Air Quality Management District (AQMD) have requested that the Board adopt a

fee schedule for them, and have submitted to the Air Resources Board the district's program costs, approved by the district board, prior to April 1, 1991, and that for these districts, the proposed amendments to the fees in the regulation are based on program costs approved by the district boards and on the most recently approved ARB statewide criteria pollutant emissions inventory for total organic gases, particulate matter, nitrogen oxides, and sulfur oxides; or on fees otherwise determined by the district to be reasonable for facilities that emit less than ten tons per year or 10-25 tons per year of these pollutants, or facilities that are listed on a district toxic inventory, survey, or report.

5. The Amador, Butte, Calaveras, Colusa, Kern, Lake, Mariposa, Modoc, Northern Sonoma, Placer, San Diego, San Luis Obispo, Siskiyou, and Ventura Counties APCDs, the Feather River, Monterey Bay Unified, and Yolo-Solano APCDs, Northern Sierra, Bay Area, North Coast Unified and Sacramento Metropolitan AQMDs will be adopting district Air Toxics "Hot Spots" Program fee rules for fiscal year 1991-92;

6. A statewide air toxics inventory has not yet been compiled, but after such an inventory is available the Board staff will propose changes to the regulation so that fees are assessed on the basis of emissions of toxic air releases;

7. The proposed addition of 190 substances to Appendix A of the Fee Regulation accurately reflects those required to be compiled and maintained by the ARB pursuant to Health and Safety Code section 44321, including the addition of 52 substances which are recognized by the Board, after consultation with Department of Health Services Staff, as presenting a chronic or acute threat to public health when present in the ambient air;

8. Because of the proposed additions to the list of substances appended to the fee regulation, it is also necessary to amend the "List of Substances for Which Emissions Must Be Quantified" and "List of Substances for Which Production, Use, or Other Presence Must Be Reported", the list of "Emittent ID Codes for Listed Substances Lacking CAS Numbers", and the degree of accuracy text contained in the Emissions Inventory Criteria and Guidelines Regulation (Appendix A, Appendix B to sections 93300-93354, and section 93334, respectively, Title 17, California Code of Regulations);

9. The substances proposed for addition to the list set forth in Appendix A of the fee regulation have been appropriately categorized for purposes of reporting facility emissions pursuant to the Emission Inventory Criteria and Guidelines Regulation;

10. The revenues to be assessed pursuant to the proposed fee regulation are reasonably necessary to recover the anticipated

program costs for fiscal year 1991-92 which will be incurred by the Board, the districts, and the Department of Health Services to implement and administer the Act's provisions;

11. On the basis of a financial analysis conducted to indicate the economic impacts on affected facilities resulting from the fees proposed in this regulation, the economic impact on the affected facilities will not be significant; and

12. This regulatory action will not have a significant adverse impact on the environment and may indirectly benefit air quality by stimulating a reduction in emissions of both toxic and criteria pollutants.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves sections 90700-90705, Title 17, California Code of Regulations including the appendices referenced therein, as set forth in Attachment A hereto, and Appendices A and B of sections 93300-93354 and section 93334, Title 17, California Code of Regulations, as set forth in Attachment B hereto.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to adopt sections 90700-90705, Title 17, California Code of Regulations and Appendices A and B and section 93334 of sections 93300-93354, Title 17, California Code of Regulations, after making them available to the public for a period of 15 days, provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to commence the 15-day public review period no later than July 22, 1991.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to present annually to the Board appropriate amendments to the fee schedule, taking into account the availability of toxic inventory information generated pursuant to the Act's requirements, and to report to the Board on the effectiveness of the Fee Regulation in recovering state and district costs.

I hereby certify that the above is a true and correct copy of resolution 91-29, as adopted by the Air Resources Board.

Pat Hutchens

Pat Hutchens

91-30
Void
No Resolution

State of California
AIR RESOURCES BOARD

Resolution 91-31

June 13, 1991

Agenda Item No: 91-5-3

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, The Air Resources Board has been directed to design and implement a comprehensive program of research and monitoring of acid deposition in California pursuant to Health and Safety Code Sections 39900 through 39911;

WHEREAS, a solicited research proposal, Number 1868-163, entitled "Epidemiologic Investigation to Identify Chronic Effects of Ambient Air Pollutants in Southern California" has been submitted by the University of Southern California;

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

WHEREAS, the Research Screening Committee and the Scientific Advisory Committee on Acid Deposition have reviewed and recommend for funding:

> Proposal Number 1868-163, entitled "Epidemiologic Investigation to Identify Chronic Effects of Ambient Air Pollutants in Southern California," submitted by the University of Southern California, for a total amount not to exceed $2,613,868.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Sections 39703 and 39904, hereby accepts the recommendation of the Research Screening Committee and the Scientific Advisory Committee on Acid Deposition and approves the following:

> Proposal Number 1868-163, entitled "Epidemiologic Investigation to Identify Chronic Effects of Ambient Air Pollutants in Southern California," submitted by the University of Southern California, for a total amount not to exceed $2,613,868.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $2,613,868.

I hereby certify that the above is a true and correct copy of Resolution 91-31, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-32

June 13, 1991

Agenda Item No.: 91-5-3

WHEREAS, the Air Resources Board has been directed to design and implement a comprehensive program of research and monitoring of acid deposition in California pursuant to Health and Safety Code Sections 39900 through 39911;

WHEREAS, a solicited research proposal, Number 226-42 entitled "Regional Source-Receptor Relationships for Atmospheric Acidity and Acid Deposition in California," has been submitted by ENSR Consulting and Engineering;

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

WHEREAS, the Scientific Advisory Committee on Acid Deposition has reviewed and recommends for funding:

> Proposal Number 226-42 entitled "Regional Source-Receptor Relationships for Atmospheric Acidity and Acid Deposition in California," submitted by ENSR Consulting and Engineering, for a total amount not to exceed $175,817.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39904, hereby accepts the recommendation of the Scientific Advisory Committee on Acid Deposition and approves the following:

> Proposal Number 226-42 entitled "Regional Source-Receptor Relationships for Atmospheric Acidity and Acid Deposition in California," submitted by ENSR Consulting and Engineering, for a total amount not to exceed $175,817.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $175,817.

I hereby certify that the above is a true and correct copy of Resolution 91-32, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-33

June 13, 1991

Agenda Item No.: 91-5-3

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 39900 through 39911;

WHEREAS, an interagency research proposal, Number 228-42, entitled "Comparative Analyses of High-Altitude Lakes and Catchments in the Sierra Nevada: Susceptibility to Acidification", has been submitted by the University of California, Santa Barbara;

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

WHEREAS, the Scientific Advisory Committee on Acid Deposition has reviewed and recommends for funding:

> Proposal Number 228-42, entitled "Comparative Analyses of High-Altitude Lakes and Catchments in the Sierra Nevada: Susceptibility to Acidification", submitted by the University of California, Santa Barbara, for a total amount not to exceed $525,539.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39904, hereby accepts the recommendation of the Scientific Advisory Committee on Acid Deposition and approves the following:

> Proposal Number 228-42, entitled "Comparative Analyses of High-Altitude Lakes and Catchments in the Sierra Nevada: Susceptibility to Acidification", submitted by the University of California, Santa Barbara, for a total amount not to exceed $525,539.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $525,539.

I hereby certify that the above is a true and correct copy of Resolution 91-33, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-34

June 13, 1991

Agenda Item No.: 91-5-3

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 39900 through 39911;

WHEREAS, an intergovernmental research proposal, Number 229-42 entitled "Monitoring for Acidic Snowmelt Episodes in the Sierra Nevada", has been submitted by the Environmental Protection Agency;

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

WHEREAS, the Scientific Advisory Committee on Acid Deposition has reviewed and recommends for funding:

> Proposal Number 229-42 entitled "Monitoring for Acidic Snowmelt Episodes in the Sierra Nevada", submitted by the Environmental Protection Agency, for a total amount not to exceed $278,456.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39904, hereby accepts the recommendation of the Scientific Advisory Committee on Acid Deposition and approves the following:

> Proposal Number 229-42 entitled "Monitoring for Acidic Snowmelt Episodes in the Sierra Nevada", submitted by the Environmental Protection Agency for a total amount not to exceed $278,456.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $278,456.

I hereby certify that the above is a true and correct copy of Resolution 91-34, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-35

June 13, 1991

Agenda Item No.: 91-5-3

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 1859-163, entitled "Analysis of Data From the Lynwood Carbon Monoxide Study" has been submitted by the Desert Research Institute;

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 1859-163, entitled "Analysis of Data From the Lynwood Carbon Monoxide Study," submitted by the Desert Research Institute, for a total amount not to exceed $169,632.

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 1859-163, entitled "Analysis of Data From the Lynwood Carbon Monoxide Study," submitted by the Desert Research Institute, for a total amount not to exceed $169,632.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $169,632

I hereby certify that the above is a true and correct copy of Resolution 91-35, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-36

June 13, 1991

Agenda Item No.: 91-5-3

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 1866-163 entitled "Incentives for Trip Reduction Through Housing Location Near California's Rail Transit Stations", has been submitted by the Institute of Urban and Regional Development of the University of California, Berkeley;

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 1866-163 entitled "Incentives for Trip Reduction Through Housing Location Near California's Rail Transit Stations," submitted by the Institute of Urban and Regional Development of the University of California, Berkeley, for a total amount not to exceed $47,803.

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 1866-163 entitled "Incentives for Trip Reduction Through Housing Location Near California's Rail Transit Stations," submitted by the Institute of Urban and Regional Development of the University of California, Berkeley, for a total amount not to exceed $47,803.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $47,803.

I hereby certify that the above is a true and correct copy of Resolution 91-36, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California

AIR RESOURCES BOARD

Resolution 91-37

June 13, 1991

Agenda Item No.: 91-5-1

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 interagency research proposal, Number 1865-163 entitled "Measurement of Breathing Rate and Volume in Routinely Performed Daily Activities", has been submitted by the University of California, Davis;

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 1865-163 entitled "Measurement of Breathing Rate and Volume in Routinely Performed Daily Activities", submitted by the University of California, Davis, for a total amount not to exceed $84,251.

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 1865-163 entitled "Measurement of Breathing Rate and Volume in Routinely Performed Daily Activities", submitted by the University of California, Davis, for a total amount not to exceed $84,251.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $84,251.

I hereby certify that the above is a true and correct copy of Resolution 91-37, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-38

June 13, 1991

Agenda Item No.: 91-5-3

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 interagency research proposal, Number 1864-163 entitled "Effects of Canopy Structure and Open-Top Chamber Techniques on Ozone Distribution and Stomatal Control of Ozone Uptake in Tree Crops in the San Joaquin Valley," has been submitted by the University of California, Riverside;

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

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

> Proposal Number 1864-163 entitled "Effects of Canopy Structure and Open-Top Chamber Techniques on Ozone Distribution and Stomatal Control of Ozone Uptake in Tree Crops in the San Joaquin Valley", submitted by the University of California, Riverside, for a total amount not to exceed $75,039.

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 1864-163 entitled "Effects of Canopy Structure and Open-Top Chamber Techniques on Ozone Distribution and Stomatal Control of Ozone Uptake in Tree Crops in the San Joaquin Valley", submitted by the University of California, Riverside, for a total amount not to exceed $75,039.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $75,039.

I hereby certify that the above is a true and correct copy of Resolution 91-38, as adopted by the Air Resources Board.

Judith M. Lounsbury

Judith M. Lounsbury, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-39

WHEREAS, Jude Lounsbury has culminated her sixteen years of exerience with the Air Resources Board (ABR) by serving diligently as Board Secretary from April 1990 through June 1991;

WHEREAS, during her year as Board Secretary, Jude has attended tirelessly to the Members' myriad needs with thoroughness, tact, sincerity, and soothing smiles;

WHEREAS, her soft-spoken cheer and professional manner complement her experience as dude ranch manager to allow her to handle the ornery and tame the stubborn sweetly but firmly;

WHEREAS, her work on a survey team gave her an appreciation for detail, organization thoroughness, and risk that permeated her work at the ARB;

WHEREAS, Jude is retiring from the ARB in order to pursue those other interests that make life worthwhile and pleasurable, starting with a long trip to New Zealand;

WHEREAS, Jude's exemplary service to the Board as well as her long career with the Regional Programs-cum-Technical Support Division make us reluctant to accept her resignation.

NOW, THEREFORE, BE IT RESOLVED that as Jude enjoys the fruits of retirement, Board members and staff alike will miss her cheery presence and stalwart assistance;

BE IT FURTHER RESOLVED, that the ARB expresses its sincere thanks to Jude and best wishes for success in her future endeavors.

Janenne Sharpless, Chairwoman

Brian Bilbray, Member

John S. Lagarias, Member

Eugene A. Boston, M.D., Member

Barbara Riordan, Member

Roberta H. Hughan, Member

Harriett M. Wieder, Member

Betty S. Ichikawa, Member

Andrew Wortman, Ph.D., Member

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Notice of Public Hearing to Consider the Adoption of a Regulatory Amendment Identifying Nickel (Metallic Nickel and Inorganic Nickel Compounds) as a Toxic Air Contaminant

Agenda Item No.: 91-6-1

Public Hearing Date: August 8, 1991

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: Pat Hutchens
Pat Hutchens
Board Secretary

Date: 1/27/92

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JAN 21 1993

RESOURCES AGENCY OF CALIFORNIA

State of California
AIR RESOURCES BOARD

Resolution 91-40

August 8, 1991

Agenda Item No.: 91-6-1

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (the "Board") to do such acts and to adopt such regulations as may be necessary for the proper execution of the powers and duties granted to, and imposed upon, the Board by law;

WHEREAS, Chapter 3.5 (commencing with section 39650) of Part 2 of Division 26 of the Health and Safety Code establishes procedures for the identification of toxic air contaminants by the Board;

WHEREAS, section 39655 of the Health and Safety Code defines a "toxic air contaminant" as an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health;

WHEREAS, section 39662 of the Health and Safety Code directs the Board to list, by regulation, substances determined to be toxic air contaminants, and to specify for each substance listed a threshold exposure level, if any, below which no significant adverse health effects are anticipated;

WHEREAS, in California, metallic nickel and inorganic nickel compounds (hereinafter nickel) are emitted from many activities including fossil fuel and wood combustion, asbestos mining and milling, secondary smelting, municipal refuse and sewage sludge incineration, electroplating, and cement manufacturing; and nickel is not naturally removed or detoxified in the atmosphere at a rate that would significantly reduce the resulting public exposure;

WHEREAS, pursuant to the request of the Board, the Department of Health Services (DHS) evaluated the health effects of nickel in accordance with section 39660 of the Health and Safety Code;

WHEREAS, DHS concluded in its evaluation that nickel is causally associated with cancer in humans; that health effects other than cancer are not expected to occur at existing or expected ambient levels of nickel; that based on the upper 95 percent confidence limit of potency, the estimated range of lifetime (70 year) excess lung cancer mortality risk from continuous exposure to 1 ug/m^3 of atmospheric nickel is from 2.1×10^{-4} to 37×10^{-4}; and that, based on available data, 2.6×10^{-4}/ug/m^3 is the most plausible estimate of the upper bound of the overall unit risk;

WHEREAS, for the reasons set forth in its evaluation, DHS treats nickel-induced carcinogenesis as a nonthreshold phenomenon because DHS found no evidence that there is a carcinogenic threshold level for nickel;

WHEREAS, upon receipt of the DHS evaluation, staff of the Board prepared a report including and considering the DHS evaluation and recommendations in the form required by section 39661 of the Health and Safety Code. In accordance with the provisions of that section, the report was made available to the public and submitted for review to the Scientific Review Panel (SRP) established pursuant to section 39670 of the Health and Safety Code;

WHEREAS, in accordance with section 39661 of the Health and Safety Code, the SRP reviewed the staff report, including the scientific procedures and methods used to support the data in the report, the data itself, and the conclusions and assessments on which the report was based, considered the public comments received regarding the report, and on May 15, 1991 adopted, for submittal to the Board, findings which included the following:

1. The evidence for carcinogenicity in humans from inhaled nickel is strong. In 1984, the U.S. Environmental Protection Agency (EPA) concluded that nickel refinery dust and nickel subsulfide are human carcinogens. In 1990, the International Agency for Research on Cancer (IARC) concluded that nickel compounds are carcinogenic to humans and that metallic nickel is a possible human carcinogen. Based on available scientific data, we agree with the DHS and IARC's classification of nickel compounds as human carcinogens.

2. Nickel is present in many forms including soluble and insoluble compounds. Human epidemiology has shown that nickel sulfate and combinations of nickel subsulfide and nickel oxides are carcinogens in humans. Several nickel compounds are genotoxic or carcinogenic in animals. While there may be differences in the potency of these different forms of nickel, available evidence does not permit quantification of separate risk estimates. As a result, a single potency has been developed.

3. Because nickel was identified as a hazardous air pollutant under Section 112 of the United States Clean Air Act, identification of nickel as a toxic air contaminant is required by California Health and Safety Code section 39655.

4. Nickel is emitted into the outdoor air by a variety of stationary sources in California.

5. Stationary sources such as fuel combustion, cement manufacturing, municipal refuse and sewage sludge incineration, secondary smelters, and electroplating contribute 18 to 353 tons per year of nickel into California's atmosphere. Mobile sources such as gasoline and diesel

powered vehicles also contribute 5.4 to 7.2 tons per year of nickel emissions to the atmosphere.

6. Tobacco smoke is the major source of indoor exposure to nickel. Wood burning is another indoor source of nickel. In light of the high emissions of nickel in sidestream smoke and the amount of time most people spend indoors, it is apparent that environmental tobacco smoke may contribute much more to people's exposure to nickel than does inhaling ambient outdoor air.

