MEETING

BEFORE THE

CALIFORNIA AIR RESOURCES BOARD

COPY

BOARD HEARING ROOM

CALIFORNIA AIR RESOURCES BOARD

2020 L STREET

SACRAMENTO, CALIFORNIA

THURSDAY, SEPTEMBER 28, 1995

9:30 A.M.

Nadine J. Parks
Shorthand Reporter

MEMBERS PRESENT

John D. Dunlap, III, Chairman
Eugene A.Boston, M.D.
Joseph C. Calhoun
Lynne T. Edgerton
M. Patricia Hilligoss
John S. Lagarias
Jack C. Parnell
Barbara Riordan
Ron Roberts
Jim Silva
Doug Vagim

Staff:

Jim Boyd, Executive Officer
Tom Cackette, Chief Deputy Executive Officer
Mike Scheible, Deputy Executive Officer
Michael Kenny, Esq., Chief Counsel

Annette Guerrero, Staff, Mobile Source Division
Bob Cross, Assistant Division Chief, MSD
Steve Albu, Chief, Engineering Studies Branch, MSD
Peter Venturini, Chief, Stationary Source Division
Dean Simeroth, Chief, Criteria Pollutants Branch, SSD
Joan Denton, Ph.D., Manager, Substance Evaluation Section, SSD
Susan Johnson, Applied Management Planning Group
Bart Croes, Research Division
Tom Jennings, Esq., Staff Counsel

Don Ames, Assistant Chief, Stationary Source Division
Genevieve Shiroma, Chief, Air Quality Measures Branch, SSD
Peggy Taricco, Manager, Technical Evaluation Section, SSD
Julie Billington, Staff, Stationary Source Division
Bob Jenne, Esq., Staff Counsel

Patricia Hutchens, Board Secretary
Wendy Grandchamp, Secretary
Bill Valdez, Administrative Services Section

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P R O C E E D I N G S

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CHAIRMAN DUNLAP: We'll call this, the September meeting of the California Air Resources Board to order. And I'd like to ask Mayor Hilligoss to lead us in the Pledge of Allegiance, please.

(Thereupon, Mayor Hilligoss led the Board Members, Staff, and Audience in the Pledge of Allegiance.)

CHAIRMAN DUNLAP: Thank you. I'd like the Board Secretary to please call the roll.

MS. HUTCHENS: Boston?

DR. BOSTON: Here.

MS. HUTCHENS: Calhoun?

MR. CALHOUN: Here.

MS. HUTCHENS: Edgerton?

MS. EDGERTON: Here.

MS. HUTCHENS: Hilligoss?

MAYOR HILLIGOSS: Here.

MS. HUTCHENS: Lagarias?

MR. LAGARIAS: Here.

MS. HUTCHENS: Parnell?

MR. PARNELL: Here.

MS. HUTCHENS: Riordan?

SUPERVISOR RIORDAN: Here.

MS. HUTCHENS: Roberts?

SUPERVISOR ROBERTS: Here.

MS. HUTCHENS: Silva?

SUPERVISOR SILVA: Here.

MS. HUTCHENS: Vagim?

SUPERVISOR VAGIM: Here.

MS. HUTCHENS: Chairman Dunlap.

CHAIRMAN DUNLAP: Here. Thank you.

Before we begin the meeting, I'd like to turn the mike over to Supervisor Riordan for a brief comment.

SUPERVISOR RIORDAN: Mr. Chairman, I think on behalf of all the Board that we'd like to congratulate you on your confirmation.

CHAIRMAN DUNLAP: Thank you.

SUPERVISOR RIORDAN: And to let the audience know, some of whom I think are from out of State, that the process of confirmation for any one of us, but particularly the Board Chair, is sometimes challenging. And our Chairman was confirmed at about 3:20 on the last day of the session in the Senate. And had the confirmation not occurred sometime that day, unfortunately, we would not have had a Chairman today.

So, we are very grateful for that. But I thought I'd like to share with all of you one of the editorials that appeared in Southern California. This is the Riverside

Press Enterprise. It's the paper that covers part of the Inland Empire. And I thought the last sentences were best.

"The Governor made a good nomination. The Democrats are not likely to get anyone better. Both sides should be happy to be winners and confirm John Dunlap."

And that's what I wanted to share with everybody. I thought that was an excellent one. And I think we should give you a hand.

(Applause.)

CHAIRMAN DUNLAP: Very kind of you. Appreciate it. I feel a lot better this month than I did at the last meeting, by the way.

Well, before we begin today, I would like to call your attention to the newly published Air Quality in San Diego County - 1994 Annual Report, which each of you have in front of you, my colleagues on the Board.

This comprehensive publication is particularly noteworthy in its effort to inform the public about the causes and health effects of air pollution as well as local strategies to improve air quality.

And I've asked Supervisor Roberts to take a moment or two and provide some comments on this report.

But when I received it in the mail, it caught my eye, and I thought it was very well done. Ron?

SUPERVISOR ROBERTS: Mr. Chairman, I didn't realize you had asked me to do that. This is my first look at the report, so I'm going to be very brief.

I think we're fairly proud of the things that we're doing. There's a number of different efforts underway in San Diego. We still have a lot of work to do. I would just encourage you to read the report. I'm going to read it.

And we have recently just approved a major purchase of CNG buses for the local transportation agency, and a very aggressive of crunching older cars, and are working very closely with the industrial companies and the power companies to see that we can make the improvements that are needed with respect to the fixed sources of pollution, also.

But I'm anxious to see what good things maybe that are in this report that I haven't seen. We're definitely making some improvements. San Diego is directly affected in a major way by whatever happens in the Los Angeles area. So, it's not completely under our control, and we wish our neighbors to the north good luck, also.

CHAIRMAN DUNLAP: Great. Thank you, Supervisor. I didn't mean to throw you a curve, but I try to make some time to review some of these documents, and it was very well done. I see a number of these. It wasn't a lengthy report;

it was very concise and very well done. And I appreciate it.

Please pass on my thanks to your colleagues on the board and to your air pollution control officer for a fine job.

At this time, I'd like to ask Jim Schoning -- actually, I'd like to introduce Jim Schoning, who is the Air Resources Board's Ombudsman. Jim was appointed in March, and has quickly proven to be an integral part of the Wilson team and the Air Resources Board team, and I wanted to welcome you.

This is the first time you've had a chance to say anything, Jim, before the Board. So, welcome.

MR. SCHONING: Thank you, Mr. Chairman.

As a close member of the Chairman's staff, I am one of those who's especially grateful for the wisdom of the State Senate. And it's a privilege to be here with each of you, and to have the chance to work with an outstanding organization, staff and Board members, here at the ARB.

What I wanted to do was comment briefly on the origin and the concept of the Ombudsman, provide a little bit of my own background and activities here, and then get out of the way, because you have a full room and a full agenda before you today.

As I'm sure all of you know, the notion of the

Ombudsman is a Scandinavian concept in origin, and it's generally defined these days as an individual who works inside a large organization to help citizens and customers resolve their complaints.

Mike Scheible said to me shortly after I arrived, "You're the 'Complaint Department.'"

The 1990 amendments to the Clean Air Act considerably extended the regulatory reach of government, and we hope its grasp as well. But taking into account the extension of that reach, Title 5 required that the position of Ombudsman be created and filled in organizations such as the Air Resources Board.

The Wilson Administration determined that this position should be at the level of the gubernatorial appointee. Personally, I began my career in public service with the California Legislature. I served as Chief Administrative Officer long, long ago, but not very far away in the California State Assembly.

Since then, the bulk of my career has been on the staff of the Coro Foundation in both Los Angeles and New York City. And in 1991, Governor Wilson appointed me to be Chief of the Bureau of Automotive Repair of the State's Department of Consumer Affairs. As many of you know, BAR regulates some 40,000 small and not-so-small enterprises and retailers throughout the State of California and provides

consumer protection in the field of automotive repair.

Not many people realize it, but some 450,000 Californians earn a living either repairing cars or selling parts to those who do. So, it's a not insignificant part of California's workforce and one that faces many of the same challenges as far as adjusting to the rapidly growing technology that the balance of our workforce does.

The Bureau of Automotive Repair also manages the State's Inspection & Maintenance program. And so, my tenure there gave me a good orientation to State and Federal approaches to air quality.

When I came to work, Chairman Dunlap outlined for me three of his top priorities. First was to help simplify and demystify the regulatory process; second was to help encourage fuller and earlier involvement, particularly by the small business community, in the regulatory process itself, so they have the best possible chance of getting it right the first time.

Finally, the traditional and more conventional role of the Ombudsman -- to advocate on behalf of individuals ensnared in the bureaucracy, and who bring any sort of a complaint of the regulatory process, either at the district or the State level.

It didn't take me long to discover that ARB has quite a number of splendid and unbroken ombudsmanlike

programs and activities that need little or no fixing -- from our compliance assistance programs, our business assistance activities, an 800 toll free number, a new and very promising still-to-be-developed electronic bulletin board, the Arbus system; and a well-defined and much recognized public workshop and hearing process.

With regard to the traditional complaint department function, I spend a lot of time helping individuals move their piece of paper from the bottom of a stack to the top of the stack, sometimes in our own organization but, as often as not, in a sister State agency or local air district.

We've assisted in getting better scheduling time at ARB hearings for parties on both sides of some significant issues that are before the Board. And we've counseled local air districts on strategies for implementing, or amending, or changing current State-mandated programs.

We've gotten a number of straight answers for out-of-state businessmen wondering how to do business here in California who have new products to sell.

And we spend a great deal of time simply connecting someone with a question to one of the many splendid experts here at Air Resources Board.

While California, between the Air Board and our

districts, has what seems to me and most others a world class system, the best in the world, the experience of organizations from IBM, and AT&T, and many others in the public sector tell us that today's world class organization can become tomorrow's dinosaur if we don't look regularly to stay in close touch with our customers and the changing environments in which we do business.

In that sense, we're working on two initiatives with our partners at the air district level and CAPCOA. First, we have formed a small business assistance working group in response to interest from a number of air districts over how they can offer more effective and useful small business assistance programs in their districts.

The first thing we thought we ought to do, because there are many excellent initiatives again at the district level, just as we found here at ARB, is take inventory and catalog those activities that are going on now before we spend a lot of effort and needless energy reinventing wheels that are working just fine. We'll see what that catalog and an inventory effort yields before we make any further recommendations.

The second initiative with CAPCOA is to conduct a series of stakeholder forums around the State with the stakeholders in California air quality system. Those would be the environmental community and the regulated community

principally, although I think perhaps we might find a few seats for the research and development community as well, because they're terribly important to us.

Essentially, we'll be asking three questions at these forums: How are we doing? We expect we can predict most of the feedback, but you never know for sure and you don't want to take it for granted.

Second, what are the forces and factors from international competition, to changing demographics, to pressures on public budgets that we're going to have to contend with in California over the next 15 years as we move towards attainment of Federal and State standards?

And, third, what does our system need to look like in five or six years from now in order to effectively adjust to those pressures and changes that are headed towards us and enable us to continue to be successful in our mission?

So, those are some of the initiatives we have going. I could conclude by saying, I'm especially grateful to be here. I've spent my entire life either in public service or preparing others for it, and I would add I never had the chance to work with a finer public servant than our Chairman.

CHAIRMAN DUNLAP: Thank you very much. I appreciate your coming here this morning and giving a brief overview.

Any questions of Jim? Okay. Very good. Thank you.

I would like to remind those in the audience who would like to present testimony to the Board on any of today's agenda items to please sign up with the Board Secretary here to my left.

If you have any written statements or written materials, please provide 20 copies to her.

The first item on the agenda today is 95-9-1, public hearing to consider amendments to the certification requirements and procedures for low-emission passenger cars, light-duty trucks, and medium-duty vehicles.

This item is a regulatory review of California's low-emission vehicle program. The LEV program is a primary element of California's long-term plan for reducing air pollution from light- and medium-duty vehicles.

The program is significant because it requires the implementation of advanced mobile source control strategies which will result in cars with 75 percent fewer hydrocarbons and 50 percent fewer oxides of nitrogen compared to cars sold in other States.

When the Board approved the LEV regs in 1990, they recognized the significant challenge that the new requirements would pose to the automotive industry.

Accordingly, staff was directed to periodically

report back to the Board on the status of the implementation of the regulations and to propose any appropriate regulatory modifications.

In May of last year, staff presented a progress report on the technological feasibility of low-emission and zero-emission vehicles. Today, staff will be presenting amendments concerning the adoption of reactivity adjustment factors and other changes that would further improve implementation of the Board's regulations.

Staff will also be presenting the first regulatory action relating to the mobile source element of the State Implementation Plan. Those amendments pertain to accelerated introduction of medium-duty ultra-low emission vehicles.

Before I ask Mr. Boyd to introduce the staff's presentation, I would like to affirm to the audience that today's hearing is a regulatory review of the low-emission vehicle program, and is therefore not the appropriate forum to discuss the status or implementation of zero-emission vehicles.

The staff will be addressing amendments to that portion of the low-emission vehicle regulations in 1996. I would like to request, therefore, that the audience refrain from commenting on the zero-emission vehicle program at this time.

At this point, I'd like to ask Mr. Boyd to introduce the item and begin the staff's presentation.

Good morning, Mr. Boyd.

MR. BOYD: Good morning, Mr. Chairman. Let me add the staff's congratulations.

CHAIRMAN DUNLAP: Thank you.

MR. BOYD: It is indeed a relief to all of us to have you with us permanently and to have that chapter in history behind us, I hope. So, we look forward to the future.

As the Chairman indicated in his opening remarks, we're dealing with what is a fairly significant program of the Air Resources Board. I want to spend just a moment to go back in history a little bit to discuss the passage of the low-emission vehicle/clean fuels program, which was really a package, a synergistic package, that the Board dealt with back in the nineties.

Of course, those historic times were preceded by several years of work. This was a significant, complex, and not easy task. It was predicated on the fact that, when in 1987, the staff at the Air Resources Board took measure of the California air quality situation -- and you know 1987 was the year that the Federal law said that we would have clean air in the nation, California included -- California had already indicated to the Federal Government that we

would do more than anyone in the world had done ever to clean up air.

But we could not forecast that we would meet the national objective of 1987, and slowly but surely other people -- other States found themselves in the same predicament.

We began actually in 1986, looking at what will we do next, and I remember discussions with Mr. Calhoun in those days about how could we squeeze anything more out of the automobile? It's down to zero practically in any event.

But nonetheless, we went to work over a couple of years, both with the Legislature and the affected communities of California on the creation and passage of the California Clean Air Act, and on a program within the Air Resources Board to address what had been identified as still the major emission source -- mobile sources. And that brought forward to you the low-emission vehicle and clean fuels program.

And I guess the rest is history. The passage of the low-emission vehicle component of that package was indeed a significant event, and I think that's been shown repeatedly in the history of perhaps not only California's motor vehicle emission regulations, but maybe those types of regulations in general.

Since the inception of the program, there's been

very rapid progress made and continues to be made in the development of emission control technology.

I would add that there is certain more to the low-emission vehicle program than that which you seem to read about most in the press, the ZEV component or the electric vehicle component. As you will recall, it was a large program involving a period of years and in a stair-step program affecting various classes of vehicles and increasing clean air requirements and emission stringency.

So, we have the infamous "LEV Brothers" program, the TLEVs, the LEVs, the ULEVs, and, finally, the ZEV. Well, today, we want to deal with the nonelectric vehicle component of that program, because this is an area in which so much technology has been developed, for which we are eternally grateful, to help us reach the goals that we need to reach here in California.

And once again, our faith in the auto industry has been repaid time and time again as they develop the technologies that not only are meeting, but often exceeding and in advance of deadlines, the goals that we have established.

But I'm laying the groundwork for the fact that this is a very dynamic situation, and due to the dynamic nature that this technology development has brought forth, your staff does indeed recognize and has recognized the need

to adjust regulatory requirements to keep pace with the progress that's being made here.

And, as the Chairman mentioned today, we are proposing new reactivity adjustment factors for natural gas, for liquified petroleum gas, for Phase 2 reformulated gasoline, and for so-called M85.

We are also proposing modifications to the medium-duty vehicle requirements pursuant to the State Implementation Plan approved by your Board just last November.

Finally, we'll briefly summarize the numerous amendments that are being proposed to either clarify or simplify the existing provisions, and further facilitate implementation of the program that we've laid out for you before.

