

MEETING  
BEFORE THE  
CALIFORNIA AIR RESOURCES BOARD

ORIGINAL

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CALIFORNIA AIR RESOURCES BOARD  
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Shorthand Reporter

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1 I note for the record -- I don't know if the staff  
2 has any written comments that need to be made part of this  
3 presentation. And I see by a nod that we don't have any  
4 written comments.

5 So, I just would like to close this item and move  
6 on to the next item on the agenda, which is Agenda Item No.  
7 94-12-2.

8 And I again would like to remind those of you in  
9 the audience who would like to testify on this item to be  
10 sure that you've signed up with our Board Secretary.

11 And if I might, I'd like to indicate that this is  
12 a public hearing to consider the technical status and the  
13 proposed revisions to malfunction and diagnostic system  
14 requirements for 1994 model year passenger cars, light-duty  
15 trucks, and medium-duty vehicles and engines.

16 The malfunction and diagnostic requirements, known  
17 as OBD II, were originally adopted in September of 1989.  
18 These requirements became effective with the 1994 model  
19 year, the first year of the phase-in that extends to the  
20 1996 model year.

21 OBD II systems have been approved for more than 35  
22 of the 1994 and 1995 model year engine families so far.  
23 Based on the experience gained in this process, amendments  
24 have been proposed by the staff to clarify and adjust  
25 certain requirements where needed.

1           Also, the staff has followed manufacturers'  
2 progress towards meeting improved monitoring requirements  
3 which are to take effect beginning with the 1996 model year.

4           The status of this progress will be presented by  
5 the staff, along with some proposed amendments. And, at  
6 this point, I would like to ask Mr. Boyd to introduce the  
7 item and begin the staff's presentation.

8           MR. BOYD: Thank you, Chairwoman Riordan, members  
9 of the Board.

10           OBD, as we affectionately call it, or on-board  
11 diagnostics, is a primary example of the kinds of technology  
12 advancement and development that has been a major thrust of  
13 the action of the Air Resources Board for many, many years.

14           And fresh from last month's hearing and the  
15 discussion of our role in technology advancement and  
16 development, it's almost propitious that we talk about this  
17 particular item, which has been one of extreme significance  
18 to us and to the cause of cleaning up and maintaining clean  
19 emissions from automobiles.

20           We have, as you can take from the title, moved  
21 from the initial introduction of on-board diagnostics, Phase  
22 I, into the more challenging arena of on-board diagnostics  
23 Phase II. And these requirements are very, very  
24 comprehensive in many instances, as you will hear today,  
25 very technically challenging to us and to the industry.

1           And, as a result, your staff is returning to the  
2 Board to propose some changes. We have twice returned to  
3 the Board since the regulation was first adopted to provide  
4 you updates on the manufacturers' progress towards meeting  
5 the requirements and to make modifications, as they become  
6 necessary, which is always a promise and a commitment of  
7 this Board to do.

8           The process to date has worked well because, as  
9 you heard from the Chairwoman's introductory remarks, most  
10 manufacturers are currently producing models that are  
11 equipped with OBD II.

12           With our proposal today, this process will  
13 continue. We will provide you an update on the progress  
14 towards meeting the technology challenges of OBD II and  
15 we'll propose, as the Chairwoman indicated, a number of  
16 modifications that we think will further help OBD II  
17 implementation indeed become a reality, while still ensuring  
18 that the requirements will provide the maximum possible  
19 reduction in emissions.

20           I should note, for the benefit of all who were  
21 involved in this, that this proposal today is a result of a  
22 very high degree of cooperation between your staff and the  
23 members of the regulated industry.

24           With that, I'd like to turn the detailed proposal  
25 over to Mr. Allen Lyons of our Mobile Source Division, who

1 will provide both the overview and then to recount the  
2 staff's recommendations for change.

3 Mr. Lyons?

4 MR. LYONS: Thank you, Mr. Boyd.

5 MR. BOYD: I should note that we're not in charge  
6 of the technological development for slide projectors.

7 (Laughter.)

8 MR. BOYD: Well, Madam Chair, I'm embarrassed to  
9 say that we've got an incorrect piece of equipment here, and  
10 we need a couple of minutes to make a change.

11 CHAIRWOMAN RIORDAN: Well, this is then perhaps a  
12 good time for a break.

13 (Laughter.)

14 MR. BOYD: Thank you.

15 CHAIRWOMAN RIORDAN: Why don't we take a five-  
16 minute break. It's about five minutes of 10:00, or  
17 thereabouts, by your clock. So, we'll come back at 10:00.

18 (Thereupon, a short recess was taken.)

19 CHAIRWOMAN RIORDAN: We are now with the right  
20 equipment, so let's come back to order.

21 Mr. Lyons.

22 MR. LYONS: Good morning, Chairwoman Riordan and  
23 members of the Board. Sorry for the delay. We've worked  
24 for standardization with OBD II, but I guess Kodak hasn't  
25 standardized their slide trays as yet.

1           We'll start the staff's presentation by reviewing  
2 how OBD systems work, and how they help to reduce in-use  
3 emissions from motor vehicles.

4           Then, we'll look briefly at the history of  
5 California's OBD requirements, followed by manufacturers'  
6 progress to date in putting OBD II systems into production.

7           From there, the presentation will segue into the  
8 OBD II implementation issues that still remain. The staff's  
9 proposed changes to the regulation will be included in this  
10 discussion.

11           Today's vehicles use on-board computers to carry  
12 out a number of drivetrain functions such as fuel control,  
13 ignition timing, transmission control, and the operation of  
14 emission control devices such as exhaust gas recirculation,  
15 or EGR, evaporative system purging, and secondary air  
16 injection.

17           The information necessary to carry out these  
18 functions is provided to the computer by a number of  
19 sensors, such as the engine speed sensor, mass airflow  
20 sensor, coolant temperature sensor, exhaust gas oxygen  
21 sensor, and others.

22           These same sensors can be used to evaluate the  
23 vehicle's emission control system performance. If a  
24 malfunction is detected in a component or system, the  
25 on-board computer will illuminate an instrument panel

1 warning light, and will store diagnostic information for  
2 future use by a service technician.

3 In this way, in-use emissions can be reduced  
4 through the prompt detection of malfunctions as they occur,  
5 so that repairs will be made more quickly.

6 Further, the diagnostic information generated by  
7 these systems helps in pinpointing the cause of the problem,  
8 which helps the service technician to efficiently and  
9 effectively repair vehicles.

10 Requirements for OBD systems were first adopted by  
11 the Board in 1985 for 1988 and newer vehicles. The  
12 regulation, now known as OBD I, requires functional  
13 monitoring -- as distinguished from performance monitoring--  
14 of the EGR valve, the fuel system, and components that  
15 provide information to the on-board computer.

16 California's second generation of OBD  
17 requirements, OBD II, was originally adopted in 1989 for  
18 1994 and later model year vehicles.

19 OBD II improves upon the monitoring requirements  
20 of OBD I by requiring that the criteria for determining a  
21 malfunction be based on emission performance.

22 Generally, a malfunction is to be indicted by the  
23 time vehicle emissions exceed one-and-a-half times the  
24 applicable standards.

25 OBD II also expands the monitoring requirements to

1 include other critical emission control components and  
2 systems, such as the catalyst and the evaporative system,  
3 among others.

4 In fact, under OBD II, virtually every powertrain  
5 component or system that can affect emissions will be  
6 monitored.

7 As I just mentioned, the first year for OBD II  
8 implementation was the 1994 model year. Manufacturers are  
9 generally required to phase in OBD II systems, such that all  
10 models will meet the requirements by the 1996 model year.

11 The regulation does not contain specific phase-in  
12 percentages; however, manufacturers are required to base the  
13 phase-in on the capability of the on-board computers used to  
14 incorporate OBD II monitoring strategies.

15 Currently, more than thirty-five 1994 and 1995  
16 model year engine families have been certified to meet the  
17 requirements. Some examples are shown here. Vehicles have  
18 been certified by American, Asian, and European  
19 manufacturers.

20 However, as the first year of OBD II  
21 implementation drew near, some manufacturers expressed  
22 concerns about being able to initially meet every OBD II  
23 monitoring requirement in time for vehicle production.

24 Manufacturers had done their best to meet all of  
25 the monitoring requirements; however, due to the newness of

1 some of the monitoring strategies, some fell short of the  
2 minimum requirements of the regulation.

3 In response to a petition by Ford Motor Company,  
4 the Board adopted a provision to accept OBD II systems with  
5 one or more monitoring system deficiencies for the 1994  
6 model year, provided the manufacturer had demonstrated a  
7 good-faith effort to meet the requirements in full.

8 For the 1995 model year, the same provision is  
9 available; however, fines in the amount of \$25 to \$50 per  
10 deficiency per vehicle are specified for the third  
11 monitoring deficiency and every deficiency identified  
12 thereafter.

13 While a number of manufacturers have certified  
14 vehicles with monitoring system deficiencies, none to date  
15 has been required to pay fines.

16 We'll turn now to OBD II implementation issues and  
17 the staff's proposals to address them.

18 Manufacturers have expressed concerns about  
19 meeting the OBD II catalyst monitoring requirements for  
20 low-emission vehicle applications. The regulation requires  
21 independent monitoring of front catalyst efficiency in order  
22 to provide for early detection of catalyst system  
23 deterioration within the capabilities of the most promising  
24 catalyst monitoring technique, which is the use of dual  
25 oxygen sensors.

1           With oxygen sensors placed before and after the  
2 catalyst, the oxygen storage of the catalyst can be  
3 measured. This parameter can then be correlated to the  
4 hydrocarbon conversion efficiency of the catalyst.

5           The front sensor signal continually cycles in  
6 response to the fuel system. If the catalyst has good  
7 oxygen storage, the rear sensor signal will appear  
8 relatively flat. As the oxygen storage of the catalyst  
9 decreases, the rear sensor's signal begins to look like the  
10 front sensor. In this way, the efficiency of the catalyst  
11 can be determined.

12           The concerns that were expressed are related to  
13 this relationship between oxygen storage and hydrocarbon  
14 conversion efficiency. Manufacturers have stated that, when  
15 located close to the engine, a catalyst can lose oxygen  
16 storage before any significant decrease and conversion  
17 efficiency occurs.

18           Also, the concern has been expressed that some  
19 front catalysts will be too small to have enough oxygen  
20 storage for reliable catalyst monitoring. In addition,  
21 manufacturers have stated that the front catalyst monitoring  
22 requirement does not provide enough flexibility in terms of  
23 catalyst system design.

24           While there are OBD II equipped vehicles that  
25 affirm the feasibility of the current requirements, the

1 staff believes the requirements can be made more flexible  
2 and ultimately more effective.

3 The staff is proposing an amendment to remove the  
4 restriction that front catalysts must be evaluated  
5 independently from downstream catalysts. In its place, a  
6 system-based requirement is proposed that would require  
7 manufacturers to correlate catalyst system performance with  
8 tailpipe emissions.

9 Specifically, OBD II systems would be required to  
10 indicate a malfunction before the catalyst system has  
11 deteriorated to the point that hydrocarbon emissions exceed  
12 1.5 times the vehicle's standards.

13 The new requirement would allow manufacturers to  
14 physically monitor all or only a portion of the catalyst  
15 system, provided a reasonable correlation can be obtained  
16 with tailpipe emissions. The staff envisions that the most  
17 promising method to satisfy the requirement is to monitor  
18 the front portion of the catalyst system, whether the front  
19 catalyst by itself or in combination with downstream  
20 catalysts.

21 In this way, small tailpipe emission increases can  
22 be correlated with relatively larger and more discernible  
23 decreases in the performance of the front catalysts.

24 The staff recognizes that modifications to  
25 catalyst system design plans may be necessary in some cases

1 to make monitoring of the appropriate portion of the  
2 catalyst system possible. For example, front and rear  
3 catalyst volumes may need to be adjusted to maximize the  
4 correlation between the monitored portion of the catalyst  
5 system and tailpipe emissions.

6 Another possible modification could be the  
7 placement of an oxygen sensor between the substrates of an  
8 existing catalyst.

9 In order to provide adequate leadtime for  
10 manufacturers to make such modifications, the staff proposes  
11 to phase in the 1.5 times the standard emission threshold  
12 for catalyst monitoring beginning with the 1998 model year,  
13 with full compliance required by the 2000 model year.

14 In the interim, higher emission thresholds are  
15 proposed for TLEVs and LEVs that can be met without  
16 requiring catalyst system design changes. In this way, the  
17 staff's proposal makes near-term compliance with the  
18 catalyst monitoring requirements easier for manufacturers  
19 than the current adopted requirement, while maximizing the  
20 long-term effectiveness of catalyst monitors.

21 For TLEVs, the interim threshold would be two  
22 times the standard plus the emission level of the vehicle  
23 with a 4,000 mile catalyst system; and for LEVs, two-and-a-  
24 half times the standard, plus the emission level with the  
25 4,000 mile catalyst system.

1           An interim threshold is not proposed for ULEVs,  
2 because it is not expected that any manufacturer will  
3 certify a gasoline-powered vehicle to this standard until  
4 the 1998 model year at the earliest.

5           As such, adequate leadtime exists for any  
6 necessary catalyst system modifications to be made in time  
7 for production. Should certification of a ULEV come sooner  
8 than expected, the proposed amendments give the Executive  
9 Officer the authority to establish an appropriate interim  
10 threshold.

11           Regarding evaporative system monitoring, the  
12 regulation currently requires manufacturers to detect  
13 evaporative system leaks that are equal or greater in  
14 magnitude than a .04 inch diameter hole. Such systems are  
15 to be phased in through the 1998 model year as evaporative  
16 systems are designed to meet California's new high  
17 temperature evaporative test procedures.

18           However, as this slide illustrates, even leaks  
19 smaller than .04 inches in diameter can cause very large  
20 increases to in-use emissions.

21           With a leak as small as a .02 inch hole,  
22 evaporative emissions can increase to the equivalent of  
23 approximately 0.5 grams per mile, or more than six times the  
24 LEV hydrocarbon standard and more than ten times the ULEV  
25 standard.

1 Further, evaporative system testing conducted by  
2 the ARB indicates that a significant number of vehicles may  
3 have evaporative system leaks that are significant, but  
4 lesser in magnitude than a .04 inch hole.

5 Specifically, the testing suggests that  
6 approximately 8 percent of the vehicles tested at the ARB's  
7 laboratory had leaks corresponding to a hole size between  
8 .02 and .04 inches in diameter.

9 When considering the potential evaporative  
10 emissions from such vehicles, it is clear that a significant  
11 in-use emission reduction up to approximately 35 tons per  
12 day statewide can be obtained from identifying and repairing  
13 such vehicles.

14 To further illustrate, using the 2003 model year  
15 fleet average emission level as a baseline, excess  
16 evaporative emissions from 8 percent of the fleet could  
17 raise the fleet average by over 20 percent, even after  
18 considering allowable evaporative and running loss  
19 emissions.

20 As the fleet average drops in future years, the  
21 impact of these emissions will increase proportionately.

22 As a result, the staff plans to phase in -- the  
23 staff proposes to phase in a requirement for the detection  
24 of evaporative system leaks as small as a hole .02 inches in  
25 diameter.

1           The phase-in of such monitoring strategies would  
2 extend from the 1998 model year to the 2000 model year, with  
3 phase-in percentages of 50, 75, and 100 percent.

4           ARB testing indicates that the smaller leaks can  
5 be detected reliably using the same basic monitoring  
6 hardware used for the detection of .04 inch leaks.

7           Currently designed monitoring strategies create either a  
8 vacuum or pressure buildup in the evaporative system.

9           Once the change in pressure is achieved, the  
10 diagnostic system closes off the evaporative system to test  
11 if a leak is present. By lengthening this monitoring  
12 period, leaks smaller than .04 inches can be detected. More  
13 constrained monitoring conditions can be considered as well  
14 to reduce variability.

15           Data recently submitted by General Motors indicate  
16 that the emission of small leaks may be significantly  
17 reduced on future vehicles as a result of the changes to the  
18 evaporative system that are being implemented to meet the  
19 new test procedures.

20           Instead of up to 20 grams per test, the data  
21 suggest that diurnal emissions may only increase by  
22 approximately three grams per test when a small leak is  
23 present.

24           While this is certainly a positive development,  
25 the staff believes it is necessary to work towards the

1 detection of very small leaks.

2 From the limited data received by the staff, it  
3 appears that the emission impact of a leak is highly  
4 dependent on the way in which the evaporative system is  
5 designed. There is no guarantee that all systems can be  
6 optimized to reduce the impact of leaks so significantly.

7 Further, even a three gram per test increase  
8 corresponds to approximately 0.1 grams per mile tailpipe  
9 emissions, or 2.5 times the ULEV hydrocarbon standard.  
10 Therefore, a significant emission benefit could still be  
11 realized without redesign of the monitoring hardware.

12 Now we'll turn to misfire detection:

13 Current OBD II systems are required to detect  
14 engine misfire at a minimum during engine operating  
15 conditions encountered during an FTP test.

16 However, the regulation requires -- beginning with  
17 the 1997 model year -- that misfire detection systems be  
18 active over all positive torque operating conditions; that  
19 is, over all engine speeds where the engine load is equal or  
20 greater than that with the transmission in neutral.

21 Misfire detection over a wider range of operating  
22 conditions is necessary because the occurrence of misfire  
23 during more extreme vehicle operation can, in addition to  
24 increasing emissions, cause permanent damage to the catalyst  
25 in a matter of minutes.

1           Manufacturers have been working diligently to  
2 improve their misfire detection systems to meet the expanded  
3 monitoring conditions, but continue to express concerns  
4 about meeting this current requirement on all engines,  
5 especially 8, 10, and 12 cylinder engines.

6           As a result of such concerns, the staff proposes  
7 to provide additional leadtime for the more difficult  
8 engines by phasing in the expanded monitoring conditions  
9 from the 1997 model year through the 2000 model year with  
10 the following percentages: 50 percent in 1997, 75 percent  
11 in 1998, 90 percent in 1999, and 100 percent compliance with  
12 the 2000 model year.

13           In order to further facilitate meeting these  
14 requirements, the staff is proposing a small region of  
15 engine operation in which misfire detection can be disabled.  
16 The region consists of high engine speed operation in  
17 combination with low engine loads.

18           Manufacturers have indicated that this region is  
19 the most difficult for reliable misfire detection, and is  
20 also a rarely encountered region of operation.

21           As such, the effectiveness of misfire detection  
22 strategies should not be significantly reduced by permitting  
23 disablement in the shaded region (remarking on slide  
24 depiction).

25           It should be noted that manufacturers' misfire

1 detection capabilities have improved greatly over the last  
2 few years as they have worked to meet the current all speeds  
3 and loads monitoring requirement. As a result, it is now  
4 necessary for disablement to occur only during the most  
5 extreme engine operating conditions.