7. Based on the average particle size, nickel has an estimated average atmospheric lifetime of seven days.

8. Approximately 20.3 million people in California represented by the ARB toxics monitoring network are estimated to be exposed outdoors to a population-weighted mean nickel concentration of 7.3 nanograms per cubic meter.

9. Adverse health effects other than cancer are not predicted to occur at known concentrations of nickel in ambient outdoor air.

10. Computer modeling of potential near source exposures to fuel oil combustion units indicate potential exposure to concentrations of nickel up to 10 times higher than the statewide ambient average.

11. Based on available scientific information, it is reasonable to assume that a nickel exposure level below which carcinogenic effects are not expected to occur cannot be identified.

12. Based on interpretation of available scientific evidence, the DHS staff estimated the range of unit risk is from 2.1×10^{-4} to 37×10^{-4} per ug/m^3. The lower end of this range is the human average estimate; the upper end is the 95 percent upper confidence bound for the animal study. We concur with the DHS staff that 2.6×10^{-4} per ug/m^3 is the best value unit risk factor.

Table 1 compares the best value for nickel with those of other compounds recently reviewed by the SRP.

TABLE 1

Compound	Unit Risk (ppb-1)	Unit Risk (ug/m3)-1	Approved by SRP
Nickel	particulate	2.6×10^{-4}	05/15/91
Vinyl Chloride	20×10^{-5}	7.8×10^{-5}	10/19/90
Chloroform	2.6×10^{-5}	5.3×10^{-6}	08/14/90

13. Using the population-weighted annual nickel exposure concentration of 7.3 nanograms per cubic meter (California's population-weighted average ambient concentration) and the DHS value for unit risk, the DHS staff estimates 1.5 to 27 excess cancer cases per million are expected to result. Using the best value for unit risk, the DHS staff estimates the excess carcinogenic risk from a lifetime exposure is 2 cancer cases per million. Assuming that this applies to the California state population of 30 million people, this could result in up to 60 excess lifetime cancer cases statewide. Indoor exposure to nickel from tobacco smoke could add an unknown additional number of lung cancers to this risk estimate.

14. Based on the findings of nickel-induced carcinogenesis in humans and animals, as well as the results of the risk assessment, the SRP concurs with the staff of the DHS in finding that nickel compounds are air pollutants which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health.

WHEREAS, the SRP found the staff report to be without serious deficiency, and the SRP agreed with the staff recommendation that nickel should be listed by the Air Resources Board as a toxic air contaminant, and found that, based on available scientific information, a nickel exposure level below which carcinogenic effects are not expected to occur cannot be identified;

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 provisions of Chapter 3.5 (commencing with section 11340), Part 1, Division 3, Title 2 of Government Code;

WHEREAS, in consideration of the staff report, including DHS' evaluation and recommendations, the available evidence, the findings of the SRP, and the written comments and public testimony it has received, the Board finds that;

There is strong evidence that nickel is a human carcinogen;

Health effects other than cancer are not anticipated at existing or expected nickel exposure levels in ambient outdoor air;

The DHS and the SRP agree that the most plausible estimate of the upper bound of the overall unit risk is $2.6 \times 10^{-4}/ug/m^3$;

There is not sufficient available scientific evidence to support the identification of a threshold exposure level for nickel;

Nickel is an air pollutant which, because of its carcinogenicity, may cause or contribute to an increase in mortality or an increase in

serious illness, or which may pose a present or potential hazard to human health; and

WHEREAS, the Board has determined, pursuant to the requirements of the California Environmental Quality Act and Board regulations, that this regulatory action will have no significant adverse impact on the environment.

NOW, THEREFORE BE IT RESOLVED, that the Board adopts the proposed regulatory amendment to section 93000, Titles 17 and 26, California Code of Regulations, as set forth in Attachment A.

I hereby certify that the above is a true and correct copy of Resolution 91-40, as adopted by the Air Resources Board.

Pat Hutchens

Pat Hutchens
Board Secretary

STATE OF CALIFORNIA
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Notice of Public Hearing to Consider Amendments to the Agricultural Burning Guidelines

Agenda Item No.: 91-6-2

Public Hearing Dates:
Scheduled: July, 11, 1991
Postponed to: August 8, 1991
Subsequent 45-Day Period: June 12, 1991 - July 27, 1992

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: Pat Hutchens
Board Secretary

Date: 7/30/92

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RESOURCES AGENCY OF CALIFORNIA

State of California
AIR RESOURCES BOARD

Resolution 91-41

August 8, 1991

Agenda Item: 91-6-2

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, Sections 41850 through 41864 of the Health and Safety Code authorize the Board to adopt regulations and guidelines necessary for the control, but not complete prohibition of, agricultural burning as defined in Section 39011 of the Health and Safety Code;

WHEREAS, the Board has adopted Agricultural Burning Guidelines in Title 17, California Code of Regulations, Sections 80100-80330;

WHEREAS, Section 41859 of the Health and Safety Code authorizes the Board to review the Agricultural Burning Guidelines periodically, and to modify, repeal or alter such guidelines if scientific and technological data indicate that such a change is warranted;

WHEREAS, Section 80130 of the Agricultural Burning Guidelines requires each district within the Sacramento Valley and San Joaquin Valley Air Basins to submit a report to the Board on burning within 20 days of the end of each quarter of the year;

WHEREAS, Section 80130 subsection (e) of the Agricultural Burning Guidelines provides that in the future, if in the judgement of the Board, the frequency of reports required pursuant to subdivisions (a), (b), (c), and (d) of this section are no longer necessary, the Board may require reports at less frequent intervals;

WHEREAS, the current reporting requirements for districts in the Sacramento Valley and San Joaquin Valley Air Basins are not responsive to program needs;

WHEREAS, the staff proposes that the report on burning be amended to require that each district within the Sacramento Valley and San Joaquin Valley Air Basins within 30 days of the end of the calendar year report on the estimated acreage or tonnage of all waste burned during each month of the calendar year, and that the type of waste shall be identified for at least 80 percent of the total waste burned each month;

WHEREAS, the staff has proposed that in the future, if in the judgement of the Executive Officer, the frequency or contents of the reports required pursuant to the subdivisions of this section are no longer necessary, the Executive Officer may require reports at less frequent intervals or reduce the required contents of the reports;

WHEREAS, Section 80150 subsections (d) and (e), Section 80250 (b), and Section 80290 of the Agricultural Guidelines identifies the portion of Placer County below 1,500 feet msl as part of the Mountain Counties Air Basin;

WHEREAS, the Board in 1986 modified the air basin boundary between the Mountain Counties and Sacramento Valley Air Basins such that the portion of Placer County west of Range 9 East, M.D.B & M., is now in the Sacramento Valley Air Basin, thus rendering the references to the Mountain Counties Air Basin obsolete;

WHEREAS, the staff proposes that the Board delete the language in Sections 80150, 80250, and 80290 that refers to the portion of Placer County formerly in the Mountain Counties Air Basin;

WHEREAS, Sections 80250 and 80260 state that if a no-burn decision is declared in either the Sacramento Valley or the San Joaquin Valley Air Basins, and the federal ambient air quality standard for ozone, carbon monoxide, hydrocarbons, total suspended particulate, or the state standard for visibility is expected to be exceeded during the no-burn period, a note to this effect will be appended to the announcement;

WHEREAS, the California Clean Air Act places increasing importance on the state ambient air quality standards;

WHEREAS, the staff proposes that state standards rather than the federal standards be referenced in Sections 80250 and 80260;

WHEREAS, the California Environmental Quality Act and the Board's regulations require that an action not be adopted as proposed where it will have significant adverse environmental impacts and alternatives or feasible mitigation measures to the proposed action are available which would substantially reduce such impacts;

WHEREAS, the staff has conducted a workshop in Sacramento on March 19, 1991 on the proposed amendments;

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

WHEREAS, the Board finds that:

The amendments to Title 17, California Code of Regulations, Section 80210 proposed by staff and set forth in Attachment A hereto are warranted in light of available scientific and technological data; and

The proposed amendments will not result in any significant adverse environmental impacts.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves Title 17, California Code of Regulations, Section 80130, 80150, 80250, 80260, and 80290, as set forth in Attachment A hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to amend sections 80130, 80150, 80250, 80260, and 80290, Title 17, California Code of Regulations, as set forth in Attachment A, after making them available to the public for a period of 15 days, provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted.

I hereby certify that the above is a true and correct copy of Resolution 91-41, as adopted by the Air Resources Board.

Pat Hutchens

Pat Hutchens
Board Secretary

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Notice of Public Hearing to Consider the Technical Status Update and Proposed Revisions to Malfunction and Diagnostic System Requirements Applicable to 1994 and Subsequent California Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles (OBD II)

Agenda Item No.: 92-7-1

Public Hearing Date: September 12, 1991

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: Pat Hutchens
Pat Hutchens
Board Secretary

Date: July 1, 1992

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RESOURCES AGENCY OF CALIFORNIA

State of California
AIR RESOURCES BOARD

Resolution 91-42

September 12, 1991

Agenda Item No.: 91-7-1

WHEREAS, Sections 39002 and 39003 of the Health and Safety Code charge the Board with the responsibility for systematically attacking the serious air pollution problem caused by motor vehicles;

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

WHEREAS, in Section 43000 of the Health and Safety Code, the Legislature has declared that the emission of air pollutants from motor vehicles is the primary cause of air pollution in many parts of the state;

WHEREAS, in Section 43000.5 of the Health and Safety Code, enacted as part of the California Clean Air Act of 1988 (Stats. 1988, ch. 1568), the Legislature has declared that while significant reductions in vehicle emissions have been achieved in recent years, continued growth in population and vehicle miles traveled throughout the state have the potential not only of preventing attainment of the state standards, but in some cases of resulting in worsening of air quality;

WHEREAS, in Section 43000.5 of the Health and Safety Code, the Legislature further declared that the attainment and maintenance of the state air quality standards will necessitate the achievement of substantial reductions in new vehicle emissions and substantial improvements in the durability of vehicle emission systems;

WHEREAS, Section 43013 of the Health and Safety Code authorizes the Board to adopt motor vehicle emission standards and in-use performance standards which it finds to be necessary, cost-effective, and technologically feasible;

WHEREAS, the Board has adopted "California Malfunction and Diagnostic Systems for 1988 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium Duty Vehicles with Three-Way Catalyst Systems and Feedback Control," in Section 1968, Title 13, California Code of Regulations ("CCR"), which currently requires monitoring of the fuel metering system, exhaust gas recirculation (EGR) system, and certain additional emission-related components by an on-board diagnostic system for passenger cars,

light-duty trucks, and medium-duty vehicles equipped with three-way catalyst systems and feedback control;

WHEREAS, the Board has adopted "Malfunction and Diagnostic System Requirements--1994 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles With Feedback Fuel Control Systems," in Section 1968.1; Title 13, CCR, for monitoring catalyst efficiency, engine misfire, canister purge, secondary air injection, and chlorofluorocarbon (CFC) containment; for improving current monitoring of the fuel system, oxygen sensor, EGR system, and other emission-related components of the on-board diagnostic system; and for standardizing fault codes, diagnostic repair equipment, the vehicle connector used for attaching the repair equipment to the vehicle, and the protocol for downloading repair information in order to improve the effectiveness of emission control system repairs;

WHEREAS, the Board directed staff to report back to it by September, 1991, regarding the progress of manufacturers in meeting the technology forcing requirements of Section 1968.1;

WHEREAS, in November, 1990, the Federal Clean Air Act Amendments became law and directed the Environmental Protection Agency ("EPA") to develop federal on-board diagnostic requirements, and EPA and staff have attempted to coordinate the development of such requirements with the California OBD regulations;

WHEREAS, the staff has proposed the adoption of amendments to Section 1968.1, Title 13 CCR to revise the OBD regulations to establish more effective monitoring strategies for catalysts, evaporative, and secondary air systems, expand the applicability of the requirements to all light- and medium-duty vehicles, allow statistic malfunction detection algorithms, and include additional demonstration testing;

WHEREAS, the Board has adopted "Certification and Service Documents - 1993 and Subsequent Model Motor Vehicles," in Section 1977, Title 13, CCR, which requires certification documents and emission-related vehicle and engine service procedures to conform to the nomenclature and abbreviations found in the Society of Automotive Engineers' (SAE) J1930 procedure;

WHEREAS, the staff has proposed the incorporation of the most recent version of the SAE J1930 procedure in response to requests from industry;

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

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:

Significant numbers of vehicles continue to operate with deteriorated catalytic converters and that catalyst performance is crucial to maintaining vehicle emissions in compliance with the applicable standards; accordingly, it is necessary to monitor catalyst performance to ensure adequate levels of conversion efficiency;

The on-board evaluation of catalyst efficiency over the same test cycle that tailpipe emissions are measured will improve the effectiveness of on-board diagnostic systems and provide a basis for system verification;

In-use surveillance programs indicate that evaporative system leaks and malfunctions cause excess emissions and, therefore, evaporative monitoring systems that can detect minor system leaks as well as other malfunctions will significantly reduce in-use evaporative emissions from vehicles;

The inclusion of all passenger vehicles, light-duty trucks and medium-duty vehicles in the requirements of Section 1968.1 will reduce in-use emissions from diesel vehicles while facilitating better diagnosis and repair of emission-related malfunctions;

The acceptance of federal on-board diagnostic systems on California vehicles after the 1998 model year that are not identified as Low Emission Vehicles will allow manufacturers to design an on-board diagnostic system for a vehicle that can be used nationwide;

A requirement to monitor chlorofluorocarbon (CFC) leakage in the air conditioning system will promote the use of CFC substitutes which will lower the demand for CFC production;

Adopting standardized fault codes and diagnostic service equipment will improve the repairability and maintenance and, therefore, the emission characteristics of motor vehicles;

The proposed on-board diagnostic revisions are cost effective and technologically feasible;

The adoption of the June, 1991, version of SAE J1930 into section 1977, Title 13, CCR, will improve the effectiveness of manufacturers' emission-related vehicle and engine service procedures and, therefore, the repairability of

motor vehicles which in turn will improve their emission characteristics;

WHEREAS, the Board further finds that:

The proposed regulations will result in reductions of motor vehicle emissions because emission systems would be more closely monitored and better maintained and will not have any significant adverse environmental effects;

WHEREAS, the Board has determined, pursuant to the requirements of the California Environmental Quality Act and Air Resources Board regulations, that this regulatory action will have no significant adverse impact on the environment.

NOW, THEREFORE, BE IT RESOLVED as amended and set forth that the Board hereby approves Sections 1968.1 and 1977, Title 13, California Code of Regulations, as set forth in Attachment A hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to adopt Sections 1968.1 and 1977, Title 13, California Code of Regulations, after making the modified regulatory language and additional supporting documents and information available for public comment for a period of 15 days, provided that the Executive Officer shall consider such written comments regarding the modification and additional supporting documents and information as may be submitted during this period, shall make modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted;

BE IT FURTHER RESOLVED that because the industry standards for on-board diagnostic equipment being developed by the SAE are not ready for final incorporation into Section 1968.1, the Board hereby directs the Executive Officer to take appropriate regulatory action under the Administrative Procedure Act to evaluate and determine whether to incorporate the standards for on-board diagnostic equipment when finalized.

BE IT FURTHER RESOLVED that the Board hereby determines that the regulations adopted herein will not cause California motor vehicle emission standards, in the aggregate, to be less protective of public health and welfare than applicable federal standards, will not cause the California requirements to be inconsistent with section 202(a) of the Clean Air Act, and raise no new issues affecting previous waiver determinations of the Administrator of the Environmental Protection Agency pursuant to section 209(b) of the Clean Air Act;

BE IT FURTHER RESOLVED that the Executive Officer shall, upon adoption, forward the regulations to the Environmental Protection Agency with a request for a waiver or confirmation that the regulations are within the

scope of an existing waiver of federal preemption pursuant to section 209(b) of the Clean Air Act, as appropriate;

BE IT FURTHER RESOLVED that the Board directs staff to continue monitoring research and development activities related to implementation of the on-board diagnostic system requirements in Section 1968.1, and to report back to the Board on or before November 12, 1992 with a recommendation to delay the implementation of any of the requirements if such requirements are found to be nonfeasible for a significant number of manufacturers with respect to the implementation time frame specified in the regulation.

BE IT FURTHER RESOLVED that the Board directs staff to continue monitoring research and development activities related to implementation of the on-board diagnostic system requirements for low emission vehicles in Section 1968.1, and to report back to the Board on or before September 12, 1993 with a recommendation to modify any of the requirements if such requirements are found to be nonfeasible, and/or impractical for a significant number of manufacturers, with such report to include recommendations for modification of the regulation as it affects low emission vehicles, if determined to be appropriate at that time.

I hereby certify that the above is a true and correct copy of Resolution 91-42, as adopted by the Air Resources Board.