Before turning it over to the staff, I'd like to point that the proposal being presented to you here today is the result of, once again, extensive discussions with members of both the automotive and oil industries and other affected public. Staff has expended, as always, a considerable amount of energy and time in efforts to achieve consensus with industry and with other affected parties.

And, as I hope you'll see, their efforts have produced a very high level of accord.

With that, I'd like to introduce Annette Guerrero

of our Mobile Source Division, who will give you the staff presentation. Ms. Guerrero, if you would.

MS. GUERRERO: Thank you, Mr. Boyd.

Good morning, Chairman Dunlap and members of the Board.

The purpose of today's hearing is threefold: first, to conduct a third regulatory review of the low-emission vehicle regulations; second, to present the first mobile source element of the SIP; and, finally, to propose new reactivity adjustment factors.

As Mr. Boyd mentioned, the Board instructed staff to conduct periodic review of the regulations in order to keep pace with the rapid progress of technology development. Staff has conducted four reviews of the regulations thus far.

In June, 1992, and again in May, 1994, staff reviewed the progress of low-emission vehicle technology development. In both instances, the Board found that the program continues to be technologically feasible within the time frames specified in the regulations.

Staff has also conducted two regulatory reviews, the first in November, 1991, to propose the first reactivity adjustment factors, and the second in January, 1993, to propose regulatory amendments. The purpose of today's hearing is to present the third regulatory review.

Today, I will be dividing the discussion into three parts. First, I will briefly discuss the proposed technical amendments to the regulations, then the medium-duty SIP proposal; and, finally, the proposal for new reactivity adjustment factors.

Before I begin staff's presentation, however, I would like to briefly summarize some of the key aspects of the low-emission vehicle program.

The LEV program is the primary element of California's long-term plan for reducing air pollution from light- and medium-duty mobile sources, and is expected to significantly reduce emissions of criteria pollutants.

The program introduced four new categories of emission standards for passenger cars, light-duty trucks, and medium-duty vehicles. The standards are progressively more stringent, beginning with transitional low-emission vehicle, or TLEVs;, followed by low-emission vehicles, or LEVs; ultra-low emission vehicles, or ULEVs; and, finally, zero-emission, or ZEVs.

This chart shows the percent reduction of the low-emission standards compared to the current Tier 1 standard.

In order to provide manufacturers with flexibility in complying with the emission standards, the low-emission vehicle program incorporates a market-based approach to

implementation through the use of a fleet-average requirement coupled with a credit-trading system.

Manufacturers of passenger cars and light-duty trucks are not required to certify specific percentages of vehicles to an emission category; rather, they can certify to any combination of low-emission vehicle categories as long as the overall fleet-average requirement is met.

Additional flexibility is provided through the use of a credit-trading system, whereby a manufacturer that produces more low-emission vehicles than needed to meet the fleet average can generate credits which can be banked, traded, or sold to other manufacturers.

The requirements for medium-duty vehicles are somewhat different because lower production volumes and a multitude of vehicle classes make a fleet-average requirement impractical.

Manufacturers of medium-duty vehicles are required to meet certain percentage phase-in requirements; however, they can accumulate marketable emission credits by exceeding the required percentages. This credit system also affords manufacturers considerable compliance flexibility.

The only instance where certification of light-duty vehicles to a specific category is required is the mandate for zero-emission vehicles. Beginning in 1998, all large volume manufacturers are required to produce and

deliver for sale 2 percent of their California light-duty fleet as ZEVs. This percentage increases to 5 percent in 2001 and to 10 percent in 2003.

Another unique element of the LEV program is accounting for the reactivity of vehicle exhaust. The most important objective of California's mobile source pollution control program is to reduce ozone in the lower atmosphere, where it is a primary ingredient of urban smog.

As you know, ozone is formed as a result of complex photochemical reactions of hydrocarbons with oxides of nitrogen, or NOx, in the atmosphere. The reactivity of each of the hydrocarbons emitted from mobile sources can vary considerably in contributing to the amount of ozone that is created.

In order to account for the varying reactivity of the hydrocarbons in vehicle exhaust, whether it be from reformulated gasoline or other clean alternative fuels, the low-emission vehicle program expands the measurement of exhaust mass emissions and includes a new reactivity component to properly credit fuels and technologies which contribute to lower ozone.

The program establishes a nonmethane organic gas, or NMOG, STANDARD, which, for the first time, counts the full mass of not only nonmethane hydrocarbons, but all oxygenated hydrocarbons, such as formaldehyde or methanol,

contained in vehicle exhaust.

Also included is a mechanism by which the full mass of NMOG emissions are adjusted according to their potential to form ozone in the atmosphere using a reactivity adjustment factor, or RAF.

For example, consider these two vehicles, each of which emits the same mass of exhaust. In this example, however, the red vehicle produces a more reactive exhaust than the green one. Thus, even though each vehicle produces the same mass of NMOG, more ozone is created by the red vehicle than from the green one.

The source of the increased reactivity of the red vehicle could be from the fuel or it could be from the choice of emission control hardware used by the vehicle, because both the type of fuel and type of emissions controls can affect reactivity of the exhaust.

In order to account for the varying reactivities of these vehicle technology and fuel combinations, the concept of reactivity adjustment was developed. That is, in order to limit the amount of ozone created in the atmosphere, a vehicle must minimize both reactivity and mass of the exhaust. I will discuss the RAF concept in more detail later in the presentation.

Today, the LEV program is well underway. For the 1996 model year, all large volume manufacturers have

certified at least one engine family as a gasoline-powered TLEV. This slide shows the models produced by the seven large-volume manufacturers for the 1996 model year.

Staff is also pleased to note that Honda is certifying the first gasoline-powered LEV in 1996, and will also be producing a gasoline-powered ULEV in 1998.

In addition, our preliminary estimates indicate that the costs ascribed to the low-emission vehicles are well within the original estimates. Staff is encouraged by the progress made to date.

Now, I will turn to the regulatory modifications being proposed in today's hearing.

There are many technical modifications being proposed in this rulemaking which pertain to the nuts and bolts of the regulations, which cover a broad range of topics.

Some of the more substantive changes include the removal of the M100 luminosity requirement, which would allow the fuel to be dispensed without a luminosity enhancing additive, revision of the laboratory NMOG emission measurement methods to account for improved measurement techniques, updates to the assembly line and new vehicle test procedures to utilize new on-board diagnostic systems, and the addition of a smog index window label which identifies the relative pollution of a vehicle.

The remainder of the proposed amendments serve to clarify and facilitate implementation of the regulation. A complete list of the proposed technical amendments can be found in Appendix A of the staff report.

As Mr. Boyd mentioned, staff has had extensive interactions with the automobile manufacturers in order to achieve consensus on the proposed modifications. For this reason, staff does not expect extensive comments on them in today's hearing and, therefore, these amendments will not be described further in this presentation. However, staff can address specific issues which may arise during the course of the hearing.

The next portion of the presentation concerns the medium-duty vehicle SIP proposal. In November, 1994, the Board approved its State Implementation Plan, or SIP, to meet the Federal air quality standards by 2010.

The mobile source element of the SIP, which includes the control of light- and medium-duty vehicles, is an integral part of the SIP strategy.

Today, staff will be proposing the first regulatory action relating to the mobile source element of the SIP -- Measure M3, the accelerated introduction of ULEV standards for medium-duty vehicles.

In today's presentation, I will first describe the technological feasibility of staff's proposal, followed by a

discussion of a proposed phase-in requirements and their effect on the SIP. And, finally, I will conclude with a summary of staff's cost analysis.

By way of background, however, I would first like to describe the medium-duty vehicle category.

Medium-duty vehicles are a diverse category of vehicles, ranging from sport utility vehicles, utility vans, small school buses to large motor homes. This category accounts for an appreciable share of the emission inventory, particularly for NOx, even though it comprises less than 6 percent of the total vehicle population.

There are two classes of medium-duty vehicles -- complete vehicles and incomplete vehicles. Chassis certified or complete vehicles are sold fully assembled. This class is divided into five weight categories, ranging from 0 to 14,000 pounds, and comprise approximately 70 percent of the medium-duty population.

An incomplete medium-duty vehicle usually consists of a chassis and/or a cab minus the cargo container. This allows manufacturers to build a variety of vehicle types using only one engine configuration.

Manufacturers usually certify incomplete vehicles using the engine dynamometer test procedure. It is important to note the distinction between complete and incomplete vehicles, because staff's proposal includes the

introduction of separate phase-in requirements for these two classes.

Previously, the phase-in requirements applied to the entire medium-duty vehicle category and did not distinguish between these two classes.

The following is a list of some of the emission control strategies for gasoline vehicles that are expected to be utilized by manufacturers to meet the low-emission standards. Staff expects manufacturers will develop some alternative fuel vehicles; however, since they are generally easier to certify to the low-emission standards than their gasoline counterparts, they will not be discussed at this time.

In order for gasoline-powered medium-duty vehicles to meet the low-emission standards, staff expects that manufacturers will utilize similar engine and emission control systems to those used in passenger car applications with some modifications to account for the increased weight and load capacity of these vehicles.

Some of the strategies that staff expects manufacturers to employ include internal engine improvements, improved fuel control, and the use of more efficient and durable catalyst systems.

Recent developments in palladium-only and trimetal catalysts have improved both the efficiency and

high-temperature durability of catalysts. This is significant because thermal degradation of the catalyst is a major concern for medium-duty vehicles, which can experience high exhaust temperatures under some operating conditions.

There are several other technologies that manufacturers are currently investigating, which could also provide viable alternatives to current emission control strategies.

Unlike the light-duty category, the medium-duty vehicle category also includes a significant number of diesel engines. The greatest challenge for diesels is the simultaneous control of NOx and particulate matter emissions. This is because some of the more effective control strategies for reducing NOx emissions tend to increase PM emissions and vice versa.

Although many emission control strategies are still in the developmental stages, staff has identified some key elements of NOx and PM control. These includes fuel injection and combustion chamber improvements, the use of turbochargers to increase combustion efficiency, retarding ignition timing, fuel injection rate shaping, and exhaust gas recirculation.

It is staff's expectation that manufacturers will be capable of achieving LEV and ULEV emission levels with the above-mentioned gasoline and diesel technologies.

With that background, I would now like to present staff's proposal. Under the SIP approved by the Board in 1994, staff proposed an accelerated phase-in of ULEVs. Due to significant manufacturing alterations that would have been required under the original SIP proposal, however, manufacturers asked staff to consider an alternative proposal designed to achieve essentially the same emission reductions estimated in the original proposal.

This table shows staff's alternative proposal. Essentially, staff is proposing that the phase-in requirements for complete vehicles remain unchanged through the 2000 model year and ramp up to the introduction of 40 percent ULEVs by the 2003 model year.

Staff has also created separate phase-in requirements for incomplete or engine-certified vehicles in order to align with the anticipated Federal heavy-duty low NOx requirements beginning in 2004.

In addition to the amended phase-in requirements, staff is also proposing a number of modifications to the emission standards. The most significant modification is the reduction of LEV NOx levels to ULEV levels beginning in 1998 for complete vehicles.

This reduction helps to achieve the same NOx emission reductions targeted in the original SIP proposal without requiring 100 percent ULEVs in 2002. Other changes

include an extension of the intermediate in-use compliance standards, slightly increasing the CO standards, and the introduction of a new emission category -- "Super Low Emission Vehicle," or "SLEV," which is 50 percent below the ULEV standard.

This new category is not required, but can be used by manufacturers to offset deficits, because it receives extra NMOG credits. It is anticipated that primarily alternative fuel vehicles will utilize this option.

The most significant amendment to the standards for engine dynamometer certified vehicles concerns the proposal by the U.S. EPA. In July, 1995, the U.S. EPA, along with engine manufacturers and the ARB, issued a statement of principles outlining a proposal for a Federal heavy-duty low NOx standard.

Even though the final Federal rule has not been issued, staff is proposing that the Board adopt the two standards set forth in the statement of principles -- one, a 2.4 grams per brake horsepower hour NMHC plus NOx standard; or, two, a 2.5 grams per brake horsepower hour NMHC plus NOx standard with a .5 gram cap on NMHC.

Staff has added language in the regulation that the ARB will consider adoption of the Federal standard within one year after the adoption by the U.S. EPA.

Staff has also made adjustments to the engine

phase-in requirements and the CO and PM standards to provide manufacturers with more compliance flexibility.

As I mentioned earlier, staff was asked by the automobile manufacturers to consider an alternative SIP proposal because of the possible adverse effect of the original proposal on their production plans.

Since our goal was to achieve the emission reductions estimated in the original SIP proposal -- 4 tons per day reactive organic gases and 32 tons per day NOx -- it was necessary to analyze the effect of any alternative proposal on the expected emission reductions.

To do this, staff prepared an inventory model which reflects the unique contribution of medium-duty vehicles to the emission inventory.

However, in the process of preparing the model, staff discovered that several adjustments to the inventory were necessary to accurately characterize the medium-duty fleet. We discovered that the original SIP proposal overestimated the NOx emission reductions that could be achieved from 100 percent ULEVs.

Based on staff's analysis, the actual NOx emission reductions that should have been attributed to the SIP proposal are 23.5 tons per day, while the expected reactive organic gas, or ROG, emission reductions did not change appreciably from the 4 tons per day.

Staff's revised SIP proposal meets the revised NOx emission reductions calculated from the SIP because of the accelerated introduction of ULEV NOx standards in 1998; however, it does fall short of the original 32 tons per day reduction goal. In addition, the revised staff proposal falls slightly short of the original goal for ROG.

However, technological uncertainty precluded staff from proposing a more aggressive phase-in of advanced ROG specific technology at this time.

Staff plans to revisit this proposal in 1998, when additional development and evaluation of new control technologies will be available, and will propose any appropriate revisions at that time.

Staff also prepared a comprehensive cost analysis of the LEV and ULEV requirements of the medium-duty vehicle proposal. Information for this analysis was compiled utilizing industry technical papers, evaluating the status of technology development, and consulting with manufacturers.

A complete description of the cost methodology is contained Appendix F of the staff report. From the analysis, staff estimates that compared to a Tier 1 vehicle, the incremental costs of gasoline LEVs and ULEVs are $169 and $260, respectively.

The incremental cost of diesel LEVs and ULEVs

compared to Tier 1 vehicles is estimated at $348 and $428, respectively.

The cost-effectiveness of gasoline vehicles relative to Tier 1 vehicles is estimated to be less than 50 cents per pound of pollutants reduced.

For diesel vehicles, the cost-effectiveness relative to Tier 1 vehicles is estimated to be less than $1.50 per pound.

Both of these values compare favorably to other motor vehicle control measures.

I would like to conclude this presentation with the staff proposal for new reactivity adjustment factors. As I mentioned earlier, the low-emission vehicle program established a procedure which takes into account the relative reactivity of the exhaust emissions using a reactivity adjustment factor, or RAF.

To calculate the generic reactivity adjustment factor for low-emission vehicles operating on a clean fuel, such as reformulated gasoline or natural gas, the ARB measures the reactivity of the exhaust of low-emission vehicles operating on that clean fuel and divides that value by the reactivity of the exhaust of a comparable low-emission vehicle operating on conventional gasoline.

For example, the generic RAF for LEVs operating on Phone 2 reformulated gasoline is 0.94. This value is

calculated by dividing the specific reactivity of LEVs operating on Phase 2 gasoline, which is 2.94, by 3.13, which is the baseline specific reactivity of LEVs operating on conventional gasoline. Both of these values are determined by the ARB.

As an alternative, manufacturers may develop their own RAFs applicable to a specific engine family if they are able to achieve lower exhaust reactivity than the technology present in the vehicles used by the ARB.

In this example, the engine family specific RAF was 0.88. In order to calculate the engine family specific RAF, one would divide the specific reactivity of that vehicle, 2.75, by the baseline reactivity of 3.13 for a RAF of 0.88.

You can that the denominator of 3.13 is the same value that is used to establish the generic RAF, and will remain unchanged over time.

Compliance with the emission standard is then determined by multiplying the NMOG mass emissions of a vehicle and fuel system by the applicable reactivity adjustment factor. The result must be less than or equal to the applicable NMOG emission standard.

In this example, the NMOG mass of a vehicle operating on LPG is 0.1 grams per mile. Using the proposed LPG RAF of 0.5, the emissions of this vehicle would be 0.05

grams per mile. This result is less than the LEV emission standard, so this vehicle could be certified as an LEV.

Since 1990, the ARB has been testing various vehicle and fuel combinations to establish generic reactivity adjustment factors. To date, the Board has approved baseline specific reactivities -- the denominator of the RAF equation -- of 3.42 for TLEVs and 3.13 for LEVs and ULEVs.