6 When first adopted, the OBD II requirements did  
7 not apply to diesel vehicles. However, in 1991, the Board  
8 adopted an amendment that requires manufacturers of diesel  
9 vehicles and engines to implement OBD II systems.

10 Additional leadtime up to the 1997 model year was  
11 provided. Because some of the OBD II monitoring  
12 requirements are not applicable to diesels, the amendment  
13 requires diesel manufacturers to submit an OBD II compliance  
14 plan to the Executive Officer for approval at least two  
15 years prior to production.

16 However, since the 1991 Board hearing, the staff  
17 has met numerous times with diesel manufacturers, and is  
18 proposing amendments to the regulation that clarify how the  
19 OBD II requirements apply to diesels, making plan submittals  
20 unnecessary in the future.

21 The ARB staff has not identified a feasible  
22 monitoring strategy for catalysts on diesel vehicles.  
23 Because diesel engines operate with excess air, the  
24 technology used to monitor catalysts on gasoline engines  
25 cannot be applied. As a result, the staff proposes to

1 exempt diesel vehicles from the catalyst monitoring  
2 requirements.

3           Regarding misfire detection, because diesels are  
4 not spark ignited, they are not subject to many of the  
5 causes of misfire that occur in gasoline engines; however,  
6 diesels can lose compression in one or more cylinders  
7 causing increased hydrocarbon and particulate emissions.

8           The staff is proposing, therefore, that diesel  
9 vehicles be equipped with a monitoring strategy that  
10 verifies cylinder combustion. Manufacturers would have  
11 until the 1998 model year to develop and implement these  
12 strategies.

13           All of the remaining requirements would apply, to  
14 the extent that diesels are equipped with the emission  
15 control technologies that are delineated in the regulation.

16           Turning back to the discussion of monitoring  
17 system deficiencies, as previously mentioned, the Board  
18 adopted an amendment last year to permit the certification  
19 of 1994 and 1995 model year OBD II vehicles even if one or  
20 more of the monitoring requirements cannot be met in full,  
21 despite a good-faith effort on the part of the manufacturer.

22           This amendment has been valuable, since a number  
23 of manufacturers have encountered unexpected difficulties in  
24 meeting some requirements during these first years.

25           The staff believes that such difficulties will

1 diminish as manufacturers gain more experience with OBD II  
2 implementation. However, with the monitoring requirement  
3 revisions proposed today, it is possible that last minute  
4 compliance problems may continue to occur occasionally over  
5 the next few model years.

6 As such the staff has proposed an amendment that  
7 would carry over the current deficiency provision for the  
8 1995 model year into the 1996 model year. Specifically,  
9 manufacturers would be permitted to certify vehicles with up  
10 to two deficiencies without penalty, and fines in the amount  
11 of 25 or 50 dollars per vehicle per deficiency would apply  
12 for the third and subsequent deficiencies.

13 From the 1997 model year, extending through the  
14 2000 model year, the staff proposes to allow one deficiency  
15 per engine family before the fines would apply. There are  
16 some additional restrictions. Manufacturers would not be  
17 permitted to carry over deficiencies into future model  
18 years unless a hardware modification is required to fix the  
19 problem. In this case, a one-year carryover would be  
20 permitted.

21 Further, manufacturers would be required to  
22 implement some form of monitoring strategy for all  
23 requirements, even though one or more of the monitoring  
24 strategies may not comply fully with the regulation.

25 Because of the workload associated with bringing

1 all gasoline-powered vehicles into compliance with the OBD  
2 II regulation by the 1996 model year, manufacturers have  
3 indicated that they have not had the resources to develop  
4 OBD II systems for alternate fuel vehicles.

5 They state that additional testing is necessary to  
6 ensure that the monitoring strategies will continue to work  
7 as intended when using fuels other than gasoline.

8 Further, projected sales of alternate fuel  
9 vehicles are low, which generally makes them a lower  
10 priority in terms of OBD II development.

11 The staff is proposing an amendment that would  
12 allow vehicle manufacturers and alternate fuel retrofit  
13 system manufacturers to request exemption from monitoring  
14 strategies that are likely to be impacted by the use of  
15 alternate fuels until the 1999 model year.

16 This will provide additional leadtime to ensure  
17 that, when OBD II is fully implemented on these vehicles,  
18 the monitoring strategies will be accurate and reliable.  
19 The provision will further ensure that alternate fuel  
20 vehicles are not pulled from the marketplace due to the  
21 inability of manufacturers to fully comply with the OBD II  
22 requirements by 1996.

23 OBD II systems offer the potential to greatly  
24 simply inspection and maintenance testing in California.  
25 However, the success of such a program depends on the

1 integrity of the information provided by these systems.

2 As a result, the OBD II regulation contains a  
3 requirement for the programming in the vehicle's electronic  
4 control unit to be resistant to tampering.

5 The staff is proposing an amendment that would  
6 require enhanced tamper resistant measures to be implemented  
7 beginning with the 1999 model year for vehicles that can be  
8 electronically reprogrammed.

9 The staff's proposal calls for the use of data  
10 incryption and monitoring of vehicle reprogramming  
11 activities in the field.

12 The staff plans to continue discussions with the  
13 industry to ensure the on-board computers are secure within  
14 practical limits.

15 In summary, these proposed amendments, along with  
16 some more minor amendments presented in the staff's report,  
17 will help to maximize the effectiveness of OBD II systems  
18 while addressing nearly all of the implementation concerns  
19 expressed by manufacturers. The staff believes that the  
20 good working relationship with industry over the last five  
21 years has been a key factor in getting to this point.

22 And with the adoption of the amendments, the ARB  
23 and manufacturers will be able to turn from discussions  
24 regarding the development of the regulation to its  
25 successful implementation through the end of the nineties

1 and beyond.

2           The staff remains committed to following  
3 manufacturers' progress towards meeting the OBD II  
4 regulation, and will continue biennial reviews of the  
5 program.

6           Should implementation concerns remain, the staff  
7 would bring its proposals to address them to the Board.

8           This concludes the staff's presentation. Thank  
9 you.

10           CHAIRWOMAN RIORDAN: Thank you very much.

11           Mr. Boyd, are there any further comments on your  
12 part before we have questions from the Board members?

13           MR. BOYD: Not at this time, Madam Chair. Thank  
14 you.

15           CHAIRWOMAN RIORDAN: Okay. Board members, this is  
16 the time when it's appropriate to ask questions of staff.  
17 Are there any questions for staff?

18           MR. LAGARIAS: I have a few.

19           CHAIRWOMAN RIORDAN: Mr. Lagarias.

20           MR. LAGARIAS: I have some questions on  
21 evaporative system leaks.

22           But first, you indicated that for the 1994-96  
23 model year, that 35 engine families have been certified, and  
24 you gave some examples of the type of vehicles that were  
25 certified.

1           But this doesn't seem to be the more common engine  
2 families. So, my question on that is: Roughly, what  
3 percent of all the automobiles manufactured are represented  
4 by the 35 engine families that are certified? Just a rough  
5 figure.

6           MR. LYONS: My estimate would be around 20  
7 percent, 20, 25 percent right now.

8           MR. LAGARIAS: All right. That seems a little  
9 high to me. But on evaporative emissions, when you talk  
10 about leaks equivalent to a .02 or .04 inch hole, are these  
11 leaks or are these -- exactly what are we talking about for  
12 evaporative emission losses?

13           Are they diffusion or are they actually physical  
14 holes in the system?

15           MR. LYONS: We're talking about physical holes or  
16 cracks in the system.

17           MR. LAGARIAS: So that, presumably, better  
18 manufacturing -- you mean where they seal the welds and that  
19 sort of thing? Is it?

20           MR. ALBU: Yes. That's generally correct. Some  
21 of the things we're concerned about are high-mileage  
22 vehicles, whereby the aging process tends to cause problems  
23 with the sealing of these parts.

24           For example, there have been also some recalls in  
25 the last year -- a Jeep vehicle and a Chevrolet S10 truck --

1 where they have overtightened a fitting, and it tended to  
2 leak after a short while in service. On the Chevrolet  
3 truck, they had an improper weld process of the filler neck  
4 to the gas tank and, in this case, fuel could leak out as  
5 well.

6 And so, it's these kinds of problems. Plus, on  
7 high-mileage vehicles, when they end up in wrecking yards,  
8 sometimes people pull components off and they don't do a  
9 real good job of being careful.

10 So, there's all kinds of things can happen in the  
11 field to cause these kinds of leaks to occur. And we'd like  
12 to catch these as soon as possible

13 MR. LAGARIAS: All right. And the losses you  
14 predict are based on the difference in pressure between the  
15 pressure in the gasoline tank and the outer atmosphere?

16 MR. ALBU: That's correct. But I think some of  
17 the improvements in the newer systems are intended to reduce  
18 those pressures to make the impact less of an impact.

19 MR. LAGARIAS: Well, it seems to me that after the  
20 pressure is equilibrated, that the loss would just  
21 disappear.

22 MR. ALBU: Yes, that's true. But those are  
23 diurnal during each day where you have hot fuel being  
24 handled, the pressure -- the increase during that time would  
25 cause hydrocarbon emissions to --

1 MR. LAGARIAS: So, you're thinking it's the  
2 diurnal variations that cause these leaks, and that's how  
3 you get the grams per mile?

4 MR. ALBU: Right. We estimate a certain emission  
5 contribution over a certain time period, where we assume  
6 about 26 miles per day in average trip length.

7 MR. LAGARIAS: All right. And then it has nothing  
8 to do with trip length. If your car is parked in front of  
9 your house, twice a day there'll be leakages coming out.

10 MR. ALBU: Yeah. It's a way to correlate the  
11 estimate of exhaust tailpipe emissions.

12 MR. LAGARIAS: All right. And you think that by  
13 physical manufactured controls or design changes you can  
14 reduce these evaporative leaks?

15 MR. ALBU: Yes, I think that's true. But again,  
16 when vehicles get old and people try to fix problems and so  
17 forth and remove engines from vehicles, these systems get  
18 handled. And, as such, they may not go back together  
19 correctly. Some of the components may start to tear, and  
20 then we have problems.

21 And so, it's just -- especially vehicle age, and  
22 especially in California, for ozone impacts, we find that  
23 older vehicles do leak.

24 MR. LAGARIAS: Well, I can relate to that. I know  
25 that when I'm trying to fix my irrigation system, and to

1 prevent a leak by tightening it up too much, I create a new  
2 leak. Is that what you're saying?

3 MR. ALBU: Exactly.

4 MR. LAGARIAS: Thank you.

5 CHAIRWOMAN RIORDAN: Mr. Parnell, do you have a  
6 question?

7 MR. PARNELL: It was answered. Thank you.

8 CHAIRWOMAN RIORDAN: All right. Supervisor Vagim.

9 SUPERVISOR VAGIM: Thank you.

10 Just to extend on what Mr. Lagarias was saying, I  
11 guess this also could be called the fuel cap warning system,  
12 right? If you leave the fuel cap off at the service  
13 station, a little light will come on and say something's  
14 wrong?

15 MR. ALBU: That's correct. I think some  
16 manufacturers are designing secondary seals so that, even if  
17 you do leave the fuel cap off, it's still not giving off  
18 emissions.

19 SUPERVISOR VAGIM: So, you'll be able to save  
20 yourself in having to go to a hardware store to buy a new  
21 cap?

22 MR. ALBU: Right.

23 SUPERVISOR VAGIM: The three times and you get a  
24 fine across the fleet if a manufacturer has a three-plus  
25 deficiency, that's going to be extrapolated across the fleet

1 that they sell in that market year?

2 MR. ALBU: Yes. It'll be a fine per vehicle.

3 SUPERVISOR VAGIM: If they come in with a fix  
4 midyear, what happens?

5 SUPERVISOR VAGIM: The fine would go away.

6 SUPERVISOR VAGIM: From that point on?

7 MR. ALBU: Yes.

8 SUPERVISOR VAGIM: From the vehicles on the  
9 showroom floor, the vehicles that are sold, or how is that  
10 going to work?

11 MR. ALBU: Those vehicles with the compliant  
12 system would no longer carry the fine.

13 SUPERVISOR VAGIM: So, it would be at the point of  
14 manufacture, then basically.

15 These systems are going to -- I presume the ones  
16 that are in place, the 35 models, with their on-board  
17 diagnostic systems now, I presume they have the same size  
18 CPU that they're going to need for the regulation that's  
19 proposed in today's update?

20 MR. ALBU: That's probably true.

21 SUPERVISOR VAGIM: What about -- now, if these  
22 were larger CPU systems than were before and needed for  
23 monitoring fuel injection systems and that type of thing --  
24 I presume -- what -- what happens with heat?

25 I mean, heat is a big enemy of these things. And

1 has anyone gone through a "degrade" test on length of time  
2 of these things under the system of heat and --

3 MR. LYONS: We haven't heard any concerns that  
4 they can't handle the heat dissipation from these systems.

5 MR. CROSS: And they -- yeah, Tom (Cackette) said  
6 they've been on cars since 1980, and also --

7 SUPERVISOR VAGIM: But not this size. Not --

8 MR. CROSS: But the manufacturers are very aware  
9 of the problem, and typically mount the CPUs in places that  
10 are subject to severe heat loads, like the interior of the  
11 car, for example.

12 So, even though there are hot parts of the car,  
13 the computers don't generally see that.

14 SUPERVISOR VAGIM: What about loss of power and  
15 the regeneration of all the memory and all that type of  
16 stuff? Are you going to have backup power to these things?  
17 Because I know, if you lose your battery on the current  
18 ones, you got to go get the thing reprogrammed and drive it  
19 around for a while so it understands what it is, and who it  
20 is, and all that stuff.

21 Same problem here?

22 MR. LYONS: I believe they do use keyboard memory  
23 to some extent. And perhaps, if there is a power loss by  
24 disconnecting the battery or whatever, some information may  
25 be lost. But that's regenerated as the power is hooked back

1 up and the vehicle is driven again.

2 SUPERVISOR VAGIM: But you still have a -- I know  
3 for -- from just the vehicle I drive, if I do do that, the  
4 thing doesn't know where the fuel injection should be set.  
5 And you have to go through all these things.

6 And the manufacturer, or at least the dealer told  
7 me, they've got to drive at various speeds for a certain  
8 time. They call it "relearning the computer."

9 MR. ALBU: Yeah. The systems do go into a default  
10 program when that happens. And there is some relearning  
11 that takes place.

12 But it -- that process seems to be speeding up as  
13 of late.

14 SUPERVISOR VAGIM: So, it's not going to be a  
15 problem to the driver, though, that --

16 MR. ALBU: No, I don't expect that.

17 SUPERVISOR VAGIM: Now, what about this light?  
18 You know, we've had lights on vehicles before, and they've  
19 always been ignored.

20 As a matter of fact, they've been ignored to a  
21 point where the manufacturers have stopped leaving them on.  
22 The seat belt is an example. They used to leave them on.  
23 Now, they politely go away.

24 We're going to leave this on?

25 And the reason why they politely went away -- the

1 driver's got mad. "Don't tell me I don't have my seat belt  
2 on. I'll tell myself."

3 So, the manufacturers started just -- the seat  
4 belt light went away.

5 The same way with the 55-mile an hour light some  
6 manufacturers put on their cars. And some just put it on  
7 their -- if they had an analog speedometer, they would just  
8 put a line at 55. Those have all gone away, because people  
9 just don't like being told what to do.

10 Are we going to have that kind of consumer  
11 complaint issue here?

12 MR. ALBU: That's a good point, and it's one that  
13 we tried to address with the initial regulation. We think  
14 that the reason people got annoyed with the current lights  
15 is because they come on and then mysteriously go off, and  
16 they're not uniform.

17 When they come on, they don't stay on. And then,  
18 when you go to check out the system, the light's off and the  
19 code's gone.

20 So, what we've done is we've made it -- made sure  
21 that there really is a problem before the light comes on,  
22 and then we keep it on, unless it really has gone away.

23 And I think what we're going to find is that the  
24 owners will find that these systems confidently predict the  
25 problem, and then you're going to be able to find the

1 problem when the light does come on.

2 And I think the consumer -- at least, I'm planning  
3 on buying a new car, but I won't get one until it has OBD  
4 II, because I want this knowledge so that I can repair the  
5 car myself, actually.

6 SUPERVISOR VAGIM: You're not an exemption.

7 MR. ALBU: Hopefully.

8 SUPERVISOR VAGIM: But let me ask, though, because  
9 I remember when we had those lights that stayed on,  
10 particularly with a seat belt, a lot of folk out there  
11 dismantled them. It was against the law to do it, but they  
12 did it. What's going to stop them from doing this?

13 MR. ALBU: They could remove the bulb, for  
14 example. But what will happen is, with the on-board  
15 diagnostic system, when -- for example, if we go through a  
16 smog check, the smog check would involve hooking up the  
17 computer, not relying on just the light.

18 And even if they remove the bulb, the fault code  
19 would still be present, so --

20 SUPERVISOR VAGIM: I understand that.

21 MR. ALBU: But we also have a readiness code, so--

22 SUPERVISOR VAGIM: So, what's the purpose of the  
23 light then?

24 MR. ALBU: It's to inform the owner that a problem  
25 exists and that they should get it taken care of as soon as

1 possible. I think they might avoid other problems --

2 SUPERVISOR VAGIM: Wouldn't that be better if  
3 maybe at the start of ignition that the light would come on  
4 and tell them that they've got a problem versus leaving it  
5 on? Because I'm -- I know what happens out there.

6 You got probably 20 percent of the folks that are  
7 going to start dismantling that thing right away, because  
8 they don't want to go in when they have a problem if it's  
9 running right.

10 MR. CROSS: This is a little different from the  
11 sort of you-forgot-to-fasten-your-seat-belt-light, in the  
12 sense that -- that the purpose of the light is to inform the  
13 consumer that something is wrong with the car, and that they  
14 need to seek service to get it fixed, as opposed to there's  
15 a law that says you should buckle up your seat belt and the  
16 car's telling you to.

17 So, it's sort of -- you know, this isn't as severe  
18 as an oil pressure light, where the engine's going to fail  
19 if you drive it. But, on the other hand, the lights -- the  
20 timing of illuminating the light is such that -- that, when  
21 it goes on, it's telling you something needs to be fixed.

22 SUPERVISOR VAGIM: So, you --

23 MR. CROSS: We want it to be a little bit  
24 insistent.

25 SUPERVISOR VAGIM: I understand that. But as soon

1 as the -- and the public's not stupid. As soon as they  
2 learn that some of these things, when they're going back, is  
3 because they're one-and-a-half times over hydrocarbon  
4 limits, that's not going to be a sexy thing to want to keep  
5 that light on (sic.)

6 MR. CALHOUN: Well, I think, also, the point that  
7 Steve made that is a good one, and that is that the purpose  
8 of storing fault codes and new car warranties and all that  
9 is to that the -- so that the consumer will have a good  
10 experience.