Pat Hutchens

Pat Hutchens, Board Secretary

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Notice of Public Hearing to Consider the Adoption of a Regulatory Amendment Identifying Perchloroethylene as a Toxic Air Contaminant

Agenda Item No.: 91-8-1

Public Hearing Date: October 10, 1991

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: Pat Hutchens
Pat Hutchens
Board Secretary

Date: 1/23/92

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JAN 21 1993

RESOURCES AGENCY OF CALIFORNIA

State of California
AIR RESOURCES BOARD

Resolution 91-43

October 10, 1991

Agenda Item No.: 91-8-1

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (the "Board") to do such acts and to adopt such regulations as may be necessary for the proper execution of the powers and duties granted to, and imposed upon, the Board by law;

WHEREAS, Chapter 3.5 (commencing with section 39650) of Part 2 of Division 26 of the Health and Safety Code establishes procedures for the identification of toxic air contaminants by the Board;

WHEREAS, section 39655 of the Health and Safety Code defines a "toxic air contaminant" as an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health;

WHEREAS, section 39662 of the Health and Safety Code directs the Board to list, by regulation, substances determined to be toxic air contaminants, and to specify for each substance listed a threshold exposure level, if any, below which no significant adverse health effects are anticipated;

WHEREAS, in California, perchloroethylene is emitted during dry cleaning, degreasing, and the manufacture and application of paints, coatings, and adhesives as well as in the course of its distribution, reclamation and disposal;

WHEREAS, perchloroethylene is not naturally removed or detoxified in the atmosphere at a rate that would significantly reduce the resulting public exposure;

WHEREAS, pursuant to the request of the Board, the Office of Environmental Health Hazard Assessment (OEHHA) evaluated the health effects of perchloroethylene in accordance with section 39660 of the Health and Safety Code;

WHEREAS, the OEHHA concluded in its evaluation that perchloroethylene is potentially casually associated with cancer in humans; that health effects other than cancer are not expected to occur at existing average ambient levels of perchloroethylene; that based on the upper 95 percent confidence limit of potency, the estimated range of lifetime (70-year) excess cancer risk from continuous exposure to 1 ppbv of atmospheric perchloroethylene is from 2 to 72 x 10^{-6}; and that the OEHHA best value for the upper bound cancer unit risk for perchloroethylene is 54 x 10^{-6} ppb^{-1};

WHEREAS, based on the best value of cancer unit risk and exposure to an outside annual average population-weighted concentration of 0.37 ppb, the OEHHA staff estimates a potential excess carcinogenic risk of up to 20 cancer cases per million people exposed over a 70-year lifetime to ambient perchloroethylene resulting in an estimated 600 potential excess cancers among a statewide population of approximately 30 million people over a 70-year period.

WHEREAS, for the reasons set forth in its evaluation, the OEHHA treats perchloroethylene-induced carcinogenesis as a nonthreshold phenomenon because the OEHHA found no evidence that there is a carcinogenic threshold level for perchloroethylene;

WHEREAS, upon receipt of the OEHHA evaluation, the staff of the Board prepared a report including and in consideration of the OEHHA evaluation and recommendations and in the form required by section 39661 of the Health and Safety Code and, in accordance with the provisions of that section, made the report available to the public and submitted it for review to the Scientific Review Panel (SRP) established pursuant to section 39670 of the Health and Safety Code;

WHEREAS, in accordance with section 39661 of the Health and Safety Code, the SRP reviewed the staff report, including the scientific procedures and methods used to support the data in the report, the data itself, and the conclusions and assessments on which the report was based; considered the public comments received regarding the report; and on June 10, 1991, adopted for submittal to the Board, findings which include the following:

1. There is evidence that exposure to perchloroethylene results in animal carcinogenicity and possible human carcinogenicity. The International Agency for Research on Cancer (IARC) lists perchloroethylene in Group 2B of its classification scheme for carcinogens (possible carcinogen, sufficient evidence from animal studies but inadequate or nonexistent evidence in humans). Staff of the United States Environmental Protection Agency (EPA) recommended perchloroethylene be assigned to Group B2 of its classification scheme for carcinogens (probable carcinogen, sufficient evidence from animal studies but inadequate evidence or no data from epidemiological studies). However, the classification has undergone considerable debate and the 1985 classification as Group C (possible carcinogen, limited carcinogen in animals, absence of human data) continues to be the official designation. Based on available scientific data, the SRP concurs with the Office of Environmental Health Hazard Assessment (OEHHA) in the California Environmental Protection Agency (Cal-EPA), EPA, and IARC that perchloroethylene is carcinogenic for animals and possibly carcinogenic for humans.

2. Based on available scientific information, the DHS staff found no evidence of a perchloroethylene exposure level below which no carcinogenic effects are anticipated.

3. Perchloroethylene is listed as a hazardous air pollutant under section 112 of the federal Clean Air Act as amended in 1990.

4. Based on the interpretation of available scientific evidence, the DHS staff estimate that the upper 95 percent confidence limits on the lifetime risk of cancer from perchloroethylene range from 2 to 72 x 10^{-6} $ppbv^{-1}$ [0.3 to 10.6 x 10^{-6} $(ug/m^3)^{-1}$]. The DHS staff identified the best value of perchloroethylene cancer unit risk as 54 x 10^{-6} $ppbv^{-1}$ [8 x 10^{-6} $(ug/m^3)^{-1}$]. Table I compares the best value of upper-bound perchloroethylene cancer unit risk with those of other compounds reviewed by the SRP (the dates these compounds identification reports were approved by the SRP are included in Table 1). Upper-bound excess lifetime risks are health-protective estimates; the actual risk may be significantly lower.

TABLE I

Compound	Unit Risk $(ppbv^{-1})$	Unit Risk $(ug/m^3)^{-1}$	Date SRP Approved
Inorganic arsenic	particulate	3.3×10^{-3}	4/16/90
Nickel	particulate	2.6×10^{-4}	5/15/91
Vinyl chloride	20×10^{-5}	7.8×10^{-5}	10/19/90
Perchloroethylene	54×10^{-6}	8×10^{-6}	6/10/91
Chloroform	2.6×10^{-5}	5.3×10^{-6}	8/14/90
Trichloroethylene	1.1×10^{-5}	2×10^{-6}	4/16/90
Methylene Chloride	3.5×10^{-6}	1×10^{-6}	4/18/89

5. The major identified sources of perchloroethylene emissions to California's outdoor air are dry cleaning and degreasing activities which use perchloroethylene as a solvent.

6. Based on its gas-phase reactivity with hydroxyl radicals, perchloroethylene's estimated half-life is approximately 100 days.

7. Based on data collected by the ARB's ambient toxic air contaminant monitoring network, the estimated mean annual population-weighted exposure for approximately 20 million Californians is 0.37 ppbv.

8. The ARB staff estimated exposure to near-source emissions based on modeling eight perchloroethylene-emitting facilities in the South Coast Air Basin. Five facilities are located in or near the City of Industry and three facilities are located in or near Burbank. Results showed individuals could be exposed to levels significantly above background.

In light of this hot spots information, ARB should further extend its modeling and data collection activities throughout the state.

9. Using the DHS staff's best value of cancer unit risk (54 x 10^{-6}ppbv^{-1}, see number 4 above) and the ARB staff's population-weighted exposure (0.37 ppbv, see number 7 above) up to 600 potential excess cancers are predicted for California's population of 30 million due to ambient perchloroethylene exposure. This estimate represents the upper range of plausible excess cancer risk and cancer cases; the actual risk and number of cancer cases may be significantly lower.

10. The DHS staff does not expect noncarcinogenic adverse health effects to occur from average ambient or indoor air perchloroethylene exposure in California. However, there is insufficient data to comment on whether or not noncarcinogenic adverse health effects could result from near-source or "hot spot" exposures.

11. Results from both indoor and personal monitoring in California homes indicate that people are exposed frequently to higher indoor than outdoor perchloroethylene concentrations. However, the level of exposure can vary among the homes because different numbers and types of emission sources may be present in individual homes.

12. Based on available scientific evidence indicating that perchloroethylene is an animal and a possible human carcinogen, we conclude that perchloroethylene should be considered a toxic air contaminant.

WHEREAS, the SRP found the staff report to be without serious deficiency, and the SRP agreed with the staff recommendation that perchloroethylene should be listed by the Air Resources Board as a toxic air contaminant, and found that, based on available scientific information, the perchloroethylene exposure level below which carcinogenic effects are not expected to occur cannot be identified;

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;

WHEREAS, in consideration of the staff report, including the OEHHA's evaluation and recommendations, the available evidence, the findings of the SRP, and the written comments and public testimony it has received, the Board finds that:

1. There is evidence that perchloroethylene is a possible human carcinogen;

2. Health effects other than cancer are not anticipated at existing average perchloroethylene exposure levels in ambient outdoor air;

3. The OEHHA and the SRP agree that based on the upper 95 percent confidence limit of potency, the estimated range of lifetime (70 year) excess cancer risk from continuous exposure to 1 ppbv of atmospheric perchloroethylene is from $2\text{-}72 \times 10^{-6}$;

4. Although the OEHHA and the SRP have determined that the best value of the upper bound of the overall perchloroethylene cancer unit risk is $54 \times 10^{-6} ppb^{-1}$, the Board is unable to endorse this potency value because of the uncertainty surrounding the metabolic rate of perchloroethylene in humans;

5. Perchloroethylene is an air pollutant which, because of its carcinogenicity, may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health;

6. There is not sufficient available scientific evidence to support the identification of a threshold exposure level for perchloroethylene;

7. The risk assessments conducted by OEHHA and approved by the SRP are based on the best science available, but because of the inherent uncertainties associated with risk assessments and the resulting risk and potency values, the utmost degree of care must be taken to interpret and utilize risk values properly when making risk management decisions;

8. There is evidence that risk values could be misapplied in making risk management decisions, and the Board believes it should exercise leadership in providing an interpretation of the risk assessment values it endorses and the necessary tools and methodology to ensure the proper use of such values in risk management decisions by the districts and others and;

9. This regulatory action will have no significant adverse impact on the environment.

NOW, THEREFORE BE IT RESOLVED, that the Board hereby identifies perchloroethylene as a toxic air contaminant and adopts the proposed regulatory amendment to section 93000, Titles 17 and 26, California Code of Regulations, as set forth in Attachment A.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to explore the need for extending its data collection and modeling activities throughout the state, in light of the hot spots information which is becoming available.

BE IT FURTHER RESOLVED, that the Board requests the OEHHA and the staff to conduct a public workshop within four months, preferably with the participation of at least one SRP member, in order to consider the scientific evidence and to ascertain whether any additional scientific evidence is available pertaining to the OEHHA and SRP recommended risk values, particularly the best value of upper bound perchloroethylene risk, in order to determine if any changes to their conclusions are warranted and to then report their decision to the Board.

BE IT FURTHER RESOLVED, if the OEHHA and the staff determine that changes to the risk values, particularly potency, are justified or that there is new scientific evidence regarding risk which was not previously presented, the matter shall be presented to the SRP for a revised determination prior to reporting back to the Board.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to initiate a high priority work effort with the SRP, OEHHA, industry, local air districts, and the public to expand and improve the risk assessment information available to local air districts and others involved in making risk management decisions on toxic air pollutants, to develop recommendations for better using this information, considering the uncertainty inherent in risk values, and to report back to the Board within six months.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to write to the local and regional air districts to communicate to them the action taken by the Board at this hearing, to express the Board's concerns regarding proper use of risk values in making risk management decisions, and to invite them to participate with us and others in the development of appropriate methodology and tools to use risk values properly in risk management decision making.

I hereby certify that the above is a true and correct copy of resolution 91-43, as adopted by the Air Resources Board.

Pat Hutchens 12/5/91

Pat Hutchens
Board Secretary

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Notice of Public Hearing to Consider Amendments to Regulations Regarding the State 24-Hour Ambient Air Quality Standard for Sulfur Dioxide

Agenda Item No.: 91-9-1

Public Hearing Date: October 11, 1991

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: Pat Hutchens
Pat Hutchens
Board Secretary

Date: 1/13/92

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Office of the Secretary

JAN 21 1993

RESOURCES AGENCY OF CALIFORNIA

State of California
AIR RESOURCES BOARD

Resolution 91-44

October 10, 1991

Agenda Item No.: 91-9-1

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (the "Board") to adopt standards, rules and regulations and to do such acts as may be 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 39606(b) requires the Board to adopt standards of ambient air quality 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;

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 Board periodically reviews existing state ambient air quality standards to ensure that they reflect current scientific knowledge;

WHEREAS, the current state 24-hour averaged ambient air quality standard for sulfur dioxide was adopted in 1977 and is based upon evidence of increased incidence of respiratory disease in humans and increased risk of mortality in humans;

WHEREAS, the current state 24-hour averaged ambient air quality standard for sulfur dioxide is violated when the 24-hour averaged sulfur dioxide concentration equals or exceeds 0.05 parts per million (ppm) at the same time as either the oxidant standard of 0.10 ppm (measured as ozone and not to be equaled or exceeded) or the total suspended particulate matter (TSP) standard of 100 micrograms per cubic meter is violated;

WHEREAS, the Board has received and considered a recommendation from the Department of Health Services dated January 24, 1991 to replace the existing state 24-hour averaged ambient air quality standard for sulfur dioxide with an ambient air quality standard for sulfur dioxide of 0.04 ppm (not to be exceeded), with no requirement for a concurrent violation of either the total suspended particulate matter standard or the oxidant standard (measured as ozone);

WHEREAS, it is Board policy, when reviewing an ambient air quality standard, to revise the definition of compliance with the standard such that the standard is violated when concentrations "exceed" rather than "equal or exceed" the level of the standard;

WHEREAS, the ARB staff has proposed to amend the 24-hour ambient air quality standard for sulfur dioxide by: lowering the numerical value of the standard to 0.04 ppm; changing the basis for determining violations of the standard to "not to be exceeded" (rather than "equal or exceed"); and uncoupling the standard from the current requirement of concurrent exceedance of either the total suspended particulate matter standard or the ozone standard.

WHEREAS, the Board has reviewed and considered a substantial body of evidence both written and oral, presented to it by staff, the Department of Health Services, 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 no project which may have significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available to reduce or eliminate such impacts;

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:

At the request of the ARB staff, the Department of Health Services has reviewed 48 research studies, all published since the 24-hour sulfur dioxide standard was revised in 1977, which concern the adverse respiratory health effects from exposure to sulfur dioxide;

Epidemiological studies demonstrate an association between long-term exposure to sulfur dioxide (24-hour exposures or longer) and adverse respiratory health effects. These effects include an increased incidence of respiratory symptoms and disease, decrements in respiratory function, and an increased risk of mortality;

The data from the epidemiological studies support a 24-hour averaged ambient air quality standard for sulfur dioxide that is not coupled to particulate matter concentrations;

The Department of Health Services cited epidemiological studies that indicate an association between sulfur dioxide exposure at or above levels of 0.06 ppm and adverse respiratory health effects, thus establishing a "low adverse effects" level;

The Department of Health Services cited epidemiological studies that establish a "no adverse effects" level for sulfur dioxide respiratory effects at 24-hour sulfur dioxide concentrations of 0.04 ppm and below;

The adverse respiratory health effects seen in the epidemiological studies were probably not caused by sulfur dioxide alone; rather, it appears that sulfur dioxide serves as an effective and useful surrogate for other related pollutants (such as sulfuric acid, sulfates, or particulate matter) in addition to itself;

The scientific basis of the current combination sulfur dioxide/oxidant (measured as ozone) standard is weakened due to methodological problems that may have occurred in the study by Hazucha and Bates (1975), which served as the basis for the sulfur dioxide/oxidant standard;

Research has been published that reports a combined sulfur dioxide/ozone effect, but the data are more appropriate to short-term sulfur dioxide exposure and to the one-hour sulfur dioxide standard, not the 24-hour standard;

The Department of Health Services' Air Quality Advisory Committee (AQAC), an independent advisory group, has reviewed the DHS findings and concurred with their interpretation of recent research results; and

In addition, the Department of Health Services asked an independent group of scientists with expertise in air pollution epidemiology to review the DHS findings. Their comments are reflected in the final DHS findings.

WHEREAS, the Board further finds that amendments of the regulations set forth in Attachment A will not have a significant adverse environmental impact.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby adopts the amendments to sections 70100 and 70200, and the repeal of section 70201, Title 17, California Code of Regulations, as set forth in Attachment A hereto.

I hereby certify that the above is a true and correct copy of resolution 91-44, as adopted by the Air Resources Board.

Pat Hutchens 6/25/92

Pat Hutchens

ATTACHMENT A

1. Amend section 70100, Title 17, California Code of Regulations, to read as follows[1]:

Article 2. Ambient Air Quality Standards

70100. Definitions.

*** [(a)-(j) no change]

(k) Total Suspended Particulate Matter. Total suspended particulate matter refers to suspended atmospheric particles of any size, solid and liquid, except uncombined water. Total suspended particulate matter is to be measured by the high volume sampler method or by an equivalent method~~, for purposes of monitoring for compliance with the 24-hour Sulfur Dioxide (SO_2) standard~~.

*** [(l)-(s) no change]

NOTE: Authority cited: Sections 39600 and 39601, Health and Safety Code. Reference: Sections 39602 and 39606 (b), Health and Safety Code.

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1. Section 70100, Definitions., includes 20 definitions for pollutants or terms describing standards or pollutants. Only those definitions proposed to be amended are shown.

2. Amend section 70200, Title 17, California Code of Regulations, to read as follows[1]:

70200. Table of Standards***

Substance	Concentration and Methods**	Duration of Averaging Periods	Most Relevant Effects	Comments
*	*	*	*	*	*	*	*	*
Sulfur Dioxide (SO_2)	0.25 ppm** flour- escence method	1 hour	a. Bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.	The standard is designed to protect against adverse effects from short-term (5-10 min.) peak exposures.
	0.04 ~~0.05~~ ppm** flour- escence method, ~~with oxidant, (ozone) equal to or greater than the state standard, or with total 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. Increased incidence of pulmonary disease and symptoms, decreased pulmonary function, and increased risk of mortality.	a. Further studies on co-carcinogenic role are necessary. b. Does not include effects on vegetation, ecosystems and materials. c. ~~May not include a margin of safety.~~ Effects may not be due to SO_2 alone, but also suspended particulate matter, including sulfates and acids.
Visibility Reducing Particles	In sufficient***** amount to produce extinction of 0.23 per kilometer due to particles when relative humidity is less than 70 percent. Measurement in accordance with ARB Method V.	8 hour (10 AM-6PM Pacific Standard Time)	Visibility impairment on days when relative humidity is less than 70 percent.	This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile visual range when relative humidity is less than 70 percent.