The Board has also approved a RAF of 0.41 for TLEVs operating on M85, a RAF of 0.98 for TLEVs, and .94 for LEVs operating on Phase 2 gasoline.

Today, staff will be proposing a baseline specific reactivity for medium-duty LEVs and ULEVs and the remaining RAFs for Phase 2 gasoline, M85, natural gas, and LPG.

Since 1993, staff has conducted additional testing to establish RAFs for light-duty vehicles operating on CNG and LPG, and to establish baseline specific reactivity for medium-duty vehicles.

Based on the results of our testing, staff is proposing a RAF of .43 for light-duty LEVs and ULEVs operating on CNG, a RAF of .5 for light-duty LEVs and ULEVs operating on LPG, and a baseline specific reactivity of 3.13 for medium-duty vehicles operating on conventional gasoline.

Even though staff has been continuously testing a wide variety of vehicles since 1990 in order to establish

generic RAFs, to date, only a portion of the RAFs have been established.

This is because staff has had difficulty in procuring vehicles equipped with advanced emission control technologies representative of future production low-emission vehicles.

Since the absence of generic RAFs could hinder development of some low-emission vehicles because manufacturers may not be able to identify the emission category to which a vehicle could be certified, manufacturers have requested that interim values be established for the remaining RAF categories.

Adopting interim values would provide manufacturers with sufficient leadtime to incorporate specific low reactivity strategies into their future production vehicles.

Therefore, staff is proposing interim RAFs for the remaining categories shown in blue in the table. These interim values are based on data generated from limited vehicle testing conducted by the ARB, and would be effective through the 2000 model year.

As production low-emission vehicles become available, ARB staff will evaluate whether adjustments to these generic RAFs will be necessary. It is important to note that should the specific reactivities of future

production vehicles exceed the baseline established by the ARB, future RAFs could be adjusted appropriately. This would ensure manufacturers produce vehicles that are low in both exhaust mass and/or reactivity. Vehicles that exhibit high specific reactivities would have to lower their mass emissions accordingly in order to meet the low-emission standards.

That completes the major part of the presentation. I'd now like to talk a little bit the 15-day changes the staff is proposing.

As a result of requests from automobile manufacturers, staff is proposing additional minor modifications to the originally noticed regulatory text. These changes include adding an intermediate in-use standard for SLEVs and incomplete medium-duty vehicles, increasing the 50 degree emission multiplier for LEVs and ULEVs to 2, and modifications to the smog index window label, which I would like to comment on briefly.

Senate Bill 2050 is intended to base vehicle registration fees on the pollution level of a vehicle and its annual miles traveled. The bill directs the ARB to develop a smog index label to identify the pollution level of each new and used vehicle.

Although implementation of the smog index depends on contingencies contained in the bill, the ARB staff

concluded that implementation of the smog index label is good idea regardless of the ultimate fate of SB 2050, since the label would provide consumers with a means of identifying and purchasing the cleanest vehicles.

Accordingly, staff is proposing that the Board adopt a smog index labeling requirement for new vehicles at this time, and has petitioned the Federal Trade Commission to approve a similar labeling program for used vehicles.

A copy of the proposed modifications is available for the public at the table located outside the hearing room.

In conclusion, staff would like to recommend that the Board adopt the proposed regulatory amendments, the medium-duty SIP proposal, the proposed interim reactivity adjustment factors, and the 15-day changes.

This concludes the staff presentation. The staff would be happy to answer any questions the Board might have at this time.

CHAIRMAN DUNLAP: Thank you, Ms. Guerrero, for a fine presentation. Any of my colleagues have any questions of staff?

Mr. Lagarias.

MR. LAGARIAS: Thank you, Ms. Guerrero. I'd like to just ask a few questions about the RAFs. Since the LEVs and the ULEVs are requiring substantially less mass

emissions than our present cars, doesn't the significance of RAFs become much, much less important?

MR. ALBU: I don't think so. What we're looking at is really the ozone per mile that we need to achieve for improved air quality. And that's the product of the mass and the reactivity.

If you lower the mass, for example, oftentimes reactivity will go up if you choose the wrong technology and, therefore, you get no real -- not as much of a gain as you expect.

So, what we're doing is we're simply saying in our programs, as we have in the past, that we're trying to control ozone per mile and that we're trying to maintain the capability that was demonstrated back in 1990 as being feasible.

So, that's the basis for controlling both.

MR. LAGARIAS: Well, you essentially have done nothing about the RAFs; you've just suggested that the numbers we've heard for the TLEVs be continued into the ULEVs and the medium-duty vehicles.

MR. ALBU: Well, the TLEV number is slightly higher than the LEV and ULEV number, the reformulated gasoline, at least.

MR. LAGARIAS: Well, the CNG and LPG essentially would be allowed to have roughly a little more twice the

mass emissions of Phase 2 gasoline?

MR. ALBU: Yes.

MR. LAGARIAS: All right. Does this take into account evaporative losses or other losses other than tailpipe losses?

MR. ALBU: Not at this time. We have not had the capability to measure the evaporative reactivities until just recently. And we can look into this in the future, but at the present time, we didn't have enough information to suggest RAFs for evaporative emissions.

MR. LAGARIAS: If you haven't, I would think that would be one of the earliest and the easiest RAF numbers to obtain.

MR. ALBU: Well, it requires a special test facility. And until just recently, we haven't had that capability to measure emissions on the high temperature evaporative test.

MR. LAGARIAS: Steve, can you give me any idea of the significance of the ozone forming potential of evaporative losses, vis-a-vis the losses from the tailpipe?

MR. ALBU: I'm not sure I can at this time, Mr. Lagarias.

MR. LAGARIAS: Maybe you can't give me a number, but can you give me a feel for it? Is it highly significant, an order of magnitude greater perhaps, or

nothing at all?

Well, it seems to me, what I'm concerned about is we're ratcheting down more and more on the tailpipe emissions and maybe the evaporative emissions and the running losses are much, much higher and we're really trying to get more and more out of one of the small leak areas.

MR. CACKETTE: Mr. Lagarias, I think, in general, the evaporative emissions are less reactive than the exhaust emissions.

And, of course, if you look at this table which lists alternative fuels, there are no evaporative emissions from the two categories, which is CNG and LPG.

MR. LAGARIAS: That's what I've seen. All right. Thank you.

CHAIRMAN DUNLAP: Mr. Calhoun.

MR. CALHOUN: The reactivity adjustment factors were controversial when they were first adopted. They will probably always be controversial. I don't know that.

But I guess my question concerns the reactivity adjustment factors as it pertains to the database on which the interim factors were determined. Is it my understanding that all of the interim factors are based on testing that we did? Did you get any data from industry at all?

MR. ALBU: We did get some data for some limited cases. But, by and large, it was mostly staff generated

data. Industry's somewhat reluctant to provide low-emission vehicles early on for the staff to test, especially gasoline.

In the case of natural gas and LPG, we also had very few vehicles from the auto manufacturers, but we did have vehicles from conversion manufacturers to test.

MR. CALHOUN: Okay. Thank you.

CHAIRMAN DUNLAP: Any other questions of staff?

Supervisor Vagim.

SUPERVISOR VAGIM: Thank you, Mr. Chairman.

Just two quick questions on a semantical issue. The SLEV is lower than the ULEV. Isn't ultra kind of the lowest? Shouldn't we have an SU category versus an S category? I mean, like gigantic is bigger than great?

Just as a suggestion, Mr. Chairman, maybe we ought to call this an SU to keep the public's simplicity versus this -- because you could have confusion with it.

The other issue is the window index, smog index. What is that going to look like and what does it mean to the public when they see it? And is it going to be something simple that everyone understands?

MS. GUERRERO: If you'll look on your 15-day packet, if you look at the very last page, or the second to the last page, at the bottom.

SUPERVISOR VAGIM: Is that page 6?

MS. GUERRERO: Page 6.

SUPERVISOR VAGIM: I have that, the chart on the bottom of the label?

MS. GUERRERO: That's it, yes.

SUPERVISOR VAGIM: Okay. The higher the darker color of the bar, the higher the index, the higher the probability of the --

MS. GUERRERO: The more it pollutes.

SUPERVISOR VAGIM: The more it pollutes. So, is that going to be a super or an ultra?

MS. GUERRERO: It will be able to take care of all of them.

MR. CACKETTE: That's one way of getting around the alphabet soup.

MR. CALHOUN: Is this something required by the Legislature, or is this something we're doing?

MR. CACKETTE: Okay. There was a bill that required us to develop the index and put it on vehicles. That bill, however, had another objective, which was to run this pilot program in San Diego and Ventura, in which people's cars would have this index multiplied by their mileage, and they would ranked.

And those who were in the highest polluting category either drove a whole bunch or they drove a car that was really dirty would be penalized in some way. And they'd

have to get an annual smog check instead of a biennial smog check.

The way the bill was set up is it said, go do this index, but it made that contingent upon these two areas running this pilot program. And the pilot program was at the discretion of the county government.

And one of the counties decided not to go ahead with that pilot program. As a result, the bill that authorized the specific label is -- I guess you'd say it's inactive now. It's no longer operative.

In developing the index, however, and participating in getting ready for this pilot program that now looks like it may not happen, staff became sensitized to the need to and the benefits of letting people know having an informed choice when they buy a new car as to whether it's a clean or less clean category.

We have these categories from conventional all the way down through the LEV Brothers' numbers. And to try to translate that into something that people could quickly look at the label and say this car's got half the pollution of this other new car, that maybe they would make an informed choice that would be good for air quality.

So, we became believers that the label would be a good way of explaining the pollution potential of the car and think that we should have it anyway, notwithstanding the

problems of this piece of legislation.

And our legal counsel advises us that we have the legal authority to require labeling of new cars anyway. So, the purpose of the changes today was to let you know and let the audience know that we wanted to go ahead with this label to try to provide information to new car buyers about the pollution potential of a car, and do it notwithstanding this pilot program that has, as of yet, to gone forward.

MR. CALHOUN: So, this means, then, that every engine family would have a label that shows the specific emission factor.

MR. CACKETTE: Right. It would have this bar on it. And all of the bars -- it would have two features. The reason for putting the 0 to 10 is to let people know that new cars are clean; they're not dirty, like a 1986 car, which of course -- like a '66 car would be a 10 on this scale.

And then, second of all, within the choices you have, cars can range from essentially zero index to 1. And it gives them the ability to see that one car is cleaner than the other. So, they might go in and have two models which have two different engine families in them; one's a hundred horsepower and one's 120 horsepower. Some people will buy the horsepower, some people will buy the MPG, the mileage that's on the label now. And some people, we think,

will choose the car with the lowest smog index, which they don't have that information available to them in an understandable way right now.

But we also want to try to advertise the lower cars, you know, now that LEVs and TLEVs are coming into the fleet, we want to try to put that information out to the public. And this is the way of turning the alphabet soup, as I said that we've got with all these LEV names, into something that people can understand.

MR. CALHOUN: What kind of reaction are you getting from the auto manufacturers regarding this program?

MR. CACKETTE: You'll hear that in a little while.

(Laughter.)

MR. CACKETTE: If you want me to summarize what know, I'll be glad to. I don't mean to be flip, but. . .

CHAIRMAN DUNLAP: Tom, why don't we wait on that till we hear. We have ample representation from industry.

Don't bait the staff, Mr. Calhoun.

(Laughter.)

MR. CALHOUN: I won't anticipate what the testimony is.

CHAIRMAN DUNLAP: Supervisor Vagim, you had another question?

MR. JENNINGS: One point to add on that, particularly in light of Mr. Lagarias' comments, is that the

smog index takes into account both exhaust and evaporative emissions, so it gives the whole picture.

MR. LAGARIAS: But I just heard they don't have a reactivity figure for the evaporative emissions.

MR. CACKETTE: Well, this index is simplified to come off the emission standard that you certify to. So, the reactivity is taken into account in determining which category you're in -- LEV, TLEV, or ULEV, for example. And then, once you've certified to that standard, this index triggers off that standard.

So, every ULEV would be the same -- have the same index if it meets the new evap standards.

MR. LAGARIAS: But my question was, how significant are the emissions based on reactivity of the tailpipe compared to the evaporative emissions?

MR. CACKETTE: Right now, that would not be included. It would go off the mass of the mass standard, which is reactivity adjusted for evaporative emissions; and the tailpipe standard, which is reactivity adjusted.

But the consumer's not going to see that. They're just going to see one number that represents the evap and exhaust.

CHAIRMAN DUNLAP: Since we have the new capacity, as you mentioned, Mr. Albu, you know, to be able to acquire this number, what's the time frame when you'll be able to do

this analysis, where we'll have a more complete picture?

MR. LAGARIAS: That's the reactivity of the evaporative emissions?

CHAIRMAN DUNLAP: Right, the evap.

MR. ALBU: I would think within a couple years, we would have --

CHAIRMAN DUNLAP: Okay.

MR. ALBU: -- a pretty good idea of what the various fuels' characteristics would be like in terms of reactivity.

CHAIRMAN DUNLAP: And this could be factored into the labeling --

MR. ALBU: Sure.

CHAIRMAN DUNLAP: -- at that time?

MR. ALBU: Sure.

CHAIRMAN DUNLAP: All right.

Supervisor Vagim.

SUPERVISOR VAGIM: Thank you. One question. Is this going to be relative to the fuel that they use? If they go fuel up in Reno, will the fuel have a higher index than if they fuel in California?

At no time was RFG involved in this?

MR. CACKETTE: Well, it's based on the fuel that the vehicle will certify to. So, in this case --

SUPERVISOR VAGIM: Anticipating it.

MR. CACKETTE: Right. So, it's a California RFG, which would lead you to meet a LEV standard, and then your index is that number.

SUPERVISOR VAGIM: So, it won't be confusing, then, if someone takes that car out of State and moves out of State that the --

MR. CACKETTE: Well, the purpose of the index is simply a buying guide for new car buyers. We believe it will influence their choice towards cleaner cars when they buy them. Once that's done with, I don't think they'll be--

SUPERVISOR VAGIM: And there hasn't been any Federal -- Federal discussion or standardization, so there is some common denominator if they move out of the State, that the car sold in that State, using another -- or even with California equipment -- using another fuel may have another smog index?

MR. CACKETTE: Well, the value of 1 is -- Tier 1, which is the national standard, there would be technically a difference, because we have cleaner gasoline than those other places. But I think EPA would do it the same way. If they trigger off the standard to what it's certified, that says that car's not supposed to emit more than X-grams per mile, and that has an index of .8. And so, they would be consistent at the point where we have some cars that are like Federal cars.

SUPERVISOR VAGIM: If they use --

MR. CACKETTE: It would not be something that would be an apple and an orange index for cars that are sold in Nevada versus here, for example.

SUPERVISOR VAGIM: But it is fuel dependent in a sense, because you're anticipating RFG to make this window sticker say what it says.

MR. CACKETTE: Yes.

SUPERVISOR VAGIM: Is that correct?

MR. CACKETTE: But the fuel dependency really is just in what standard you meet. And then once you meet that standard, that determines the index. So, to some extent, the index is -- that's taken care of ahead of time. The index just reflects the end result.

SUPERVISOR VAGIM: Its potential to pollute or --

MR. CACKETTE: Right.

SUPERVISOR VAGIM: -- not pollute is really --

MR. CACKETTE: Is a reactivity adjusted number.

SUPERVISOR VAGIM: Right. The other issue is, since we would begin and let the genie out of the bottle on this one, how about the used-car market during biennial inspections? Would there be a factorial that you could hand the consumer and say this is your smog index, or, as it gets higher and higher, it goes up the ladder, and at the end it says "Crush," or something like that?

(Laughter.)

SUPERVISOR VAGIM: But we are beginning a public awareness of a new index for this. Would it be wise, then, to maybe at least offer to the used-car market something -- at least at the point of sale when you're doing smog checks?

MR. CACKETTE: Yes. We've already petitioned the Federal Trade Commission that deals with the buyer's guide for used cars, and we're working to try to get the label put on the used car label, which we don't have the direct regulatory authority.

But we have a parallel effort, because we think -- that's why we put on this one. We showed the whole range of 0 to 10, where new cars are all going to be 1 or less, because we want people to understand that used cars will be higher and make them think about this label when they go to buy a used one.

SUPERVISOR VAGIM: Yeah, and --

MR. CACKETTE: And we'll get that on the car.

SUPERVISOR VAGIM: -- there will be people looking for that.