11 In other words, they go into the dealer or the  
12 repair facility. They identify the problem properly the  
13 first time. They fix the car. The light is off. And the  
14 consumer goes on his or her merry way. As opposed to kind  
15 of what we experienced -- have been experiencing in the  
16 past, where you go in ten times and you don't know what's  
17 wrong.

18 And I think that this system is -- has to happen,  
19 I think, with computer controlled cars for them to really  
20 work right in the field.

21 MR. ALBU: Can I say just one more thing -- is  
22 that these systems are highly adaptable. So that, when a  
23 problem occurs, there's a lot of adaptation and correction  
24 that takes place automatically.

25 And when that light comes on, there's a pretty

1 good chance that part's pretty well shot and you probably  
2 want to replace it to avoid other problems with the car, and  
3 maybe even a problem with keeping it running.

4 SUPERVISOR VAGIM: So, you're not going to know,  
5 as a driver, whether that -- there is something majorly  
6 wrong or your hydrocarbon limit's overexceeded, or your  
7 misfire's overexceeded?

8 Of course, if your misfire's really overexceeded,  
9 you're going to know it, because you're driving a car --

10 MR. ALBU: Generally, the owner won't know the  
11 reason the light is on or whether it's emissions related or  
12 not. But they will -- it definitely will be the case if  
13 there's something wrong with the way the car runs. And they  
14 should be fixed.

15 SUPERVISOR VAGIM: When you have -- when the light  
16 comes on now, is this going to be taken to your friendly  
17 neighborhood, who now is going to have a Cray I computer to  
18 talk to the car, or is this going to have to go to a special  
19 dealer authorized now with the incryption? A handful of  
20 places per community?

21 MR. ALBU: Yeah, with OBD II, comes a generic scan  
22 tool requirement.

23 And this means that scan tools will be on the  
24 market, which a single unit can fix any make of vehicle.  
25 So, you do not have to go to a dealership, although most

1 people would under warranty. But once you're out of  
2 warranty, you do not have to go to a dealership.

3 SUPERVISOR VAGIM: Will this --

4 MR. ALBU: You will have a generic scan tool to --

5 SUPERVISOR VAGIM: Will these units be the --

6 inclusive with the emission tests that will be a part of the  
7 I&M?

8 MR. ALBU: Yes, they --

9 SUPERVISOR VAGIM: Or will they be --

10 MR. ALBU: -- they will use these tools to  
11 basically to read the codes.

12 SUPERVISOR VAGIM: They'll be coupled together as  
13 one unit --

14 MR. ALBU: Yes.

15 SUPERVISOR VAGIM: -- then.

16 MR. ALBU: Yes.

17 SUPERVISOR VAGIM: When these folks who want to  
18 pursue this, this level of on-board diagnostics as mechanics  
19 in the field, will they have to get a license by the  
20 manufacturer to be able to talk to the incryption?

21 How will that work?

22 MR. ALBU: The incryption would only be needed to  
23 reprogram a -- well, the security is in place to prevent  
24 tampering with the system.

25 So, what would happen is the -- if, for example,

1 an independent wanted to reprogram a vehicle with a running  
2 change that the manufacturer is putting out, then, through  
3 our proposal, they would use a seed and key arrangement to  
4 go through a host computer, and then they would use a E-  
5 PROM, ostensibly, to load in a protected software program  
6 into the computer.

7 It can be done by an independent.

8 SUPERVISOR VAGIM: Okay. But still, to shake  
9 hands with the master computer is going to be controlled by  
10 whom?

11 MR. ALBU: Under our proposal -- and there's still  
12 more discussion to go yet -- it would, right now, be with  
13 the manufacturer of the vehicle. It's just one way of  
14 keeping track and a record of who is entering the system and  
15 going into that record -- into those records, if we need to,  
16 to make sure there's no tampering going on.

17 SUPERVISOR VAGIM: Will they have control over who  
18 has access?

19 MR. ALBU: Not really. The access will be granted  
20 based on --

21 SUPERVISOR VAGIM: Well, I mean --

22 MR. ALBU: -- having a certified mechanic --

23 SUPERVISOR VAGIM: Okay. The word's "granted."  
24 Someone's got to grant.

25 Now, if there is a -- more than just a level of

1 expertise -- you're a good mechanic; you're a bad mechanic;  
2 you're too many mechanics -- what about that level of  
3 granting or not granting?

4 MR. ALBU: I think, to reprogram a car, it's a  
5 fairly straightforward operation. And since the mechanic  
6 really wouldn't be involved in that -- in changing anything,  
7 it's --

8 SUPERVISOR VAGIM: I don't mean that. I mean the  
9 ability to go in and access the master computer. If the  
10 manufacturer or whoever controls that is the grantee, who  
11 then is going to make the appeal if they feel they have  
12 everything within their power to be a good mechanic and sign  
13 on, but someone says, "Nope. You can't sign on."

14 MR. ALBU: Well, I think the only --

15 SUPERVISOR VAGIM: Who's going to make that  
16 decision?

17 MR. ALBU: -- grant that would be required is for  
18 us to -- is for the program going to the vehicle to be a  
19 certified program.

20 If that's the case --

21 SUPERVISOR VAGIM: Will that be -- will that be  
22 ARB's --

23 MR. ALBU: Yes.

24 SUPERVISOR VAGIM: -- position? We will do that?

25 MR. ALBU: We will decide which programs are the

1 ones which are acceptable for the computer to be programmed  
2 with, yes.

3 SUPERVISOR VAGIM: Okay. But the person who is in  
4 the field, the mechanic -- you understand what I mean -- is  
5 now going to be either granted or not granted, based on  
6 maybe some other decision. Who will --

7 MR. ALBU: I think they would be licensed --

8 SUPERVISOR VAGIM: -- who will be the judge of  
9 that?

10 (Thereupon the reporter requested the  
11 speakers to not speak simultaneously.)

12 SUPERVISOR VAGIM: Sorry.

13 MR. ALBU: I think they would be licensed  
14 mechanics to be able to perform this operation. You know,  
15 it's not totally worked out yet, but that would be the  
16 likelihood.

17 SUPERVISOR VAGIM: We have licensed mechanics all  
18 over California, and I want to know, if a dealer is not  
19 doing as well as --

20 MR. ALBU: I think --

21 SUPERVISOR VAGIM: -- he or she should be in the  
22 field, and they say there's too many mechanics out there, is  
23 it possible that this is one way to say, "Let's get rid of  
24 competition"? Don't license as many of those folks out  
25 there.

1 MR. CROSS: I think that the key here is that the  
2 reprogramming act is not a high-tech act, if you will. In  
3 other words, the mechanics aren't writing software or  
4 anything like that. They're just installing a program.

5 SUPERVISOR VAGIM: But they need to get access to  
6 shake hands, to reprogram. And if someone is saying that  
7 you can or can't get on, who's going to be the arbitrator of  
8 that?

9 MR. CROSS: Yeah. I guess it's our intent to  
10 essentially have anybody who's qualified be able to install  
11 the OEM's --

12 SUPERVISOR VAGIM: So, that'll be our --

13 MR. CROSS: -- reprogramming.

14 SUPERVISOR VAGIM: -- call then?

15 We'll say to the manufacturer, "You've got to hook  
16 this guy up," if he appeals and the manufacturers won't let  
17 him on?

18 MR. CROSS: Yeah. I mean, I -- and I guess the --  
19 as Steve said, it's not fully worked out. But we've been --  
20 we've been working with both the service industry and the  
21 manufacturers to endeavor to have a situation where the  
22 service industry has access to this stuff.

23 SUPERVISOR VAGIM: I just want to make that a  
24 point, though, on record. It could be a problem.

25 (Thereupon, several staff and Supervisor

1 Vagim spoke simultaneously, making it  
2 impossible for the reporter to capture  
3 their statements.)

4 MR. LYONS: Also, EPA is working on a regulation  
5 right now that would require manufacturers to provide access  
6 to the independent technicians.

7 SUPERVISOR VAGIM: Now, let's go to another  
8 subject, incryption.

9 Have you talked to the computer folks of the world  
10 to see how secure incryption is, especially of those hackers  
11 who can get the whole unit and actually see the code come  
12 out, incrypted or not incrypted? Is the CPU going to have a  
13 way of an instruction it only understands, and so you're  
14 fairly secure that incryption's going to be the master of  
15 all things?

16 You're never going to have somebody hacking into  
17 that system, huh?

18 MR. ALBU: I think that it's fair to say, and as  
19 was said in the staff presentation, that we're looking for a  
20 practical means or practical level of security.

21 Obviously, the most intent, capable hacker,  
22 probably can still get in.

23 SUPERVISOR VAGIM: Go ask the Department of  
24 Defense, or NASA, or some banks, and those types of things.

25 MR. ALBU: We understand. We're aware of their --

1 and we are concerned, and that's why we are going a little  
2 bit further with --

3 SUPERVISOR VAGIM: Yeah. I mean, the question is,  
4 because of incryption, are we creating an artificial black  
5 market?

6 MR. LYONS: Yes, also, besides the incryption, our  
7 proposal talks about requiring access to a central computer.  
8 So that, if there is a person with that expertise out there,  
9 if they're doing this reprogramming on a frequent basis,  
10 we'll have some way of monitoring that.

11 SUPERVISOR VAGIM: Well, of course. But, if  
12 indeed you -- if you could hack in, you could build your own  
13 artificial look-alike central computer and the system won't  
14 know.

15 It's not like you and me talking to each other --  
16 the facial expressions. It just kind of knows black and  
17 white and ons and offs.

18 So, my question is, though, if we create an  
19 artificial black market, do we have anything in place to  
20 intercept that? Because I'll guarantee you, there'll be an  
21 artificial black market. I might get into it myself.

22 (Laughter.)

23 SUPERVISOR VAGIM: But, no, I mean --

24 CHAIRWOMAN RIORDAN: No, you didn't mean that,  
25 Supervisor Vagim.

1 (Laughter.)

2 SUPERVISOR VAGIM: No, I don't. But I mean, there  
3 are -- I'll tell you, there are some kids out there you  
4 cannot believe. And they'll spend 24 hours -- they won't  
5 sleep until they bust it. It's a challenge to them.

6 If you create through incryption versus just say,  
7 "Look, folks, this is it, and we have a way of testing to  
8 see if it's been modified," then you stop the black market.

9 And I think we're creating a black market with  
10 this.

11 Thank you, Madam Chair.

12 CHAIRWOMAN RIORDAN: Thank you.

13 Yes, Mr. Calhoun?

14 MR. CALHOUN: I guess I'd like to go back to the  
15 question Mr. Lagarias asked earlier about the percentage of  
16 vehicles that have been certified, I guess within 19-- with  
17 the OBD systems. And, Allen, as I recall, you said  
18 something about approximately 20 percent?

19 MR. LAGARIAS: 25.

20 MR. CALHOUN: 20, 25 percent? That, to me, is an  
21 indication of the complexity of the on-board diagnostic  
22 regulations. And I happen to believe that these regulations  
23 are probably the most complex regulations that the Board has  
24 ever adopted. And I am very concerned that we not make  
25 things too complex, such that we'd have a lot of unhappy and

1 irate customers.

2           And, in particular, the false lights, if that  
3 should happen -- and you know what's going to happen. The  
4 same thing will happen that happened with the safety belts.  
5 People get in an uproar and we'll have a problem on our  
6 hands and have to change it.

7           So, I think we ought to be certain that we are  
8 taking the appropriate steps and not making things too  
9 stringent, such that we may get some false lights. And I'm  
10 sure we'll probably hear some more testimony in that regard  
11 later on today.

12           But let me ask one other question.

13           Will you identify for the Board those areas where  
14 you added stringency?

15           MR. LYONS: In today's proposal?

16           MR. CALHOUN: Yes.

17           MR. LYONS: The only thing I can think of is the  
18 enhanced tamper resistance requirements and the evaporative  
19 system.

20           MR. CALHOUN: Okay. So, those are the two added  
21 stringency requirements.

22           MR. LYONS: Right.

23           MR. CALHOUN: Okay. You also make a point of the  
24 need for control of evaporative emissions. But yet, I know  
25 that the industry has experienced a lot of difficulty in

1 meeting a 40 thousandth's requirement.

2 And we're proposing to phase in something that's  
3 more stringent on top of the 40 thousandth something that --  
4 I gather that we're quite certain -- that the industry is  
5 going to be able to meet with a lot of ease. We're phasing  
6 in a 40 thousandth requirement.

7 And at the beginning of the -- at the end of the  
8 phase-in of the 40 thousandth requirement, we are imposing  
9 another more stringent requirement, and I'm very, very  
10 concerned about as to whether not the industry will be able  
11 to, in fact, comply with that. And I'm sure we'll hear more  
12 in that regard later on, also.

13 Okay. That concludes my questions.

14 CHAIRWOMAN RIORDAN: All right. Thank you, Mr.  
15 Calhoun. Ms. Edgerton.

16 MS. EDGERTON: Mr. Kenny and legal counsel (Mr.  
17 Terris), I guess one of my questions, following on on  
18 Supervisor Vagim's, is what sort of intellectual property  
19 protections do you expect the manufacturers to claim for  
20 their OBD II? And will there be criminal or civil charges?

21 This may be jumping ahead of everything. I don't  
22 want to be -- but it does occur to me that that is an  
23 underlying question.

24 I would be interested as well in knowing who is  
25 expected to own the software, who's expected -- this may not

1 be the forum -- you may not be prepared for all of it. But  
2 it wasn't in any of the material -- who's going to own it  
3 and what are the protections for ownership? And if they  
4 want to have -- is it required that the Chrysler Neon go  
5 back to Chrysler when the light goes on?

6 I mean, will they be able to? It sounds like US  
7 EPA's going down a different route, saying that they have to  
8 let it go back to any old person who's never seen a  
9 computer.

10 I'm not saying that US EPA's doing that. But,  
11 anyway, it was just a question.

12 MR. KENNY: I'm not prepared to answer it at the  
13 moment. We will be discussing it, though, with the  
14 manufacturers' representatives to determine essentially what  
15 is the most appropriate way to sort of resolve the issue  
16 that you're raising.

17 But I don't have an answer right now.

18 MS. EDGERTON: Well, good. I'm glad to hear that  
19 you're working on it. And I guess my request would be that  
20 we get some sort of response on that as quickly as possible.  
21 I'm sure it's something that the manufacturers would be  
22 interested in.

23 And I think that it's very important in terms of  
24 how this program might relate to I&M generally and to the  
25 black market issues. These are issues that the whole

1 nation's facing with all -- which is your point -- which is  
2 with all of the computer software programs, and hackers, and  
3 so forth.

4 So, there's undoubtedly a lot that we can draw in  
5 developing our program on that.

6 I have another sort of line of questions that I  
7 wanted to ask about. And this follows up on a couple of  
8 other questions about these 35 engines -- engine families.

9 How many -- again, how many engine families are  
10 there in the universe of engine families that we regulate?

11 MR. LYONS: 150, I guess.

12 MS. EDGERTON: Pardon?

13 MR. LYONS: About 150.

14 MS. EDGERTON: About 150? Sorry?

15 MR. LAGARIAS: Maybe you better ask how engine  
16 families represent 95 percent of the cars produced? Because  
17 there are a lot of specialty engine families that are very,  
18 very limited in production.

19 MS. EDGERTON: I'd like to ask --

20 CHAIRWOMAN RIORDAN: Mr. Lagarias' question?

21 MS. EDGERTON: -- Mr. Lagarias' question.

22 (Laughter.)

23 MR. CROSS: Well, I would --

24 MR. LAGARIAS: It's an estimate. We recognize  
25 that.

1 MR. CROSS: See if I can bring this thing to light  
2 here. The range -- first of all, in response to the first  
3 question, it's probably somewhere between 150 and 200 total,  
4 depending on how -- where you draw the lines between cars  
5 and trucks and various model years and things like that.

6 And probably two-thirds of that would get you up  
7 to 95 percent.

8 MS. EDGERTON: Two-thirds of the --

9 MR. CROSS: Of the total number.

10 MS. EDGERTON: -- 150 is around 100, so ---

11 MR. CROSS: Yeah. Yeah.

12 MS. EDGERTON: -- about a hundred?

13 MR. CROSS: In other words, if you look at it --  
14 remember, when you look at the -- when we did the ZEV  
15 regulation, remember, there was -- there were a whole bunch  
16 of large volume manufacturers and with large, large engine  
17 families. And then there was a large number of sort of  
18 intermediate and smaller families, which are still  
19 significant in volume.

20 And then there are tiny ones, like the Ferraris  
21 and some of that stuff.

22 And so, you, I guess -- in my view, probably two-  
23 thirds of it's going to cover the breakpoint of all of the  
24 big ones, big families, and most of the intermediate, and  
25 the top of the smaller ones.

1 MR. CACKETTE: Just for your information, the  
2 distinguishing characteristic of all the cars that you saw  
3 on that list is that they're new models -- Windstar,  
4 Mercedes 220, for example, Neon. And the reason for that is  
5 that the regulations were purposely designed to have a  
6 phase-in that allowed the manufacturers to incorporate OBD,  
7 when they were making new models, with new, more powerful  
8 computers in it.

9 So, that's what you see up there in general.

10 MS. EDGERTON: Uh-huh.

11 MR. CROSS: And then, those computers are  
12 generally applied to other model lines, as time progresses,  
13 when they're redone.

14 MS. EDGERTON: So, I'm trying to get this in  
15 context.

16 So, that's -- so, your point, though, changes the  
17 question, because I was going to say 35 is what percentage?  
18 Actually, it'd be 35 of 100. So, I was trying to understand  
19 the context.

20 But, actually, since it's based on new models,  
21 it's a different --

22 MR. CROSS: Right.

23 MS. EDGERTON: -- approach.

24 I was interested in the deficiencies discussion,  
25 because I wondered whether there were particular areas of

1 those six areas where you find more deficiencies. I mean,  
2 is there a pattern of some -- like evap emissions or some of  
3 the other components of OBD, the measurements that -- where  
4 you find more deficiencies?

5 I mean, are manufacturers -- are the larger  
6 manufacturers having more difficulties with some parts of  
7 OBD II than other parts?

8 MR. LYONS: I don't think there's any one  
9 requirement that has provided -- you know, has been a big  
10 problem across the whole -- all of the manufacturers.

11 I think most of these deficiencies have generally  
12 been fairly minor mistakes that can be corrected in the next  
13 model year. So, they're not major technological problems.

14 MR. CROSS: It's more a matter of -- excuse me.  
15 It's more a matter of almost communication between staff and  
16 manufacturers during implementation of the regulation.

17 In other words, since a lot of these things are  
18 relatively new, the manufacturers think they've met the  
19 letter of the requirement, and they haven't quite, or they  
20 tried and they didn't quite make it for some technical  
21 reason.

22 And the deficiencies essentially let us certify  
23 those manufacturers with partially compliant systems to get  
24 them through the year, rather than not certify them, and ask  
25 them to go tear up systems which are otherwise okay.