Visibility Reducing Particles (Applicable only in Lake Tahoe Air Basin)	In sufficient***** amount to produce extinction of 0.07 per kilometer due to particles when relative humidity is less than 70 percent. Measurement in accordance with ARB Method V.	8 hour (10 AM-6PM Pacific Standard Time)	Reduction in scenic quality on days when the relative humidity is less than 70 percent.	This standard is equivalent to a 30-mile visual range when relative humidity is less then 70 percent.

* * * * * * * * *

* 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. All other standards are violated when concentrations equal or exceed those set forth in the body of the regulation.

*** Applicable statewide unless otherwise noted.

~~**** The 24-hour suspended particulate matter standard referred to is that adopted by the Board in 1969, of 100 ug/m^3 as measured by high volume sampler.~~

~~*****~~ **** These standards are violated when particle concentrations cause measured light extinction values to exceed those set forth in the regulations.

NOTE: Authority cited: Section 39600, 39601 (a) and 39606 (b), Health and Safety Code.
Reference: Sections 39014, 39606 (b), 39701 and 39703 (f), Health and Safety Code.

1. The Table of Standards, section 70200, includes standards for nine pollutants. Only those standards proposed to be amended are shown.

3. Repeal section 70201, Title 17, California Code of Regulations, as follows:

70201. Determination of 24-hour SO_2 Standard.

In connection with measurements taken to determine compliance with the 24-hour SO_2 standard established section 70200:

(a) The SO_2 concentration, the oxidant concentration, and/or the total suspended particulate concentration are to be measured at the same monitoring station.

(b) A single sulfur dioxide average concentration is to be determined over a fixed, continuous 24-hour interval beginning and ending on the hour. The 24-hour interval shall be the same as that used for the determination of total suspended particulate concentration. A midnight to midnight 24-hour period is recommended.

(c) If the average concentration of oxidant equals or exceeds the State standard of 0.10 ppm during any clock-hour interval of the 24 hour interval in which the average concentration of sulfur dioxide equals or exceeds 0.05 ppm, the 24-hour State standard for sulfur dioxide is deemed to have been violated.

(d) If the 24-hour interval over which sulfur dioxide and total suspended particulate are measured includes any portion of two calendar days, any violation is to be assigned to that day which contains the larger portion of the hours of the 24-hour interval, or to the first day if if encompasses twelve hours from each day.

(e) If the sulfur dioxide standard is violated concurrently with both the total suspended particulate matter and oxidant standards on the same day, only one violation of this standard will be deemed to have occurred.

NOTE: Authority cited: Section 39601, Health and Safety Code. Reference: Section 39606, Health and Safety Code.

State of California

AIR RESOURCES BOARD

Resolution 91-45
October 11, 1991

Agenda Item No.: 91-9-2

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; and

WHEREAS, an interagency research proposal, Number 1917-165, entitled "Development of a Land Use/Travel Model," has been submitted by the University of California, Davis; 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 1917-165 entitled "Development of a Land Use/Travel Model," submitted by the University of California, Davis, for a total amount not to exceed $151,445.

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 1917-165 entitled "Development of a Land Use/Travel Model", submitted by the University of California, Davis, for a total amount not to exceed $151,445.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $151,445.

I hereby certify that the above is a true and correct copy of Resolution 91-45, as adopted by the Air Resources Board.

Patricia Hutchens

Patricia Hutchens, Board Secretary

State of California

AIR RESOURCES BOARD

Resolution 91-46
October 11, 1991

Agenda Item No.: 91-9-2

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; and

WHEREAS, an interagency research proposal, Number 1869-164R, entitled "Formation of Mutagens from Atmospheric Reactions of Polycyclic Aromatic Hydrocarbons in Ambient Air," has been submitted by the University of California, Riverside, and

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

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

> Proposal No. 1869-164R entitled "Formation of Mutagens from Atmospheric Reactions of Polycyclic Aromatic Hydrocarbons in Ambient Air," submitted by the University of California, Riverside, for a total amount not to exceed $69,963.

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 No. 1869-164R entitled "Formation of Mutagens from Atmospheric Reactions of Polycyclic Aromatic Hydrocarbons in Ambient Air," submitted by the University of California, Riverside, for a total amount not to exceed $69,963.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $69,963.

I hereby certify that the above is a true and correct copy of Resolution 91-46, as adopted by the Air Resources Board.

Patricia Hutchens

Patricia Hutchens, Board Secretary

State of California

AIR RESOURCES BOARD

Resolution 91-47
October 11, 1991

Agenda Item No. 91-9-2

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; and

WHEREAS, a solicited research proposal, Number 1881-165, entitled "Analysis of Indirect Source Trip Activity," has been submitted by JHK & Associates; 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 1881-165 entitled "Analysis of Indirect Source Trip Activity," submitted by JHK & Associates, for a total amount not to exceed $159,997.

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 1881-165 entitled "Analysis of Indirect Source Trip Activity," submitted by JHK & Associates, for a total amount not to exceed $159,997.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $159,997.

I hereby certify that the above is a true and correct copy of Resolution 91-47, as adopted by the Air Resources Board.

Patricia Hutchens

Patricia Hutchens, Board Secretary

State of California

AIR RESOURCES BOARD

Resolution 91-48
October 11, 1991

Agenda Item No.: 91-9-2

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; and

WHEREAS, a solicited research proposal, Number 1871-165, entitled "Feasibility of Reducing Nitrogen Oxide Emissions from Heavy-Duty Vehicles," has been submitted by Acurex Corporation, and

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

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

> Proposal No. 1871-165 entitled "Feasibility of Reducing Nitrogen Oxide Emissions from Heavy-Duty Vehicles," submitted by Acurex Corporation, for a total amount not to exceed $170,599.

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 No. 1871-165 entitled "Feasibility of Reducing Nitrogen Oxide Emissions from Heavy-Duty Vehicles," submitted by Acurex Corporation, for a total amount not to exceed $170,599.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $170,599.

I hereby certify that the above is a true and correct copy of Resolution 91-48, as adopted by the Air Resources Board.

Patricia Hutchens

Patricia Hutchens, Board Secretary

State of California

AIR RESOURCES BOARD

Resolution 91-49
October 11, 1991

Agenda Item No.: 91-9-2

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; and

WHEREAS, a solicited research proposal, Number 1906-165, entitled "Assessment of Airborne Emissions from Bioremediation Processes," has been submitted by the University of California, Davis, 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 No. 1906-165 entitled "Assessment of Airborne Emissions from Bioremediation Processes," submitted by the University of California, Davis, for a total amount not to exceed $88,301.

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 No. 1906-165 entitled "Assessment of Airborne Emissions from Bioremediation Processes," submitted by the University of California, Davis, for a total amount not to exceed $88,301.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $88,301.

I hereby certify that the above is a true and correct copy of Resolution 91-49, as adopted by the Air Resources Board.

Patricia Hutchens

Patricia Hutchens, Board Secretary

State of California

AIR RESOURCES BOARD

Resolution 91-50
October 11, 1991

Agenda Item No.: 91-9-2

WHEREAS, the Air Resources Board has been directed to design and implement a comprehensive program of research and monitoring of acid deposition in California pursuant to Health and Safety Code Sections 39900 through 39911; and

WHEREAS, an interagency research proposal, Number 230-43, entitled "The Development of a Modular System for Acidic Deposition Monitoring," has been submitted by the University of California, Davis; and

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

WHEREAS, the Scientific Advisory Committee on Acid Deposition has reviewed and recommends for funding:

> Proposal Number 230-43 entitled "The Development of a Modular System for Acidic Deposition Monitoring," submitted by the University of California, Davis, for a total amount not to exceed $45,346.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39904, hereby accepts the recommendation of the Scientific Advisory Committee on Acid Deposition and approves the following:

> Proposal Number 230-43 entitled "The Development of a Modular System for Acidic Deposition Monitoring," submitted by the University of California, Davis, for a total amount not to exceed $45,346.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $45,346.

I hereby certify that the above is a true and correct copy of Resolution 91-50, as adopted by the Air Resources Board.

Patricia Hutchens

Patricia Hutchens, Board Secretary

State of California

AIR RESOURCES BOARD

Resolution 91-51
October 11, 1991

Agenda Item No.: 91-9-2

WHEREAS, the Air Resources Board has been directed to design and implement a comprehensive program of research and monitoring of acid deposition in California pursuant to Health and Safety Code Sections 39900 through 39911; and

WHEREAS, an interagency research proposal, Number 231-43, entitled "Gas Exchange in Ponderosa Pine in Response to Atmospheric Pollution," has been submitted by the University of California, Berkeley, and

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

WHEREAS, the Scientific Advisory Committee on Acid Deposition has reviewed and recommends for funding:

> Proposal Number 231-43 entitled "Gas Exchange in Ponderosa Pine in Response to Atmospheric Pollution," submitted by the University of California, Berkeley, for a total amount not to exceed $186,907.

NOW, THEREFORE, BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39904, hereby accepts the recommendation of the Scientific Advisory Committee on Acid Deposition and approves the following:

> Proposal Number 231-43 entitled "Gas Exchange in Ponderosa Pine in Response to Atmospheric Pollution," submitted by the University of California, Berkeley, for a total amount not to exceed $186,907.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $186,907.

I hereby certify that the above is a true and correct copy of Resolution 91-51, as adopted by the Air Resources Board.

Patricia Hutchens

Patricia Hutchens, Board Secretary

STATE OF CALIFORNIA
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider the Adoption of Revisions to the Designations of Areas in California as Atttainment, Nonattainemnt, or Unclassified for the State Ambient Air Quality Standards

Agenda Item No.: 91-10-1

Public Hearing Dates: November 14, 1991

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: Pat Hutchens
Board Secretary

Date: 4/16/92

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RESOURCES AGENCY OF CALIFORNIA

State of California
AIR RESOURCES BOARD

Resolution 91-52

November 14, 1991

Agenda Item No.: 91-10-1

WHEREAS, sections 39600 and 39601 of the Health and Safety Code require the Air Resources Board (the "Board") to adopt standards, rules and regulations and to do such acts as as may be necessary for the proper execution of the powers and duties granted to, and imposed upon, the Board by law;

WHEREAS, the Legislature enacted the California Clean Air Act of 1988 (the "Act"; Stats. 1988, ch. 1568) declaring that it is necessary that the state ambient air quality standards be attained by the earliest practicable date to protect the public health, particularly the health of children, older people, and those with respiratory diseases;

WHEREAS, in order to attain these standards, the Act mandates a comprehensive program of emission reduction measures and planning requirements for the Board and the air pollution control districts ("districts") in areas where the standards are not attained;

WHEREAS, the Act directed the Board in section 39608(a) of the Health and Safety Code, in consultation with the districts, to identify and classify, on or before September 30, 1989, each air basin as attainment, nonattainment, or unclassified on a pollutant-by-pollutant basis pursuant to criteria established by the Board pursuant to section 39607(e) of the Health and Safety Code;

WHEREAS, the Act in section 39608(c) of the Health and Safety Code requires the Board to review the designation annually and to update them as new information becomes available;

WHEREAS, pursuant to section 39607(e) the Board adopted sections 70300-70306, Title 17, California Code of Regulations, establishing criteria for the designation, and the Board subsequently approved amendments to those criteria;

WHEREAS, on June 9, 1989, the Board approved the initial area designations which are contained in sections 60200-60209, Title 17, California Code of Regulations;

WHEREAS, in consultation with the districts and in consideration of comments received from public agencies, industry representatives, and interested persons, the staff has reviewed new information and has prepared proposed amendments to the area designations for specific areas of the state for carbon monoxide, suspended particulate matter, and sulfates;

WHEREAS, the proposed amendments of the area designations are based on the criteria contained in sections 70300-70306, Title 17, California Code of Regulations, as last amended on January 2, 1991;

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

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 the Board has considered the record of that proceeding including testimony presented by interested persons and the staff at the hearing; and

WHEREAS, the Board finds that:

The proposed amendments to the current area designations, set out in sections 60200-60209 of Title 17, California Code of Regulations, comply with requirements of section 39608 of the Health and Safety Code;

The proposed amendments of the area designations are consistent with the designation criteria, sections 70300-70306 of Title 17, California Code of Regulations, as amended by the Board on January 2, 1991;

This regulatory action will not have a significant adverse impact on the environment, and, in fact, it should ultimately result in environmental benefits because it is part of multi-step program designed to achieve and maintain the state ambient air quality standards.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby adopts the amendments to sections 60200, 60202, 60205, 60206, 60208, and 60209, Title 17, California Code of Regulations, as set forth in Attachment A hereto.

I hereby certify that the above is a true and correct copy of Resolution 91-52, as adopted by the Air Resources Board.

Pat Hutchens

Pat Hutchens, Board Secretary

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider the Amendments to Regulations Regarding the Calculation and Use of Reactivity Adjustment Factors for Low-Emission Vehicles and the Adoption of Initial Reactivity Adjustment Factors for Passenger Cars and Light-Duty Trucks Certifying to Transitional Low-Emission Vehicle Exhaust Emission Standards

Agenda Item No.: 91-10-2

Public Hearing Date: November 14, 1991

Issuing Authority: Air Resources Board

Comment: Several comments were received identifying significant environmental issues pertaining to this item. These comments are summarized and responded to in the Final Statement of Reasons, which is incorporated by reference herein.

Resolution 91-53 is also incorporated herein and attached hereto. In the Resolution the Board made various findings pertaining to potential environmental impacts of the proposed regulations. The Board found that the proposed regulations would not have any significant adverse environmental impacts.

Response: See above.

Certified: Pat Hutchens
Pat Hutchens
Board Secretary

Date: Sept. 2, 1992

State of California
AIR RESOURCES BOARD

Resolution 91-53

November 14, 1991

Agenda Item No.: 91-10-2

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

WHEREAS, in section 43000 of the Health and Safety Code the Legislature has declared that the emission of air contaminants from motor vehicles is the primary cause of air pollution in many parts of the state;

WHEREAS, section 43018(a) of the Health and Safety Code, enacted by the California Clean Air Act of 1988, directs the Board to endeavor to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of the state ambient air quality standards at the earliest practicable date;

WHEREAS, section 43018(b) of the Health and Safety Code directs the Board no later than January 1, 1992 to take whatever actions are necessary, cost-effective, and technologically feasible in order to achieve, by December 31, 2000, a reduction of reactive organic gases ("ROG") of at least 55 percent and a 15 percent reduction in the emissions of oxides of nitrogen ("NOx") from motor vehicles, and the maximum feasible reductions in particulates ("PM"), carbon monoxide ("CO"), and toxic air contaminants from vehicular sources;

WHEREAS, section 43018(c) of the Health and Safety Code provides that in carrying out section 43018, the Board shall adopt standards and regulations which will result in the most cost-effective combination of control measures on all classes of motor vehicles and motor vehicle fuel, including but not limited to reductions in motor vehicle exhaust and evaporative emissions, reductions in in-use vehicular emissions through durability and performance improvements, requiring the purchase of low-emission vehicles by state fleet operators, and specification of vehicular fuel composition;

WHEREAS, section 43101 of the Health and Safety Code directs the Board to adopt and implement emission standards for new motor vehicles which the Board has found to be necessary and technologically feasible to carry out the purposes of Division 26 of the Health and Safety Code;

WHEREAS, section 43104 of the Health and Safety Code directs the Board to adopt test procedures for determining whether new motor vehicles are in compliance with the emission standards established by the Board;

WHEREAS, following a hearing on September 27-28, 1990, the Board in Resolution 90-58 approved the Low-Emission Vehicles and Clean Fuels regulations which require the production of low-emission light- and medium-duty vehicles and require that alternative fuels used by these vehicles be made reasonably available to motorists; at the direction of the Board these regulations were subsequently adopted by the Executive Officer in Executive Order G-604;

WHEREAS, the Low-Emission Vehicles and Clean Fuels regulations establish emission standards for low-emission vehicles which require the application of reactivity adjustment factors ("RAFs") to the non-methane organic gas exhaust mass emissions from transitional low-emission vehicles ("TLEVs"), low-emission vehicles, and ultra-low-emission vehicles operating on fuels other than conventional gasoline, to determine compliance with applicable emission standards;

WHEREAS, the Low-Emission Vehicles and Clean Fuels regulations include a protocol under which the Executive Officer can establish RAFs for representative vehicle/fuel combinations by applying a reactivity scale based on the maximum incremental reactivity ("MIR") of individual hydrocarbon species to hydrocarbon exhaust speciation profiles;

WHEREAS, the portions of the Low-Emission Vehicles and Clean Fuels regulations pertaining to low-emission vehicle standards, the establishment and application of RAFs, and the certification of new motor vehicles to the low-emission standards are contained in Title 13, California Code of Regulations, section 1960.1 and the California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles (the "Standards and Test Procedures"), which is incorporated by reference in section 1960.1;

WHEREAS, the staff initially proposed regulatory amendments which would establish RAFs for TLEVs which operate on methanol ("M85"), compressed natural gas ("CNG"), and liquefied petroleum gas ("LPG"), to be used to determine compliance with the TLEV exhaust emission standards;

WHEREAS, the staff has also proposed regulatory amendments which would make various changes regarding the calculation and use of RAFs for low-emission vehicles; these changes include revisions to the MIRs of individual hydrocarbon species, revisions to the treatment and applicability of updated RAFs, and identification of a value for the gram ozone potential per gram non-methane organic gases for light-duty TLEVs operating on conventional gasoline;