MR. CACKETTE: Because there, the cars might be labeled 3, 6, 8, for example, depending on their emission standards.

SUPERVISOR VAGIM: Thank you.

CHAIRMAN DUNLAP: Very good. Any other questions

of staff? Okay.

We'll move on to the -- sure, Ms. Edgerton.

MS. EDGERTON: I'd just like to comment that I appreciate this proposal very much, because it's always good when we can do things to encourage people to voluntarily make choices that reduce emissions rather than tell them that they have to do things by regulation.

So, it's quite consistent with our effort to harness people's desires to do the right thing anyway, to have this index.

So, thank you.

CHAIRMAN DUNLAP: Very well. Why don't we move into the witness list. I'll try to call you three at a time. We have the benefit -- and I thank those witness for providing us with written comments. We've had a chance to peruse that. Try not to cover word for word your written comments, please.

Dr. Klimisch, AAMA, followed by Michael Berube from Chrysler, and Al Weverstad from G.

Good morning, Dick.

DR. KLIMISCH: Good morning, Mr. Chairman. Congratulations. Good morning, Board members.

I'm Dick Klimisch from the American Automobile Manufacturers, whose members are Chrysler, Ford, and General Motors. We appreciate the opportunity to testify today.

The first paragraph talks about the incredible improvements that we've already had in air quality and vehicle emissions reductions. We're very proud of that. And you can read that.

These gains have not come without a price. The automobile industry has spent billions of dollars developing clean air solutions, and California is also spending hundreds of millions of dollars every year on clean air projects.

And the source of all this funding, obviously, are the citizens and our customers. CARB and the auto industry share the common responsibility of providing the cleanest air at the lowest prices. Basically, we must exercise fiscal responsibility. And we all, I think, know that none of this is going to work if the consumer doesn't buy in. That's crucial to us, but we believe it's crucial to you and for air quality in California.

It's this fiscal responsibility that brings us here today. We, like you, are genuinely concerned with providing a quality product at a reasonable price and safeguarding the air we breathe.

In the past, we've used these hearings to voice our concern and sometimes our opposition to proposed changes. Today, however, we are pleased to inform you that, through the cooperative effort between the CARB staff and

our industry, America's automobile manufacturers support the majority of the changes proposed.

We believe these changes will help in the implementation of the LEV program, leading to further improvements in California's air quality, while balancing cost. And we are even more pleased by the process that was involved here.

Last year, CARB staff proposed changes to the SIP which, in our opinion, phased in modifications to the MDV standards in a manner that presented some cost and feasibility issues. We testified to this effect, and we agreed that more could be done then to improve medium-duty vehicle emissions relative to current levels, and we committed to work with CARB staff to develop a better alternative.

The road to today's hearing wasn't paved with complete and immediate agreement. It was, however, paved with determination and excellent dialogue between the industry and the staff. Throughout the process, CARB staff and the industry worked closely to find solutions to a very complex problem, which balance feasibility and cost.

As a result, far in advance of today's hearing, consensus between the industry and CARB was reached on most issues -- we're very pleased about that -- including the California assembly line and new vehicle compliance test

procedures.

Just for the record, we would like to note a few remaining issues that we have concern.

Regarding the reactivity adjustment factor, AAMA is concerned about the staff report's inference that it may be appropriate in the future to increase RAFs if the actual emission control systems do not reduce reactivity to the extent forecast by the staff.

Such a change would improperly increase the stringency of the standards, potentially requiring unique vehicle hardware and careful reevaluation of leadtime, feasibility, and cost-effectiveness.

We would also point out that one fuel which may be employed in the near future in California, E85 -- 85 percent ethanol -- is missing from the RAF table because the staff lacked sufficient data. AAMA has now provided the staff with data to fill this void from the auto/oil program, and it suggests an E85 RAF of .69. We ask the Board to add this fuel to the RAF table.

I'm sure you're not surprised -- we still don't endorse the cost estimates that the staff is doing. We believe they're too optimistic.

In stark contrast to the systematic and cooperative dialogue which led to a reasonable resolution of most of the issues included in today's rulemaking, the

staff, in proposing the smog index rule, did so without workshops and without adequate discussion.

AAMA still objects to implementing a smog index label that applies to new vehicles only, rather than to all vehicles as was intended by Senate Bill 2050.

Further, we strongly object to the late change proposed by the staff today, which would remove the statutory triggers, particularly the one requiring two districts to allocate funds to conduct pilot programs utilizing the smog indices and the market-based incentive program.

The labeling program alone for only the newest and cleanest vehicles, without any assurance that it will lead to the piloting of tangible market-based programs, is vastly different and less beneficial than the program outlined in the Senate bill.

And we disagree with the assertion that the Board can rely on general authority in this area, when Senate Bill 2050 specifically conditions that authority.

We have discussed these issues with the staff and believe the staff understands our position. Staff and AAMA have agreed to continue dialogue on these issues. Although we're not able to resolve everything to the satisfaction of all of us, we believe the systematic and cooperative process used for most of today's issues best serves the citizens of

California, your constituents and our customers, and we are pleased to have been part of it.

We hope that this rulemaking process serves as a model for the future.

CHAIRMAN DUNLAP: Thank you. Any questions by the Board?

Yes, Supervisor Silva.

SUPERVISOR SILVA: Yes. Dr. Klimisch, I have a concern. It's along the fiscal responsibility that you mentioned in our letter and your report. I'm concerned with the impact to the consumer. And I know that in California, it seems like we pay more taxes and more fees than other parts of the country for the use of an automobile.

What impact do you see, the most costly scenario of the road that we're headed down?

DR. KLIMISCH: Yeah. I guess I don't have an exact -- exact figures for that. We're certain that the elasticity is going to be about one. But I don't know what the percentage change is going to be in the cost here.

I'd defer to my members companies, or we'll have to get back to you on that. But I don't know what that number is at this point.

SUPERVISOR SILVA: Okay. Thank you.

DR. KLIMISCH: I'm not allowed to talk about it. We haven't reached agreement. Sorry about that.

DR. KLIMISCH: Thank you.

MR. LAGARIAS: Mr. Chairman?

CHAIRMAN DUNLAP: Yes, Mr. Lagarias.

MR. LAGARIAS: You've suggested for E85 a RAF of .69 be considered due to the auto/oil studies. In the auto/oil studies, have the confirmed or challenged the RAF numbers that we have for Phase 2 gasoline and for the other fuels?

DR. KLIMISCH: I don't think so. I think they're fairly consistent.

MR. LAGARIAS: Because that would make the E85 number more attractive.

DR. KLIMISCH: I don't believe so. And if I'm wrong, I'm sure one of my colleagues will tell you that.

MR. LAGARIAS: Thank you.

CHAIRMAN DUNLAP: Ms. Edgerton. Thank you for coming.

It's my understanding that the Senate Bill was not passed on the smog index.

DR. KLIMISCH: Well, I thought 2050 passed. There's another bill that's trying to adjust this -- 920-something. It's trying to get some other counties, as I understand. I thought 2050 was passed.

MS. EDGERTON: Well, let me just check. What's been actually signed into law? Maybe you could clarify

that.

MR. KENNY: SB 2050 was actually signed into law.

MS. EDGERTON: Okay.

MR. KENNY: And SB 2050 did provide for conditions for the specific smog index requirements in that bill to go into effect. We are aware of the fact that those particular conditions have not been satisfied.

So, we would basically propose the smog index could be implemented through the general authority that exists in the Health & Safety Code under 43200. That particular provision provides that there are labeling authorities provided to the Board. And those labeling authorities are specifically directed for consumer information.

So, to that extent, we believe that particular section is applicable and can be relied upon.

MS. EDGERTON: Thank you.

DR. KLIMISCH: There is another bill that hasn't been passed yet.

CHAIRMAN DUNLAP: Okay. Very good. Thank you.

MR. CALHOUN: Mr. Chairman?

CHAIRMAN DUNLAP: Yes, Mr. Calhoun.

MR. CALHOUN: One comment in this regard. The idea of labeling a particular vehicle in order to show its emission level is nothing new. It's been bounced around and

kicked around for a long time. It's certainly has been discussed in the Legislature for at least ten years. And so, I guess they've made some progress in terms of trying to get a bill out. 2050 has, in fact, passed.

But I've always, in the past, the comments I've heard say nothing more than -- there's no value added to it. That's one of the reasons why it was not, I believe, successful in getting through the Legislature.

But maybe Ms. Edgerton's correct. Maybe some people will buy a car based on emission levels. I don't know that.

DR. KLIMISCH: We're not against this consumer information. I guess our real concern is that some of the differences between used cars and new cars, the consumer's really not getting the full story here.

CHAIRMAN DUNLAP: Okay. I appreciate it, Dr. Klimisch, thank you.

Michael Berube, Chrysler; Al Weverstad, GM; followed by Michael Schwarz from Ford.

Good morning.

MR. BERUBE: Good morning. Michael Berube from Chrysler Corporation. Chrysler is a member of the American Automobile Manufacturers Association, and fully supports their comments just presented by Dr. Klimisch.

I'd like to begin my comments by emphasizing that

Chrysler has been before this Board and at workshops a number of times since 1990, talking about the LEV program. We've said in the past that we view the LEV program's as a major technological challenge of controlling emissions, while also maintaining acceptable vehicle performance and cost.

I'd like to tell you today that that position hasn't changed. We view that we really still are at the infancy of implementing the LEV program. And Chrysler still views that program as a significant technological challenge and cost challenge. Our engineers, who I talk with regularly, are pushing the frontier on new technologies, on new vehicle calibrations. These are technologies we simply don't have experience with yet in use out in the field.

Having said all of this, Chrysler does recognize the unique air quality situation here in California. We are working hard and committed in trying to achieve the goals of that LEV program.

We are encouraged with our progress to date, although I should note that we have not certified an LEV gasoline package yet, and ULEVs certainly pose even greater cost challenges and technical challenges.

Ultimately, when we look at what the success will be, I think what we have to look at is what will happen when we have vehicles with 50 and 100,000 miles out on the road,

and have we proved out their in-use emissions, their OBD systems, their enhanced evaporative systems, their cold CO, their 50 degree LEV requirements, and we could go on with the other emission requirements.

I mention all of this, not because I'm coming here today to object to the changes that have been proposed to the Board on the LEV program, but because I want to support the process that was used today and used over the past months to arrive at today.

Chrysler talks a lot about process and focuses on process. I'd like to comment that we support the cooperative process that has led to today's hearing. Through the dialogue that we have had with staff, we certainly have not agreed on all issues, but we've been encouraged by the attempt to achieve emissions control at a minimum cost and customer impact.

And because the LEV program is pushing us to the technological limit and pushing our engineering resources, this cooperative process is absolutely imperative for success. It will be many years now before we know whether we have success, and we must continue this type of process.

We look forward to ongoing dialogue with the Board and with the staff.

I would like to point out one issue in particular where I hope we do have a significant amount of ongoing

dialogue, and that is the issue of RAFs. We've had some discussion about that already today.

Chrysler does not support the staff's report's statement that future RAFs should be increased to a value greater than 1.0 if early LEVs cannot achieve the staff's projection of best case specific reactivity. Such a change would be equivalent to increasing the stringency of all LEV standards and would likely require new vehicle hardware.

To be clear, Chrysler supports the intent of RAF to link vehicle fuel to emission standards -- we support that -- such as what is being with the new CNG and LPG RAfs that are being proposed today.

What we are objecting to is expanding the use of RAFs to push new vehicle hardware. Pushing the frontier -- as I said, we are trying to do at Chrysler -- means trying new approaches and accepting new risks, we are doing that. But piling on more risk by changing RAFs at this time may have the effect of stalling new technology, since there is a limit to the risk that can be taken by any manufacturer.

It's our position that any increase in the stringency of the LEV program and the standards requires significant study of the leadtime, the cost, and the technological feasibility.

We feel that any such increase in stringency would be premature until experience is gained in the field in-use.

I guess I'd also like to make a brief comment on the smog label issue. I spoke earlier about process. I guess it concerns me a little bit about the process of the last minute change on the smog label. This is something that wasn't initially brought up at workshops.

It was something in the initial staff report, although what is proposed today and what was handed in the 15-day notice is different even from discussions we had with staff as of last Friday. We'll certainly go back and take a look at what's being proposed. Although, I guess, the last minute change does concern me, and it's quite in contrast to the other process we've had.

A few, maybe off-the-cuff comments are looking at the label format, some concern over whether that double bar will be confusing to consumers, and whether the wording goes along with it.

It's also worth pointing out that regulations today already require that a vehicle be labeled if it is a low-emission vehicle as defined by the statutes. It has to say, this is a certified to low-emission vehicle.

In addition, the vehicle emission control label required in all cars goes further and say this is a transitional low-emission vehicle. This is a LEV. This is a ULEV.

There are actually a number of different places on

the vehicle that you can find all that information today. Those are only on new vehicles. So, I think we do need to take a look at the intent.

Clearly what's being proposed today is now something different than what was in SB 2050 and needs to be reviewed in an independent light.

CHAIRMAN DUNLAP: Thank you. Ms. Edgerton.

MS. EDGERTON: I wanted to follow up, Mr. Berube, on that certification label.

It's my understanding, though, that's just when people go in to purchase a car. That doesn't stay on there in that window where it says it's a TLEV, does it?

MR. BERUBE: The vehicle emission control information label is permanent on the car.

MS. EDGERTON: Where is that?

MR. BERUBE: But that's under the hood. The other label would be -- the other low-emission vehicle label is the same type of requirement as being proposed for this new smog index label. It would not necessarily be a permanent label on the vehicle.

MS. EDGERTON: The ones that I see when I go to car -- I'm just trying to understand what we're talking about. The ones that I see are, when you go to buy your new car, on the sticker, on the window.

MR. BERUBE: Typically, yeah.

MS. EDGERTON: And then, it's taken off after you buy it so you can look through the window.

MR. BERUBE: Correct. That's the same authority and same statutory section as what's being proposed today by the staff, I believe, under the smog index label.

MS. EDGERTON: But you don't end up with a car that's driving around where anybody -- any family can go to a grocery store and they can see that their next door neighbor has a car that pollutes more than theirs?

MR. BERUBE: Not unless they put the hood and look at it.

MS. EDGERTON: Yeah, right. Thank you.

CHAIRMAN DUNLAP: Okay. Very good. Thank you.

Mr. Weverstad, GM; Michael Schwarz, Ford; and then Tim Carmichael, Coalition for Clean Air.

Sir, did I butcher your name?

MR. WEVERSTAD: No, you did an excellent job.

CHAIRMAN DUNLAP: Thank you. I've been worried.

MR. WEVERSTAD: You did as good a job as my mother would.

CHAIRMAN DUNLAP: Okay.

(Laughter.)

MR. WEVERSTAD: Good morning. My name is Al Weverstad, and I am manager of the vehicle emission activities at General Motors, environment and energy staff.

General Motors has the following comments on the package of regulatory changes to the LEV program being considered by the Board today.

At the outset, we support the comments of the American Automobile Manufacturers Association and the Engine Manufacturers Association, and incorporate them by reference.

The regulatory changes being considered today cover a broad range of areas, as evidenced by the presentation of your staff. Yet, my comments will be brief.

This is because GM, through its trade associations, has worked together with the staff throughout this rulemaking process. This work actually began after the SIP hearing last November when we started developing an alternative to the SIP's medium-duty truck measure. This alternative, which is being proposed by your staff today, will provide equivalent emission benefits to the November SIP, but at much lower cost.

Thus, we urge the Board to adopt the staff proposal in lieu of the November SIP measure.

The brevity of my comments do not reflect on the importance of the regulations being considered here today. These regulations, which affect the nonmandate portions of the LEV program, will cover most of our future production, and will provide the overwhelming portion of the emission

reductions projected in the SIP.

Clearly, a smooth implementation of this portion of the LEV program is critical. That is why a regulatory structure that facilitates a smooth implementation, such as interim in-use standards, is so important. And we support the improvements to the interim in-use standards being proposed by the staff.

Another area that is very important to the LEV program is the reactivity adjustment factors, or RAFs. Because emissions are determined by multiplying the NMOG mass by the RAF, the RAF, thus, is part of the standard.

GM commends the staff for proposing the RAFs for almost all of the different fuel and vehicle categories through the 2000 model year. And we support AAMA's proposed ethanol RAF of .69. This will provide us with the certainty we need in developing systems to meet the future LEV program standards during this timeframe.

However, GM is troubled with several statements in the staff report that infer that the RAFs may be used in the future to increase the stringency of the LEV program. This undermines the certainty manufacturers need.