1           So, it's -- but the range of problems is fairly  
2 broad.

3           MS. EDGERTON: Well, I just want to try to get a  
4 sense of how this rolls in terms of the deficiencies.

5           For example, if they can get it -- if Chrysler can  
6 get it to work on the Neon, as you have listed here -- I  
7 guess, when you say it's certified, that means that the Neon  
8 has met all six of the expanded monitoring requirements of  
9 OBD II?

10           Does that -- is that what certification means?

11           MR. ALBU: The Neon has met all the requirements  
12 of the regulations. It has two deficiencies currently; one  
13 is for misfire and one is for a purge valve monitor.

14           MS. EDGERTON: Okay. Now, in your experience, is  
15 what happens that, in the 1994, you might have the Neon miss  
16 on two, so it gets certified. But then it's fixed in the  
17 1995 model, or is it still there in the 1995 model?

18           Are the deficiencies still there in the 1995  
19 model?

20           MR. LYONS: A lot of the problems, in the case of  
21 the Neon, a lot of the 1994 problems were corrected in 1995.

22           MS. EDGERTON: So, your experience is that it's  
23 not that the new model that comes in with a couple of  
24 deficiencies remains static with those deficiencies, because  
25 we are not asking -- because we have an exit, or because we

1 have an exception, or because we allow a couple of  
2 deficiencies -- it's that they do go ahead and fix those  
3 deficiencies.

4 Well, that was the concern -- a concern, because  
5 again, the reason of my line of questioning is that we have  
6 to put this in the context of the emissions reductions. And  
7 you made clear that with each -- each of these areas we are  
8 monitoring under OBD II, there are important emissions  
9 reductions at issue. And so, it's clear that it's --  
10 achieving this, in staff's view, is technologically  
11 feasible. It's clear that it's technologically feasible  
12 because in the -- new models the companies are making are  
13 achieving it.

14 Are any of the models a hundred percent compliant?

15 MR. LYONS: Yes, there are some.

16 MS. EDGERTON: And on this list, for example,  
17 which, can you tell me?

18 I'd like to, if you --

19 MR. LYONS: There are obviously a lot of other  
20 models that aren't on this list. And I think, for example,  
21 there's three or four Nissan engine families that aren't --  
22 have no deficiencies.

23 MS. EDGERTON: No deficiencies?

24 MR. LYONS: Right. But I think the Maxima is on  
25 the list, and that isn't one of them.

1 MS. EDGERTON: Uh-huh. Well, that's very good.  
2 So, we know that it's technologically feasible for the  
3 companies to meet all six of these. That's not a question.

4 And it's cost feasible for some of the people  
5 here, and we need the emissions for clean air. So, that's  
6 why I was just checking here to make sure that you're  
7 getting a lot of cooperation in terms of removing those  
8 deficiencies with respect --

9 MR. CROSS: The answer is yes. And I think that  
10 Joe's point earlier is well taken. The system is a very  
11 complicated, far-reaching system that's being asked to do a  
12 lot. And the manufacturers are trying to go down a whole  
13 lot of technical paths at the same time to develop a good  
14 OBD system.

15 And the idea of the deficiencies was essentially  
16 to not be unable to certify them if they run into some  
17 problems with this complexity in the first or early go-  
18 arounds on it.

19 But I don't think that the purpose of the  
20 deficiency was to say -- was to cover up technological  
21 infeasibility. It's more a matter that it's just a very  
22 complicated engineering task to accomplish.

23 MS. EDGERTON: Thank you.

24 MR. CALHOUN: I guess I'd like to add something--

25 CHAIRWOMAN RIORDAN: Mr. Calhoun.

1 MR. CALHOUN: -- something to that.

2 If there is a deficiency, I don't think it  
3 necessarily means that you can --it could be fixed. But  
4 this also may mean, in a very expensive process, may mean  
5 tearing up something.

6 And so, I don't think it's sort of as simple as it  
7 sounds -- that you see something that's there this year, and  
8 it's automatically going to be fixed the next year.

9 The manufacturer will fix it, but I think that to  
10 insist that it be fixed the following year is going to be --  
11 is going to require -- it could, in many cases, require some  
12 kind of expensive redo of an engine or something else. And  
13 I think they would like to sort of work this out themselves,  
14 so as to minimize the cost. They'll get fixed. I don't  
15 think there's any question about that.

16 MR. CACKETTE: I just want to comment. That's one  
17 of the reasons why we let some carryover in deficiencies,  
18 because you might design a system that turns out to be --  
19 expected to meet a hundred percent of the requirement and it  
20 meets 90, and it turns out that you have to change the  
21 system to get that last 10 percent.

22 That lets you have a -- by not eliminating --  
23 allowing some carryover, that helps in that situation.

24 But, when going back to the Neon example, I just  
25 wanted to make sure that the Board understood that having a

1 deficiency does not mean that the system in general, at  
2 least the critical systems, are inoperative or absent from  
3 the vehicle.

4           What it usually means is that, in the case of  
5 misfire, they weren't able to detect all of the misfire  
6 under all of the operating conditions, but only under most  
7 of them.

8           So, these cars still, even with deficiencies,  
9 provide the mechanic a way of diagnosing most of the  
10 problems and warn the owner appropriately that there's a  
11 misfire before their catalyst dies.

12           CHAIRWOMAN RIORDAN: All right. Any other  
13 questions?

14           Then, I'd like to go now to the witness list. And  
15 let me begin with Barbara Wendling, representing the  
16 American Automobile Manufacturers Association.

17           If you'd come forward, please, to the podium?

18           MS. WENDLING: I'm Barbara Wendling. I'm with the  
19 American Automobile Manufacturers Association.

20           AAMA filed written comments earlier in the week,  
21 which detailed the issues, which I will just briefly discuss  
22 here.

23           AAMA appreciates the staff's efforts to understand  
24 and to address concerns our member companies have raised  
25 regarding OBD II regulations.

1 Many of the major issues will be resolved if the  
2 proposed revisions are approved. This will improve a  
3 manufacturer's ability to -- to meet the requirements.

4 Given the extremely technology-forcing nature of  
5 OBD II requirements, this is a significant achievement,  
6 which couldn't have been realized without substantial  
7 cooperation between the staff and manufacturers.

8 However, a few outstanding concerns merit further  
9 discussion. Regarding LEV catalyst monitoring requirements,  
10 AAMA appreciates the staff's willingness to switch from an  
11 efficiency monitor to one tied to the applicable standards  
12 as well as the allowance for a three-year phase-in.

13 However, manufacturers are still investigating the  
14 viability of monitoring small catalyst volumes, which  
15 involve substantial redesign of catalysts and exhaust  
16 systems.

17 It remains unclear at this time whether this  
18 method will work across all model lines and under all in-use  
19 conditions. Given the difficulty and uncertainty of meeting  
20 this requirement, AAMA recommends that the applicable phase-  
21 in standards -- percentages for the first two model years be  
22 reduced to 30 percent in the first year and 60 percent in  
23 the second year.

24 This allowance would relieve the burden of  
25 compliance somewhat in the short run, while still preserving

1 the full implementation date.

2 In addition, AAMA requests that a workshop be held  
3 in 1996 to assess manufacturers' progress in meeting this  
4 requirement.

5 Regarding evaporative system monitoring  
6 requirements, AAMA continues to question the feasibility of  
7 meeting a 20 thousandth's inch leak detection criterion  
8 using current monitor -- current hardware and strategies.

9 Our members companies that use vacuum-based  
10 monitors believe that major hardware and software changes  
11 may be needed to detect smaller leaks, while still avoiding  
12 an unacceptable risk of false MIL illumination.

13 Such modifications will require additional  
14 leadtime beyond the model year 1998. AAMA recommends that  
15 the workshop requested for calendar year 1996 also assess  
16 manufacturers' progress in meeting this requirement.

17 Regarding misfire monitoring requirements, AAMA  
18 appreciates the staff's willingness to work with  
19 manufacturers on this issue and the allowance for a  
20 phase-in. The propose changes increase flexibility as well  
21 as the likelihood that manufacturers will eventually be able  
22 to comply with the requirement.

23 However, AAMA member companies are still concerned  
24 about a few of the most difficult engines. In view of these  
25 concerns, AAMA again recommends that the workshop requested

1 for calendar year 1996, also assess manufacturers' progress  
2 in meeting these requirements in the phase-in percentages.

3           Regarding diesels, the staff has proposed that  
4 monitoring requirements be implemented in model year 1998.  
5 Manufacturers are especially concerned about misfire for  
6 diesels. Diesels vibrate much more than gasoline vehicles  
7 and manufacturers aren't sure that the current monitoring  
8 techniques will enable the OBD system to sort misfire from  
9 normal engine operation.

10           Because of this uncertainty, AAMA recommends that  
11 the workshop in 1996 also evaluate manufacturers' progress  
12 in this area.

13           Regarding comprehensive component monitoring, AAMA  
14 member companies continue to be concerned with the current  
15 wording of the requirement, which seems to entail enormous  
16 liability for manufacturers.

17           AAMA does not object to the apparent intent of the  
18 requirement, and agrees that some components not included in  
19 the systems required to be monitored by the OBD system  
20 should be monitored. But the wording of the current  
21 requirement makes manufacturers responsible for monitoring  
22 every component which could have any impact on emissions  
23 under all driving conditions.

24           AAMA recommends that the requirement be limited to  
25 electronic components that have a significant adverse impact

1 on emissions over the current FTP driving cycle.

2       Regarding proposed revisions to the antitampering  
3 provisions, AAMA recommends that this issue be deferred to a  
4 future rulemaking following publication of the EPA rule on  
5 final -- final rule on OBD service information.

6       Without knowing the scope of these pending  
7 requirements, it's impossible to assess the risk of  
8 tampering and to make appropriate recommendations. There is  
9 great incentive for manufacturers to prevent in-use  
10 tampering. And should the need arise, manufacturers will  
11 work cooperatively with the Air Resources Board and the  
12 Society of Automotive Engineers to develop appropriate  
13 standards.

14       However, if the Air Resources Board believes that  
15 the antitampering provisions must be strengthened now, then  
16 AAMA recommends that incryption or control of the software  
17 through a host computer by the -- maintained by the  
18 manufacturer be required rather than both simultaneously.

19       AAMA member companies are not currently planning  
20 on redundant antitampering measures.

21       Regarding statistical MIL illumination protocols,  
22 AAMA member companies have developed and refined monitoring  
23 strategies based on the use of exponentially weighted moving  
24 averages -- otherwise called EWMA. This is a statistical  
25 protocol that allows manufacturers to optimize monitoring

1 logic in order to minimize false MIL illumination while  
2 maximizing true and rapid MIL illumination.

3           The current regulations limit the degree to which  
4 manufacturers can optimize with EWMA by restricting the  
5 average run length to six trips. AAMA has recommended that  
6 the limit be raised to a maximum of ten instead. This  
7 allowance is expected to be especially critical for the LEV  
8 catalyst and evaporative system monitors, which are  
9 particularly difficult to implement.

10           Finally, regarding in-use recall provisions, AAMA  
11 continues to believe that the punitive use of recall for OBD  
12 is inappropriate, especially in the early years of  
13 implementation.

14           OBD II is an extremely challenging requirement  
15 from a technical standpoint, and has required manufacturers  
16 to implement complicated designs for which they have no in-  
17 use experience.

18           Under the circumstances, it will be surprising if  
19 there aren't problems that crop up in-use in spite of  
20 manufacturers' best efforts to avoid them.

21           Therefore, AAMA recommends that there be a  
22 moratorium on OBD II system recalls for model years 1994  
23 through 1996. However, if CARB considers the moratorium too  
24 extreme, AAMA recommends that the recall criterion of two  
25 times the applicable standard for model years 1994 and 1995

1 be extended to 1996, in recognition of the fact that 1996 is  
2 the first year of full OBD II implementation.

3 AAMA also recommends that OBD recall liability be  
4 limited to cases where the failure of the OBD system  
5 involves failure to detect a faulty or deteriorated  
6 component which, in fact, caused the vehicle to exceed one  
7 or more emission standards.

8 Thank you. I'd be happy to answer any questions.

9 CHAIRWOMAN RIORDAN: Ms. Wendling, thank you very  
10 much. Let me ask staff, perhaps before the Board members  
11 respond, there's been some -- a number of suggestions, and  
12 would you have any comments at this point about some of the  
13 suggestions from the American Automobile Manufacturers  
14 Association?

15 MR. CROSS: Yeah, we can -- we'll go back and  
16 forth on this. There were so many suggested changes that I  
17 think I'll hit a few, and then we'll go from there.

18 On the change on the phase-in, the 30 and 60  
19 percent, the staff thinks that's okay. There were a number  
20 of items for which the manufacturers asked for a workshop in  
21 '96 to evaluate progress, and the staff was planning on  
22 doing that anyway, and thinks it's a good idea to  
23 periodically evaluate progress.

24 And, in fact, Steve and Allen are, I would say,  
25 continuously evaluating progress. They're overworked

1 because of evaluating progress, in terms of meeting with  
2 manufacturers to make sure that we're really up to date on  
3 it.

4 So, that suggestion I think we're planning on.

5 On the -- let's see, there were a couple here at  
6 the end. Antitampering, we're opposed to that. And we're  
7 opposed to deferring that until EPA acts. We think our  
8 proposal's a reasonably good one, but also I would suggest  
9 that we have a lot of witnesses that are going to talk about  
10 those portions of the regulation, I think, later on today.

11 So, maybe we can defer that discussion till then.

12 EWMA, the staff has had extensive -- that's the  
13 statistical monitoring.

14 The staff has had extensive exchanges with  
15 industry on this, and we believe that it's -- statistical  
16 monitoring is an excellent way to identify defects. But  
17 we're very opposed to raising the threshold from six to ten.  
18 We think that six is enough.

19 When you get into evaluating the performance of  
20 these systems, you can get -- you can get into a situation  
21 where you can't determine whether or not the systems works  
22 very well or not if the time to turn the light on gets to be  
23 excessive. And we felt and have felt that six is  
24 sufficient.

25 The staff has done an awful lot of statistical

1 analysis on its own of this, and I think that if this  
2 suggestion turns out to be of interest to the Board, I think  
3 GM, in its comments, will probably talk about it again, and  
4 we can pursue it further at that time.

5 On the recall, that one was one that I wasn't as  
6 sure about. Do you want to -- you can rewind on a couple,  
7 too.

8 MR. ALBU: I guess, regarding comprehensive  
9 component monitoring, I -- you know, they're raising a  
10 concern here about wanting to circumscribe the requirements.

11 I think that it's worrying about -- a lot of  
12 worrying about something that's not that big of an issue,  
13 because we've already met with industry. And all of these  
14 models that are being certified right now, we've already  
15 gone down the list of components that we think affect  
16 emissions. And we've had discussions about which ones have  
17 a measurable impact.

18 And I think we've come to a pretty good consensus  
19 about what those components are. And so, I don't think  
20 that, based on the fact they've given us data, we've agreed  
21 to the monitoring of that component, I don't think there's a  
22 real issue here that's real significant.

23 I'm not sure exactly why it's so important.

24 In terms of the recall provisions, you know, it's  
25 not our intent in these first years to really come down hard

1 on manufacturers. We've shown that by the fact we keep  
2 revising things.

3 And, in fact, our language is written in the  
4 recall part of the regulation a bit loosely so that a legal  
5 person couldn't just order a recall without a lot of  
6 difficulty, actually, in these first few years.

7 In other words, the recall will be based on  
8 looking at a number of factors like good-faith effort, how  
9 far above the standard were you when a part failed and there  
10 was no light on, this kind of thing.

11 What they're asking for here in particular in the  
12 last part of the response is to extend the recall liability  
13 of two times the standard for 1994 models and '95 models  
14 through '96 models, since those will be mostly -- most  
15 models will be phased in in 1996.

16 This only applies to Tier 1 vehicles, the current  
17 .25 hydrocarbon vehicles. And those thresholds are already  
18 very large. And I have no evidence so far that this is a  
19 real problem, these thresholds are a problem on these kinds  
20 of vehicles.

21 And we've had two years of experience already.  
22 So, I'm not sure that there's a real need for Tier 1  
23 vehicles in 1996 to have additional relief.

24 It's just something that I guess the Board could  
25 decide. But I don't feel real strongly about it. But I

1 just don't see the need for it either.

2 CHAIRWOMAN RIORDAN: Thank you. Have Board  
3 members questions? Mr. Calhoun.

4 MR. CALHOUN: Yes. May I? Let me just expand a  
5 little bit. What the AAMA is asking is that the recall  
6 threshold be extended to -- from 1994-95 to just one model  
7 year. And we're kind of operating in the area of "unknown."  
8 We're not quite certain what's going to happen.

9 So, I can understand the request that's being made  
10 and why it's being made, because this is -- as I said  
11 earlier -- is a very, very difficult requirement that has to  
12 be met. So, I'm not so sure that that's an unreasonable  
13 request, especially as you start looking at the LEV and the  
14 ULEV level. I'm really concerned about when we start  
15 dropping down to those levels.

16 MR. ALBU: Again, these are Tier 1 vehicles where  
17 the thresholds are very wide. By the way, for -- well, like  
18 I say, I don't have a big problem if the Board wishes to  
19 give that a further allowance. That's, you know, I defer to  
20 the Board's discretion.

21 MR. CALHOUN: Another question I'd like to ask --

22 MR. ALBU: You could have an increase effectively  
23 up to .5 grams per mile on a .25 car. That's a lot of  
24 leeway.

25 These systems adapt a great deal before you even

1 have a problem. And once a component gets to that point,  
2 it's so bad that it's going to be easy to find. So, I  
3 really don't think there's a big risk here.

4 And I think it's, again, it's worrying about  
5 things that really aren't as big an issue as you might  
6 think. It sounds bad, but it isn't that bad.

7 MR. CALHOUN: Well, I think we're going to hear  
8 from the member companies.

9 But let me ask one other question that -- I guess,  
10 Bob, you commented on the EWMA statistical methodology. The  
11 whole purpose in that, as I understand it, is to sort of  
12 minimize the probability of having false lights, and how  
13 comfortable are you that that won't be a problem if the run  
14 is restricted to just six?

15 MR. CROSS: Well, I think, first of all, we -- the  
16 original OBD regulations limited it to two trips, and there  
17 was no, essentially, consideration of the -- how can I say  
18 it -- the statistics of having the system evaluate itself  
19 over, and over, and over again throughout the life of the  
20 vehicle.

21 And our original two-trip requirement was tied to  
22 basically just looking at what you had to identify and  
23 whether or not there was a reasonable chance you would  
24 identify it without false indications virtually all the  
25 time.

1           And the regulations were adopted with that, and I  
2 think that it was a -- it was a view which the staff was  
3 strongly in favor of, because it was easy to enforce.

4           In other words, you could bring a car in and test  
5 it twice. And either the light was on saying there was a  
6 problem or it wasn't.