WHEREAS, the proposal would be effected by amendments to Title 13, California Code of Regulations, section 1960.1, and the incorporated Standards and Test Procedures, as set forth in Attachments A and B hereto;

WHEREAS, the California Environmental Quality Act and Board regulations require that an action not be adopted as proposed where it will have significant adverse environmental impacts if feasible alternatives or mitigation measures are available which would substantially reduce or avoid such impacts;

WHEREAS, the Board has considered the impact of the proposed regulations on the economy of the state;

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:

The RAF approved herein for light-duty TLEVs operating on M85 is appropriately based on application of the criteria in the regulatory protocol for setting RAFs as modified herein;

There are insufficient data available to establish technically sound RAFs for light-duty TLEVs operating on CNG or LPG at this time;

The revisions approved herein to the identification of the MIRs of individual hydrocarbon species in the Standards and Test Procedures appropriately reflect the peer review and compilation of new data that has occurred over the past year;

The regulatory amendments approved herein pertaining to the use of RAFs are necessary and appropriate to clarify the regulatory requirements and to specify how updated RAFs are to be used;

Use of an MIR scale in determining RAFs is appropriate because the scale reflects the conditions where hydrocarbon control has the greatest impact on ozone formation; the ten percent correction factor included in the modifications to the original proposal will eliminate any overcrediting of reactivity benefits for M85 and LPG in high ozone episodes due to application of the scale, and will provide a margin of safety against such overcrediting during moderate ozone episodes;

The modifications to the original proposal pertaining to the assignment of a RAF for a specific engine family at the

request of a manufacturer is necessary to assure that appropriate RAFs will be available on a timely basis for all vehicles; the modifications include additional elements which will minimize the possibility that the RAF will not accurately reflect the emissions of in-use higher mileage vehicles;

The amendments approved herein should contribute to a more cost-effective means of reducing motor vehicle emissions by adjusting emission standards to reflect the ozone-forming potential of clean fuel/vehicle systems;

The amendments approved herein will not have any significant adverse environmental impacts.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the amendments to section 1960.1, Title 13, California Code of Regulations, and the incorporated California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles, as set forth in Attachments A and B hereto, with the modifications described in Attachment C hereto, and with a further modification to eliminate the requirement that a vehicle manufacturer wishing to have a unique RAF assigned to a specific vehicle/fuel system must submit a speciated profile two years prior to certification of the vehicle.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer (1) to incorporate into the approved amendments the modifications described in Attachment C hereto, with such other conforming modifications as may be appropriate; (2) to conduct an informal workshop on the modified language if warranted; and (3) to adopt the amendments approved herein, after making the modified regulatory language available for public comment for a period of 15 days, provided that the Executive Officer shall consider such written comments regarding the modifications as may be submitted during this period, shall make additional modifications if deemed appropriate after consideration of supplemental comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted.

BE IT FURTHER RESOLVED that the Board hereby determines that the amendments approved herein will not cause California motor vehicle emission standards, in the aggregate, to be less protective of public health and welfare than applicable federal standards.

BE IT FURTHER RESOLVED that the Board hereby finds that separate California emission standards and test procedures are necessary to meet compelling and extraordinary conditions.

BE IT FURTHER RESOLVED that the Board finds that the California emission standards and test procedures as amended herein will not cause the California requirements to be inconsistent with section 202(a) of the Clean

Air Act and raise no new issues affecting previous waiver determinations of the Administrator of the Environmental Protection Agency pursuant to section 209(b) of the Clean Air Act.

BE IT FURTHER RESOLVED that the Executive Officer shall, upon adoption, forward the amendments to the Environmental Protection Agency with a request for a waiver or confirmation that the amendments are within the scope of an existing waiver of federal preemption pursuant to section 209(b) of the Clean Air Act, as appropriate.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to identify and propose correction factors for RAFs for fuels other than M85 and LPG to eliminate potential overcrediting of reactivity benefits when adequate data become available.

I hereby certify that the above is a true and correct copy of Resolution 91-53, as adopted by the Air Resources Board.

Pat Hutchens

Pat Hutchens, Board Secretary

Resolution 91-53

November 14, 1991

Identification of Attachments to the Resolution

Attachment A: Amendments to Title 13, California Code of Regulations, section 1960.1, as set forth in Appendix B to the Staff Report.

Attachment B: Amendments to the California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles, as set forth in Appendix C to the Staff Report.

Attachment C: Staff's Suggested Changes to the Proposed RAF Amendments (Distributed at the hearing on November 14, 1991).

PUBLIC HEARING ON REACTIVITY ADJUSTMENT FACTORS

NOVEMBER 14, 1991

STAFF'S SUGGESTED CHANGES TO THE PROPOSAL

The staff report and technical support document on the proposed regulations regarding the calculation and use of reactivity adjustment factors for low-emission vehicles and the adoption of initial reactivity adjustment factors for transitional low-emission vehicles were released to the public on September 27, 1991. Based on further analyses conducted by the Air Resources Board staff and comments received on these documents and the regulations contained therein, the staff is recommending that the following modifications to the proposed regulations be considered by the Air Resources Board at this hearing.

1. Withdrawal of Proposed RAFs for CNG and LPG

Upon further evaluation of the CNG and LPG data, the staff recommends that reactivity adjustment factors (RAFs) for these fuels not be adopted at this time. For CNG, the staff has conducted additional exhaust emission testing after the release of the staff report. Because of the high uncertainty of the new CNG data, the staff cannot propose a RAF for CNG with any confidence. Because the LPG database consists of only two vehicles, the staff also recommends that the Board not adopt a RAF for LPG at this time. Therefore, the staff recommends that no RAFs be adopted for LPG and CNG at this hearing.

2. Engine Family Specific RAFs

Section Affected: "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles", which is incorporated by reference in Title 13, California Code of Regulations, section 1960.1.

Because the staff is unable to propose generic RAFs for all potential TLEV technologies at this hearing, the staff is proposing that the regulations be amended to facilitate the development of engine family specific RAFs. Previously adopted regulations allow vehicle manufacturers to apply for RAFs specific to their vehicle/fuel system. The Executive

Officer would approve such requests provided that appropriate supporting data are submitted and that there is at least a 25 percent difference between the requested factor and the one already established for the same or similar vehicle/fuel system.

The staff is proposing that the 25 percent criterion be deleted. Vehicle manufacturers would thus be permitted to develop engine family specific RAFs by following the procedure outlined in the test procedures and the additional requirements described below. The staff envisions that durability vehicles for each of the families would have to be emission tested at regular intervals, in accordance with current practice or other approved accelerated durability programs, to generate a deterioration factor for NMOG mass changes and one for changes in the RAF. Neither deterioration factor would be allowed to be less than 1.00. The NMOG mass and RAF deterioration factors would be multiplied together to come up with an overall adjustment factor to apply to in-use vehicle NMOG levels for determining compliance with applicable NMOG emission standards. To confirm that the results from the durability vehicle(s) are reliable, at least 4 emission data vehicles and/or similar qualifying vehicles would also have to be tested using the FTP cycle to determine speciated NMOG emission profiles and attendant RAFs. A statistical process would be used to demonstrate that the data vehicles as a group exhibit similar profiles. In the future, the staff intends to examine further measures to verify that vehicles in-use comply with the intent of the reactivity adjustment process.

3. Correction of Bias in Protocol for Determining RAFs

Section Affected: "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles", which is incorporated by reference in Title 13, California Code of Regulations, section 1960.1.

Following the release of the staff report, airshed modeling analyses conducted by Carnegie Mellon University for the ARB have been completed. The results suggest that there may be a bias in the maximum incremental reactivity scale (MIR) which results in RAFs which are numerically higher than they should be. This bias was found to be 10 percent for M85 and LPG under worst case conditions. Therefore, the staff is recommending that any RAFs developed for M85 or LPG, either by the ARB or by manfacturers, be adjusted upward by 10 percent. Accordingly, the staff recommends that the RAF for M85 be revised from the originally proposed value of 0.36 to 0.41. This adjustment should address any potential biases in the MIR scale as well as other uncertainties in protocol. The staff will determine whether a bias

correction is needed for CNG once more representative vehicle emission data become available.

4. Revised MIR Scale

Section Affected: "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles", which is incorporated by reference in Title 13, California Code of Regulations, section 1960.1.

Subsequent to the release of the staff report, Dr. W.P.L. Carter has made additional updates to the maximum incremental reactivity (MIR) scale. Furthermore, the staff has included the MIRs of compounds which were previously omitted from the regulations. The updated MIR scale which the staff is recommending for Board adoption is included as an attachment to this document. Additions to the originally proposed scale are shown in double-underline, and deletions are shown in strike-out. The revised MIR scale is reflected in the proposed RAF for M85.

NMOG Constituent	Maximum Incremental Reactivity (g O_3/g NMOG)		NMOG Constituent	Maximum Incremental Reactivity (g O_3/g NMOG)	
ALKANES					
Normal Alkanes			Branched Alkanes		
Methane	0.0148		2,2-Dimethylhexane	1.20	
Ethane	0.26	0.25	2,3-Dimethylhexane	1.31	1.32
Propane	0.48		2,4-Dimethylhexane	1.50	
n-Butane	1.02		2,5-Dimethylhexane	1.63	
n-Pentane	1.03	1.04	3,3-Dimethylhexane	1.20	
n-Hexane	0.98		2-Methylheptane	0.96	
n-Heptane	0.81		3-Methylheptane	0.99	
n-Octane	0.61		4-Methylheptane	1.20	
n-Nonane	0.54		2,4-Dimethylheptane	1.33	1.34
n-Decane	0.47		2,2,5-Trimethylhexane	0.97	
n-Undecane	0.42		Other Branched C9H20 Alkanes	1.13	1.14
n-Dodecane	0.38		Branched C10H22 Alkanes	1.01	
n-Tridecane	0.35		Branched C11 Alkanes	1.17	
n-Tetradecane	0.32		Branched C12 Alkanes	1.23	
n-Pentadecane	0.29				
Branched Alkanes			Cyclo Alkanes		
2-Methylpropane	1.21		Cyclopentane	2.37	2.38
2,2-Dimethylpropane	0.37		Methylcyclopentane	2.82	
2-Methylbutane	1.38		Cyclohexane	1.28	
2,2-Dimethylbutane	0.82		t-1,2-Dimethylcyclopentane	1.85	
2,3-Dimethylbutane	1.07		1,3-Dimethylcyclopentanes	2.64	2.55
2-Methylpentane	1.53		Methylcyclohexane	1.84	1.85
3-Methylpentane	1.52		Ethylcyclopentane	2.31	
2,2,3-Trimethylbutane	1.32		Ethylmethylcyclopentane	1.94	
2,2-Dimethylpentane	1.40		1c,2t-3-Trimethylcyclopentane	1.94	
2,3-Dimethylpentane	1.51		1,2,4-Trimethylcyclopentane	1.94	
2,4-Dimethylpentane	1.78		Dimethylcyclohexanes	1.94	
3,3-Dimethylpentane	0.71		Ethylcyclohexane	1.94	
2-Methylhexane	1.08		Ethylmethylcyclohexane	2.30	
3-Methylhexane	1.40		Trimethylcyclohexane	2.30	
2,2,4-Trimethylpentane	0.87	0.93	C10 Cycloalkanes	1.78	
2,3,3-Trimethylpentane	1.20		C11 Cycloalkanes	1.91	
2,3,4-Trimethylpentane	1.60		C12 Cycloalkanes	1.68	

NMOG Constituent	Maximum Incremental Reactivity (g O_3/g NMOG)		NMOG Constituent	Maximum Incremental Reactivity (g O_3/g NMOG)	
ALKENES					
Ethene	~~7.28~~	7.29	Propadiene	~~7.28~~	7.29
Propene	~~9.39~~	9.40	1,3-Butadiene	~~10.88~~	10.89
1-Butene	~~8.90~~	8.91	2-Methyl-1,3-Butadiene	~~9.07~~	9.08
2-Butenes	~~9.93~~	9.94	Cyclopentadiene	~~7.66~~	7.66
2-Methylpropene	~~5.29~~	5.31	Cyclopentene	~~7.66~~	7.66
1-Pentene	6.22		1-Methylcyclopentene	5.67	
2-Pentenes	~~8.79~~	8.80	3-Methylcyclopentene	~~5.66~~	5.67
2-Methyl-1-Butene	~~4.89~~	4.90	Cyclohexene	~~5.66~~	5.67
3-Methyl-1-Butene	6.22		a-Pinene	3.28	
2-Methyl-2-Butene	~~6.40~~	6.41	b-Pinene	4.41	
1-Hexene	~~4.41~~	4.42			
2-Hexenes	~~6.67~~	6.69			
3-Hexenes	~~6.67~~	6.69			
Methyl-1-Pentenes	~~4.41~~	4.42	**ALKYNES**		
Methyl-2-Pentenes	~~6.67~~	6.69			
3,3-Dimethyl-1-Butene	~~4.41~~	4.42	Ethyne	~~0.51~~	0.50
1-Heptene	3.48		Propyne	4.10	
2-Heptenes	~~5.52~~	5.53	1-Butyne	~~9.23~~	9.24
3-Heptenes	~~5.52~~	5.53	2-Butyne	~~9.23~~	9.24
3-Ethyl-2-Pentenes	~~5.52~~	5.53			
2,3-Dimethyl-2-Pentene	~~5.52~~	5.53			
3-Methyl-1-Hexene	3.48				
2-Methyl-2-Hexenes	~~5.52~~	5.53			
4-Methyl-2-Hexene	5.53				
2-Methyl-3-Hexene	5.53				
3-Methyl-3-Hexenes	~~5.52~~	5.53			
1-Octene	~~2.68~~	2.69			
2-Octenes	~~5.27~~	5.29			
3-Octenes	~~5.27~~	5.29			
4-Octenes	~~5.27~~	5.29			
2,4,4-Trimethyl-1-Pentene	~~2.68~~	2.69			
2,4,4-Trimethyl-2-Pentene	5.29				
1-Nonene	~~2.22~~	2.23			

NMOG Constituent	Maximum Incremental Reactivity (g O_3/g NMOG)	
AROMATIC HYDROCARBONS		
Benzene	0.42	
Toluene	2.72	2.73
Ethylbenzene	2.99	2.70
o-Xylene	6.68	6.46
m&p-Xylenes	8.15	
m-Xylene	8.16	
p-Xylene	6.60	
n-Propylbenzene	2.27	2.12
i-Propylbenzene	2.41	2.24
Methylethylbenzenes	7.20	
1,2,3-Trimethylbenzene	8.61	8.85
1,2,4-Trimethylbenzene	8.69	8.83
1,3,5-Trimethylbenzene	10.11	10.12
n-Butylbenzene	1.87	
s-Butylbenzene	2.04	1.89
Diethylbenzenes	6.44	6.45
1-Methyl-2-Propylbenzene	6.45	
1-Methyl-3-Propylbenzene	6.45	
C10 Trialkyl Benzenes	9.07	
Tetramethylbenzenes	9.06	9.07
C11 Monoalkyl Benzenes	1.70	
1-Methyl-4-Isobutylbenzene	5.83	5.84
C11 Dialkyl Benzenes	5.84	
C11 Trialkyl Benzenes	8.21	
C12 Monoalkyl Benzenes	1.55	
C12 Dialkyl Benzenes	5.34	
C12 Trialkyl Benzenes	7.50	
Indan (C9H10)	1.04	1.06
Methyl Indan	1.06	
Napthalene	1.16	1.18
Tetralin	0.95	
Methyl Naphthalenes	3.27	
2,3-Dimethyl Naphthalene	5.13	
Styrene	2.20	2.22
AROMATIC OXYGENATES		
Phenol	1.13	
Cresols	2.31	
Benzaldehyde	-0.56	-0.55
p-Tolualdehyde	-0.56	3.32

NMOG Constituent	Maximum Incremental Reactivity (g O_3/g NMOG)	
OXYGENATES		
Alcohols		
Methanol	0.56	
Ethanol	1.33	1.34
n-Propyl Alcohol	2.26	
Isopropyl Alcohol	0.54	
n-Butyl Alcohol	2.69	
Isobutyl Alcohol	1.92	
t-Butyl Alcohol	0.42	
Aldehydes		
Formaldehyde	7.14	7.15
Acetaldehyde	5.51	5.52
Propionaldyde	6.53	
Acrolein	6.76	6.77
n-Butyraldehyde	5.26	
Crotonaldehyde	5.41	5.42
Pentanaldehyde	4.40	4.41
Hexanaldehyde	3.79	
C7 Aldehydes	3.32	
Ethers		
Methyl t-Butyl Ether	0.62	
Ethyl t-Butyl Ether	1.98	
Ketones		
Acetone	0.56	
Butanone	1.18	

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Notice of Public Hearing to Consider Adoption of and Amendments to Regulations Regarding Reformulated Gasoline (Phase 2 Gasoline Specifications)

Agenda Item No.: 91-11-1

Public Hearing Date: November 22, 1991

Issuing Authority: Air Resources Board

Comment: Several comments were received identifying significant environmental issues pertaining to this item. These comments are summarized and responded to in the Final Statement of Reasons, which is incorporated by reference herein.

Resolution 91-54 is also incorporated herein and attached hereto. In the Resolution, the Board made various findings pertaining to potential environmental impacts of the proposed regulations. The Board found that there are no feasible mitigation measures or alternatives available to the Board which would further substantially reduce the potential adverse impacts of the proposed regulations while at the same time providing the substantial overall public health benefit from the emissions reductions, as predicated in the Resolution.

Response: See above.