Moreover, any changes that impact the stringency of the LEV program must go through a full rulemaking process to provide the proper consideration of the feasibility, cost, and benefits of such changes.

Thus, GM recommends that the RAFs proposed by the staff through the 2000 model year be extended through the 2003 model year, and that any changes to RAFs be considered as part of the post-2003 LEV program rulemaking.

In closing, I would like to emphasize again that GM is very encouraged by the process leading up to this hearing. The open dialogue between industry and staff resulted in the vast majority of issues being resolved.

I would now be happy to answer any questions. And I do have a written copy of the comments I've given, and I'll provide to whoever would like it.

CHAIRMAN DUNLAP: The Board Secretary would be fine. Any questions from my colleagues on the Board?

Lynne, Ms. Edgerton?

MR. LAGARIAS: Mr. Weverstad, is your program with the Geo Prizms -- I think it is -- where you plant a tree for everyone that buys them still ongoing?

MR. WEVERSTAD: I believe so. That is through our marketing arm. But, yes, I think that's still on.

MS. EDGERTON: And if I understand that correctly, I mean that's an effort to point out to people that these cars are cleaner, and that GM is doing its best to help clean up the environment?

MR. WEVERSTAD: Yes, it is. It's an effort to show that we're part of the environment, and trying to do

our share.

MS. EDGERTON: And it's involved in -- I've been very impressed with it. It's all involved in environmental education, and the kids go out there and help learn that you all are planting the trees. And they understand the relationship of the trees to the whole atmosphere.

I just want to compliment you on that program. I think providing that kind of connection, information, and incentive is very good.

Thank you.

MR. WEVERSTAD: Thank you.

CHAIRMAN DUNLAP: Any other questions? Very good. Thank you.

Mr. Schwarz from Ford; Tim Carmichael, Coalition for Clean Air; and bill Van Amburg from CALSTART.

MR. SCHWARZ: Good morning.

Congratulations to the Chairman.

CHAIRMAN DUNLAP: Thank you.

MR. SCHWARZ: I'm Mike Schwarz, Executive Engineer with the Ford Motor Company for Vehicle, Environmental, and Energy Planning.

I also chair the industry group at AAMA, the California Liaison Panel.

Ford is a member of AAMA and the Engine Manufacturers Association, and we support the statements

made by those associations.

The AAMA statement that you heard identified several open issues which we believe deserve the Board's careful attention. But I don't want you to lose sight of the major achievement of the staff in ironing out numerous once contentious issues through a thorough technically based process over the last 10 months or so.

This process is a class example of how progressive management, be it government or industry, needs to operate in order to get the optimum out of its human resources. A progressive manager knows that he needs to surround himself or herself with good people, competent, creative problem solvers, and then give these people latitude -- or that nineties' word, "empower" them -- to work with affected parties to derive the optimum solution.

In this case, this classic model was followed by both government and industry. And, as a result, technically justified solutions were determined which achieve emission reductions equivalent to those of the placeholder measures that were placed in the SIP.

I'd like to commend the staff, specifically it's key members -- Annette Guerrero, Steve Albu, Bob Cross -- for their openmindedness and determination. And I really have to single it out. I can't say enough about the leadership role played by Bob Cross. I know you have him on

the hot seat on the EV issue chairing all these forums. But there are numerous times where he two groups were essentially at loggerheads. There just wasn't a way to agree, and things were breaking down.

And he was able to refocus things on the overall objectives and get us back on track. So, my compliments to the staff, and I think it should be a prototype for the future on how we derive regulations.

And I'll be glad to answer questions.

CHAIRMAN DUNLAP: Thank you for your kind words. I think their performance evaluations should be due later today, don't you think?

(Laughter.)

CHAIRMAN DUNLAP: Well said. We appreciate you standing up for the staff.

SUPERVISOR RIORDAN: It's nice to hear that.

CHAIRMAN DUNLAP: No questions. Thank you.

Mr. Carmichael, Mr. Van Amburg, and then Paul Wuebben from the South Coast Air District.

Good morning.

MR. CARMICHAEL: Good morning. Let me begin by saying that the Coalition for Clean Air's pleased to be addressing the Air Resources, and especially the recently confirmed Chairman. As many of you know, we testified in support of Mr. Dunlap's nomination, and we'd like to extend

our congratulations.

Members of the Air Resources Board, the Coalition for Clean Air appreciates the opportunity to be here. Our comments today relate specifically to the medium-duty vehicle revised SIP proposal. The Coalition for Clean Air does not support the proposed changes to the medium-duty vehicle regulations.

The California Air Resources Board is internationally regarded as the preeminent leader in developing and implementing the kind of technology-forcing programs essential to cleaning California's air and critical to meeting the Federal health-based air quality standards.

The proposed changes before you today are not in keeping with CARB's record of implementing technology forcing programs necessary to clean California's air. The Coalition for Clean Air believes that the proposed changes are as bad for California's economy as they are for our environment and, in fact, would take California in the wrong direction.

If California really wants to be the home of new industries, advanced technology, and long-term job opportunities, these proposed changes should be rejected.

There are three major problems with the proposed changes: First, CARB staff identifies a shortfall in NOx emission reductions in excess of 8 tons per day relative to

the reductions included in the State Implementation Plan.

While a shortfall has been identified, the proposed changes before you contain no indication of how California will recoup this loss of emissions reductions. Unfortunately, the infamous "black box" is growing just when it should be shrinking.

Our second, and perhaps greater concern, relates to the proposed relaxation of the particulate matter standard for medium-duty engines. This change would double the particulate matter standard. In light of several recent health studies that show particulate matter to be deadly, the Coalition for Clean Air finds it unconscionable that california would even consider relaxing the particulate standard in any air quality regulation.

While I'm sure that you're aware of these health studies, I would like to mention just a few:

Loma Linda University conducted a 10-year study, which found that women living in areas of high total suspended particulates experienced a 37 percent increased risk of cancer.

In March of this year, Harvard School of Public Health, the American Cancer Society, Harvard Medical School, and Brigham Young University released the results of the largest study ever conducted on the health effects of particulate matter.

The study found that people living in the nation's most polluted cities are up to 17 percent more likely to die prematurely than those living in our cleanest cities.

Earlier this year, California's EPA, Cal-EPA, released the results of its own study, which looked the effects of particulate matter in Riverside and San Bernardino Counties. This study found that microscopic particles of air pollution cause an estimated 275 premature deaths each year.

The growing number of health studies which condemn particulate air pollution make it clear that if the Air Resources Board is to make any change to the particulate emission standard, that change should be to strengthen it, not weaken it.

Our third major concern relates to what appears to be a change in the philosophy behind California's air quality regulations. The Coalition believes that the Air Resources Board must maintain its reputation and continue to implement the kind of technology-forcing regulations necessary to restore clean air to California.

The Coalition supports incentives for industry to use cleaner alternative fuels, as called for in California's SIP proposal, which was submitted to the U.S. EPA last November. Unfortunately, the delays incorporated in the proposed changes before you today, coupled with the

relaxation of the standards for carbon monoxide and particulate matter, are designed to accommodate the prolonged use of gasoline and diesel.

While we are aware that the proposed changes suggest adding a super low emission, SLEV, category, for medium-duty vehicles, it is unlikely that the auto and engine manufacturers will pursue this level if a weakened regulation allows them to achieve medium-duty ultra low emission levels with gasoline or diesel.

The proposed changes are effectively taking away the carrot which has driven technology advancement for the first half of this decade.

In closing, the Coalition for Clean Air strongly urges that you reject the proposed changes for the medium-duty vehicle SIP proposal. At a minimum, the Air Resources Board should delay action on this item until staff has identified specific replacement measures to address the shortfall in NOx emissions reductions.

Because mobile sources now account for a majority of California's air pollution emissions, it is essential that these replacement measures be applied to mobile rather than stationary sources.

Given the serious health implications of California's air quality problems, California cannot afford to delay or relax our air quality regulations.

Thank you very much.

CHAIRMAN DUNLAP: Thank you. Any questions of Mr. Carmichael? Ms. Edgerton.

MS. EDGERTON: Thank you. I want to thank you for coming.

If course, I agree that -- and I'm sure everyone on this Board agrees that -- or at least I would assume that everyone does -- that we do not want the black box to be increasing. Obviously, we're trying to shrink the black box.

My difficulty, Mr. Carmichael, is that the principles of chemistry don't appear to be under this Board's control. And from what I -- I'm not a scientist, but from what I understand of the principles of chemistry with respect to some of these emissions reductions, result in getting some increases -- small increases in particulate matter at the same time that you get enormous decreases in NOx.

My understanding from talking with the staff it that the ratio of NOx reductions to PM10 increases a hundred to one, and that's my understanding.

Given that that's the case, what should the Board do? Should we do nothing and not reduce the NOx, because it might increase a little bit of the PM? Or should we go ahead with the technology we have and reduce the NOx

significantly, and keep working on the smaller PM10?

It's the principles of chemistry that seem to be boxing us in here a little bit, at least that's my understanding.

MR. CARMICHAEL: Okay. I think there's two important points. The first one is related to what technology do we have? Here we are in the middle of 1995, and there is already one -- and we believe several in research and development -- vehicle in the medium-duty that will match the proposal that you submitted last November to the U.S. EPA. They will match the emissions reduction levels, the existing program.

The second point is that the fuel -- the problem fuel in mobile sources is diesel fuel. That is where the majority, if not all, mobile source particulate pollution is coming from.

So, to change a regulation to accommodate the dirtiest fuel that we use in mobile sources makes no sense to us. I mean, if the goal is to truly clean California's air, then we should be moving to stop using that fuel rather than prolonging the use of that fuel.

CHAIRMAN DUNLAP: Mr. Cackette, could I ask you to comment on that characterization?

MR. CACKETTE: Well, first, I'd like to confirm what Ms. Edgerton said. In all of these kind of

technological forcing areas, you have to make some choices. And in looking at this regulation and the technology available, we saw the opportunity for very large reductions in NOx emissions. And those NOx emissions help with ozone in the summertime, but they also reduce ambient particulate, the same ambient pollutant that a testifier commented on have these adverse health effects. And so, this regulation will reduce ambient particulate.

Unfortunately, diesel engines have a tradeoff. When you control NOx, you increase particulate, and the vehicle manufacturers, in controlling NOx, will also have to deal with the fact that the particulate matter's going to go back up, and it's going to have to be brought back down to the existing .1 standard.

In this situation, we just belief that in order to realize the NOx reductions, and the benefit of ozone and particulate of those NOx reductions, that we had to relax this one standard just in this one category of medium-duty trucks back up to where all the other diesels are, which is a .1 standard. And I point out that .1 standard is roughly a 90 percent in particulate matter from uncontrolled engines and engines that meet, vehicles that meet that standard are essentially smoke free.

So, it's not like we're letting this vehicle go back to some, you know, smoke-belching mode of operation

like it may have had in the past.

But it was a trade. We had to make that. We tried to make the one that we thought was best for air quality.

CHAIRMAN DUNLAP: Okay. Thank you. Appreciate your time.

We'll take a moment for our court reporter. I'd ask at this juncture, though, that Mr. Van Amburg come forward. Mr. Wuebben, wait in the wings. And Mr. Hoekman from Chevron, Kent Hoekman from Chevron would be after Mr. Wuebben.

(Thereupon, there was a brief pause in the proceedings to allow the reporter to replenish her paper.)

CHAIRMAN DUNLAP: Good to see you, Bill.

MR. VAN AMBURG: Good to see you, Mr. Chairman. Congratulations. You've heard that enough today.

I'll try and keep this session shorter than your confirmation.

CHAIRMAN DUNLAP: Okay.

MR. VAN AMBURG: I want to first of all just congratulate staff. These are tough choices that have to be made. There are a lot of balancing acts that have to be made.

I actually think the smog index for the windows of

vehicles is an excellent idea. We certainly salute CARB and staff for that idea, and I think it should move forward. Maybe something that would make it easier for consumers is to put something on it where you can compare older vehicles or different classes of vehicles to vehicles you're going to be buying as opposed to just seeing the number there kind of in a vacuum.

So, if that's an adjustment, I would recommend it might be that. It's a great idea.

One thing we just wanted to point out here today, if I can go to the next slide, there are tough choices to be made. CARB staff is doing the best job that it can to try and do that.

But if there are some concerns that we would like to point out, it's that we have a tremendous air pollution problem in this State. We're only dealing right now with half of it what we've identified with pollution control measures. And that includes the entire LEV program, that aggressive program, the 10 percent ZEVs that you have put forward; all of that still only deals with half the pollution we know that's out there.

If we can go to the next slide.

The other half, obviously, everybody talks about this black box. And it's not to make fun of it, but essentially, today we have added another 10 tons per day to

the black box. And the question is, where does that come from down the road? Who will it be applied to? And we would like to suggest and encourage that maybe it does continue to apply to this class of vehicle as new technologies do come along, and as the staff and the CARB Board reassess this over the next couple years.

If I can go to the next slide.

Just another way of visualizing this is the tremendous problem certainly in the South Coast, our primary problem. The first column is where we were in 1990. The second column, almost as high, is where we'll be in 2010 with all of the programs we've enacted.

The third column is where we need too be to meet the health-based air standards. We've got a long ways to go. Ten tons a day may not seem like a lot, but we've continued to add to what we're not solving at this moment.

I just want to go through a couple very quickly things that you have done with technology forcing and these tough, aggressive standards. You have mangled my slide, first of all.

(Laughter.)

MR. VAN AMBURG: What I wanted to point out was a new industry that seems to be slightly skewed there.

CHAIRMAN DUNLAP: This was the key slide.

MR. VAN AMBURG: This was the key slide. We can't

go on.

And industry that has frankly grown tremendously, spurred in great part by the tough, aggressive standards that have been set by CARB, an industry that's more than tripled in size in the last three years.

And if I can show the next slide, an industry that is dealing with a number of different areas across the board of where the emissions control from the mobile sector will come from -- not just from electrics, not just from natural gas, a technology that's really coming into the fore right now, but also hybrid electrics, which I don't think anybody on the CARB staff thought would move as far along as it has. And it has been driven again by your technology forcing.

Next slide, please.

Heavy-duty NGVs and also medium-duty NGVs are proving out to be very clean. It also happens to be a very economic niche, and it's a niche that's also being forced by energy policy act requirements in some way for fleet operators. That's something that should be considered, because the technology in this area is substantially improving and moving along.

If I can have the next slide.

Also, some of the concerns about natural gas vehicles for many people is in infrastructure. But those are being answered as well. We're working on a number of

technology projects to lower the cost of compressed natural gas refueling. And there are a number of innovative approaches, such as mobile tank trailers that can be taken out, precompressed gas to lower the cost and get multiple sites out more quickly.

There are also an awful lot of heavy and medium-duty electric and hybrid electric vehicles. This bus just rolled out. It's going to be operating in Santa Barbara. We rolled it out two weeks ago. And at the end of last week, the same bus, number two in the series, rolled out at Yosemite National Park, where they now have a 35-foot all-electric bus, two of them operating.

In compressed natural gas and electric hybrids, now, these are vehicles -- the one on the left is operating now. There's three of them. It meets a one-gram per brake horsepower hour standard right now for its NOx emissions. And that is not as clean as we expect them to go very quickly, because we'll be putting turbo alternators aboard that bus. It should be substantially below that.

These technologies are not pie in the sky; they're coming along. Now, this may be pie in the sky -- as a commuter in L.A., I actually would like one of these.

(Laughter at picture of tank.)

But one of the reasons that we're seeing so much development in hybrids is because the military is so

interested. They're pushing obviously heavier duty than probably we need for commute cars, but the same technology base is helping rapidly improve hybrids that we're going to be seeing in heavy-duty and medium-duty areas, especially in the on-board systems providing power.

And there are also medium-duty vehicles like this step van. There are several companies building these -- what I call Fed Ex size delivery vans -- that are pure electric and can be hybrid electric, very clean vehicles that can be used in the medium-duty segment and lower the overall fleet average.

So, I just wanted to leave you with the thought that, while you're dealing with some very tough things that you have to weigh and fully understandable, don't forget that you have seen a lot of things happen that maybe you didn't think would be happening.

This is just a very short list of what has happened because of the LEV program over the past five years. I think we probably can do better, and I would encourage you to find a way to take that 10 tons and still keep it within the medium-duty vehicle area, and simply try and find a way to encourage other cleaner fuels within that arena to make up the difference.

Thank you.

CHAIRMAN DUNLAP: Any questions of Mr. Van Amburg?