7           And GM has rightly, I think, brought up the issue  
8 of when things move around, as the cars age, statistics come  
9 into play. In other words, you're doing the tests over, and  
10 over, and over, and over again, many, many thousands or  
11 hundreds of thousands of times, depending on what the --  
12 what the component is.

13           And they were concerned about the possibility of  
14 having a situation where a light would be falsely  
15 illuminated and left on. The consumer would go in and seek  
16 repair, and then -- and have nothing really wrong with the  
17 car.

18           And so, we gave us on this, after extensive  
19 interaction with both GM and the statistical efforts --  
20 experts who developed the EWMA, to essentially, in our view,  
21 minimize the risk of false MILs, and yet at the same time  
22 minimize the risk of having a system which is -- how can I  
23 say it -- hard to -- hard to evaluate, from a regulator's  
24 perspective, to determine whether or not it's working right.

25           And I think, also, another sort of philosophical

1 discussion that has gone through an awful lot of the  
2 exchange about the use of statistics, is that statistics can  
3 also be used to lower the cost or quality, if you will, of  
4 the monitor itself. In other words, the sensor.

5           You can use a less high-quality sensor if you use  
6 statistics to evaluate the less-good signal coming from the  
7 sensor to determine whether or not you had a problem.

8           And I think the original OBD view was use the best  
9 sensor you can. I think that our current view is still use  
10 the best sensor you can within reasonable cost limits. And  
11 the monitoring criteria, which we've established or  
12 proposing, basically are tied to the view of using the --  
13 you know, a very good sensor and a very good evaluation  
14 algorithm which will involve statistics, and EWMA in GM's  
15 case.

16           But we don't believe that broadening the number of  
17 trips at this point, after all the exchange -- and there  
18 have been multiple workshops on this issue -- will produce a  
19 significant benefit for anyone in terms of -- it may reduce  
20 false MILs a little bit, but we think it also makes it much,  
21 much harder to evaluate whether or not the system is  
22 properly working.

23           None of the other manufacturers have asked for  
24 this kind of allowance that I'm aware of. Maybe staff can  
25 correct me on that.

1 MR. ALBU: I think some may use some portion -- in  
2 some portions, their systems may use this in the future.  
3 But none are really coming -- asking for this requirement as  
4 much as GM is.

5 MR. CROSS: In terms of -- no, what I'm saying  
6 specifically is, has anyone else asked for the six trips to  
7 be increased to some other number and, if so, what was it  
8 and why?

9 MR. LYONS: I think Steve's right. It's primarily  
10 GM that's asking for the extension to ten trips.

11 I guess one the things, too, is that when we say  
12 six trips, that's six trips on average. And one of the  
13 things we're concerned about is the variability there. And  
14 six trips on average could mean for some vehicles that the  
15 light doesn't come on till ten or twelve trips.

16 And when you go to ten trips on average, the  
17 variability increases even more. And so, there may be 20  
18 trips before a light is on.

19 CHAIRWOMAN RIORDAN: Ms. Wendling, did you wish to  
20 comment?

21 MS. WENDLING: Yes, just briefly. I'm not a  
22 statistical expert, but it is my understanding that EWMA  
23 protocols will always light the MIL sooner for a real  
24 failure and will have fewer false failures than any other  
25 technique out there.

1           And, as you know, AAMA represents all three  
2 American automobile manufacturers, not just General Motors.  
3 So, Ford and Chrysler are behind this request as well.

4           The only case in which EWMA would not light the  
5 lights sooner than other protocols that are being used is if  
6 there was a step function change to the standard. And then,  
7 it would take longer for the MIL to light.

8           But that's a very rare, you know, condition.

9           MR. CROSS: It happens, though. The wires --

10          MS. WENDLING: We have step function changes to  
11 the standard?

12          MR. CROSS: No.

13          CHAIRWOMAN RIORDAN: One at a time, please, for --

14          MR. CROSS: I think that --

15          CHAIRWOMAN RIORDAN: -- recorder.

16          MR. CROSS: -- the point is, is that EWMA is  
17 looking at a continuous -- essentially continuous trend.  
18 But wires fall off, for example, and diaphragms break, and  
19 hoses break, and things like that. And that is --

20          MS. WENDLING: Those usually cause a catastrophic  
21 increase, in which case, you know, the EWMA as well as any  
22 other protocol out there will turn on the light.

23          MR. CROSS: We're --

24          MS. WENDLING: EWMA is to maximize, you know, true  
25 illumination and to minimize false illumination, and to also

1 detect gradual deterioration.

2 MR. CROSS: There's no -- the staff has absolutely  
3 no opposition to EWMA or any other statistical algorithm.  
4 We agree that statistics are a good way to evaluate  
5 components and minimize false MILs.

6 I guess we believe that the six trip limit, on  
7 average, represents a good compromise, though, between good  
8 statistics, good sensor design, and early consumer  
9 informing. And I think it's something that we may -- that  
10 we've workshopped extensively with the manufacturers and  
11 feel fairly strongly about.

12 MS. WENDLING: Okay. I think you're right. GM  
13 will probably touch on that in more detail. You know, if  
14 you noticed, too, we were particularly concerned about the  
15 LEV catalyst monitor and the evap monitor.

16 MR. CROSS: Which is in GM's testimony.

17 CHAIRWOMAN RIORDAN: And also, in the interest of  
18 getting to some of that other testimony, let me bring it  
19 back to the Board to ask if there are any further questions  
20 of this witness. And, if not, we'll move on to the next --  
21 yes, Ms. Edgerton?

22 MS. EDGERTON: I'd just like to ask Ms. Wendling,  
23 turning to page 4 of your written testimony at the bottom of  
24 the page, with respect to in-use recall testing protocol,  
25 and you say, "AAMA thanks the staff for clarifying that

1 manufacturers will not be held responsible for failing to  
2 detect tampering or abuse that cannot reasonably detected.  
3 AAMA also appreciates the options of extended warranty or  
4 service campaign in lieu of recall for false MILs. However,  
5 AAMA still considers the recall provisions to be overly  
6 broad and stringent."

7 I'm sorry. (Speaking of microphone being off.) I  
8 guess people could hear, because you're looking like you --

9 "The phrase, 'including, but not limited to,' is  
10 too broad for determining recall and, as currently worded,  
11 the proposed regulation could result in vehicles being  
12 recalled without having failed the applicable emission  
13 standards."

14 With reference to that, I turned to the actual  
15 proposed regulatory change that is in our documents that  
16 were sent -- sent out. And I reviewed the paragraph you're  
17 referencing.

18 It's difficult to have this kind of conversation,  
19 technical conversation, right here, but I do want to respond  
20 to it. In looking at it, here's what the actual language  
21 proposed says.

22 "A decision to recall the OBD system for  
23 recalibration or repair will depend on factors, including,  
24 but not limited to, level of emissions above applicable  
25 standards, presence of identifiable faulty or deteriorated

1 components which affect emissions with no MIL illumination,  
2 and systematic, erroneous activation of the MIL.

3 "For 1994 and 1995 model years, on-board  
4 diagnostic system recall shall not be considered for  
5 excessive emissions without MIL illumination, if required,  
6 and fault code storage until emissions exceed two times any  
7 of the applicable standards in those instances where the  
8 malfunction criteria is (sic) based on exceeding 1.5 times  
9 any of the applicable standards."

10 Now, to me -- that's just two sentences. To me,  
11 sentence two says there's no recall unless the standards are  
12 violated.

13 MS. WENDLING: For '94 and '95.

14 MS. EDGERTON: '94 and '95. And so -- but in your  
15 testimony, you say, "The phrase, 'included, but not limited  
16 to,' is too broad for determining recall," because the  
17 regulation could result in vehicles being recalled without  
18 having failed the applicable emission standards.

19 MS. WENDLING: But beyond '95, it could. If you  
20 go back to the first sentence there, it says, "including,  
21 but not limited to," and then it lists several items.

22 The second of those two things you mentioned is a  
23 case where you could have a failure that doesn't actually  
24 result in a failure of the emission standards. Because it's  
25 a component-based -- these are component-based monitors.

1 And sometimes you might have a combination of -- it would  
2 take a combination of failures to actually put the vehicle  
3 over the standard.

4 MS. EDGERTON: Well, we're going to have to go  
5 over this a little bit more. I don't quite get it.

6 MS. WENDLING: We'll get more detail from the  
7 member companies when they testify.

8 MS. EDGERTON: All right. Well, I -- it looked --  
9 so, you're saying that -- where is the disconnect here?

10 MS. WENDLING: The disconnect is in the --

11 MS. EDGERTON: Is the model years?

12 MS. WENDLING: -- sentence, which says, you know,  
13 "including, but not limited to," and then it lists a series  
14 of conditions.

15 MS. EDGERTON: Uh-huh.

16 MS. WENDLING: And then, the second sentence  
17 addresses only model year 1994 and 1995.

18 We've requested an extension of that second  
19 sentence to apply to '96 in addition. That's the only  
20 comment I would make there.

21 MS. EDGERTON: So, that's the change you want.

22 MS. WENDLING: Yes. Well, I mean, we asked for a  
23 moratorium, but it doesn't appear that the staff is really  
24 willing to consider that.

25 So, in lieu of that, we would ask for an extension

1 of the two times the standard to model year 1996.

2 And the difference is, in 1996, you've got full  
3 implementation across the entire product line. And some of  
4 those engine families are more difficult to do than others.  
5 And, you know, manufacturers simply want a little bit more  
6 time to refine those, those engine families, those  
7 difficult--

8 MS. EDGERTON: So, essentially -- I'm just trying  
9 to understand what you're asking for.

10 You're asking for this -- you're saying that the  
11 proposed change that is in the staff proposal is -- that  
12 there wouldn't be a recall unless you went over this two  
13 times, any of the standards where the malfunction criteria  
14 is based on exceeding one-and-a-half times the applicable  
15 standards.

16 So, you wouldn't want a recall for 94-95 or '96;  
17 that would -- that's the thrust of what you're saying? It  
18 should be 1996 to -- except where it could be shown --

19 MS. WENDLING: I apologize. I think there are two  
20 things here. One is that the statement, "including, but  
21 limited to," is too broad, and that would like that  
22 clarified so that -- to make clear that a manufacturer  
23 couldn't be recalled if the vehicle didn't exceed the  
24 standards.

25 Second would be that, for 1996, specifically, an

1 extension of the two times the standard for recall. So, I  
2 guess it's really two things.

3 MS. EDGERTON: Okay. So, if I understand you  
4 right, one is you don't like "but not limited to." You want  
5 to have just a list of just exactly what it is that could be  
6 considered.

7 MS. WENDLING: Clear language that indicates that  
8 it would be -- that only a significant increase in -- you  
9 know, an increase of the standards would trigger recall.  
10 That a failure -- a recallable failure of the OBD system  
11 would have to involve failure of a component that actually  
12 caused the vehicle to exceed the standards.

13 Right now, we don't have that with the way it's  
14 written.

15 MS. EDGERTON: Okay. So, if I understand, you  
16 actually -- you're -- because you say paragraph -- you say  
17 sentence two doesn't -- even if we put that to including  
18 '96-- doesn't adequately modify --

19 MS. WENDLING: Right, because --

20 MS. EDGERTON: -- sentence one to make sure that  
21 you don't --

22 MS. WENDLING: Beyond '95 and '96 --

23 MS. EDGERTON: -- wind up with a recall --

24 MS. WENDLING: -- yeah. I mean that --

25 MS. EDGERTON: -- unless you --

1 MS. WENDLING: -- assumes one applies forever.  
2 Sentence two applies to '94 and '95.

3 (Thereupon, the reporter requested the  
4 speakers to speak one at a time.)

5 MS. WENDLING: I'm sorry.

6 MS. EDGERTON: Just a minute. I'm trying to  
7 understand.

8 Mr. Kenny, do you have a comment? I mean, it  
9 seems to me -- just before we go into this, and I understand  
10 there's going to be more testimony on this. But it seems to  
11 me that sentence one modifies sentence two, I mean if it  
12 were extended to '96. It would make it clear that the  
13 recall would only occur if the aggregate standards were  
14 violated.

15 Is that your opinion, sir?

16 MR. KENNY: Let me try to answer your question,  
17 but I might answer, actually, probably a little bit of a  
18 different question at the same time.

19 It seems to me that what the witness is requesting  
20 is essentially a redefinition in sentence one, in such a way  
21 that a violation of the OBD requirements is not, in effect,  
22 a violation because of the fact that there has to be  
23 something else besides an OBD violation. In addition to an  
24 OBD problem, essentially, which she wants, is that the OBD  
25 problem would have to also be combined with a violation of

1 the emission standard.

2 And the way that sentence one is currently written  
3 is it talks about a situation in which the OBD regulations  
4 could be violated, that could result in a recall. And in  
5 part, that would result if you have an identifiable faulty  
6 or deteriorated component which affects emissions.

7 Now, the effect on emissions might be such that it  
8 does not result in a violation of the standard, because it  
9 is less than that.

10 But you still have an effect on the emissions.  
11 And that still, it seems, presents a problem, because you've  
12 now get a faulty component which is affecting the emissions  
13 of the particular vehicle.

14 I'm not sure I'm answering your question. But --  
15 MS. EDGERTON: Well, we've got to get to the  
16 bottom of it by the end of the morning. So --

17 MR. ALBU: Maybe I can help you. It is a  
18 difficult issue. But this is the basic things we're trying  
19 to get at.

20 In the OBD requirements, we're asking that  
21 components be monitored for a measurable increase in  
22 emissions even if the failure of a single component doesn't  
23 cause exceedance of emission standard.

24 And the reason we do that is because, when a  
25 vehicle gets fairly old, most components have deteriorated.

1 What we usually see combinations of deterioration.

2 And while one component alone may not cause a  
3 problem, when you get three or more that are deteriorated in  
4 concert, they can cause the vehicle to exceed the standards.

5 So, what we're trying to get with this requirement  
6 is that if we find a vehicle in-use that should be  
7 monitoring a component that isn't doing it properly and  
8 there is a measurable emission increase -- but it doesn't  
9 exceed the standard -- we want the option of deciding  
10 whether or not to recall that vehicle because they haven't  
11 been monitoring a component.

12 And AAMA doesn't want us to recall a vehicle  
13 unless you exceed the standard, but we need to look at the  
14 combination of components. Now, the provisions are written  
15 fairly loosely for their protection, really, and the staff  
16 could look at the good-faith efforts involved and look at  
17 the reasonableness of the monitoring versus basically all  
18 the data that is present, and that it should have worked but  
19 didn't. We take all that into account.

20 And certainly, we want to be careful to not  
21 overburden industry in the first few years. And that's  
22 really what this is about. And I think that we've got some  
23 legal people overly excited for nothing.

24 MR. CROSS: I might add to that --

25

1 CHAIRWOMAN RIORDAN: Mr. Cross, let's pause while  
2 we change the tape.

3 Mr. Cross?

4 MR. CROSS: Okay. It'll be short.

5 During the original development of OBD, there was  
6 a debate about whether or not to certification test  
7 combinations of failed components to get at the synergism  
8 effect that Steve is talking about. Because, basically,  
9 what we're worried about is will the standards be violated  
10 if three or four components are all at their limits where  
11 they just almost turn on the light at the same time.

12 And the decision was made -- I think with  
13 agreement by the manufacturers -- that that becomes an  
14 unwieldy process at best. In other words, you're trying to  
15 figure out all the different combinations of components,  
16 which you might evaluate and combinations of failures and  
17 tying that to failing the standard. And that just obviously  
18 got to be something that was unmanageable.

19 So, we limited it to evaluating to one component  
20 at a time. But that means that, in some cases, the  
21 component will turn on the light before it alone fails --  
22 causes the vehicle to fail the standard with a properly  
23 functioning OBD system.

24 MS. EDGERTON: So, a light can come on when you're  
25 not violating emission standards. A light can come on if

1 you're evaluating one of these six components of OBD II.

2 MR. CROSS: What it means is that the component no  
3 longer performs as it should. In other words, if you --  
4 when a car's designed, the component is supposed to --  
5 supposed to measure something between X and Y, or hold some  
6 function of fuel delivery, or ignition timing, or whatever,  
7 or EGR flow or whatever, within certain limits.

8 And when the car's -- when it's within the limits,  
9 the manufacturer's comfortable that the vehicle's working as  
10 designed. When it's outside those limits, the manufacturer  
11 isn't so comfortable about.

12 And, basically, they turn on the OBD light when  
13 it's outside of those designed limits.

14 Now, in some cases, that wouldn't cause the  
15 vehicle to immediately exceed the standard. But if you  
16 combined a couple of those parts that were just against the  
17 limit, it would likely the vehicle to exceed the standard.

18 And as the vehicle got older and the catalyst  
19 became more deteriorated, your odds of exceeding the  
20 standard with these kinds of problems occurring increases.  
21 So, it's sort of you turn the light on when you're outside  
22 the design limits.

23 MR. ALBU: There's another aspect to this as well.  
24 What happens on older vehicles when they come into a repair  
25 shop -- and it's the problem with the current I&M program --

1 you have a vehicle -- generally it's deteriorated, because  
2 there's been very little maintenance performed on it,  
3 because nobody knew there was anything wrong with the  
4 vehicle.

5 So, what you end up with in the smog check station  
6 is the vehicle has a lot of deteriorated parts, none of  
7 which stands out necessarily, but it's over the emissions  
8 standard, and you have to try to fix it.

9 One of the reasons we require comprehensive  
10 component monitoring like this is so that trouble codes are  
11 present for every part that is defective. And this provides  
12 the mechanic with half a chance of fixing these vehicles,  
13 which are very complex.

14 If you only have half the story, you can't fix  
15 these cars.

16 CHAIRWOMAN RIORDAN: Okay. In deference to our  
17 time and the number of speakers that we have before us --  
18 and I think what I'd like to do is ask if there are any  
19 other questions at this time of this witness, and then thank  
20 this witness very much for her testimony, and indicate the  
21 following: that Ford, General Motors, and Chrysler  
22 Corporation are going to testify in that order. You have  
23 heard the staff response to some of the requests made by the  
24 manufacturers association, and you've heard -- if they are  
25 in the affirmative, I'd rather not have that repeated in the

1 witness testimony, but to address those items that are still  
2 at issue from the perspective of those that you represent.

3           What I'm trying to do is cut down the amount of  
4 testimony, as best I can, to accomplish the completion of  
5 this hearing in a fairly reasonable time.

6           So, let me invite Mr. -- and I'm going to just,  
7 I'm sure, murder this name -- but Mr. John Trajnowski from  
8 Ford Motor Company. If you would come forward, please.

9           MR. TRAJNOWSKI: Thank you. My statement is  
10 really short, so I apologize if there's any overlap.

11           My name is John Trajnowski. I am a principal  
12 engineer in Ford Motor Company's Automotive Emissions and  
13 Fuel Economy Office.

14           Ford appreciates this opportunity to comment on  
15 these proposed changes to the OBD II regulation. Our  
16 written comments have previously been submitted to the Board  
17 members and the CARB staff, and we would like them to be  
18 included for the record.