Certified: Pat Hutchens
Pat Hutchens
Board Secretary

Date: 9/30/92

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RESOURCES AGENCY OF CALIFORNIA

State of California
AIR RESOURCES BOARD

Resolution 91-54

November 22, 1991

Agenda Item No: 91-11-1

WHEREAS, Health and Safety Code sections 39600 and 39601 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, Health and Safety Code section 43018(a), enacted by the California Clean Air Act of 1988, directs the Board to endeavor to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of the state ambient air quality standards at the earliest practicable date;

WHEREAS, Health and Safety Code section 43018(b) directs the Board no later than January 1, 1992 to take whatever actions are necessary, cost-effective, and technologically feasible in order to achieve, by December 31, 2000, a reduction of reactive organic gases ("ROG") of at least 55 percent and at least a 15 percent reduction in the emissions of oxides of nitrogen ("NOx") from motor vehicles, and the maximum feasible reductions in particulates ("PM"), carbon monoxide ("CO"), and toxic air contaminants from vehicular sources;

WHEREAS, Health and Safety Code section 43018(c) provides that in carrying out section 43018, the Board shall adopt standards and regulations which will result in the most cost-effective combination of control measures on all classes of motor vehicles and motor vehicle fuel, including but not limited to specification of vehicular fuel composition;

WHEREAS, Health and Safety Code section 43013 authorizes the Board to adopt and implement motor vehicle fuel specifications for the control of air contaminants and sources of air pollution which the Board has found to be necessary, cost-effective, and technologically feasible to carry out the purposes of Division 26 of the Health and Safety Code;

WHEREAS, Health and Safety Code section 43830 directs the Board to establish, by regulation, maximum standards for the volatility of gasoline at or below nine pounds per square inch (psi) or less Reid vapor pressure ("RVP") as determined by the American Society of Testing and Materials ("ASTM") Test D 323-58 or by an appropriate test determined by the Board, giving full consideration to topography and climatic conditions;

WHEREAS, Health and Safety Code section 39663 directs the Board to consider a plan for reducing public exposure to known and suspected toxic air

contaminants; and section 39667 directs the Board, based on its determinations pursuant to section 39663, to consider adoption of regulations to achieve the maximum possible reduction in public exposure to toxic air contaminants, which regulations may include, but are not limited to, the modification, removal, or substitution of vehicle fuel, vehicle fuel components, or fuel additives;

WHEREAS, the Motor Vehicle Toxics Control Plan, prepared pursuant to Health and Safety Code section 39663 and approved by the Board June 21, 1990, identifies the reduction of benzene in gasoline and the reduction of aromatic hydrocarbons in gasoline as two of the major elements in the Plan;

WHEREAS, section 211(m) of the federal Clean Air Act as amended in 1990 requires states containing specified CO nonattainment areas to submit revisions to their State Implementation Plans ("SIPs") requiring that gasoline sold for use in the areas contain not less than 2.7 percent oxygen by weight starting in the fall of 1992 during the high CO winter period specified by the Administrator of the U.S. Environmental Protection Agency ("EPA"); eight areas in California are among those for which such SIP revisions must be submitted;

WHEREAS, section 211(m)(3)(A) of the federal Clean Air Act directs the EPA Administrator to waive, in whole or part, the SIP revision requirements pertaining to the minimum oxygen content of gasoline upon a demonstration by a State to the Administrator's satisfaction that the use of oxygenated gasoline would prevent or interfere with the attainment by the areas of a national primary ambient air quality standard, or a state ambient air quality standard, for any pollutant other than CO;

WHEREAS, on September 28, 1990, by Resolution 90-59, the Board approved its Phase 1 reformulated gasoline regulations which, starting January 1, 1992, will limit the RVP of motor vehicle gasoline sold during the RVP season to 7.8 psi, require the use of effective deposit control additives in motor vehicle gasoline, prohibit the sale of gasoline to which lead has been purposefully added, or which has a lead content exceeding 0.05 g/gal, for use in any motor vehicles except farm equipment and special construction equipment, and generally prohibit (starting January 1, 1994) the sale of motor vehicle gasoline not represented as unleaded;

WHEREAS, in Resolution 90-59 the Board also endorsed the program for the development of Phase 2 reformulated gasoline regulations which would define the "cleanest" possible gasoline to achieve maximum reductions in ozone-forming potential and emissions of criteria and toxic air contaminants at the lowest cost to the consumer, and the Board directed the Executive Officer to continue developing a comprehensive regulatory proposal for Phase 2 reformulated gasoline with appropriate public input, and to schedule a public hearing in the latter part of 1991 for the Board to consider the adoption of the regulations with a 1995-1996 implementation date;

WHEREAS, the staff has initially proposed the adoption and amendment of regulations which would establish requirements for Phase 2 reformulated

gasoline starting January 1, 1996; these requirements would include the following elements:

Stringent standards for eight gasoline characteristics--RVP, two distillation temperatures, and sulfur, benzene, olefin, aromatic hydrocarbon and oxygen content;

Establishment of an absolute limit or cap for each specification, applicable throughout the gasoline distribution system;

Establishment of additional, more stringent standards applicable to gasoline when it is initially supplied from the producer or importer for all specifications but RVP, and provisions authorizing compliance through a form of averaging in the case of sulfur, aromatic hydrocarbon, and benzene content; and

Authorization for compliance through the sale of an alternative gasoline formulation certified based on vehicle emission testing to result in exhaust emissions equivalent to that achieved by gasoline meeting all of the flat limits applicable to producers;

WHEREAS, the staff has also initially proposed the adoption of a regulation that would establish requirements pertaining to the minimum and maximum oxygen content of gasoline starting in September 1992; these requirements would include the following elements:

Gasoline would be required to have an oxygen content of not less than 1.8 percent and not more than 2.2 percent by weight from November 1 through February 29 in the South Coast, San Diego, South Central Coast and Southeast Desert Air Basins, and from November 1 through January 31 in all other air basins; and

Gasoline would be required to have an oxygen content of not more than 2.2 percent, with no required minimum, in September and October in the South Coast Air Basin and Ventura County, and in October in all other air basins except the San Diego, South Central Coast (except Ventura County) and the Southeast Desert Air Basins;

WHEREAS, the regulatory proposal would be effected by amendments to Title 13, California Code of Regulations, sections 2250, 2251.5, and 2252, and the adoption of Title 13, California Code of Regulations, sections 2260 through 2271 and the incorporated "California Test Procedures for Evaluating Alternative Specifications for Gasoline," as set forth in Attachments A and B, and further by the adoption of a proposed 1992-1995 wintertime oxygenated gasoline regulation in new section 2258 of Title 13, California Code of Regulations;

WHEREAS, the portions of the proposed regulations which for certain wintertime control periods impose a minimum oxygen content of less than 2.7 percent will require a waiver of the federal Clean Air Act requirements pursuant to section 211(m)(3)(A) of that Act;

WHEREAS, the California Environmental Quality Act and Board regulations require that an action not be adopted as proposed where it will have significant adverse environmental impacts and alternatives or feasible mitigation measures to the proposed action are available which would substantially reduce or avoid such impacts;

WHEREAS, the Board has considered the impact of the proposed regulations on the economy of the state;

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 state and federal health-based ambient air quality standards for ozone, CO, and PM10 are regularly and significantly exceeded in many areas of California, and the state and federal nitrogen dioxide (NO2) standards are exceeded in the South Coast Air Basin, and the state standards for sulfates are exceeded in the South Coast Air Basin;

On-road gasoline-fueled motor vehicles account for about one-third of the total statewide emissions of volatile organic compounds ("VOCs") and NOx, the primary precursors to ozone formation, and they account for about 70 percent of the CO emissions and about one-third of the PM10 precursor emissions;

Many areas of the state are experiencing substantial population growth, and the vehicle miles traveled in these areas have risen dramatically and are expected to continue to rise;

In several areas of the state it is likely that the state ozone and PM10 standards will not be achieved until some time after the year 2000;

The emission reductions resulting from the Phase 2 reformulated gasoline regulations approved herein are a necessary component in the attainment of the state ozone, PM10, CO, NO2, and sulfate standards in the nonattainment areas of the state, and in the maintenance of the standards in the remainder of the state;

All feasible measures must be included in the attainment plan of any air pollution control district which does not provide for districtwide emissions reductions of at least 5 percent a year for each nonattainment pollutant or its precursors; a preliminary review of district plans indicates

that many do not provide for such 5 percent per year emissions reductions; the measures in the district plans include control measures administered by the ARB as well as the districts;

A wide variety of toxic air contaminants and potentially toxic air contaminants are emitted by motor vehicles; the pollutants posing the majority of the potential toxic risk are benzene and 1,3-butadiene, and to a lesser extent formaldehyde, acetaldehyde, and diesel particulate;

The Phase 2 reformulated gasoline regulations approved herein, coupled with the Phase 1 regulations adopted following the Board's September 28, 1990 hearing, appropriately establish a comprehensive set of gasoline specifications designed to achieve the maximum reductions in criteria and toxic pollutants from gasoline-fueled vehicles, in due consideration of the economic impacts of the requirements and providing flexibility to gasoline producers and importers to help reduce their costs of compliance;

The Phase 2 reformulated gasoline regulations approved herein will reduce emissions of ozone precursors (VOCs plus NOx) in California ozone nonattainment areas by approximately 180 tons per day in 1996, 150 tons per day in 2000, 110 tons per day in 2005 and 65 tons per day in 2010;

The Phase 2 reformulated gasoline regulations approved herein will reduce emissions of CO in California CO nonattainment areas by approximately 1200 tons per day in 1996, 850 tons per day in 2000, 500 tons per day in 2005 and 200 tons per day in 2010;

The Phase 2 reformulated gasoline regulations approved herein are expected to result in substantial reductions in emissions of toxic air contaminants, with an expected annual reduction of about 40 potential cases of cancer per year over the period 1996 to 2010;

The regulations approved herein are necessary and appropriate to attain and maintain the state and national ambient air quality standards identified above and to reduce exposures to toxic air contaminants;

The regulations approved herein are technologically feasible within the applicable timeframes;

The Phase 2 reformulated gasoline regulations approved herein contain provisions pertaining to compliance through averaging, compliance through the certification of gasoline formulations resulting in equivalent emission reductions

based on motor vehicle emission testing and variances; these provisions provide flexibility in meeting the regulatory requirements at a potentially lower cost, and provide for relief in situations of extraordinary hardship;

The modifications described in Attachment C and D pertaining to Phase 2 reformulated gasoline are necessary and appropriate to provide additional flexibility in meeting the requirements and to clarify the intent of the provisions; the modifications pertaining to small refiners are appropriate in light of their greater difficulty in raising capital to construct the necessary equipment and greater uncertainties regarding the recovery of capital expenditures;

The overall average cost-effectiveness of the Phase 2 regulations approved herein in reducing the emissions of criteria pollutants during the period from 1996 through 2005, assigning one-half of the program costs to reductions of criteria air pollutants and one-half to reductions of toxic air contaminants, is expected to range from $7,000 per ton to $11,000 per ton; these cost-effectiveness values are within the range of other measures that are expected to be implemented during the same time period in order to attain and maintain the state ambient air quality standards;

The overall average cost-effectiveness of the regulations approved herein in reducing emissions of toxic pollutants in the period from 1996 through 2005, assigning one-half of the program costs to reductions of criteria air pollutants and one-half to reductions of toxic air contaminants, is expected to range from $19 million to $26 million per potential cancer case avoided;

The Phase 2 reformulated gasoline regulations approved herein are expected to result in an increase of the cost of gasoline between 12 cents and 17 cents per gallon, and to result in capital investments from $3 billion to $6 billion; the economic impacts of the regulations are warranted in light of the public health benefits associated with the regulations; and

WHEREAS, the Board further finds that:

The regulations approved herein will result in significant reductions in emissions from motor vehicles of the ozone precursors VOC and NOx, CO, sulfur dioxide, and toxic air contaminants including benzene and 1,3-butadiene;
The regulations approved herein may result in adverse environmental impacts due to increases in refinery emissions and emissions related to increased use of transportation

systems; the permit requirements of the air pollution control districts are expected substantially to mitigate impacts from increased refinery emissions;

Construction of refinery equipment needed for compliance with the regulations approved herein could result in temporary emissions from heavy-duty equipment and disruption of the soil, including the generation of dust;

The regulations approved herein are expected to result in increased shipments of MTBE and ethanol, with concomitant impacts on waterborne and rail traffic; and

There are no feasible mitigation measures or alternatives available to the Board which would further substantially reduce the potential adverse impacts of the proposed regulations while at the same time providing the substantial overall public health benefit from the reductions noted herein.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the amendments to Title 13, California Code of Regulations, sections 2250, 2251.5, and 2252, and the adoption of Title 13, California Code of Regulations, sections 2260 through 2272 and the incorporated "California Test Procedures for Evaluating Alternative Specifications for Gasoline," as set forth in Attachments A and B, with the modifications pertaining to Phase 2 reformulated gasoline described in Attachment C hereto, and with the further modifications described in Attachment D hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer: (1) to incorporate into the approved regulations and incorporated documents the modifications described in Attachments C and D hereto, the other modifications approved herein, and such other conforming modifications as may be appropriate; (2) to conduct an informal workshop on the modified language if warranted; and (3) either to adopt the modified regulations, amendments, and new documents after making them available to the public for a supplemental written comment period of 15 days, with such additional modifications as may be appropriate in light of supplemental comments received, or to present the regulations, amendments, and documents to the Board for further consideration if he determines that this is warranted in light of supplemental written comments received.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to apply to the U.S. EPA for a waiver under federal Clean Air Act section 211(m)(3)(A) to the extent necessary to permit the oxygenate regulations approved herein to satisfy the requirements of that Act.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to continue work on the development of a predictive model that could be used to certify a set of alternative gasoline specifications that could be met to satisfy compliance with the Phase 2 reformulated gasoline requirements, and

to schedule a rulemaking hearing in the spring of 1992 for the Board to consider adoption of the model.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to work with industry and other interested parties to develop improvements to the test methods approved herein with the objective of enhancing precision and practicality of use, and to propose regulatory amendments to implement such improvements as appropriate.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to investigate further the status of independent refiners, and to return to the Board with a recommendation on the appropriateness of considering delaying the compliance requirements for independent refiners in a subsequent rulemaking.

BE IT FURTHER RESOLVED, that the Board continues consideration of the proposed wintertime oxygenated gasoline regulation for the period before 1996 to a further hearing on December 12, 1991.

I hereby certify that the above is a true and correct copy of Resolution 91-54, as adopted by the Air Resources Board.

Pat Hutchens

Pat Hutchens, Board Secretary

Resolution 91-54

November 22, 1991

Identification of Attachments to the Resolution

Attachment A: Proposed amendments to Title 13, California Code of Regulations, sections 2250, 2251.5, and 2252, and proposed new Title 13, California Code of Regulations, sections 2260 through 2271, as set forth in Appendix A of Volume 1 of the Staff Report, "Proposed Regulations for California Phase 2 Reformulated Gasoline."

Attachment B: Proposed "California Test Procedures for Evaluating Alternative Specifications for Gasoline," to be incorporated by reference in new Title 13, California Code of Regulations, section 2266, as set forth in Appendix B of Volume 1 of the Staff Report, "Proposed Regulations for California Phase 2 Reformulated Gasoline."

Attachment C: Staff's Suggested Changes to the Proposed Phase 2 Reformulated Gasoline and Wintertime Oxygenate Regulations (Distributed at the hearing on November 21, 1991).

Attachment D: Additional Modifications Approved by the Board.

ATTACHMENT C

PUBLIC HEARING ON PROPOSED REGULATIONS REGARDING PHASE 2 REFORMULATED GASOLINE AND THE WINTERTIME OXYGENATES PROGRAM

NOVEMBER 21 AND 22, 1991

Staff's Suggested Changes to the Original Regulatory Proposal

I. **Phase 2 Reformulated Gasoline Regulations**

1. Identification of flat limits, standards to be met on average, and caps.

For the **aromatic hydrocarbon** content specifications, change the "designated alternative limit" standard for averaging from 20 percent to 25 percent by volume. Change the flat limit from 25 percent to 28 percent by volume. The cap remains at 30 percent by volume.

Sections Affected: Section 2262.7(a), (b), and (c).

For the **olefin** content specifications, add a "designated alternative limit" standard of 5.0 percent by volume. Change the flat limit from 5.0 percent to 7.0 percent by volume. The cap remains at 10.0 percent by volume. "Designated alternative limit" averaging would be treated identically to the way it is treated for aromatic hydrocarbon content and sulfur content.

Sections Affected: Section 2262.4(b), new (c); Section 2264.

For the **T90** specifications, add a "designated alternative limit" standard of 300 degrees F, with a restriction that no designated alternative limit could exceed 315 degrees F. Change the flat limit from 300 degrees F. to 310 degrees F. The cap remains at 330 degrees F. "Designated alternative limit" averaging would be treated identically to the way it is treated for aromatic hydrocarbon content and sulfur content.

Sections Affected: Section 2262.6(b), new (c); Section 2264.

For the **T50** specifications, add a "designated alternative limit" standard of 200 degrees F. Keep the flat limit at 210 degrees F. The cap remains at 220 degrees F. "Designated alternative limit" averaging would be treated identically to the

way it is treated for aromatic hydrocarbon content and sulfur content.

Sections Affected: Section 2252.6 (b), new (c); Section 2264.

2. Treatment of Small Refiners.

Small refiners would be provided with a two-year extension for meeting the gasoline specifications for sulfur content, olefins, T90 and T50 until January 1, 1998, subject to the following conditions.