Very well. Thank you for a fine presentation.

Mr. Wuebben, Mr. Hoeman, and Melissa Sherlock from Unocal. Good morning.

MR. WUEBBEN: Good morning, Mr. Wuebben. And I'm very happy to join that chorus of congratulation, being the first one I think to hire you into the field of air pollution about 10 or 12 years ago.

But, congratulations; great achievement.

I'm here this morning, of course, representing the South Coast Air Quality Management District. And we'd like to refer to basically three issues in today's rulemaking -- the reactivity adjustment factors, the medium-duty standards, and the methanol luminosity.

In general, we're very impressed with the degree of technical proficiency that your staff has applied to a wide range of complex issues. I really want to genuinely compliment them in that effort.

We're also, as I mentioned in my written comments, very supportive of the reasonable and appropriate amendments to the reactivity adjustment factors. We're also in support of the proposal by the American Automobile Manufacturers Association to extend to the year 2003 the application of those reactivity adjustment factors. I think that that provides both regulatory flexibility and fuel flexibility in the case of providing alternative fuel diversity.

Another important area that I think has been very useful for your staff to identify has been the possibility that these baseline reactivity factors that are used to specify, of course, the ozone per mile of your baseline Phase 2 gasoline, that those may in fact end up in use being higher than what was originally anticipated, and that we think that it is wise, as suggested by the staff, to continue to obtain more in-use data on that issue.

And we think that that's obviously going to be important as we move forward in these higher technology vehicles.

We also think that it might be relevant to consider, in terms of flexibility, to provide auto manufacturers some limited flexibility to actually substitute their own baseline reactivity factors if they do a very high degree of rigorous testing of individual engine families. And we think that that concept might have some relevance to provide yet even more flexibility for introduction of some of these lower emitting alternative fuels.

Another point just to reference that, you might note that in the data in the staff report, I think six of the eight light-duty vehicles were actually above the 3.13 baseline RAF once they were measured in use. So, there does seem to be some preliminary data that suggests that some

adjustment might be appropriate. And we would suggest that kind of flexibility if you want to consider that.

Another area, of course, has to do with the medium-duty vehicles. And, as you well know, the light-duty Chrysler ULEV was the first ULEV -- in fact, I believe still today the only ultra low emission vehicle as a natural gas vehicle.

We're concerned that you not go beyond the leniency that you're proposing for in-use NOx standards and limit that to no more than say the three years that are reflected in the staff report.

Probably the most important area in the medium-duty is the particulate issue. And I think to address Ms. Edgerton's point, that when she notes that there is principles of chemistry involved, I think what's important, Lynne, there is that these are principles of diesel chemistry that are involved.

If you talk about principles of alternative fuels chemistry, there's no question that if you look at the natural gas certification results, goodness, those are well below 2 grams, 1.4, 1.5 grams referencing even 1 gram NOx levels and, at the same time, levels of particulate that are .02, far below -- 80 percent lower than this tenth of a gram level.

And why is that significant? Your own Cal-EPA, as

you know, has issued a report that has what I believe is the single-most profound data point in air pollution that has been found this decade; namely, that in San Bernardino and Riverside Counties -- just in those two counties in Southern California -- 275 people can be attributed to having died because of their exposure to particulate.

The equivalent of an Oklahoma City bombing each year should not be a satisfactory status quo, and that's why we would suggest that that proposal to maintain a tenth of a gram forever be seriously reevaluated. And that's why we would suggest that perhaps in another year, 12 months, you request the staff to bring back some additional options for lowering that standard.

Because we're convinced that the growth of technology, particularly in alternative fuels, they're certifying engines faster than the manufacturers ever imagined.

Hercules, Caterpillar, Cummins, Detroit Diesel, they've even given us, as a district, emission reduction credit authority based on certifying to these lower standards.

So, proposing -- I think it's just really important in this instance to have this revisited within a fairly short period, because your actions can and are effectuating real alternative fuel engine development. And

to keep that momentum forward, I think a reassessment would be appropriate.

One last point. Perhaps it might be a misnomer to call a tenth of a gram diesel truck an ultra low emission vehicle. So, I just caution that, when we start using these phrases, let's not forget, you know, what the entire picture is.

Lastly, just real quickly, you might remember about a year ago, I stood before you and urged some additional flexibility for luminosity requirements, because of concerns about operation of M100 buses and even fuel cells, and we're trying to permit some fuel cell related M100s. We have a fuel cell bus, for example, that would fall subject to that rule.

And so, we're are very much supportive of the prudent recommendation to eliminate that luminosity requirement.

So, with that, I appreciate this opportunity and, obviously, I'm happy to answer any questions.

CHAIRMAN DUNLAP: Mr. Lagarias.

MR. LAGARIAS: Mr. Wuebben, a little concerned about your analysis of the health effects and comparing them to the Oklahoma bombing. I don't think we talk about particulates knocking 275 people off the streets. We're really talking about maybe shortening the lives of some

people rather than -- and not give the impression that they're just absolutely killed by these things.

MR. WUEBBEN: Well, I didn't mean to overstate the comparison, Mr. Lagarias. And I certainly didn't mean any disrespect. All I was pointing out is that it's a very large number, and I don't believe that in mortality statistics we've ever seen anywhere near that level of mortality impact associated with air pollution.

And at least from the experts I've talked to, that number was quite a surprise, given the magnitude, you know, of the population size.

MR. LAGARIAS: Well, don't forget this mortality is not a documented figure, but an estimated projection based on population and other figures.

We're concerned. We're aware there are health effects, but how they're presented is also of concern to us as well.

MR. WUEBBEN: Sure.

MR. LAGARIAS: Thank you.

CHAIRMAN DUNLAP: Good point. Any other questions? Yes, Mr. Calhoun.

MR. CALHOUN: Mr. Wuebben, you mentioned something to the effect that manufacturers should be allowed to determine their own RAFs or something of that nature?

MR. WUEBBEN: Well, I know at least from some of

the written correspondence of the auto manufacturers, that there was some recommendation at least that be considered; that if there was a very rigorous amount of testing, and you had a very solid base for an individual engine family, that there be some flexibility to develop their own baseline reactivity.

MR. CALHOUN: I think that's already allowed in the regulation.

MR. WUEBBEN: Not the baseline. I think that the 3.13 is a fixed value, and that's basically --

MR. CALHOUN: That's what the baseline --

MR. WUEBBEN: -- generic. To my knowledge -- I think the staff could correct me, but my understanding is that right now they don't have that flexibility.

MR. ALBU: I think there may be some confusion on the part of Mr. Wuebben. We used the baseline specific reactivity as a fixed value for time. And vehicle manufacturers can indeed demonstrate with their line of vehicles that, if they do have lower specific reactivity than our baseline, they could get credit for that on an individual family basis.

So, yes, they have that capability already.

MR. WUEBBEN: so, the 3.13 can be adjusted; is that what you're saying?

MR. ALBU: There's no reason to adjust it.

MR. WUEBBEN: Oh.

MR. ALBU: It's a fixed guide, and that's the baseline by which you determine the value. You have to have that present to make the individual engine family specific value in the first place; otherwise, you couldn't do it.

MR. WUEBBEN: Well, I guess what I was understanding was that there's baseline gasoline RAF specific reactivity, and then there's also reactivity adjustment factors, which were applied to the alternative fuels.

MR. ALBU: I don't think you're understanding is quite correct. We can discuss it later.

MR. WUEBBEN: Well, I thought I had read that recommendation. But I'll accept that.

MR. CALHOUN: That's fine.

CHAIRMAN DUNLAP: Very good. Thank you.

MR. WUEBBEN: Thank you.

CHAIRMAN DUNLAP: Ken Hoekman, Chevron; Melissa Sherlock, Unocal; Glenn Keller, Engine Manufacturers Association.

If I May, sir, and for those that follow you, in the interest of time, so that we're redundant, if there's any new perspectives you could share, I'd appreciate it if you'd focus in that area.

Thank you.

MR. HOEKMAN: Good morning, Mr. Chairman and other Board members. My name is Ken Hoekman. I work for Chevron Research and Technology Company, and I'm here today representing WSPA.

WSPA appreciates the opportunity to comment on CARB's proposed amendments to low-emission vehicle regulations dated August 11, 1995, and on the supporting air modeling report dated June 22, 1995.

WSPA has long maintained that CARB's approach for calculating and applying reactivity adjustment factors is flawed, and could have a detrimental effect on air quality. The principal flaw is in the notion that any single reactivity scale can be applied uniformly under all urban atmospheric conditions.

It is true that different NMOG species contribute to urban ozone formation to different extents. In this sense, it can be said that NMOG species differ in their reactivities.

However, applying a single fixed reactivity scale, such as the MIR scale, neglects important influences of atmospheric conditions in determining the actual reactivity of a particular species in a real urban situation.

Stated simply, the reactivity of any NMOG species is not a constant, but is a complex variable which depends upon many other factors.

The use of a single reactivity scale can produce RAFs which exacerbate urban ozone under certain atmospheric conditions. This possibility was demonstrated by CARB's own air modeling work conducting in support of the proposed RAFs for CNG and LPG fueled LEVs.

In this work, exhaust emissions from the alternative fuel vehicles were adjusted upward in accordance with the proposed RAFs, and the resulting ozone impacts were assessed. If these RAFs were correct, the increased emissions from the alternative fuel vehicles should lead to the same ozone impacts as lower emissions from conventional fuel vehicles.

An expression used to compare these ozone impacts is the so-called "null test result," which is shown in Figure 1.

And I'd like to explain what this Figure 1 illustrates. The mathematical formula which you see there expressing the null test result has a number of terms all called ozone "sub" something. Those ozone values are all model predicted ozone levels.

The ozone/afv refers to the ozone that is predicted by modeling when all vehicles are assumed to be using an alternative fuel vehicle.

The ozone/rfa is the ozone predicted in the same modeling episode when all off the vehicles are assumed to be

using baseline gasoline, which is called RFA gasoline.

And the ozone/null represents the ozone which would be predicted in the same modeling scenario, where all of the emissions from light-duty vehicles are set to zero.

So, in other words, the numerator in that expression represents ozone contributed by vehicles operating on a particular alternative fuel vehicle.

The denominator represents ozone contributed by vehicles operating on baseline gasoline.

As can be seen from this expression, if the RAF adjusted alternative fuel case and the conventional gasoline case produced equivalent ozone impacts, the null test result would be 1. You would have the same value in the numerator and denominator.

Null tests results greater than 1 indicate that alternative fuel vehicles lead to more ozone than the conventional vehicle case, while results less than 1 indicate less ozone from the alternative fuel vehicles.

Various ozone metrics can be used when computing null test results. Since both Federal and California ozone standards are based on peak ozone, WSPA maintains that the most appropriate metric is basinwide peak ozone.

The CARB technical support document for reactivity regulations dated September 27, 1991, also states that a peak ozone metric must be considered when assessing air

modeling results.

Figure 2 depicts the peak ozone null test results from modeling of CNG, LPG, and RFG vehicle cases. These results are taken directly from the CARB air modeling report of June 22, 1995.

In this figure, you see that each fuel has three separate modeling scenarios which were used. Scenarios 1 and 2 are both episodes from the 1987 from the 1987 SCAQS program, the Southern California Air Quality Study.

Scenario 3 is an older episode from 1982. Also, with each episode, you'll notice there were two different emission inventories applied. So, this provides six points of comparison for each fuel, comparing that fuel with baseline gasoline.

This figure clearly illustrates that application of the proposed RAFs for both CNG and LPG fueled LEVs would be expected to increase peak ozone in the South Coast Air Basin when compared with either RFG or conventional gasoline LEVs.

You can see that, because the null test results re substantially higher than one in those cases.

To achieve equivalent ozone impacts, these modeling results indicate that both CNG and LPG RAFs need to be adjusted upward.

In summary, WSPA believes that CARB's applicatifon

of reactivity concepts is flawed and can lead to worsening of air quality in some cases. The modeling work in support of the LEV RAFs strongly suggests that peak ozone will increase if the proposed RAFs for CNG and LPG fueled LEVs are implemented, thereby making attainment of the Federal and State ozone standards more difficult.

To avoid this problem, WSPA urges CARB to increase the proposed RAFs for these alternative fuel vehicles, and then repeat the air modeling work to determine if further adjustments are necessary.

That concludes my prepared comments. With the Chair's permission, I would like to elaborate on two other points to address the expected response from CARB staff.

MR. LAGARIAS: Dr. Hoekman, before you do that -- and I would want to hear from the staff -- would you explain to me again what you man by the ozone null level?

MR. HOEKMAN: Yes. Perhaps we should put that Figure 1 back up.

MR. LAGARIAS: Just explain the zero emission vehicle case.

MR. HOEKMAN: The null case refers to a modeling situation in which emissions from all light-duty vehicles are set to be zero. In other words, it represents the ozone that would be produced in the absence of light-duty vehicles.

MR. LAGARIAS: It's a background level; is that what you're talking about? Background ozone level?

MR. HOEKMAN: Yes, I think you could call it background, meaning it's ozone produced from all other sources than light-duty vehicles.

MR. LAGARIAS: That's a fascinating concept, and I'd like to think about it.

But I hope the staff has had a chance to mull it over and can respond to this approach.

MR. HOEKMAN: Mr. Lagarias, this approach of the null test is something that has been used in the past. We are not objecting to that approach.

MR. LAGARIAS: Well, I know that. I'm just -- I'd like the staff to react to your proposal. Because, as I understand it, you're suggesting that the CNG and the natural gas have its reactivity numbers raised because of the presence of the null, the background level?

MR. HOEKMAN: That's exactly right.

MR. LAGARIAS: And that applies equally to reformulated gasoline?

MR. HOEKMAN: Well, you'll notice that the null test results for the reformulated gasoline were very close to 1 for peak ozone, So, we are suggesting that no adjustment is necessary for the reformulated gasoline.

MR. LAGARIAS: Tom?

MR. CACKETTE: Bart Croes will respond to that.

MR. CROES: Mr. Lagarias, I'm Mark Croes of the Board's Research Division, and I've been responsible for guiding the development of the RAF approach for the last five years. It's a complex subject, so I have three overheads I'd like to show you.

First, we think that the RAFs have a sound scientific basis. The RAFs are not designed to be applicable to all atmospheric conditions, but rather to those where hydrocarbon control is important.

The null test is a check of this concept. The Advisory Board for Air Quality and Fuels established by Assembly Bill 234 recommended that all fuels be treated on a level playing field through the use of air quality based performance standards. In November, '91, the Board implemented these recommendations with the adoption of RAFs to account for differences in ozone formation potential among fuels and vehicle technologies.

The National Academy of Sciences in their report, "Rethinking the Ozone Problem - Urban and Regional Air Pollution," has endorsed the Board's RAF approach as a valid way to treat fuels equally.

Research on RAFs sponsored by the Board, the Auto/Oil Air Quality Improvement Program, and the Department of Energy, has passed several tests of scientific peer

review. Seven articles favoring ARB's approach on the development, application, evaluation, and certainty analysis of the RAF concept have been published to date.

Next slide, please.

The null test is a check of the level playing field among different fuels over a wide range of atmospheric emissions.

The RAF test in question by WSPA follows a protocol first suggested by the Reactivity Advisory Panel in 1991. This was an ad hoc group of the public, auto manufacturers, and fuel suppliers, including WSPA members.

The protocol was established at the November, '91 Board hearing and employed again at the January, '93 Board hearing.

The protocol requires us to examine results from peak ozone as well as a measure that takes into account all hours that people are exposed to ozone levels above the State standard.

Our documents, including the one quoted in WSPA's recent letter to the Board, are quite clear on this point. Both of these measures of ozone are important. An air basin's attainment status is based on peak ozone levels. The low-emission vehicle regulations area designed to reduce exposure to unhealthy levels of ozone everywhere.

However, just as in every other ozone control

program we have, ozone will go down in some areas more than others. This depends on where the emission reductions occur and which way the wind is blowing on a particular day.

Because of this fact, we use a measure that takes into account all instances of ozone levels above the standard that impact where people live.

Can I have the next slide, please?

This table fills in the measure of ozone exposure ignored by WSPA in their recent letter. A null test result of 1.00 implies a level playing field. A value of 1.10 means that the RAF for a particular fuel should be adjusted upwards by 10 percent to ensure a level playing field.

The average results for the two measures of ozone shown on the second line from the bottom are quite different for CNG and LPG fueled vehicles. This is due to the peak ozone results shown in shading. These ozone peaks located over Mt. Baldy in the modeling domain are less sensitive to hydrocarbon emissions than much of the urban area. So, the null test results are the ratios of two small numbers resulting in a statistical noise.