19           Ford also supports the comments provided by AAMA.  
20 Overall, Ford is very pleased with the changes proposed by  
21 CARB staff. We commend the staff for working with us and  
22 other manufacturers in addressing many of our concerns with  
23 the OBD II requirements.

24           We believe that this cooperative approach has been  
25 beneficial to both Ford and CARB staff and has advanced the

1 state of the art.

2 We also believe that these proposed revisions come  
3 a long way to improve our ability to meet these requirements  
4 while maintaining the intended purposes of the OBD II  
5 regulation.

6 Certainly, the proposed requirements for LEV  
7 catalyst monitoring, expanded misfire monitoring, and 20  
8 thousandths inch diameter evaporative leak detection are  
9 technology forcing and present some risk for Ford and other  
10 manufacturers in fully complying with the requirement.

11 However, Ford will make every effort in trying to  
12 meet these requirements in the time frame proposed by CARB  
13 staff. In fact, we've already initiated plans to meet the  
14 proposed phase-in percentages, and have begun to address the  
15 many remaining technical issues associated with these  
16 requirements which still need to be resolved.

17 These issues are discussed in detail in Ford's  
18 written comments.

19 In the hearing notice, CARB staff has proposed  
20 phase-in percentages of 40, 70, and 100 percent of sales  
21 volume beginning in '98 for meeting the LEV catalyst  
22 monitoring requirements.

23 Ford supports the basic concept for the phase-in  
24 for this requirement. However, in order for Ford to meet  
25 these percentages, we would have to modify existing catalyst

1 configurations and containers on some vehicles in order to  
2 isolate a small volume catalyst to facilitate monitoring.

3 We estimate the incremental cost of these  
4 modifications to existing vehicle designs would be  
5 approximately \$12 million in facilities, tooling, and  
6 engineering costs.

7 These incremental costs could be avoided if CARB  
8 were to adopt lower phase-in percentages of 30, 60 and 100  
9 percent, with the phase-in still beginning in 1998.

10 We have previously reviewed this concern with CARB  
11 staff, and we believe that they could support these lower  
12 phase-in percentages in light of the significant cost  
13 implications.

14 As a result, Ford requests that the Board adopt  
15 these lower phase-in percentages. This action will allow  
16 Ford to plan necessary vehicle and exhaust system  
17 modifications during the normal design process and avoid the  
18 incremental costs associated with modifying existing  
19 designs.

20 Also, because these requirements are technology  
21 forcing and represent a risk for manufacturers in complying,  
22 Ford believes that it is essential that CARB hold a workshop  
23 in calendar year '96, to assess manufacturers' progress and,  
24 if necessary, revise these requirements based on this  
25 review.

1           The status check is especially critical for the 20  
2 thousandths inch evaporative leak detection requirement. If  
3 we find that our current monitoring strategy will not be  
4 capable of detecting these small leaks, major hardware and  
5 software revisions will be required, and that's going to  
6 require additional leadtime well beyond 1998, in order for  
7 us to develop, and prove out, and implement into production  
8 the new hardware.

9           That's all I have. Thank you for this opportunity  
10 to testify. I'll be glad to answer any questions that you  
11 may have.

12           CHAIRWOMAN RIORDAN: Are there any questions?

13           Mr. Lagarias.

14           MR. LAGARIAS: Madam Chair, I think we should  
15 acknowledge the contribution that Ford Motor Company has  
16 made to the University of California, Riverside, Engineering  
17 School for automotive emission control. I think it was \$10  
18 million?

19           And please pass on to your organization our  
20 appreciation of this gesture.

21           MR. TRAJNOWSKI: I will do that.

22           MR. LAGARIAS: No questions.

23           CHAIRWOMAN RIORDAN: And are there any other  
24 questions? Just send money.

25           (Laughter.)

1 MR. TRAJNOWSKI: Okay.

2 CHAIRWOMAN RIORDAN: Are there any other questions  
3 for this witness?

4 MR. CALHOUN: Let me just clarify one thing  
5 regarding the 20 thousandths orifice for the leak detection.

6 My understanding from you is that you would  
7 anticipate this would require hardware and software changes;  
8 is that correct?

9 MR. TRAJNOWSKI: We are -- we have some major  
10 concerns with the ability of our current system, which we  
11 developed to detect a 40 thousandths inch leak, to be able  
12 to detect a 20 thousandths inch leak.

13 We're going to try and resolve the many issues in  
14 trying to detect a 20 thousandths inch leak using our  
15 hardware that we've developed; that we're going to have in  
16 production in '96. but we have some concerns about its  
17 ability. There's a significant risk it won't be able to do  
18 it.

19 Then, we're going to have to -- if that's the  
20 case, we're going to have to change our monitoring strategy  
21 completely. And right now, we use a vacuum type system. We  
22 put a vacuum on the fuel tank and evaporative system. If  
23 that vacuum-type system will not be capable of detecting a  
24 20 thousandths inch leak, we'll mostly likely have to change  
25 to a different type of monitoring system. Perhaps one

1 possibility would be to install a pressure pump and blow air  
2 into the fuel tank to build up pressure. And that's a major  
3 change.

4 MR. ALBU: Could I make a comment to that?

5 CHAIRWOMAN RIORDAN: Yes.

6 MR. ALBU: I would just like to add that we  
7 support what is being said by John. If we find, indeed,  
8 that it's going to require hardware changes that are  
9 significant, then we will change the phase-in. That we've  
10 already agreed to.

11 What we've done, though, in our own testing, is  
12 determined that we do not expect there to be hardware  
13 changes. I spent, about a month and a half ago, some time  
14 with Ford experts on this matter. I went to Dearborn to  
15 talk with them about it.

16 And I think the consensus of that meeting was that  
17 we had a good chance of meeting this requirement with the  
18 current system. There was still some issues to resolve, and  
19 we want to work with them to do that.

20 And I think all we're saying is let's try and see  
21 if we can do it. If we don't make it, we will come back to  
22 the Board and ask for a change in the phase-in.

23 MR. CALHOUN: I guess the main concern that I have  
24 is that the way the regulations are currently proposed, the  
25 manufacturers will not have an opportunity to learn from

1 their experiences with the 40 thousandths, because you  
2 immediately start the phase-in at the beginning of the year,  
3 I believe, at the beginning of the phase-in.

4 MR. ALBU: Yeah, they will start doing the 40  
5 thousandths monitors in 1996 (sic) and --

6 I'm sorry. What did I -- Okay. 40 thousandths  
7 monitor in 1996. And so, they will have two years'  
8 experience before they have to commit to the 20 thousandths  
9 by '98.

10 And, as I say, by '96, we will already know  
11 whether or not we want to make a change in the phase-in so  
12 there will not be any undue risk come 1998, between 20  
13 thousandths.

14 Clearly, we don't want false lights on either. I  
15 mean, we are protecting ourselves as best we know how  
16 against that while trying to find the right balance of  
17 moving forward at a reasonable rate.

18 We understand your concerns, and we -- and I think  
19 industry does, too, and that's why the AAMA statement didn't  
20 go further.

21 What they said in the AAMA statement, and what  
22 Ford is echoing again, is we will give it a try. If it  
23 doesn't work, we'll come back and ask for a change in the  
24 phase-in from the 1998 to some later date. And we don't  
25 have any problem with that.

1 CHAIRWOMAN RIORDAN: Okay.

2 MR. CALHOUN: No further questions.

3 CHAIRWOMAN RIORDAN: And does that answer your  
4 question, Mr. Calhoun? Okay.

5 And thank you very much. We appreciate all the  
6 testimony. And following then, Mr. Ferris from General  
7 Motors?

8 MR. FERRIS: Good morning. My name is David  
9 Ferris. I'm a Senior Project Engineer, here representing  
10 General Motors Environmental and Energy Staff.

11 General Motors appreciates this opportunity to  
12 comment on the proposed revisions to the on-board diagnostic  
13 requirements contained in CARB mail-out No. 94-38.

14 GM also supports the comments of the American  
15 Automobile Manufacturers Association presented at the  
16 hearing.

17 GM appreciates the efforts that the CARB has made  
18 this past year to understand our concerns, and we also  
19 appreciate the revisions that are being proposed to address  
20 them.

21 I'd like to emphasize that I think that the staff  
22 did an excellent in this mail-out, and that we realize that  
23 the CARB has an extremely difficult job, and that we are  
24 willing to work very hard toward improving California's air  
25 quality.

1           However, we believe that some of the staff's  
2 technology forcing proposals are still overly aggressive.  
3 An overly aggressive strategy can be detrimental to air  
4 quality, because it increases the risk of false illumination  
5 of the malfunction indicator light, which may cause drivers  
6 to ignore it.

7           We understand that the staff's proposal has  
8 allowed for some OBD system deficiencies, and that the Board  
9 may review some of the more technology forcing requirements  
10 and make further revisions in 1996.

11           However, when the Board makes such late changes to  
12 the requirements, it forces us to make late changes to  
13 hardware and software without allowing adequate time for  
14 development and validation.

15           Late changes reduce produce reliability, customer  
16 satisfaction, and air quality benefits.

17           And, as Supervisor Vagim and Mr. Calhoun  
18 suggested, concerns about how consumers are going to react  
19 to the MIL, and especially false illumination of the MIL are  
20 foremost in our mind.

21           We believe that the Board should require more  
22 evidence of real world technical feasibility before adopting  
23 new requirements, and that the Board should allow more  
24 leadtime and longer phase-ins for such technology forcing  
25 requirements.

1           Since our written requirements (sic) are rather  
2 lengthy and technical, I will try to summarize them and  
3 focus on the most important areas -- in particular, the  
4 issue of increasing stringency, we've heard already about  
5 the 20 thousandths evap orifice. It's our perception that  
6 the LEV catalyst monitoring requirements to 1.5 times the  
7 standards also represents a significant reduction in  
8 stringency from the previous 60 to 80 percent efficiency  
9 kind of threshold.

10           So, that would be my first subject -- is the  
11 catalyst monitoring requirements for low-emission vehicles.  
12 We've already heard about the phase-in percentages. I won't  
13 go over that.

14           GM is concerned that it may not be feasible to  
15 meet 1.5 times the standard diagnostic threshold,  
16 particularly for LEVs and ULEVs, using the current dual  
17 oxygen sensor method without a high risk of illuminating the  
18 MIL when emissions are still below the standards.

19           Our data suggests that there is little chance of  
20 meeting the 1.5 times the standards threshold with our  
21 current and projected LEV configurations.

22           To attempt to meet this requirement is likely that  
23 major changes would have to be made too many configurations,  
24 including major hardware changes, which would result in  
25 great expense and could compromise emission performance and

1 drivability.

2 We would have to essentially redesign the entire  
3 catalyst system to be to be optimized for monitoring. This  
4 includes changing catalyst volumes and washcoats, and also  
5 changing both catalyst and oxygen sensor locations as you've  
6 heard earlier.

7 For many applications, existing space constraints  
8 caused by, for example, the floor pan, would prevent the use  
9 of optimum catalyst volumes or locations and, therefore, it  
10 may be necessary to modify floor pans to meet these  
11 requirements.

12 Changing hardware such as floor pans for every  
13 configuration would cost general motors hundreds of millions  
14 of dollars. It would be prohibitively expensive to make  
15 such modifications until new models are introduced. And  
16 model lives typically range form five years to ten years or  
17 more for some applications, such as trucks and vans.

18 After making all these modifications, it still may  
19 not be feasible to meet both the LEV emission standards and  
20 the one-and-a-half times the standards diagnostic threshold  
21 with all configurations.

22 It has not been demonstrated, for example, that  
23 it's feasible to simultaneously meet the LEV emission  
24 standards, the new Bag 4 requirements, which are still not  
25 yet finalized, and the proposed one-and-a-half times the

1 standard diagnostic threshold, and also avoid illuminating  
2 the MIL when emissions are below the standards.

3           Because of these concerns, we will continue our  
4 efforts to find a catalyst monitoring technology which is  
5 superior to the dual oxygen sensor method. Even if it  
6 ultimately turns out to be feasible to meet the one-and-a-  
7 half times the standard thresholds in all configurations, it  
8 is unlikely to be cost-effective unless phased in over many  
9 years, since changing hardware -- such as floor pans -- is  
10 so expensive.

11           In addition, balancing diagnostic and emissions  
12 performance will be a costly and time-consuming iterative  
13 process, which will have to be performed on each  
14 configuration.

15           We're also likely to incur the cost of generating  
16 new emission deterioration factors for certification after  
17 making substantial catalyst changes for diagnostics. Such  
18 major changes would be prohibitively expensive unless they  
19 are phased in with the introduction of new models over a  
20 period of many years.

21           Because of these concerns, the Board should  
22 seriously reconsider the proposal to implement a one-and-a-  
23 half times the standard threshold for LEVs and ULEVs. GM  
24 recommends that -- and I see I have a typo here -- that 2.5  
25 times the plus 4,000 mile baseline threshold be extended

1 until it has been demonstrated that it is feasible to meet  
2 a one-and-a-half times the standard threshold on LEVs and  
3 ULEVs.

4 This still presents a major challenge, and the  
5 feasibility of this requirement should be discussed in a  
6 future workshop.

7 If a one-and-a-half times the standard  
8 threshold is ultimately demonstrated to be feasible, it  
9 should then be phased in gradually over a period of many  
10 years to avoid prohibitive expense.

11 Next, I'd like to move on to the 20 thousandths  
12 evaporative emission monitoring requirement. The staff  
13 adopted this requirement based on emissions reduction  
14 conclusions based in part upon data generated by General  
15 Motors using a 1990 Buick Regal.

16 GM believes that the staff is overestimating the  
17 significance of the contribution of leaks between 20  
18 thousandths and 40 thousandths of an inch to in-use  
19 emissions for many reasons.

20 First, after analyzing the in-use data, which has  
21 been collected by CARB, EPA, and GM, we have concluded that  
22 the percent of in-use vehicles with leaks between 20  
23 thousandths and 40 thousandths of an inch is much lower than  
24 the CARB staff's estimate of -- they used 8 percent here  
25 today; 7.8 percent was the number in the mail-out.

1           Furthermore, GM and the rest of industry are  
2 implementing revolutionary changes to the on-board  
3 evaporative emissions control systems in response to the new  
4 enhanced evap test procedures. The problems identified by  
5 in-use studies have been addressed by improving the design,  
6 which further reduces the possibility of small leaks in the  
7 future.

8           More importantly, radically improved designs  
9 needed to meet both the enhanced evaporative and the federal  
10 on-board refueling vapor recovery requirements have  
11 significantly reduced the resistance of vapor flowing to the  
12 canister, which has dramatically reduced the potential  
13 emissions resulting from small leaks.

14           The previous data we submitted for a 1990 vehicle  
15 are no longer applicable. As illustrated in this figure,  
16 the emissions from a 20 thousandths leak on a 1995 Cavalier  
17 with 7.0 RVP fuel are expected to range from negligible from  
18 many leak locations to three grams, depending on leak  
19 location.

20           Average emissions from 20 thousandths inch leaks  
21 would be much less than three grams HC. This dramatic  
22 reduction from the 35 grams that was observed on a 1990  
23 vehicle (sic).

24           Recent data generated by another manufacturer  
25 supports this trend, showing emissions from 20 thousandths

1 inch leak that are less than 0.2 grams HC.

2 In addition, the auto industry has developed the  
3 evaporative emissions service port and new off-board leak  
4 location tools and procedures, which will be implemented  
5 beginning with the 1996 model year. The service port allows  
6 nonintrusive access to the evaporative system for testing  
7 and repair purposes in both the assembly plant and in-use  
8 service applications. This system will be used in the  
9 assembly process to reduce the likelihood that vehicles with  
10 leaks will be sold, and will also significantly reduce the  
11 probability of repair-induced leaks in the field.

12 Finally, the staff's analysis presented in Mail-  
13 Out No. 94-38 overestimates the contribution of evaporative  
14 emissions from a vehicle with a 20 thousandths inch leak.

15 Whereas, the staff's analysis suggest that  
16 vehicles with evaporative leaks between 20 thousandths and  
17 40 thousandths inches could cause 2003 model year fleet  
18 average HC emissions to increase by more than 50 percent,  
19 GM's analysis suggests that the increase would be less than  
20 one percent, even assuming that 7.8 percent of the vehicles  
21 have such leaks.

22 Something else I want to emphasize: At this  
23 point, no enhanced evaporative systems with OBD II have been  
24 introduced in the field. We have no experience. There's  
25 very little in-use information about the ability of the

1 current diagnostic system to reliably detect 40 thousandths  
2 inch leaks or about the ability of the service industry to  
3 locate and repair such leaks.

4 Our data demonstrates that our vacuum-based  
5 diagnostic, which is calibrated to detect 40 thousandths  
6 inch leaks, will actually detect smaller leaks in many  
7 cases.

8 For example, in order to detect a 40 thousandths  
9 inch leak located in the canister area, a vacuum decay time  
10 constant must be used, which will result in detecting leaks  
11 even smaller than 40 thousandths that are located in the  
12 fuel tank area.

13 In addition, several smaller leaks could combine  
14 to cause a 40 thousandths inch leak to be indicated. If a  
15 20 thousandths inch threshold were used, the result would be  
16 detection of leaks smaller than the 20 thousandths inch and  
17 false MILs.

18 Therefore, before we implement a 20 thousandths  
19 inch threshold, we must prove that the service industry is  
20 able to find and fix leaks even smaller than 20 thousandths  
21 of an inch. And the staff has not demonstrated this.

22 In addition, we've begun evaluation of our  
23 evaporative diagnostics capability to detect 20 thousandths  
24 inch leaks. And our initial results indicate that it will  
25 not be possible to restrict monitoring conditions enough to

1 reliably detect such small leaks.

2 The CARB staff's analysis and Mail-Out 94-38 did  
3 not account for vehicle-to-vehicle variability or fuel slosh  
4 with high RVP fuel, which may cause false MILs.

5 Such high RVP fuel is commonly available in States  
6 around California and in the Northeast States that will  
7 receive California vehicles.

8 Therefore, it's likely that changes to both  
9 hardware and monitoring algorithms will be necessary to  
10 detect 20 thousandths inch leaks and avoid false MILs.

11 Considering that (a) the number of leaks between  
12 20 thousandths and 40 thousandths of an inch on older  
13 vehicles may be very small; (b) we have dramatically  
14 improved designs to reduce both the possibility of and the  
15 emissions that would result from leaks on future vehicles;  
16 (c) we are introducing an evaporative system service port  
17 and off-board leak check procedure which will reduce the  
18 possibility of leaks following new vehicle assembly or in-  
19 use repair; and (d) our existing diagnostic will detect many  
20 leaks less than 40 thousandths of an inch. We do not  
21 believe that it is reasonable or cost-effective for us to  
22 redesign our evaporative diagnostic system to meet a 20  
23 thousandths inch threshold requirement.