Small refiners would be defined as they are in the regulation on diesel fuel aromatic hydrocarbon content (former 13 Cal. Code Regs. section 2256(b)(19), current section 2282(b)(19)), except that the maximum refinery crude oil capacity would be 55,000 bpsd instead of 50,000 bpsd:

> "Small refiner" means any refiner who owns or operates a refinery in California that:
> (A) Has and at all times had since January 1, 1978, a crude oil capacity of not more than 55,000 barrels per stream day;
> (B) Has not been at any time since September 1, 1988, owned or controlled by any refiner that at the same time owned or controlled refineries in California with a total combined crude oil capacity of more than 55,000 barrels per stream day; and
> (C) Has not been at any time since September 1, 1988, owned or controlled by any refiner that at the same time owned or controlled refineries in the United States with a total combined crude oil capacity of more than 137,500 barrels per stream day.

During the extension, only an amount of the small refiner's annual gasoline production (excluding the volume from oxygenates) up to its "exempt volume" would be exempt from the identified specifications. The small refiner's "exempt volume" would be equivalent to the average of the three highest annual production volumes of motor vehicle gasoline reported for the small refiner's California refinery(ies) in the period 1987 to 1990, inclusive, to the California Energy Commission as required by the Petroleum Industry Information Reporting Act of 1980 (Public Resources Code Sections 25350 et seq.). This is also similar to the treatment in the diesel aromatic hydrocarbon regulation.

The small refiner's extension would apply only if the small refiner has demonstrated to the Executive Officer's satisfaction that it is making good faith efforts to construct additional refinery equipment, either at the small refiner's refinery or in a cooperative agreement with one or more other small refiners, in accordance with a schedule which is reasonably likely to enable the

small refiner to comply with the phase 2 reformulated gasoline specifications through refinery processing by January 1, 1998. Additional provisions similar to those in the diesel fuel sulfur content regulation (former section 2255(g), renumbered section 2281(g)) would be included.

Sections Affected: New section 2272.

3. Test Procedures for Evaluating Alternative Specifications for Gasoline.

(a) Change Deltas (tolerance level for the upper bound) from 1 percent for all pollutants to the following:

NOx	2 percent
Mass NMOG	3 percent
g. Ozone/Mi Potency-Weighted Toxics	4 percent
CO	4 percent

Sections Affected: "Test Procedures for Evaluating Alternative Specifications for Gasoline," sections IV., IX.A.

(b) Change relative potencies of toxic air contaminants to reflect revised draft potencies developed by OEHHA:

	Relative Potency	
	Original	Revised
1,3-butadiene	1.0	1.0
benzene	0.21	0.18
formaldehyde	0.17	0.15
acetaldehyde	0.016	0.014

Sections Affected: "Test Procedures for Evaluating Alternative Specifications for Gasoline," section IX.B.3.

(c) Change maximum allowable T90 from 300 degrees F to 330 degrees F. Change maximum allowable T50 from 210 degrees F to 220 degrees F.

Sections Affected: "Test Procedures for Evaluating Alternative Specifications for Gasoline," section I.A.3.

(d) Change the reference fuel specifications to reflect the revisions to the flat limits for aromatic hydrocarbons, olefins, T90 and T50.

Sections Affected: "Test Procedures for Evaluating Alternative Specifications for Gasoline," section I.C.2.

4. Benzene averaging; generation and use of credits.

Delete special provisions for generation and use of benzene credits; instead provide for averaging of benzene to be done in the same way as averaging for sulfur and aromatic hydrocarbons in section 2264(c) and (d).

Sections Affected: Section 2264(e).

5. Sampling Procedures.

Revise the sampling methodology in section 2296 so that it applies more generally to motor vehicle fuel sampling. Various provisions would be clarified and simplified, but there would be no substantive changes. A cooling bath would only be required where compliance with the RVP, T90 and T50 standards is being determined.

Sections Affected: Section 2263(a); 2296

6. Test Methods.

Change reference to olefin content test method from ASTM D 1319-88 to D 1319-89. Change reference to oxygen content test method from ASTM D 4815-88 to D 4815-89. Change reference to T90 and T50 test method from ASTM D 86-82 to D 86-90.

Modify provisions on determining oxygen content in the same manner as the modifications to the wintertime oxygenate regulations described in section II.4. below.

In the referenced test method ARB MLD 116 (set forth in Appendix 6 of the TSD):

(a) Add 10 PID lamp energy of 10.0 eV. (Sec. 5.2)

(b) Clarify that the correction factor for the PID is the ratio of the concentrations of o-xylene as determined from the FID and PID sequels. (Sec. 6.2.2)

(c) Change the dilution ratio for isooctane and clarify that both the gasoline sample and standard are to be diluted in the same ratio (Section 5.1) as

follows: "Each gasoline sample and standard is diluted 1:30 with isooctane in an autosampler vial."

Sections Affected: Section 2263(b)

7. Miscellaneous

(a) Correct a drafting error in section 2261(b) by deleting the reference to section 2258 (Oxygen Content of Gasoline in the Wintertime).

II. Wintertime Oxygenates Program

1. Standards for September and October.

(a) Change the regulatory control period for the South Coast Air Basin and Ventura County so that it starts October 1 rather than September 1. This change is premised on a conclusion that these areas are not prone to high ambient concentrations of CO in September; we hope that EPA will determine in its final rulemaking on control periods that the Los Angeles-Anaheim-Riverside CMSA is not prone to high ambient concentrations of carbon monoxide in September. As modified, the regulation would impose no requirements in September.

(b) Eliminate the special standard for October, so that the 1.8 percent - 2.2 percent by weight oxygen content standard applicable in November through February would also apply in October (starting October 1993).

(c) In order to assure the availability of adequate supplies of oxygenates during the wintertime oxygenate program, revise the RVP regulation to provide a one psi allowance to blends of gasoline containing at least 5 percent ethanol, in October only.

Section Affected: Section 2258(a)(1) and (a)(2); Section 2251.5(a)(3).

2. Compliance at service stations during first 15 days of control period.

Add a new subsection providing that the minimum and maximum oxygen content limits do not apply to a transaction occurring during the first 15 days of the October regulatory control period where the transaction involves the transfer of gasoline from a stationary storage tank to a motor vehicle fuel tank and the person selling, supplying, or offering the gasoline demonstrates as an affirmative defense that he or she has made, prior to the transaction, specific arrangements with a gasoline distributor for the delivery of an oxygenated or nonoxygenated gasoline blend

in quantities that will result in gasoline in the stationary storage tanks at the facility having an oxygen content of from 1.8 percent to 2.2 percent by weight by October 16. In addition, provide that a distributor of gasoline to service stations or bulk purchaser-consumers is not subject to the minimum oxygenate content limit during the 15 day period if the distributor demonstrates that the gasoline is being distributed pursuant to a prior arrangement to deliver unoxygenated gasoline to bring the facility into compliance with the 1.8 percent - 2.2 percent oxygen content limits by October 16.

Section Affected: New section 2258(a)(5).

3. Variances.

EPA's original July 9, 1991 Notice of Proposed Rulemaking on Guidelines for an Oxygenated Gasoline Credit Program made no reference to relief from liability in extraordinary circumstances. As a result of the Negotiated Rulemaking process, in its September 6, 1991 draft modifications to the notice of proposed rulemaking EPA suggests that states should consider a provision for relief from liability in very limited circumstances. (pp. 65-66). In its September 23, 1991 draft supplemental proposal on reformulated gasoline enforcement regulations, EPA has provided draft regulatory language which would implement this concept. (pp. 64-65 of Draft; proposed 40 CFR sec. 80.73). EPA has indicated that such an approach represents the maximum extent to which a relief from liability provision could be approved in a wintertime oxygenated gasoline SIP revision. Accordingly, we recommend deletion of the variance language in the original proposal and substitution of the following language that is closely patterned after EPA's proposed regulation in the September 23 reformulated gasoline draft. We recommend that the Executive Officer be authorized to expand the text as appropriate prior to the 15-day availability period to further clarify the applicable procedures.

> Section 2258(d) **Inability to produce conforming gasoline in extraordinary circumstances.**
>
> In appropriate extreme and unusual circumstances (e.g., natural disaster or Act of God) which are clearly outside the control of the refiner, importer, or oxygenate blender and which could not have been avoided by the exercise of prudence, diligence, and due care, the executive officer may permit a refiner, importer, or oxygenate blender, for a brief period, to distribute gasoline which does not meet the requirements in section 2258(a) if:
>
> (a) It is in the public interest to do so (e.g., distribution of the nonconforming gasoline is

necessary to meet projected shortfalls which cannot otherwise be compensated for);

(b) The refiner, importer, or oxygenate blender exercised prudent planning and was not able to avoid the violation and has taken all reasonable steps to minimize the extent of the nonconformity;

(c) The refiner, importer, or oxygenate blender can show how the requirements for oxygenated gasoline will be expeditiously achieved;

(d) The refiner, importer, or oxygenate blender agrees to make up air quality detriment associated with the nonconforming gasoline, where practical; and

(e) The refiner, importer, or oxygenate blender pays to the Air Pollution Control Fund an amount equal to the economic benefit of the nonconformity minus the amount expended, pursuant to paragraph (d) of this section, in making up the air quality detriment.

Section Affected: Section 2258(d).

4. Sampling Procedures.

Add references to sampling procedures identical to those described above for the reformulated gasoline regulations.

Section Affected: Section 2258(c)

5. Test Methods.

Clarify that ASTM D 4815-88 is used to determine the mass concentration of each oxygenate in the gasoline sampled. Provide that the oxygen content of the gasoline is determined by multiplying the mass concentration of each oxygenate in the gasoline sampled by the oxygen molecular weight contribution of the oxygenate set forth in the table below. Provide that all volume measurements shall be adjusted to 60 degrees Fahrenheit. If deemed appropriate by the Executive Officer, identify the assumed density of the gasoline. This approach is based on EPA's proposed approach

Attachment D

PUBLIC HEARING ON PROPOSED REGULATIONS REGARDING PHASE 2 REFORMULATED GASOLINE AND THE WINTERTIME OXYGENATES PROGRAM

NOVEMBER 21 AND 22, 1991

Additional Modifications Approved by the Board

The Board approved the proposed regulations regarding Phase 2 reformulated gasoline with various modifications to the original proposal. Most of the modifications are set forth in the "Staff's Suggested Changes to the Original Regulatory Proposal," distributed at the hearing on November 21, 1991 and appended as Attachment C to Resolution 91-54. In addition, the Board approved the further modifications identified below. In the case of Item 1, "Identification of flat limits, standards to be met on average, and caps," the modifications set forth below replace the modifications in the Staff's Suggested Changes.

1. Identification of flat limits, standards to be met on average, and caps.

For the **aromatic hydrocarbon** content specifications, change the "designated alternative limit" standard for averaging from 20 percent to 22 percent by volume. The flat limit remains as originally proposed at 25 percent by volume, and the cap remains at 30 percent by volume.

Sections Affected: Section 2262.7(a), (b), and (c).

For the **olefin** content specifications, add a "designated alternative limit" standard of 4.0 percent by volume. Change the flat limit from 5.0 percent to 6.0 percent by volume. The cap remains at 10.0 percent by volume. "Designated alternative limit" averaging would be treated identically to the way it is treated for aromatic hydrocarbon content and sulfur content.

Sections Affected: Section 2262.4(b), new (c) and (d); Section 2264.

For the **T90** specifications, add a "designated alternative limit" standard of 290 degrees F, with a restriction that no designated alternative limit could exceed 310 degrees F. The flat limit remains as originally proposed at 300 degrees F, and the cap remains at 330 degrees F. "Designated alternative limit" averaging would be treated identically to the way it is treated for aromatic hydrocarbon content and sulfur content.

Sections Affected: Section 2262.6; Section 2264.

For the T50 specifications, add a "designated alternative limit" standard of 200 degrees F. Keep the flat limit at 210 degrees F. The cap remains at 220 degrees F. "Designated alternative limit" averaging would be treated identically to the way it is treated for aromatic hydrocarbon content and sulfur content.

Sections Affected: Section 2262.6; Section 2264.

2. Start date.

Instead of the originally proposed start date of January 1, 1996, compliance with the flat limits and designated alternative limits will be required starting March 1, 1996, and compliance with the caps will be required starting April 1, 1996.

Sections Affected: Sections 2250, 2251.5, 2252, and 2261.

3. Treatment of small refiners.

Include the modifications pertaining to small refiners as described in the Staff's Suggested Changes," provided that (a) the two-year extension described therein would apply until March 1, 1998 in the case of flat limits and designated alternative limits, and until April 1, 1998 in the case of caps, and (b) if deemed appropriate by the Executive Officer, the "exempt volume" shall be based on data contained in excise tax returns rather than in reports filed with the California Energy Commission.

Sections Affected: Sections 2260 and 2272.

State of California

AIR RESOURCES BOARD

Resolution 91-55
November 14, 1991

Agenda Item No.: 91-10-3

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code Sections 39700 through 39705; and

WHEREAS, a solicited research proposal, Number 1916-165, entitled "Development of Species Profiles for Emissions from Selected Combustion Sources," has been submitted by Energy and Environmental Research Corporation;

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 1916-165, entitled "Development of Species Profiles for Emissions from Selected Combustion Sources," submitted by Energy and Environmental Research Corporation, for a total amount not to exceed $98,719.

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 1916-165, entitled "Development of Species Profiles for Emissions from Selected Combustion Sources," submitted by Energy and Environmental Research Corporation, for a total amount not to exceed $98,719.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $98,719.

I hereby certify that the above is a true and correct copy of Resolution 91-55, as adopted by the Air Resources Board.

Pat Hutchens

Patricia Hutchens, Board Secretary

State of California

AIR RESOURCES BOARD

Resolution 91-56
November 14, 1991

Agenda Item No.: 91-10-3

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code Sections 39700 through 39705; and

WHEREAS, an interagency research proposal, Number 1870-165 entitled "A Collaborative Owens Lake Aerosol Study", has been submitted by the University of California, Davis; 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 1870-165, entitled "A Collaborative Owens Lake Aerosol Study," submitted by the University of California, Davis, for a total amount not to exceed $99,785.

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 1870-165, entitled "A Collaborative Owens Lake Aerosol Study," submitted by the University of California, Davis, for a total amount not to exceed $99,785.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $99,785.

I hereby certify that the above is a true and correct copy of Resolution 91-56, as adopted by the Air Resources Board.

Pat Hutchens

Patricia Hutchens, Board Secretary

State of California
AIR RESOURCES BOARD

Resolution 91-57

December 12, 1991

Agenda Item No: 91-12-1

WHEREAS, Health and Safety Code sections 39600 and 39601 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, Health and Safety Code section 43018(a), enacted by the California Clean Air Act of 1988, directs the Board to endeavor to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of the state ambient air quality standards at the earliest practicable date;

WHEREAS, Health and Safety Code section 43018(b) directs the Board no later than January 1, 1992 to take whatever actions are necessary, cost-effective, and technologically feasible in order to achieve, by December 31, 2000, a reduction of reactive organic gases ("ROG") of at least 55 percent and a 15 percent reduction in the emissions of oxides of nitrogen ("NOx") from motor vehicles, and the maximum feasible reductions in particulates ("PM"), carbon monoxide ("CO"), and toxic air contaminants from vehicular sources;

WHEREAS, Health and Safety Code section 43018(c) provides that in carrying out section 43018, the Board shall adopt standards and regulations which will result in the most cost-effective combination of control measures on all classes of motor vehicles and motor vehicle fuel, including but not limited to specification of vehicular fuel composition;

WHEREAS, Health and Safety Code section 43013 authorizes the Board to adopt and implement motor vehicle fuel specifications for the control of air contaminants and sources of air pollution which the Board has found to be necessary, cost-effective, and technologically feasible to carry out the purposes of Division 26 of the Health and Safety Code;

WHEREAS, section 211(m) of the federal Clean Air Act as amended in 1990 requires states containing specified CO nonattainment areas to submit revisions to their State Implementation Plans ("SIPs") requiring that gasoline sold for use in the areas contain not less than 2.7 percent oxygen by weight during the high CO winter period specified by the Administrator of the U.S. Environmental Protection Agency ("EPA") starting November 1, 1992 or such other date in 1992 established by the Administrator; eight areas in California are among those for which such SIP revisions must be submitted;

WHEREAS, section 211(m)(3)(A) of the federal Clean Air Act directs the EPA Administrator to waive, in whole or part, the SIP revision requirements pertaining to the minimum oxygen content of gasoline upon a demonstration by a state to the Administrator's satisfaction that the use of oxygenated gasoline would prevent or interfere with the attainment by the areas of a

national primary ambient air quality standard, or a state ambient air quality standard, for any pollutant other than CO;

WHEREAS, the staff has initially proposed the adoption of a regulation that would establish requirements pertaining to the minimum and maximum oxygen content of gasoline from September 1992 through December 1995; these requirements would include the following elements:

Gasoline would be required to have an oxygen content of not less than 1.8 percent and not more than 2.2 percent by weight from November 1 through February 29 in the South Coast, San Diego, South Central Coast and Southeast Desert Air Basins, and from November 1 through January 31 in all other air basins; and

Gasoline would be required to have an oxygen content of not more than 2.2 percent, with no required minimum, in September and October in the South Coast Air Basin and Ventura County, and in October in all other air basins except the San Diego, South Central Coast (except Ventura County) and the Southeast Desert Air Basins;

WHEREAS, the regulatory proposal would be effected by the adoption of Title 13, California Code of Regulations, section 2258 as set forth in Attachment A hereto;

WHEREAS, the regulatory proposal was made in conjunction with a proposal for Phase 2 reformulated gasoline regulations applicable starting January 1996, which included year-round requirements on the minimum and maximum oxygen content of gasoline; the Phase 2 reformulated gasoline regulations were approved by the Board on November 22, 1991 in Resolution 91-56, with a modified starting date of March 1, 1996;