The peak ozone results for the September, 1982 episodes are more statistically robust, because of the higher response to hydrocarbon emissions from LEV vehicles. These results fall more in line with the exposure results.

By placing less weight on the peak ozone for the

two episodes with greater statistical noise, we have recommended no increase in the RAF for CNG rather than the 2 percent shown in bold on the bottom line of the table.

Using the same logic, we recommended a 10 percent increase in the RAF for LPG. These interpretations of the null test results are consistent with those employed at the 1991-1993 Board hearings for RFG and M85, and are protective of air quality over the entire basin.

In summation, we feel the RAFs have a firm scientific basis, are derived using the same protocol adopted in two earlier regulatory hearings, place less weight on statistically weak data, and are protective of the entire population exposed to unhealthy levels of ozone.

Thank you.

MR. LAGARIAS: Dr. Hoekman, continue, please.

MR. HOEKMAN: Thank you.

I would like to respond to two particular points. The first one has to do with deciding what is the relevant metric for deciding when the null test result is valid. As Mr. Croes has stated -- and I will read the wording exactly from the CARB document -- he has stated that both peak levels and ozone exposure need to be considered. And that is true.

As it's stated in the CARB technical support document of September 27, 1991, the airshed model

evaluations will demonstrate a successful reactivity scale if two fuel vehicle combinations result in equal one-hour basin peak concentrations and equal ozone exposure. Both of those measures are mentioned.

On the preceding page is stated another truth that a RAF determined so that two vehicles have equal impact on peak ozone, in general, will be different from a RAF derived so that the vehicles have equal impacts on integrated ozone.

What that is saying is we have two standards, two metrics to be considering. Those two metrics will be different, depending upon atmospheric conditions and many other things.

It is the contention of WSPA that the most relevant metric is peak ozone, since that it what the national ambient air quality standards and the California air quality standards are based upon.

Our position would be that we should consider integrated ozone or exposure levels; that's important, also. But we need to give at least equal weighting, if not more, to speak levels, since that is what the standard is based upon.

The second point I'd like to respond to is the idea that the peak levels should not be given the adequate weighting, because we're comparing two small numbers. I would like to show Figure 1 again, please. Refer to Figure

1.

The small numbers that we are talking about or the deltas, the small deltas -- the small deltas to which we're referring are the numerator and denominator in the null test result. What we're saying is that the difference in ozone on a peak basis, the difference in ozone is quite small whether or not vehicles are included. That is true. It may be surprising, but that is true.

Support for that is also provided in modeling results from the Auto/Oil Air Quality Improvement Research Program, which conducted simulations for Los Angeles situations in the year 2010.

The conclusion from those modeling results indicated that the contribution of light-duty vehicle emissions to peak ozone is less than 10 percent. So, we are talking here about small numbers, because that's the reality. We cannot simply throw them out and say they're not important. They're small because they're small. That does not invalidate them.

To add further perspective to that, you might say, if we're only talking about a 10 percent in peak ozone, whether or not there are vehicles, then you would certainly expect even a smaller change in comparing one fuel to another fuel. And that is true, too.

So, what would be the harm, you might say, in

allowing a RAF, which is slightly incorrect, allowing a slight increase in peak ozone? It will only be 1 or 2 percent increase in peak ozone.

Well, again, let me refer you to the auto/oil program, in which a number of reformulated gasolines were compared and ozone modeling was conducting to assess the impacts from changing from one fuel to another.

The two fuels of greatest interest would be comparing fuel RFA with a severely reformulated gasoline, Fuel C in the auto/oil nomenclature.

Fuel C comes pretty close to Phase 2 gasoline. The difference in peak ozone that was concluded from the modeling between all vehicles using RFA, baseline gasoline, and all vehicles using Fuel C was less than 3 percent.

My point is that small numbers are important numbers, important enough to force introduction of Phase 2 gasoline. And we ought not to neglect them because they're small.

MR. LAGARIAS: Thank you.

CHAIRMAN DUNLAP: Thank you. Mr. Lagarias?

MR. LAGARIAS: Well, I have to admit it's an interesting new concept to me, and I think peak conditions are more significant because of the regulatory requirements. But I wonder about -- since I'm not well versed with this, the ozone null level is a background level, won't some of

that be a contribution of automotive emissions the day before, or two days previously, or some accumulation in the null value?

MR. HOEKMAN: In these modeling episodes, the light-duty automobiles are removed entirely from the modeling scenario over the multiple days in which it is run.

So, we truly are looking at a case with no vehicles compared to a case with vehicles.

MR. LAGARIAS: Well, I guess this isn't smoke and mirrors, but it is a little dim at the present time. Thank you.

MR. CALHOUN: It seems to me that the key issue here is which is the most appropriate way of determining the null test, whether it ought to be based on the peak ozone or the population-weighted base.

And that's kind of controversial. I'm not sure we're going to adopt that today and what Jack was zeroing in on.

CHAIRMAN DUNLAP: Ms. Edgerton.

MS. EDGERTON: Is your peak the 24 hour or the eight hour?

MR. HOEKMAN: It's a one-hour maximum.

MS. EDGERTON: One-hour maximum. Where did you say your data comes from about the 10 percent contribution of LEVs to peak ozone?

MR. HOEKMAN: I can cite two things: one in this very set of information from ARB, looking at what the peak ozone is with or without the motor vehicles included, the difference is approximately 10 percent in the 1987 inventory. Notice there were two emission inventories. It is larger. It is 20, maybe 25 percent in 2010 inventory.

The other source is from the auto/oil program.

MS. EDGERTON: Thank you. Which inventory do you think is more appropriate, or do you think 2010 is more appropriate to use?

MR. CROES: We like to look at both inventories just because it gives a range of conditions.

I'd like to clarify this 10 percent impact. It's the impact of the hydrocarbons only on ozone peak. It doesn't include the impact for the CO and NOx, which also affect ozone.

Plus, it's just the impact of the exhaust, not the impact of the evaporative emissions from the vehicle or the running losses.

And for the 2010 case, it's well into the future when the car emissions are at very, very low levels. So, it's the impact of a small part of the emissions from those vehicles on ozone, and there are different hypothetical situations.

For one of the episodes, the '82, the ozone

impacts are much higher.

MS. EDGERTON: Thank you. Would you like to make a response to the argument that the reliance on the peak ozone standard versus -- I mean emissions versus the overall ozone concentrations and its apparent inconsistency?

MR. CROES: Well, we feel -- and this is supported by the reactivity advisory group and health effects expert, and she's looked at several measures of ozone because of the impact of the regulation affects the entire basin and affects entire populations.

We didn't feel that we should look only at one hour over Mt. Baldy; that you should look at all hours over the entire basin. And we place less weight on the peak ozone results because we feel, because we're dividing a small number by another small number, that you have a lot of statistical noise. And so, it's not that we feel peak ozone is not important; we just feel that the number is not necessarily statistically valid.

CHAIRMAN DUNLAP: Anything else?

MS. EDGERTON: I just want to see if I understand it. So, you think that the peak ozone, the one-hour ozone concentration is less valid statistically than the other -- than the ozone concentration, general concentration?

MR. CROES: Well, what happens in some of the modeling cases is that the peak ozone isn't very responsive

to the hydrocarbon emissions, and only looking at the effect of hydrocarbon emissions and not NOx and CO. So, because of that small impact, the numbers become less reliable.

Hydrocarbon control from the LEV program has its greatest benefit in the basin in the areas where people live. We feel it's important to look at that aspect of the problem.

MS. EDGERTON: So, if I understand you, the reactivity factor, a RAF, that did not take into account the overall ozone concentration would not be a reasonable one, because it would not reflect the ozone producing properties of that fuel.

MR. CROES: Yeah. It looks at the overall effect of the fuel -- of one fuel versus the overall effect of another fuel.

MS. EDGERTON: So, you think it would be irrational to have something that excluded all except --

MR. CROES: Yes, that was the advice involved in this entire --

MS. EDGERTON: So, all the experts, all that advisory board. I just wanted to understand that. Thank you very much.

CHAIRMAN DUNLAP: Okay. Very good. Thank you for your time. We appreciate it.

Melissa Sherlock, Glenn Keller, Dale McKinnon, and

our concluding Greg Vlasek.

Good afternoon.

MS. SHERLOCK: Good afternoon.

Good afternoon, Chairman Dunlap and Board members.

My name is Melissa Sherlock, and I'm a fuels planning engineer for 76 Products Company, which is an operating group of Unocal, which you're probably more familiar with.

And I'm here today to comment just briefly on the proposed amendments to the low-emission vehicle regulation. Specifically, my comments will address reactivity adjustment factors, the revised SIP proposal for medium-duty vehicles, and the proposed amendment to the specification for M100 methanol.

First, on the reactivity factors, I just want to say that Unocal is a member of the Western States Petroleum Association, or WSPA, and we adamantly support all the comments that were made earlier by Kent Hoekman, or just previous to me. I have some more information there, but it's just duplicating what Kent already discussion, and so I'll just pass it by, and just let you know that we adamantly support everything he said.

With regard to the revised SIP proposal for medium-duty vehicles, we support the proposed changes to the mobile source control measures for medium-duty vehicles and

the related regulatory to the low-emission vehicle regulation.

We think these changes will provide vehicle manufacturers with greater flexibility in complying with the regulatory requirements, and we think that this flexibility will allow them to look at a number of different vehicle technologies to meet the emission standards rather than to restrict them to just a few technologies that are likely still in the prototype stages of development.

In addition, we think that the concepts that are illustrated in this proposal can be applied to the light-duty side of the regulation and add flexibility in achieving the emission reductions attributable to the zero-emission vehicle program.

We think similar revisions to the light-duty vehicle category can result in a cost-effective and practicable market and performance based system rather than the current mandate based system.

And we urge CARB to look at these concepts and try to apply them to light-duty category and explore the potential for emission reductions that are there.

And, finally, with respect to the M100 fuel methanol specification, we do not support the proposal to remove the requirement for a luminosity additive in the specification for M100 fuel methanol.

Although we do agree with the staff's technical assessment that the risk of an M100 fire is low, the technical information does not dismiss the fact that M100 fuel can ignite and catch fire. And the fact still remains that if an M100 fuel does catch fire perhaps as a result of a vehicle collision on a public highway, the flame will be virtually invisible and it can lead to some serious injuries to unsuspecting accident victims and fire and rescue respondents.

In addition, we think that, as the popularity and performance of M100 vehicles continues to evolve and the fuel becomes more available, we think it's likely that their use will expand beyond fleet applications and just further increase potential exposure to M100 fires by untrained and unsuspecting public members.

We don't agree that the reduced risk of M100 fires should be used as a basis to remove the luminosity requirement, and we think that requirement should remain intact and that the requirement for fire suppression systems be used as a substitute until a suitable luminosity additive can be identified.

That's all I have.

CHAIRMAN DUNLAP: Very good. Thank you. Any questions?

Okay. Glenn Keller, Engine Manufacturers

Association. Mr. Keller, we have a copy of your presentation. Anything you'd like to add?

MR. KELLER: I will be very brief.

EMA wants to express its congratulations to you on your confirmation. Again, I'll introduce myself. I'm Glenn Keller, Executive Director of the Engine Manufacturers Association.

EMA is the national association representing worldwide manufacturers of engines for all applications other than passenger cars and aircraft.

EMA's members produce, among other things, the engines that are used in medium-duty vehicles, both compression ignition and spark-ignited, which under CARB's regulations, include those vehicles having a gross vehicle weight rating greater than 6,000 pounds.

In that regard, our remarks will be primarily directed towards those aspects of the rule pertaining to the engines which are engine dynamometer certified, and used in the vehicle applications greater than 8500 pounds and incomplete vehicles.

I'll summarize our comments into three points. Number one, we want to let it be known to the Air Resources Board that EMA is very appreciative of the several opportunities that CARB staff provided EMA to comment on the development of the pending amendments to both the MDV

and the heavy-duty rules.

This cooperative type of give-and-take process among regulators and the affected industry has resulted in stringent, yet generally workable, requirements in California.

This approach to developing new regulations in turn will yield significant initial air quality improvements, while at the same time, preserving a full array of cost-efficient and durable mid-range power sources in California.

I think there should be also a lot more credit given to the wonderful program, "The Statement of Principles" that was recently entered into among U.S. EPA, CARB, and the engine manufacturing industry regarding future emission regulations for heavy duty on-highway vehicles. This was referenced Ms. Guerrero's summary, and the emission requirements that are being targeted for the year 2004 represent dramatic NOx reductions of over one-half the current levels that we're producing today.

This SOP constitutes a true milestone in attainment of cleaner air through reasoned regulatory efforts. It will increase the certainty and stability for the heavy-duty industry, which is vital for manufacturers' strategic business planning. And it will also ensure cleaner air in a manner which is both realistic for industry

and very responsive to the genuine environmental concerns of California.

We want to point out that the amendments that we are looking at here today also account for and try to align with those of the Federal program beginning in the 2004 model year.

And we're very supportive of that concept.

And finally, in closing, I want to bring up the point that EMA greatly appreciates and fully supports the specific amendments MDV rule that provide for a stair-step 100 percent phase-in program for the engine dyno certified MDVs, and that retain a 100 percent Tier 1 requirement for engine dyno certified MDVs through the 2001 model year.

EMA also appreciates this recent staff amendment brought up today that specifically includes the permitting of intermediate in-use standards for engine dyno certified MDVs and in-use -- and those are the LEV standard for 2002 and 2003 model years of 3.2 grams per brake horsepower hour, and the ULEV standard intermediate in-use factors of 2.7 applying to 1992 to 2003.

All of these help in the manufacturers' ability to meet the standards, giving them the necessary stability in the meantime to meet the increasingly stringent standards.

And more importantly, these amendments serve to avoid the prospect of certifying engines to standards

applicable for one year.

In conclusion, EMA appreciates this opportunity to work with CARB staff. EMA looks forward to similar cooperative efforts in implementing the SOP and in achieving full harmonization of the CARB and EPA regulatory programs, and not just the resulting emission standard levels.

Thank you, and I'll be happy to answer if there's any questions.

CHAIRMAN DUNLAP: Very good. Thank you. Any questions? Appreciate your comments about working closely with us and U.S. EPA on that heavy-duty engine program. It's very important. Thank you.

MR. KELLER: It's our pleasure.

CHAIRMAN DUNLAP: Okay. Dale McKinnon, and then Greg Vlasek.

MR. Mc KINNON: I'd also like to extend my congratulations, Chairman Dunlap.

CHAIRMAN DUNLAP: Thank you.

MR. Mc KINNON: Good afternoon, my name is Dale McKinnon, and I'm the technical director of the Manufacturers of Emission Controls Association, MECA for short.

MECA's pleased to provide these comments in support of the Air Resources Board's proposal to amend the certification requirements and procedures for low-emission

passenger cars, light-duty trucks, and medium-duty vehicles.

MECA commends the Board for its continuing efforts to implement a motor vehicle emission control program that will address California's serious air quality problem.

MECA's a nonprofit association of manufacturers of emission controls for motor vehicles. Our companies are developing and producing control equipment that can help reduce NOx, hydrocarbons, CO, and particulate emissions from diesel engines; but not only diesel engines, gasoline powered engines, and alternative fueled motor vehicles.

Because we have had on numerous occasions the opportunity to talk to staff and the Board on different technologies, we'll keep our comments brief.

For the past two decades, California has provided critical leadership in the development of its mobile source emission control program. Standards adopted by the Air Resources Board over the years has stimulated enormous technical development efforts that have resulted in important advances in engine design and control technology, which are providing significant reductions in motor vehicle pollution.

We believe that the proposed program will further stimulate development, both by engine manufacturers and those development control technologies.

A few words about gasoline powered medium-duty

vehicles. We concur with the staff that significant advances have been made in catalyst technology, in particular, with improved light-off characteristics, increased durability and high temperature resistance. We believe that these aid the manufacturers to meet the new proposals.

We also concur with the staff's assessment that, if needed, electrically heated catalysts could be optimized for medium-duty applications. This technology has evolved dramatically over the past five years, and its effectiveness and durability is being established for possible light-duty vehicle application to meet the ULEV standards. the larger

It's not hard to imagine it being further optimized for medium-duty vehicles.