24 Furthermore, before requiring a 20 thousandths  
25 inch threshold, the staff must demonstrate that it is

1 feasible to find and fix leaks even smaller than 20  
2 thousandths of an inch.

3 Therefore, GM recommends the following:

4 One, an industry/government study to identify and  
5 quantify evaporative emissions leaks in the real world and  
6 to evaluate their emissions impact;

7 Two, to allow time for the current evaporative  
8 system diagnostics to mature in the field. As I mentioned,  
9 we're concerned that the service community may not be able  
10 to verify, locate, and repair these leaks.

11 This will require proper training, tools, and some  
12 real world experience. Changing the diagnostic strategy  
13 after only one or two years in the field may create much  
14 confusion if new detection tools and methods need to be  
15 implemented.

16 And, three, have -- the CARB should have a  
17 workshop during calendar year 1998 to review the field  
18 results with the 40 thousandths inch leak detection systems,  
19 proposed OBD strategies to detect 20 thousandths inch leaks,  
20 potential real world emissions impact of a 20 thousandths  
21 inch threshold, and the ability of the service industry to  
22 find and repair leaks smaller than 20 thousandths inch  
23 leaks.

24 The Board should delay requiring a 20 thousandths  
25 inch threshold until it has demonstrated to be cost-

1 effective and until it has been demonstrated that it can be  
2 feasible to find and repair leaks smaller than 20  
3 thousandths of an inch.

4 If this can be demonstrated, the 20 thousandths  
5 inch threshold should be phased in starting no sooner than  
6 the 2001 model year to allow sufficient leadtime for new  
7 diagnostic systems and hardware.

8 If the CARB elects to delay the phase-in, GM would  
9 prefer that the phase-in be modified to coincide with the  
10 phase-in of the federal on-board refueling vapor recovery  
11 requirements.

12 (Thereupon, there was a pause in the  
13 proceedings to allow the reporter to  
14 replenish her Stenograph paper.)

15 CHAIRWOMAN RIORDAN: Go right ahead. You may  
16 begin.

17 MR. FERRIS: All right. Thank you.

18 Okay. Many of the rest of my comments are very  
19 similar to what you've already heard from AAMA and so on.  
20 I'm trying to try and abbreviate them as much as possible.

21 CHAIRWOMAN RIORDAN: And I would appreciate that.  
22 Thank you.

23 MR. FERRIS: Yes. First, regarding the  
24 statistical MIL illumination protocol, there seems to have  
25 been some confusion about extending the average run length

1 from six to ten, and that that may make it more difficult  
2 for the staff to validate OBD systems in certification and  
3 in-use testing.

4 In fact, the industry has committed to implement  
5 what we refer to as a fast initial response feature, which  
6 should make it very easy for the staff to verify that the  
7 emission thresholds have been set properly for diagnostics  
8 that are using the exponentially weighted moving averages.

9 So, I don't think that certification and in-use  
10 verification testing is the issue there.

11 Regarding misfire monitoring for diesels, the CARB  
12 staff has proposed adding section (b)(3.5), which requires  
13 misfire monitoring for diesels under limited operating  
14 conditions beginning with the 1998 model year.

15 In response to the staff's request, GM has  
16 investigated various techniques for misfire detection on  
17 details. To date, none of these techniques has proven to be  
18 practical and reliable.

19 While similar crankshaft speed fluctuation  
20 technology, as used for gasoline-fueled engines, should  
21 theoretically work, we anticipate there may be unique  
22 problems inherent to diesels that may make it difficult to  
23 implement.

24 Therefore, GM recommends that the feasibility of  
25 misfire monitoring for diesels be addressed at a future

1 workshop, and that implementation be delayed until the 1999  
2 model year to give us one more year to work on this  
3 challenging requirement.

4           Regarding the comprehensive component monitoring,  
5 I think the discussion clarified the issue that there are  
6 those monitors where we have thresholds that are one-and-a-  
7 half times the standards. And then, under the comprehensive  
8 component requirements, we are looking for the staff's  
9 interpretation as "any measurable increase in emissions,"  
10 which may be a very small increase. So, for example, if you  
11 have a vehicle whose baseline emissions are half the  
12 standard, if emissions increase by 10 or 15 percent, we  
13 would -- supposed to illuminate the MIL for a malfunction --  
14 for example, a transmission solenoid or a temperature  
15 sensor, even though emissions would still be well below the  
16 standard.

17           And so, the concern here would be, if that monitor  
18 did not work properly, we could conceivably be recalled,  
19 even though the vehicle's emissions are well below the  
20 standards, and we just don't think that that's the  
21 appropriate thing to do.

22           Regarding misfire monitoring for gasoline vehicles  
23 and tampering protection, our comments are essentially the  
24 same as AAMA, so that basically concludes my presentation.

25           And I'd be happy to try and answer any questions

1 you may have.

2 CHAIRWOMAN RIORDAN: Thank you very much. And,  
3 Board members, are there questions for this witness?

4 Mr. Calhoun.

5 MR. CALHOUN: Yes. Mr. Ferris, what do you think  
6 of the idea of extending the -- starting with some number  
7 higher than six and phase in that number or reducing it to,  
8 shall we say, what the staff has suggested?

9 Suppose we start out with 10, which is what the  
10 EWMA suggested -- not the EWMA, but you and the association  
11 suggested, and then at some later date reduce it to six?

12 MR. FERRIS: I guess I don't feel that, in this  
13 case, it's a matter of stringency really. We need the extra  
14 flexibility to go out to 10. We agree with the staff that  
15 anything beyond 10 would not be reasonable from a  
16 statistical perspective.

17 One of the reasons why we think we need something  
18 more than six is that we can optimize the statistical  
19 process to detect gradual deterioration.

20 If limited to six, we may have to deoptimize to  
21 detect step-function changes, which are easy to detect  
22 anyway.

23 The major reason for using the statistical process  
24 is to detect gradual deterioration. We'd like to have the  
25 flexibility to optimize the exponentially weighted moving

1 average to detect gradual deterioration, and we need  
2 flexibility beyond an average run length of six to do that.

3           And I guess I'd like to reemphasize that we don't  
4 think there's any air quality sacrifice; that only in the  
5 unlikely event that you have a step-function change to  
6 exactly the malfunction threshold would potentially the two  
7 in a row be quicker. In 99.9 percent of real world kinds of  
8 failure modes, which are either gradual or step-function  
9 change to something other than the threshold, the  
10 exponentially weighted moving average will always detect a  
11 malfunction more quickly.

12           MR. CALHOUN: I guess I'd like to get the staff's  
13 response to Mr. Ferris' comment.

14           MR. LYONS: I think on the first point, this goes  
15 back to what Bob said earlier about the quality of the  
16 monitoring strategy.

17           I think Dave and also Barbara said that the EWMA  
18 is actually faster in detecting problems. And the number  
19 crunching I've done, it's pretty impressive.

20           Then, you look at something that's very fast and  
21 very powerful, yet they're asking for as much as five times  
22 on average more trips to detect a problem, I think it goes  
23 back to indicate that, on the type of monitoring strategies  
24 they want to implement this on, that they have a lot more  
25 noise or variability in the system than virtually any other

1 manufacturer.

2           And at ten trips on average, the variability  
3 associated with that can push you out to 20 trips or so.  
4 And I think we're just not sure that that's not going to be  
5 unmanageable in the field. And six to us seemed like a good  
6 compromise. Try and take a look at it, and then, if down  
7 the road it doesn't seem to make any difference, then  
8 perhaps we can consider it again.

9           MR. CALHOUN: The next question I'd like to ask  
10 pertains to the suggestion that the two times the standard  
11 be extended to the LEV and ULEV. What is your reaction to  
12 that?

13           MR. LYONS: For catalyst monitoring?

14           MR. CALHOUN: For the catalyst monitoring. That's  
15 on page 4 of the GM testimony.

16           MR. LYONS: And I think there's a typo there. I  
17 think it's 2.5 times the standard.

18           MR. CROSS: I'm going to start off on this. But  
19 then, I think that the others will pipe in.

20           That was linked, I think, to your whole discussion  
21 about catalyst monitoring, where you were expressing  
22 concerns about whether the manufacturer is choosing to  
23 optimize its system for emissions or optimize its systems  
24 for monitoring.

25           And I think that sort of the tone of Dave's

1 comments was that the designs that GM has been working on to  
2 date have focused, I would say, more on emissions and costs  
3 linked with emissions than on monitoring.

4 And I think that -- in other words, just sort of,  
5 we'll figure out how to meet the standards and then we'll  
6 figure out how to monitor it later kind of view.

7 And maybe I'm -- I'm probably overstating it to  
8 make a point. But that's intentional to make that point.

9 And what that causes is that -- is that you have  
10 systems which are designed to meet the standards, which are  
11 then hard to monitor. And, for example, the -- as he said,  
12 the catalyst volumes may not -- may end up being an  
13 emissions design, which is okay, but not very easy to  
14 monitor.

15 And the staff's view is that, with the OBD  
16 regulations in place, it's important that the systems be  
17 designed with both constraints in mind at the same time. In  
18 other words, when you're sizing a catalyst, you should be  
19 recognizing that it needs to be monitored, also.

20 And that, in the exchanges that we've had with GM,  
21 has led us to some interesting things. One being that, you  
22 know, they're talking about their floor pan tear-ups. The  
23 reason they have floor plan tear-ups is because they  
24 designed their floor-pans for the catalyst systems which are  
25 emissions designed, but maybe are not quite optimally

1 designed for monitoring.

2           And then, that plays over into the statistics of  
3 EWMA, because if you have a system which is hard to monitor,  
4 then you need better statistics to do it.

5           And the staff's view on all of this stuff has been  
6 that you -- that the monitoring and emissions goals should  
7 be met sort of simultaneously, and that the best possible  
8 monitor should be used that statistics, when properly  
9 applied to that, will work in six trips, and that the  
10 monitoring thresholds, which are tied to the statistics and  
11 the ease of the monitoring methods, are then reasonable.

12           And so, I guess what I'm saying -- that was a very  
13 long answer -- but the nutshell of all of this is that, if  
14 the system is properly optimized to be monitored in addition  
15 to being emissions designed, and the statistics are properly  
16 applied, then the thresholds that we're suggesting, we  
17 think, are reasonable, both with respect to EWMA and with  
18 respect to the -- in other words, the number of trips and  
19 with respect to the number of times the standard we're  
20 suggesting.

21           MR. CALHOUN: I understand your point.

22           I think the point you're making is that the system  
23 has to be optimized such that it can -- you can monitor the  
24 various components as well as meet the emission standards.  
25 And you also stated that, in the case of GM, they're

1 focusing on meeting the emission standard.

2 This kind of gets back to the point that Ms.  
3 Edgerton brought up earlier. And that is, you're required  
4 to monitor the component. And at some point, when the  
5 component starts to deteriorate, turn on the light. Now,  
6 whether or not that vehicle exceeds the emission standards  
7 is all together a different question.

8 And I think that's going to be a problem that the  
9 Board's going to have to deal with.

10 MR. CROSS: But I think historically the Board has  
11 always dealt with this in its warranty regulations and  
12 everyplace else by basically saying, if the component is,  
13 quote, "broken," i.e. out of spec, and it's an emissions-  
14 related component -- regardless of whether it causes an  
15 exceedance of the standard or not -- something needs to be  
16 done with it.

17 So, you have a long history of going the same  
18 direction which the staff has on this one.

19 CHAIRWOMAN RIORDAN: Mr. Ferris, I'll give you an  
20 opportunity to respond, but we're not going to get into a  
21 debate.

22 MR. FERRIS: And I just wanted to suggest that in  
23 the case of catalyst deterioration, it's not a malfunction  
24 typically. You're talking gradual deterioration here. And  
25 I would argue that if the vehicle's emissions are still

1 below the standard, it's not a malfunction and the light  
2 should not come on.

3 I hope it's clear to the Board that the  
4 combination of the low-emission vehicle standard's extremely  
5 stringent and difficult to meet and extremely stringent  
6 diagnostic standards present a major technological challenge  
7 to us, and extremely difficult. And pushing it in as  
8 quickly as it can is likely to result in false MILs.

9 MR. CROSS: Can I -- this is not debated. It's  
10 only to correct the record

11 (Laughter.)

12 MR. CROSS: For catalyst monitoring, it's one-and-  
13 a-half times the standard for LEVs, and with an interim of  
14 two. So, for that specific component, we're not talking  
15 about turning on the light with the system actually below  
16 the emission standards.

17 CHAIRWOMAN RIORDAN: Okay.

18 Supervisor Vagim?

19 SUPERVISOR VAGIM: Thank you, Madam Chair. I just  
20 have a quick question on the .02 detection.

21 Is it going to be more difficult in an environment  
22 of a large engine, V8, what have you, a large bore engine,  
23 under acceleration? Will that have a different effect on  
24 that test on a continuous basis than a small engine that  
25 doesn't draw as much gas?

1           Because, if you're drawing fuel out of a tank,  
2 aren't you creating a vacuum? And if you're using a vacuum  
3 method, aren't you really setting up a --

4           MR. CROSS: I think it's -- the engine size  
5 shouldn't make any difference, because the vacuum  
6 characteristics of the engines are not that much different.

7           SUPERVISOR VAGIM: But the fuel drawn of a tank  
8 would be.

9           MR. FERRIS: It's not a continuous monitoring.

10          MR. CROSS: Yeah, the monitor only -- as David is  
11 saying, the monitor is only run under very specific  
12 conditions. And I think that the rate that the fuel is  
13 going out of a tank is not a major factor in terms of  
14 affecting measurement.

15          SUPERVISOR VAGIM: So, it won't have -- that small  
16 of a thing will not have a detrimental effect on the test  
17 itself then?

18          MR. CROSS: No. I don't think that specific  
19 factor will.

20          SUPERVISOR VAGIM: And you say it's not an ongoing  
21 test. At what point in the cycle is it being done?

22          MR. ALBU: We tested some very large -- a Ford  
23 pickup truck, and we also tested a very small Volkswagen  
24 Jetta to make sure this thing would work.

25                 We think that the most likely condition would be a

1 highway cruise condition, whereby you run the monitor for  
2 about 50 seconds.

3 SUPERVISOR VAGIM: And that you would -- the  
4 monitoring systems would seek that level before it started  
5 to run? In other words, it would look for those conditions  
6 before --

7 MR. ALBU: Yes, it'd look for a steady state 50-  
8 mile-an-hour condition --

9 SUPERVISOR VAGIM: Get on a freeway, and then it  
10 would do it; climbing a mountain, it wouldn't do it?

11 MR. ALBU: Yes. And I might add that our test did  
12 take into account the RVP of the fuel as well as temperature  
13 before we even started the test.

14 SUPERVISOR VAGIM: And you say that's not going to  
15 take software changes?

16 MR. ALBU: The monitoring for 20 thousandths  
17 should take software changes only in our view, maybe a  
18 slight change in the hardware, but nothing significant.

19 If it is significant, we'd be willing to come back  
20 and offer a change to the phase-in.

21 SUPERVISOR VAGIM: Thank you.

22 CHAIRWOMAN RIORDAN: Are there other questions?

23 Ms. Edgerton, and then --

24 MS. EDGERTON: Going back to a little bit more of  
25 the big picture here with respect to this OBD and the

1 emissions, say for example, on the LEV -- on our LEV  
2 standards, your concern, as I understand it, is that with  
3 OBD II on a LEV vehicle, the light would go on at times when  
4 the emissions level was not violated.

5 MR. FERRIS: Correct. And there are two  
6 circumstances, I guess, where I'm concerned about that,  
7 where that might happen. One is with regard to  
8 comprehensive components, where an individual component,  
9 when it has a malfunction, may only cause a very small  
10 increase.

11 The other is with something like catalyst  
12 monitoring, where the threshold is really one-and-a-half  
13 times the standards. However, because we don't have our  
14 catalyst systems optimized for diagnostics yet, as we push  
15 and try to do that, it may result in premature illumination  
16 of the MIL which, in that case, could mean illuminating the  
17 MIL when emissions are below the standards.

18 And, in fact, I think some of the data that the  
19 staff presented in the previous mail-out this summer, in  
20 June, showed that they were able to illuminate the MIL with  
21 a catalyst monitor that was at very low emission, but it  
22 was, in fact, I think, below the standard. I could be  
23 mistaken about that.

24 MR. ALBU: No, our MIL came on at one-and-a-half  
25 times the standard. And I don't think there's that risk.

1 I thought I asked, in fact, General Motors a while  
2 back about this phase-in. I know I met with Ford for nearly  
3 a half a day on this. And with the phase-in that we've  
4 suggested, I thought General Motors also agreed that, with  
5 this phase-in they we're proposing -- dropping to 30, 60,  
6 and 100 -- that you, too, could implement this one-and-a-  
7 half times the standard catalyst requirement in a reasonable  
8 manner without a lot of tear-up.

9 I thought that we agreed to that.

10 MR. FERRIS: On TLEVs, I think that's correct.

11 MR. ALBU: No. We agreed to it on all LEVs.

12 MR. FERRIS: I'm sorry. I don't recall agreeing  
13 to that.

14 MS. EDGERTON: Well, let me ask again: On the  
15 LEV, though -- say you have a LEV and the light's going off,  
16 the light isn't supposed to go off for some of the  
17 components, as you say, until after you're well beyond -- I  
18 mean the threshold is one-and-a-half times.

19 MR. FERRIS: For many major monitors, that's  
20 correct.

21 MS. EDGERTON: For many major monitors.

22 MR. FERRIS: But for the comprehensive components,  
23 there is no one-and-a-half times the standard threshold.

24 MS. EDGERTON: But for the comprehensive  
25 components -- taking it back to the individual components --

1 since the test for the individual components is at one-and-  
2 a-half times the threshold, don't you get beyond there?

3 MR. FERRIS: The one-and-a-half times the  
4 standards threshold does not apply to the miscellaneous  
5 comprehensive component, such as temperature sensor,  
6 solenoids, et cetera.

7 The one-and-a-half times the threshold applies to  
8 things like catalyst, and EGR, and oxygen sensor -- the  
9 major emission control components -- fuel system, et cetera.

10 MS. EDGERTON: Well, let me ask you this. What  
11 would you recommend?

12 I mean, the dilemma here is clear. I know it's  
13 hard for you to think about yourself as a member of the Air  
14 Resources Board perhaps, but --

15 MR. FERRIS: No, we've been thinking about it --  
16 (Laughter.)

17 MR. FERRIS: -- and our --

18 MS. EDGERTON: I mean, you wouldn't want to. But,  
19 really, this is a very serious matter. Because, when the  
20 components aren't working -- and we do need all these  
21 emissions reductions -- how are we going to know and how's  
22 anybody going to go back and get it fixed?