WHEREAS, the portions of the proposed wintertime oxygenates regulations which for the identified control periods impose a minimum oxygen content of less than 2.7 percent will require a waiver of the federal Clean Air Act requirements pursuant to section 211(m)(3)(A) of that Act;

WHEREAS, the California Environmental Quality Act and Board regulations require that an action not be adopted as proposed where it will have significant adverse environmental impacts and alternatives or feasible mitigation measures to the proposed action are available which would substantially reduce or avoid such impacts;

WHEREAS, the Board has considered the impact of the proposed regulations on the economy of the state;

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 state and national health-based ambient air quality standard for CO is exceeded in various areas of the state from September through March, with most exceedances occurring in November, December and January;

The addition of oxygenates to gasoline results in significant reductions in CO emissions from motor vehicles;

The wintertime oxygenate regulation approved herein is necessary to help attain the state and federal ambient CO standards and to fulfill the requirements of section 211(m) of the federal Clean Air Act;

The wintertime oxygenate regulation approved herein will reduce emissions of CO in California CO nonattainment areas in the high CO periods by approximately 1000 to 1200 tons per day in 1992-1995;

The wintertime oxygenate regulation approved herein is technologically feasible within the applicable timeframe;

The wintertime oxygenate regulation approved herein is expected to result in an increase in the cost of gasoline of about 3 cents per gallon in the winter months through February 1996, and is expected to have a cost effectiveness of about $1000 per ton of CO emissions reductions; this cost effectiveness value is within the range of other measures that are expected to be implemented during the same time period in order to attain and maintain the federal and state ambient ambient air quality standard for CO;

The modifications described in Attachment B are necessary and appropriate to clarify the requirements, to reflect the air pollution control needs of California, and to enhance the consistency of the regulations with the requirements of the federal Clean Air Act;

Based on available data, concentrations of oxygenates in gasoline causing an oxygen content greater than 2.2 percent will increase NOx emissions from motor vehicles, and the NOx emissions increase becomes greater as the oxygen content is further raised;

NOx is a precursor to the formation of ozone and PM10 and results in ambient NO2 concentrations; the state and national health-based ambient air quality standards for ozone are exceeded virtually year-round in the South Coast Air Basin and in several other air basins in the spring, summer and fall; the state and federal PM10 standards are regularly and significantly exceeded in many areas of California with the state standard being exceeded in every month of the year in 13 of the state's 14 air basins; and the state NO2 standard has been exceeded in the South Coast Air Basin from September to February and in the San Diego Air Basin in January;

The oxygenated gasoline regulation approved herein strikes an appropriate balance between the need to achieve substantial wintertime CO emission reductions and the need to avoid increases of NOx which would cause increases in concentrations of ozone and PM10;

It is not appropriate to have a near-term wintertime oxygenate program in the Los Angeles-Anaheim-Riverside Combined Metropolitan Statistical Area ("CMSA") in September because the area is not prone to high CO ambient concentrations in that month and the problem of ambient ozone concentrations vastly outweighs any problems relating to CO concentrations;

Requiring a gasoline oxygen content in excess of a range of 1.8 per cent to 2.2 per cent by weight in the Los Angeles-Anaheim-Riverside and San Francisco-Oakland-San Jose CMSAs and in the Fresno, Modesto, Stockton, Sacramento, Chico and San Diego Metropolitan Statistical Areas ("MSAs") from November through January or February would prevent or interfere with the state and federal ambient air quality standards for ozone and/or PM10, and the state and federal NO2 standards in the Los Angeles-Anaheim-Riverside CMSA, because of the likely NOx emission increases;

The maximum oxygen content limits in the regulations approved herein are designed to specify acceptable levels of emissions for NOx from all reformulated gasolines;

In order to assure the availability of adequate supplies of oxygenates during the wintertime oxygenate program and to avoid the effective preclusion of the use of ethanol as a gasoline additive for only one month of the year, it is necessary to revise the RVP regulation to provide a one psi allowance to blends of gasoline containing at least 4.9 percent ethanol by volume, in October only;

WHEREAS, the Board further finds that:

The regulation approved herein will result in significant reductions in emissions from motor vehicles of CO;

The modifications approved herein providing a one psi allowance under the RVP regulation for blends of gasoline containing at least 4.9 percent ethanol in October of 1993, 1994 and 1995 may result in some increase in the emissions of volatile organic compounds during those three months in if the amount of gasoline containing ethanol increases above current levels in those months;

The regulation approved herein is expected to result in increased shipments of MTBE and ethanol, with concomitant impacts on waterborne and rail traffic; and

The need to provide the substantial overall public health benefit from the CO emissions reductions noted herein, and the need to avoid the effective preclusion of the use of ethanol as a gasoline additive for only one month of the year, outweighs the potential adverse environmental impacts from the regulation noted above; there are no feasible mitigation measures or alternatives available to the Board which would further substantially reduce the potential adverse impacts of the regulation approved herein in light of the needs identified above.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the adoption of Title 13, California Code of Regulations, section 2258, as set forth in Attachment A, with the modifications (including the amendment of Title 13, California Code of Regulations, section 2251.5) described in Attachment B hereto, and with a further modification to apply the provisions identified in item 3 of Attachment B in November for those air basins in which the wintertime oxygenates program begins in November.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to incorporate into the approved regulation the modifications approved herein and such other conforming modifications as may be appropriate, and either to adopt the modified regulations, amendments, and new documents after making them available to the public for a supplemental written comment period of 15 days, with such additional modifications as may be appropriate in light of supplemental comments received, or to present the regulations, amendments and documents to the Board for further consideration if he determines that this is warranted in light of supplemental written comments received.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to apply to the U.S. EPA for a waiver under federal Clean Air Act section 211(m)(3)(A) to the extent necessary to permit the oxygenate regulations approved herein to satisfy the requirements of that Act.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer, as part of the rulemaking hearing to be scheduled in the spring of 1992 for the Board to consider adoption of a predictive model that for use in certifying a set of alternative gasoline specifications that could be met to satisfy compliance with the Phase 2 reformulated gasoline requirements, to also propose adoption of a predictive model that would enable the use of gasoline with higher oxygen contents than permitted under section 2258 as approved herein if the gasoline does not result in any increase in NOx emissions.

BE IT FURTHER RESOLVED that, following approval by the Office of Administrative Law of the regulation approved herein, the Executive Officer

is directed, as appropriate, to adopt the regulation as a part of the California State Implementation Plan and to submit it to the U.S. Environmental Protection Agency as a revision to the California State Implementation Plan.

I hereby certify that the above is a true and correct copy of Resolution 91-57, as adopted by the Air Resources Board.

Pat Hutchens

Pat Hutchens, Board Secretary

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SEP 09 1992

RESOURCES AGENCY OF CALIFORNIA

Resolution 91-57

December 12, 1991

Identification of Attachments to the Resolution

Attachment A: Proposed new Title 13, California Code of Regulations, sections 2258, as set forth in Appendix A of Volume 2 of the Staff Report, "Proposed Regulations for California Wintertime Oxygenates Program."

Attachment B: Staff's Suggested Changes to the Proposed Wintertime Oxygenate Regulation (distributed at the hearing on December 12, 1991).

ATTACHMENT B

PUBLIC HEARING ON PROPOSED REGULATIONS ESTABLISHING A WINTERTIME OXYGENATED GASOLINE PROGRAM

DECEMBER 12, 1991

Staff's Suggested Changes to the Original Regulatory Proposal

1. Starting date.

In light of recent guidance from the U.S. Environmental Protection Agency ("EPA"), the wintertime oxygenates requirements would apply starting November 1, 1992.

2. Standards for September and October.

(a) Change the regulatory control period for the South Coast Air Basin and Ventura County so that it starts October 1 rather than September 1. This change is premised on a conclusion that these areas are not prone to high ambient concentrations of CO in September; we hope that that EPA will determine in its final rulemaking on control periods that the Los Angeles-Anaheim-Riverside CMSA is not prone to high ambient concentrations of carbon monoxide in September. As modified, the regulation would impose no requirements in September.

(b) Eliminate the special standard for October, so that the 1.8 percent - 2.2 percent by weight oxygen content standard applicable in November through February would also apply in October (starting October 1993).

(c) In order to assure the availability of adequate supplies of oxygenates during the wintertime oxygenate program, revise the RVP regulation to provide a one psi allowance to blends of gasoline containing at least 4.9 percent ethanol by volume, in October only. This volume percentage is approximately equivalent to a 1.8 percent by weight oxygen content in gasoline oxygenated with ethanol.

Section Affected: Section 2258(a)(1) and (a)(2); Section 2251.5(a)(3).

3. Compliance at service stations during first 15 days of control period.

Add a new subsection providing that the minimum and maximum oxygen content limits do not apply to a transaction occurring in an air basin during the first 15 days of the October regulatory control period where the transaction involves the transfer of gasoline from a stationary storage tank to a motor vehicle fuel tank and the person selling, supplying, or offering the gasoline demonstrates as an affirmative defense that he or she has made, prior to the transaction, specific arrangements with a gasoline distributor

for the delivery of an oxygenated or nonoxygenated gasoline blend containing oxygenates in quantities that will result in gasoline in the stationary storage tanks at the facility having an oxygen content of from 1.8 percent to 2.2 percent by weight by October 16. In addition, provide that a distributor of gasoline to service stations or bulk purchaser-consumers is not subject to the minimum oxygenate content limit during the 15 day period if the distributor demonstrates that the gasoline is being distributed pursuant to a prior arrangement to deliver nonoxygenated gasoline to bring the facility into compliance with the 1.8 percent - 2.2 percent oxygen content limits by October 16. These provisions would also apply for November 1992.

Section Affected: New section 2258(a)(5).

4. Variances.

EPA's original July 9, 1991 Notice of Proposed Rulemaking on Guidelines for an Oxygenated Gasoline Credit Program made no reference to relief from liability in extraordinary circumstances. As a result of the Negotiated Rulemaking process, in its September 6, 1991 draft modifications to the notice of proposed rulemaking EPA suggests that states should consider a provision for relief from liability in very limited circumstances. (pp. 65-66). In its September 23, 1991 draft supplemental proposal on reformulated gasoline enforcement regulations, EPA has provided draft regulatory language which would implement this concept. (pp. 64-65 of Draft; proposed 40 CFR sec. 80.73). EPA has indicated that such an approach represents the maximum extent to which a relief from liability provision could be approved in a wintertime oxygenated gasoline SIP revision. Accordingly, we recommend deletion of the variance language in the original proposal and substitution of the following language that is closely patterned after EPA's proposed regulation in the September 23 reformulated gasoline draft. We recommend that the Executive Officer be authorized to expand the text as appropriate prior to the 15-day availability period to further clarify the applicable procedures.

> Section 2258(d) **Inability to produce conforming gasoline in extraordinary circumstances.**
>
> In appropriate extreme and unusual circumstances (e.g., natural disaster or Act of God) which are clearly outside the control of the refiner, importer, or oxygenate blender and which could not have been avoided by the exercise of prudence, diligence, and due care, the executive officer may permit a refiner, importer, or oxygenate blender, for a brief period, to distribute gasoline which does not meet the requirements in section 2258(a) if:
>
> (a) It is in the public interest to do so (e.g., distribution of the nonconforming gasoline is necessary to meet projected shortfalls which cannot otherwise be compensated for);

(b) The refiner, importer, or oxygenate blender exercised prudent planning and was not able to avoid the violation and has taken all reasonable steps to minimize the extent of the nonconformity;

(c) The refiner, importer, or oxygenate blender can show how the requirements for oxygenated gasoline will be expeditiously achieved;

(d) The refiner, importer, or oxygenate blender agrees to make up air quality detriment associated with the nonconforming gasoline, where practical; and

(e) The refiner, importer, or oxygenate blender pays to the Air Pollution Control Fund an amount equal to the economic benefit of the nonconformity minus the amount expended, pursuant to paragraph (d) of this section, in making up the air quality detriment.

Section Affected: Section 2258(d).

5. Sampling procedures.

Add references to sampling procedures, which will be identical to those included in the staff's November 21, 1991 proposed modifications for the Phase 2 reformulated gasoline regulations. The referenced sampling methodology will be a revision of section 2296 in which various provisions will be clarified and simplified, without substantive changes. A cooling bath will not be required where the sample is taken to determine compliance with the oxygen content requirements.

Section Affected: Section 2258(c)

6. Test methods.

Change the reference to the test method from ASTM D 4815-88 to ASTM D 4815-89. Clarify that the referenced ASTM D 4815-89 provides volume percent measurements of individual oxygenates but conversion of results to weight percent oxygen content is required. Such conversion can be accomplished in four steps by (1) calculating the specific gravity of the oxygenates/gasoline blend from the specific gravities of the oxygenates (see table below), gasoline and their respective volume fractions; (2) calculating weight percent oxygenate by multiplying the volume percent oxygenate by the ratio of the specific gravities of the oxygenate to the blend; (3) multiplying the weight percent of each oxygenate in the gasoline sampled by the weight fraction oxygen set forth in the table below; and (4) summing the weight percent oxygen contribution of each oxygenate to obtain the total oxygen content. In addition, provide that all volume measurements shall be adjusted to 60 degrees Fahrenheit.

These clarifications are based on the preamble and appendix text in EPA's proposed Guidelines for Oxygenated Gasoline Credit Programs, 56 F.R. 31151, 31165, 31166 (July 9, 1991), as modified by EPA's draft supplemental notice dated November 15, 1991. In addition, direct the Executive Officer to make additional modifications deemed appropriate in light of EPA's final Guidelines when issued; such modifications could include identification of an assumed density of the gasoline and of appropriate equations to be used for the conversion of oxygenate content to oxygen content.

Table

Oxygenate	Oxygen Weight Fraction	Specific Gravity at 60 Degrees F
Methanol	0.4993	0.796
Ethanol	0.3473	0.794
Propanols	0.2662	0.789
Butanols	0.2158	0.810
Pentanols	0.1815	0.817
Methyl Tertiary-Butyl Ether (MTBE)	0.1815	0.744
Hexanols	0.1566	0.823
Tertiary Amyl Methyl Ether (TAME)	0.1566	0.770
Ethyl Tertiary-Butyl Ether	0.1569	0.755

Section Affected: Section 2258(c).

7. Effect of supply waiver under Federal Clean Air Act.

Add language providing that if the EPA Administrator issues, pursuant to section 211(m)(3)(c) of the federal Clean Air Act, a waiver of the requirements of section 211(m)(2) applicable to a geographic area or areas of California, the requirements of section 2258(a) shall not apply in any air basin containing an area covered by the waiver, during the period of the waiver. If a waiver is issued for an area in southern California (South Central Coast, South Coast, Southeast Desert and San Diego Air Basins), section 2258(a) would also not apply, during the period of the waiver, in any air basin in Southern California not containing any area required under section 211(m) of the federal Clean Air Act to have a wintertime oxygenates program. A similar provision would be included applicable to northern California (all air basins not identified above as being in southern California).

Section Affected: new Section 2258(e).

8. 1996 sunset.

Since the Phase 2 reformulated gasoline regulations will not require compliance before March 1996, revise the December 31, 1995 sunset clause to provide that the section does not apply to gasoline sold or supplied after February 29, 1996.

Section Affected: Section 2258(e) (relettered as 2258(f)).

9. Predictive Model.

In addition to the above regulatory modifications, include in the Resolution a paragraph stating that, as part of the rulemaking hearing to be scheduled for the spring of 1992 to consider adoption of a predictive model for use in certifying a set of alternative gasoline specifications that could be used to satisfy compliance with the Phase 2 reformulated gasoline requirements, the Executive Officer is directed to also propose adoption of a predictive model that would enable the use of gasoline with higher oxygen contents than permitted under section 2258 if the gasoline does not result in any increase in NOx emissions.

91-58
Not Used
No Resolution

State of California

AIR RESOURCES BOARD

Resolution 91-59
December 12, 1991

Agenda Item No.: 91-12-3

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code Sections 39700 through 39705; and

WHEREAS, a solicited research proposal Number 1890-165 entitled "Investigation of Halogenated Solvent Use, Control Techniques, and Substitutes," has been submitted by Battelle, 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 No. 1890-165, entitled "Investigation of Halogenated Solvent Use, Control Techniques, and Substitutes," submitted by Battelle, for a total amount not to exceed $184,634.

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 No. 1890-165, entitled "Investigation of Halogenated Solvent Use, Control Techniques, and Substitutes," submitted by Battelle, for a total amount not to exceed $184,634.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $184,634.

I hereby certify that the above is a true and correct copy of Resolution 91-59, as adopted by the Air Resources Board.

Pat Hutchens

Pat Hutchens, Board Secretary

State of California

AIR RESOURCES BOARD

Resolution 91-60
December 12, 1991

Agenda Item No.: 91-12-3

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code Sections 39700 through 39705; and

WHEREAS, a solicited research proposal, Number 1911-165 entitled "Development of Particle Size Test Methods for Sampling High Temperature and High Moisture Source Effluents," has been submitted by Southern Research Institute, and

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

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

> Proposal No. 1911-165, entitled "Development of Particle Size Test Methods for Sampling High Temperature and High Moisture Source Effluents," submitted by Southern Research Institute, for a total amount not to exceed $149,852.

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 No. 1911-165, entitled "Development of Particle Size Test Methods for Sampling High Temperature and High Moisture Source Effluents," submitted by Southern Research Institute, for a total amount not to exceed $149,852.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed $149,852.

I hereby certify that the above is a true and correct copy of Resolution 91-60, as adopted by the Air Resources Board.

Pat Hutchens

Pat Hutchens, Board Secretary