Hydrocarbon traps have reached a stage of development to be considered a viable candidate. As far as diesel powered medium-duty vehicles to meet the proposed emissions standards MECA members have developed and are now manufacturing control technologies that could be used to help diesel powered vehicles -- diesel powered medium-duty vehicles meet the proposed standards. For example, our members have been and continue to work on lean NOx catalyst technology. It shows considerable promise for providing significant NOx reduction from diesel engines.

Also, oxidation catalysts and trap oxidizer

technology can be used to control particulate emissions on these vehicles.

Oxidation catalyst technology has been proven effective in reducing engine-out particulate by up to 30 percent, hydrocarbon by 30 percent, and carbon monoxide by 30 percent. Trap oxidizer technology can reduce particulate emissions by over 90 percent.

We concur with the fact that these technologies will be among the technology choices available to manufacturers to meet the proposed medium-duty standards.

Although the technologies discussed above can be used in conjunction with the diesel fuel currently available in California, even further reductions in fuel sulfur would enhance their performance.

In closing, we wish to reiterate our support for the proposed revisions of the low-emission vehicle program, and to reiterate that our industry stands ready to do its part to help ensure that the objectives of the regulatory changes are achieved.

Thank you.

CHAIRMAN DUNLAP: Thank you very much. Any questions of Mr. McKinnon?

Very well. Appreciate it.

MR. Mc KINNON: Thank you.

And our final witness, Mr. Vlasek. Good

afternoon, Greg.

MR. VLASEK: Good afternoon, confirmed Chairman Dunlap and members of the Board, Greg Vlasek, representing the natural gas vehicle industry today. Most of my remarks have been amply address by Messrs. Van Amburg, Mr. Carmichael, and Mr. Wuebben. You have my written comments before you. So, I will be brief.

I have one point, one observation, and one question of clarification for the assembly today.

First, on the point of the NOx reductions in the medium-duty proposed changes, we are, as you are, concerned about additions to the black box. In my comments, we have made the suggestion that the ARB consider adoption of the SLEV standard as a tailpipe standard rather than an optional standard, and to take that into consideration in the next set of deliberations in changes to the standard.

As staff pointed out, there's regrettably a dearth of emissions data for natural gas vehicles in the medium-duty category. And there are certainly some issues and characteristics of the medium-duty market that may be quite different from the light-duty and heavy-duty markets.

The phase on the emission standard that is coming in for light-duty NGVs and for heavy-duty NGVs, we believe that an option of a -- or a phase-in of an SLEV tailpipe standard beginning around 2002 is not an unachievable

opportunity to get additional NOx reductions.

So, we'd ask that you would look into that between now and the 1998 review of these standards.

The observation I wanted to make is related to that, and actually occurred to me during the staff's presentation this morning.

It's on the approach that is engendered in this particular rulemaking, and the exchange of NOx reductions or acceleration of the NOx standards in exchange for CO and particulate, relaxation of those standards.

It appears, if I'm reading the situation here correctly that the market-based approach that Ms. Guerrero mentioned as providing flexibility to the industry is failing. It's not working. The decision to trade off CO and PM reductions in the medium-duty class for accelerated NOx reductions suggests to me that none of the manufacturers in the industry are capable of achieving those NOx reductions without having more relaxed CO and PM standards. And I don't know that that's the case.

Maybe the staff can comment on that. But it would seem to me if the ARB and the industry is serious about utilizing market-based incentives as an approach, that we ought to not adjust the LEV, ULEV, and SLEV standards as we go along to accommodate the lowest common denominator -- technological denominator as offered by the OEMs.

But, in fact, we should encourage trading between the manufacturers and not penalize those manufacturers who could meet the accelerated NOx schedule, and not require relaxation of the other standards, but in fact could meet all the ULEV standards without any relaxation at all.

So, I'd ask you to consider that as you look at the way the proposed changes are presented here to you and the way the industry offers solutions to our emissions problems in the future.

The final item is a clarification related to the SLEV standards. There was not a lot of detail given on the late changes in the SLEV, and I wanted to find out if, for incomplete medium-duty vehicles, the SLEV standard would be too grams or would it be a 2.4 combined standard?

The reason I'm asking this question is because we're working with the Legislature and the California Trucking Association to develop some market-based incentives that would be somewhat dependent upon this determination.

So, with that, I'll turn it over to the staff.

Thank you for your attention.

CHAIRMAN DUNLAP: Do you have a response to Mr. Vlasek's question?

MR. VLASEK: I don't know if my question's clear.

CHAIRMAN DUNLAP: Why don't you restate it, Greg.

MR. VLASEK: I believe that the mailout indicates

that the SLEV NOx standard, 2 gram per brake horsepower hour for incomplete SLEVs -- my question is: Is that still the case or is the SLEV optional standard also being proposed to be modified to the compliance standard? That would be 2.4, 2.5.

(Thereupon, Ms. Guerrero's answer was not heard by the reporter because her microphone was not activated.)

MR. CROSS: The answer is she didn't propose any 15-day change for the incompletes. So, it's not changed.

MR. VLASEK: Fine. Thank you.

CHAIRMAN DUNLAP: All right. Mr. Calhoun.

MR. CALHOUN: Yes. I think, Mr. Vlasek, the last time you appeared before the Board, you were asking for change to the regulations so as to permit -- make it a little easier for the natural gas engine to certify. And today, you seem to be objecting to also a suggestion that some of the staff recommendations, in particular regarding the concession being granted the industry. Would the natural gas industry be receptive to going back and doing the same kind of certification that the OEMs have to go through in order to certify these vehicles?

MR. VLASEK: I believe that's what we were asking for a retrofit item back in July. We were asking for treatment similar to what the OEMs have. I'm not quite sure

I see the relationship.

MR. CALHOUN: The OEMs have to undergo a very rigorous certification. And I think -- what you were asking for is something to make it a little more easy for the natural gas industry to certify as I recall.

MR. VLASEK: I guess the distinction being that that pertained specifically to retrofit systems or aftermarket systems that do not benefit from the OEM engineering, the calibration, and so on. It's not given to them in advance -- it's not afforded to them in advance.

So, what we were asking for there is greater use of assigned deterioration factors and a greater length of time to establish durability.

I'm not quite certain I see how that relates to what we're talking about here, which is OEM certification.

MR. CALHOUN: Well, I guess the only point I was raising, though, it seems as though you are opposing what thae staff is recommending, in terms of changes regarding the NOx and particulate standard. And yet, in the past, you've asked the Board make it more convenient -- maybe that's the wrong way to phrase it but -- for the natural gas industry to certify its vehicles. And you can go buy a vehicle from the OEM that is equipped with natural gas certification. But yet the OEMs have to go through a rigorous certification process initially. And it seems to

me as though you're asking for -- you did ask for concessions. But yet today, when the staff is proposing something that makes it a little more convenient for some of the other -- some of the other OEMs, that you're opposing that.

MR. VLASEK: I guess the difference is -- what I'm asking the staff and the Board to reflect on today is the change in the actual standards; how do you prove whether or not you're meeting those standards over 50,000 miles or 100,000 miles, or 120, or 180,000 miles? I see that as a different matter, frankly.

But what you're doing today has implications for attainment of NOx certainly. Doesn't get us as far as the medium-duty category as we would all like to see. And I think there are legitimate reasons for that that the staff has certainly considered.

I guess I'm asking you to reflect on some of the approaches that you have offered in the past -- market incentives being one -- whether or not there's a strong commitment to that as an approach, and whether the changes proposed today are really fully warranted or if there are other options that should be looked at the next around or in the future, rather than a relaxation of a specific tailpipe standard, if there might not be another way to do it that preserves -- that achieves what you want to do with NOx and

not at the expense of particulate matter, which I think we all recognize is an important and serious pollutant that needs to be controlled -- and CO for that matter.

I don't see how you certify or how you prove it over the long run as being the same issue.

MR. CALHOUN: Thank you.

CHAIRMAN DUNLAP: Thank you, Greg, I appreciate your time.

Ms. Edgerton? We've lost our witness.

MS. EDGERTON: That's all right. I just wanted to make a comment.

I thought that Supervisor Vagim had a good point about possible confusion between ULEV and super ULEV -- super LEV and ULEV. It made sense to me. super LEV -- SULEV. Are you concerned about that at all?

MR. VLASEK: No.

MS. EDGERTON: No.

(Laughter.)

MS. EDGERTON: I guess you guys get it. But I find it confusing.

And I'd just like to comment that I think that your presentation of an opportunity to possibly phase in a super ULEV standard, additional super ULEV standard is welcome, and we take a look at it.

CHAIRMAN DUNLAP: Very well. Thank you.

Well, that concludes the public testimony on this item. For the record, I'd like the staff to briefly, very briefly, to summarize those written comments the Board has received on this item, or from individuals who were unable to join us today. Nissan had a letter, correct?

MR. ALBU: Nissan had some comments regarding the light-duty vehicle class. We provided some interim in-use phase-in for that class, and they had some very detailed comments about the numbers that we actually achieved in that phase-in process.

We did that with AAMA in detail, and Nissan feels that there's some discontinuity from '98 to '99, and they would also like to see the in-use compliance extended another three years.

We feel that the agreement we have with AAMA reflects a compromise already, and there's good balance between in-use compliance and meeting the standard in a timely manner.

CHAIRMAN DUNLAP: We also had one I believe from the SOCAL Gas Company. I see my friend Lauren Dunlap is here. Do you wish to say anything? We have the written comments. Do you want to summarize those?

MR. ALBU: It looks like the gas company's comments reflect those of the last witness. I don't see anything in particular that's different.

CHAIRMAN DUNLAP: Similar to Mr. Vlasek's comments?

MR. ALBU: Yes.

CHAIRMAN DUNLAP: Okay. Very good. Anything else?

I think that's it. All right. Does the staff have any further comments, Mr. Boyd?

MR. BOYD: I believe staff has no further comments, Mr. Chairman.

CHAIRMAN DUNLAP: All right. Thank you. I will now officially close the record on this agenda item. However, the record will be reopened when the 15-day notice of public availability is issued.

Written or oral comments received after the this hearing date but before the 15-day notice is issued will not be accepted as part of the official record on this agenda item.

When the record is reopened for a 15-day comment period, the public may submit written comments on the proposed changes which will be considered and responded to in the final statement of reasons for the regulatory action.

Just a reminder to my colleagues on the Board of our policy concerning ex parte communications. Again, while we may communicate off the record without outside persons regarding Board rulemaking, we must disclose the names of

our contacts and the nature of the contents on the record.

And this requirement, of course, applies specifically to communications which take place after notice of the Board hearing has been published.

Are there any communications on this item which need to be disclosed?

Ms. Edgerton.

MS. EDGERTON: Yes, I spoke with Andy Hirsch of the Gas Company, and he essentially made the points that Greg made here today.

CHAIRMAN DUNLAP: Very good. Anything else? All right. We have before us a Board resolution. Why don't we take a few moments to review it.

While we're reviewing that, I'd like to say a word to those that came today and that testified. I appreciate your time, and effort, and energy you put into responding to this issue. I know it's a complex issue at several levels to deal with. And it was difficult, I know, to kind of track and sift through. There were several items tossed into this. But I appreciate it. Again, I want to recognize those who commented.

The Board has before it Resolution No. 95-40, which contains the staff recommendations. Do I have a motion and a second to adopt or to modify the proposal?

Mr. Lagarias.

MR. LAGARIAS: Mr. Chairman, I move adoption of Resolution 95-40, but I'd like to add this point. I think that the issue of reactivity adjustment factors, as we have in this proposal and this time period, should stay just the way it is.

But I would like the staff to continue to explore the manner in which reactivity adjustment factors are used for subsequent years. And I would hope you could fill me in on this issue that came in today.

SUPERVISOR RIORDAN: I'll that motion, Mr. Chair.

CHAIRMAN DUNLAP: Okay. Any other discussion? Actually, I have a point. I would like to see a time line of when -- particularly with this new capacity that you have, when you're going to be able to deal with those other emission sources, the evap, I guess, characterization?

You mentioned a time frame, Mr. Albu, earlier. If you could just give us some communication back on that, I'd appreciate it.

MR. CALHOUN: Yes. I guess I'd like you to elaborate a little bit more about -- we have a little bit of difference here between the staff and WSPA on the appropriateness of using the peak reading as opposed to using your weighting. And that hasn't been resolved,I don't think. I guess I'd like to have some indication that the staff will get together with the WSPA representative to see

if you can resolve this, and bring it back to the Board sometime.

CHAIRMAN DUNLAP: Okay.

MR. CALHOUN: If it's appropriate.

MR. LAGARIAS: I agree with that, but I think the point I wanted to make is I wanted to make sure that we have numbers that the automobile manufacturers and suppliers can work with in this time period. That's why I didn't want to indicate that this thing is in Limbo.

CHAIRMAN DUNLAP: Well, on that point, what I guess -- Mr. Kenny, I'm going to need some counsel from you about how to have a meaningful discussion in lieu of the action before us. Could you offer any suggestions?

MR. KENNY: I'm not sure I quite follow the question. You're asking me, can the Board entertain some discussion with regard to a direction toward the staff on the issue of the disagreement between WSPA and the staff.

CHAIRMAN DUNLAP: Yes, having some meeting to try to strive for resolution without impacting the regulatory action today.

MR. KENNY: It would not impact the regulatory action. Essentially, it's our understanding from the comments of Mr. Lagarias and Mr. Calhoun that you would like further investigation into the issue.

CHAIRMAN DUNLAP: Okay. Joe, does that work for

you? Direct the staff to sit down and meet with the parties? Okay.

MS. EDGERTON: Mr. Kenny, it's my understanding that in passing this resolution for purposes of today, we are accepting as reasonable and rational the approach of the staff, and we've considered all the approaches, and we are accepting this for purposes of today as an appropriate basis for determining RAFs.

MR. KENNY: Ms. Edgerton, that's correct. If, in fact, there was some modification or some change that was going to be arrived at as a result of discussion, it would have to be brought back to you as a regulatory modification.

MR. CALHOUN: It could not be included as part of the 15-day notice?

MR. KENNY: The difficulty with that at this point is that we don't have sufficient resolution to be able to put that into the 15-day notice at this point in time.

The other difficulty is that some of the disagreements between ourselves and WSPA on this issue have been very longstanding and, in fact, have resulted in court actions. We've gone as far as the California Supreme Court.

I don't see a resolution happening within the time frame that you're referring to. I think in terms of continued discussions on this matter, that can occur. But I don't really see how we can resolve this in a very short

time frame.

MR. BOYD: Mr. Chairman, in keeping with what both Mr. Lagarias and Mr. Calhoun said, this is an evolving science, and we're the locus of the activity. And I think some very good points were brought up. And if it's the sentiment of the Board that we pursue that, we certainly will. And with regard to Mr. Calhoun's concerns, I think it's all been said, but I want to recap that we -- when the Board gives us a request, we fulfill that request. We'll continue to discuss with WSPA their concerns about reactivity adjustment factors.

And, as stated before, there's five years of history here, and quite a bit of disagreement. We always strive to resolve that, and we'll continue our dialogue as expressed today.

CHAIRMAN DUNLAP: Okay. Does that satisfy you, Mr. Calhoun?

MR. CALHOUN: Fine.

CHAIRMAN DUNLAP: Mr. Lagarias?

Very well. Any other discussion? We have a motion and a second. If there isn't any, I'll ask the Board Secretary, I'll ask the Board Secretary to call the roll.

MS. HUTCHENS: Boston?

DR. BOSTON: Yes.

MS. HUTCHENS: Calhoun?

MR. CALHOUN: Aye.

MS. HUTCHENS: Edgerton?

MS. EDGERTON: Aye.

MS. HUTCHENS: Hilligoss?

MAYOR HILLIGOSS: Aye.

MS. HUTCHENS: Lagarias?

MR. LAGARIAS: Aye.

MS. HUTCHENS: Parnell?

MR. PARNELL: Aye.

MS. HUTCHENS: Riordan?

SUPERVISOR RIORDAN: Aye.

MS. HUTCHENS: Roberts?

SUPERVISOR ROBERTS: Aye.

MS. HUTCHENS: Silva?

SUPERVISOR SILVA: Aye.

MS. HUTCHENS: Vagim?

SUPERVISOR VAGIM: Aye.

MS. HUTCHENS: Chairman Dunlap?

CHAIRMAN DUNLAP: Aye.

MS. HUTCHENS: Passes 11-0.

CHAIRMAN DUNLAP: Very well. Thank you. At this juncture, I would like to propose -- not propose -- I will direct that we take an hour off for lunch. We'll reconvene about 20 till 2:00.

(Thereupon, the luncheon recess was taken.)