23 When you have the option of having a light go on,  
24 so you know something's not working, I mean, from my point  
25 of view, it's a question -- I'm supposed to be representing,

1 you know, the --

2 MR. FERRIS: I understand.

3 MS. EDGERTON: -- citizens of California.

4 MR. FERRIS: Yes.

5 MS. EDGERTON: We have in front of us a technology  
6 that -- the opportunity to know when something's not working  
7 and, if it's not working, they can go back and get it fixed,  
8 and then we won't have the emissions in the air.

9 Now, that's important.

10 MR. FERRIS: I understand that. Our  
11 counterproposal is -- I think the staff's interpretation I'm  
12 sort of briefly summarizing, but any measurable increase in  
13 emissions for these miscellaneous components amounts to  
14 something like a 10 or 15 percent increase in emissions.  
15 And our counterproposal would be let's make it a 25 percent  
16 increase in emissions, something more substantial, something  
17 that would mean that it's more likely that the vehicle is  
18 exceeding the emissions by the time the light comes on.

19 MS. EDGERTON: But you've already got 35 percent--  
20 we've already got 35 percent of the engines certified to  
21 these -- to this other standard. I --

22 MR. CROSS: Recall the discussion we had a little  
23 while ago about synergism and old cars.

24 In other words, the way that we dealt with this  
25 issue -- the Board dealt with it when they originally

1 adopted OBD was to recognize that asking the manufacturers  
2 to deal with all the possible combinations of little  
3 components that exceed the standards cause the standards --  
4 or cause the emissions to go up a little bit.

5           When they're worn out, in combination, when the  
6 vehicle gets older, and how to monitor that situation was,  
7 we said, okay, what we'll do is we'll set the big components  
8 at one-and-a-half times the standard, and we'll require you  
9 to monitor the little ones individually for a measurable,  
10 i.e. 10 percent or whatever, increase in emissions.

11           And we think that's a reasonable compromise when  
12 you look at the real world, where, as Steve was talking  
13 about earlier, the cars have all kinds of crazy combinations  
14 of components which fall out of spec when they get old.

15           And who knows exactly when the standard's going to  
16 be exceeded with all the statistical combinations that you  
17 could come up with.

18           CHAIRWOMAN RIORDAN: Mr. Cackette, you want to --

19           MR. CACKETTE: I just want to make a brief comment  
20 to sort of look at the other global aspect of this proposal.

21           I was sitting in a meeting, a public meeting, of  
22 the I&M Review Committee, and the Bureau of Automotive  
23 Repair was up testifying about enforcement and how well  
24 mechanics were doing.

25           And they gave the statistic out that -- they asked

1 the repair industry, "What are some real common problems  
2 with today's cars?"

3 And they then went out and planted those problems  
4 in cars and took them to practicing mechanics.

5 And 50 percent of the mechanics couldn't fix them,  
6 couldn't find the problem at all.

7 One of the critical issues here is that we've got  
8 to help the repair industry and the consumers that own these  
9 cars to be able to get them fixed. They're getting more and  
10 more complicated for all kinds of reasons, not just  
11 emissions, but other reasons. And to have a system, such as  
12 OBD, that finds all of the things that are problematic,  
13 identifies them for the mechanic, and then allows them to  
14 fix them is really critical to maintaining low emissions.

15 And to have a system that's sort of short on that  
16 aspect, where you find some components that are problematic  
17 but not other ones, and together those other ones that  
18 aren't monitored still cause a drivability problem and  
19 emission problem or whatever, is this going to lead to a  
20 lack of confidence in the system?

21 This things got to work if we have any chance of  
22 getting these cars to stay clean. And in our SIP and in our  
23 projections of emission reductions from cars that are used  
24 towards demonstrating attainment, we've got these cars  
25 assumed in the next decade to be emitting, on average, at

1 under 1.5 times their standard throughout their useful life.

2 And so, you know, this is critical to attainment.  
3 It's critical to maintaining the cars. And it's really that  
4 fixing them and keeping them clean is at the heart of the  
5 entire control program that we've proposed to you in the  
6 SIP.

7 So, I hope you'll, you know -- I hope you can  
8 benefit from keeping that in perspective as well as these  
9 multitude of technical issues that are here in front of us.

10 CHAIRWOMAN RIORDAN: Dr. Boston, and then Mr.  
11 Lagarias.

12 DR. BOSTON: I remember a couple years ago, when  
13 we were putting these rules into effect to start with, that  
14 the point was made, and I don't think it's been made today,  
15 that if one major component fails -- even though that  
16 doesn't lead to an emissions exceedance -- it could cause  
17 another major component to fail down the stream, which could  
18 even be more expensive to fix.

19 So, it seems to me that it would be to the auto  
20 manufacturers' interest also to find these breakdowns before  
21 it leads to something more major.

22 MR. FERRIS: I think I agree with you. In General  
23 Motors' case, we would monitor these things. We would just  
24 not call them emission components, because we don't feel  
25 that they have a significant impact on emissions when they

1 malfunction.

2           So, there would be a stored code that a mechanic  
3 could use. Of course, I can't commit to that for the rest  
4 of the industry, but I know what General Motors plans would  
5 be would agree with you.

6           CHAIRWOMAN RIORDAN: Any other questions, Dr.  
7 Boston?

8           DR. BOSTON: No.

9           CHAIRWOMAN RIORDAN: Mr. Lagarias.

10          MR. LAGARIAS: In your figure with your written  
11 testimony, you made a comparison of the 24-hour diurnal  
12 emission losses with a 1990 Buick with a 9 RVP fuel compared  
13 to a '95 Cavalier with a 7.0 RVP fuel.

14          MR. FERRIS: Yes.

15          MR. LAGARIAS: How much of the difference would  
16 you attribute to the difference in the Reid vapor pressure  
17 of the fuel?

18          MR. FERRIS: I think it's a small percentage.  
19 It's the RVP. The major difference -- and it's kind of hard  
20 to appreciate. The major difference is in the resistance to  
21 flow to the canister. The evaporative emissions in general  
22 are heavier than air.

23                They tend to act like a liquid almost. And in our  
24 1990 and older configurations, we tended to have a fairly  
25 small restriction between the fuel tank and the canister.

1 And sometimes the canister itself had a lot of restriction  
2 and the lines had a lot of restriction. And so, the vapors  
3 were forced out a small hole.

4 With the new systems, especially as we move to the  
5 federal on-board refueling vapor recovery systems, we have  
6 to eliminate resistance to flow to the canister.

7 And so, now, we're finding -- if, for example, we  
8 moved from a 55 thousandths orifice between the fuel tank  
9 and the canister. We're moving now to an 80 or a 90  
10 thousandths inch orifice, much bigger in comparison to a 20  
11 thousandths inch hole, and we've eliminated the rest of the  
12 resistance to the flow into the canister; so, now, the vast  
13 majority of the vapor will be flowing into the canister as  
14 compared to a 1990 system where the majority flowed out a  
15 small leak into the atmosphere.

16 MR. LAGARIAS: Well, when the canister gets  
17 saturated, doesn't the -- in effect, it doesn't work any  
18 longer? Doesn't the vapor breathe through the canister?

19 MR. FERRIS: Well, as part of the enhanced  
20 evaporative system requirements, we're really beefing the  
21 canisters. And again, as a part of the federal on-board  
22 refueling vapor recovery requirements, we're beefing up the  
23 capacity of the canisters. So, they have to be able to  
24 endure a three-day, 99 percentile diurnal now. They have to  
25 be able to accommodate the refueling vapors.

1           So, I think we've eliminated that problem.

2           MR. LAGARIAS: All right. I've heard the argument  
3 made that in the wintertime, the RVP of the fuel goes up  
4 very high, 11 to 12. Then the tendency to evaporate becomes  
5 more pronounced.

6           MR. FERRIS: Correct.

7           MR. LAGARIAS: Would that be a time when the  
8 warning indicator lights become more sensitive to indicating  
9 losses?

10          MR. FERRIS: That's precisely correct. We're  
11 concerned about false MILs from someone who goes to Nevada  
12 or someplace skiing in late March or something, or even they  
13 can have leftover fuel. You can get higher RVP fuel than in  
14 April and May when temperatures are getting very hot, and  
15 that may result in false MILs.

16          MR. LAGARIAS: In your analysis of the Cavalier,  
17 you indicated there might -- you compared it with a fuel cap  
18 leak, a plumbing leak. Is there any evaporative leak that  
19 you're including there as well?

20          MR. FERRIS: A fuel cap is the fuel cap absent,  
21 which would be a gross leak. I guess I'm not sure I  
22 understand your question there.

23          MR. LAGARIAS: Well, it shows -- your curve shows  
24 a fuel cap leak. I assume that's --

25          MR. FERRIS: Yeah, that's sort of the worst case

1 gross leak, I believe.

2 MR. LAGARIAS: But it would be -- it's not the  
3 fuel cap itself, as much as it is the size of the hole in  
4 the fuel cap.

5 MR. FERRIS: I think a fuel cap leak means the  
6 fuel cap is absent. It's, you know, a big hole.

7 MR. LAGARIAS: Then why would it be shown for a  
8 .04, or a .02, or .06 leak?

9 MR. FERRIS: Oh, you're right. I'm sorry. You're  
10 absolutely correct. It's the size of the leak in the fuel  
11 cap location. You're correct. I am wrong.

12 MR. LAGARIAS: But where is the evaporative loss  
13 through the canister that would be presumably also  
14 occurring?

15 MR. FERRIS: No, there wouldn't be any evaporative  
16 loss through the canister. The rest of the vapor --

17 MR. LAGARIAS: The breathing through the canister.

18 MR. FERRIS: I'm sorry?

19 MR. LAGARIAS: The breathing through the canister.  
20 You're assuming complete recovery in the canister?

21 MR. FERRIS: Correct. I mean I think the idea is  
22 you still would have something like 35 grams of vapor  
23 generated by this 24-hour diurnal. With the new systems,  
24 the vast majority of that vapor would now go into the  
25 canister and be stored there, and then burned when the

1 vehicle was started rather than escaping into the  
2 atmosphere.

3 MR. LAGARIAS: All right. Now, I'm just going to  
4 digress slightly. The federal test procedure -- I heard the  
5 argument made that these should only be measured through the  
6 FTP process. Am I correct in understanding that's going to  
7 be updated?

8 MR. FERRIS: That is correct.

9 MR. LAGARIAS: And will that include higher  
10 revolution applications, above 3500, so that they take the  
11 higher revolution conditions, which the FTP process -- which  
12 I think was developed in '67 -- does not affect current  
13 driving practices?

14 MR. CROSS: Are we talking about misfire now?

15 MR. LAGARIAS: Well, I'm talking in general.

16 MR. CROSS: The answer is, yes, the FTP will be  
17 updated to include a, quote, "off cycle" test, which is  
18 designed to represent higher speeds and loads --

19 MR. FERRIS: Yes.

20 MR. CROSS: -- which are outside of what are  
21 defined by the current FTP. And that process is well along  
22 and ARB, and EPA staff, and the manufacturers are  
23 cooperating very closely on developing that procedure and  
24 the standard.

25 MR. LAGARIAS: And that does affect misfires that

1 we're concerned with at this point.

2 MR. CROSS: Except for -- the staff's proposal  
3 goes outside, I think, of the -- may go outside of the  
4 operating regime of even the off-cycle test, in a sense that  
5 to define a, quote, "map," that everybody understands, we  
6 run -- we're running through the limits of the engine's  
7 operating range, if you will, with the one area blanked out.

8 MR. LAGARIAS: All right. And I just had one last  
9 comment, which I've lost. I'll come back to it.

10 Thank you, Mr. Ferris.

11 CHAIRWOMAN RIORDAN: Okay. Are there any other  
12 questions at this time?

13 Let me thank this witness then very much.

14 MR. FERRIS: Thank you.

15 CHAIRWOMAN RIORDAN: If it is all right with the  
16 Board, and particularly our recorder, I'd like to finish the  
17 testimony of the next witness before we break for lunch.  
18 Madam recorder, is that all right with you?

19 Okay. Mr. Nishikubo, representing Chrysler  
20 Corporation.

21 MR. NISHIKUBO: Good afternoon.

22 My name is Norman Nishikubo, and I am a Vehicle  
23 Emissions Regulatory Planning and Compliance Specialist with  
24 Chrysler Corporation.

25 I wish to take this opportunity to thank your

1 staff for all of their efforts to address and resolve most  
2 of our concerns relative to the regulation before you today.

3 During the past two years, a cooperative effort  
4 was undertaken by both CARB and Chrysler to understand,  
5 recognize, and address each other's concerns applicable to  
6 the goals contained in the OBD II regulation.

7 A major part of the document before you is the end  
8 result of this cooperative effort.

9 Now, putting the pleasantries aside, I do not wish  
10 to leave the impression that the requirements contained in  
11 the document before you will easily be met. This  
12 regulation, from its onset and continuing today, represents  
13 a major and monumental technological challenge.

14 Human resources as well as monetary resources will  
15 continually be pushed to their limits in order to meet these  
16 requirements. In fact, some of the provisions contained in  
17 the proposed OBD II regulation may prove to be  
18 nonattainable.

19 n the other hand, attainment may occur. We just  
20 don't know what the future outcome will be at this time.

21 The comments of the American Automobile  
22 Manufacturers Association presented earlier described  
23 concerns with several OBD II requirements. We support those  
24 comments.

25 However, we commit to all of you, just as we have

1 to your staff, to devote all reasonable efforts to attain  
2 the stated goals. Our commitment is essential to help  
3 ensure the protection of the interests of Californians as  
4 well as our own.

5 Thank you for the opportunity to present our views  
6 on this important issue. If you've got any questions, I'll  
7 be glad to attempt to answer them.

8 CHAIRWOMAN RIORDAN: Are there any questions for  
9 this witness by any of the Board members?

10 Well, you've given us a very nice beginning for  
11 our lunchtime.

12 MR. NISHIKUBO: Thank you.

13 CHAIRWOMAN RIORDAN: And I appreciate that.

14 I'd like to indicate the audience and to the Board  
15 and staff that -- let's reconvene at 1:15. That gives us a  
16 little better than 30 minutes. And that'll probably be a  
17 pretty good lunch break I think. Okay.

18 (Thereupon, the luncheon recess was  
19 taken.)

20 ---o0o---

21

AFTERNOON SESSION

--oOo--

1  
2  
3 CHAIRWOMAN RIORDAN: I'll call the Board meeting  
4 back to order, if I might, and invite Mr. Stepper, who  
5 represents Cummins, to come forward to the podium.

6 Is Mr. Stepper here? Well, perhaps he'll be back  
7 from lunch.

8 Mr. Grossman, representing Lamborghini.

9 He's out for a drive in his Lamborghini.

10 (Laughter.)

11 CHAIRWOMAN RIORDAN: Maybe he went to rescue his  
12 Lamborghini.

13 Mr. Deane, from the Specialty Equipment Market  
14 Association. No, let's see. Who do we have coming here?

15 Mr. Deane. Well, I'm glad you're here. Thank  
16 you.

17 MR. DEANE: Thank you. If I had a Ferrari, I  
18 probably would not be here.

19 CHAIRWOMAN RIORDAN: I would agree with you.

20 (Laughter.)

21 MR. DEANE: Madam Chairwoman, members of the  
22 Board, my name is John Russell Deane. And I represent the  
23 Specialty Equipment Market Association, SEMA, and the Auto  
24 Internationale Association, AIA.

25 Both associations comprise manufacturers and

1 distributors of automotive parts and accessories. They are  
2 part of the automotive aftermarket and an integral part of  
3 the automotive industry the citizens of California have come  
4 to rely upon.

5 Without the aftermarket, it is doubtful that the  
6 array of parts and services which we enjoy would be  
7 available to the consumer.

8 Certainly, delays and inconvenience would result  
9 from any decrease in the viability of the aftermarket.  
10 Without doubt, the cost of owning a motor vehicle would  
11 increase dramatically were there no aftermarket.

12 A balance has evolved between the vehicle  
13 manufacturers and their dealers and the automotive  
14 aftermarket in providing parts and services to the consumer.  
15 Roughly 75 percent of that aftermarket is made up by the  
16 industry we represent.

17 That balance, however, has been created by a  
18 consumer preference. And today, that balance is, in fact,  
19 in very, very serious trouble. As a matter of fact, the  
20 very existence of the automotive aftermarket as we know it  
21 is in question.

22 This is not a result of a change in consumer  
23 preferences, but rather by government fiat. I would like to  
24 address this serious problem and some of the efforts which  
25 have been undertaken to deal with it.

1 I've also prepared written remarks, which I will  
2 submit with my oral remarks, and I would request that they  
3 be made part of the record. These comments are provided on  
4 behalf of not only SEMA and AIA, but also the Automotive  
5 Engine Rebuilders Association, the Auto Parts and  
6 Accessories Association, the Auto Parts Rebuilders  
7 Association, the ASA -- the Auto Services Association -- the  
8 Auto Service Industry Association, the Automotive Warehouse  
9 Distributors Association, the Motor and Equipment  
10 Manufacturers Association, and of course, SEMA and AIA.

11 For many years, the participants in the automotive  
12 aftermarket have been able to design and manufacture parts  
13 which, when installed on vehicles, allow the vehicles to  
14 operate properly, perhaps even better than they were  
15 originally configured.

16 Similarly, the service industry has been able to  
17 properly maintain these vehicles. For two important reasons  
18 this is changing. The first is that governmentally mandated  
19 on-board diagnostic systems and sophisticated computer  
20 technology are making it more difficult to design and  
21 manufacture parts which are compliant with OBD, and  
22 especially the new OBD systems, and are making it more  
23 difficult to undertake service-related -- emissions-related  
24 service of motor vehicles without access to information  
25 relating to the operation of emission controls systems and

1 the on-board diagnostic systems.

2           The second reason for this is that, while we are  
3 seeking additional information about and access to the on-  
4 board computers, the proposal before the Board seeks to  
5 preclude that information and access through mandated  
6 antitampering measures.

7           In order to preserve a viable aftermarket, a new  
8 alliance must be formed among the Board, the vehicle  
9 manufacturers, and the automotive aftermarket. Such an  
10 alliance must recognize the need and value of preserving a  
11 viable and competitive aftermarket.

12           We must recognize the concerns of the Board and  
13 the concerns of the vehicle manufacturers with regard to  
14 aftermarket involvement in sophisticated emission control  
15 systems. We must be prepared to analyze those concerns and  
16 develop realistic solutions.

17           This will not be an easy process and will require  
18 a good-faith effort on the part of all parties if we are to  
19 succeed.

20           We are prepared to begin that process now. Even  
21 though not a word today has been spoken about the demise of  
22 the automotive aftermarket in dealing with the issues of on-  
23 board diagnostics, we are gratified that the Board and the  
24 ARB staff recognize the importance of a viable aftermarket  
25 in seeking to ensure consumer satisfaction and to ensure an

1 effective emissions control strategy.

2 We are further gratified that the Board is taking  
3 a leading role in seeking to form the alliance which I refer  
4 to and to find practical solutions to technical problems.

5 Under the guidance of the Board, we will soon  
6 engage in discussions involving the Board, representatives  
7 of the vehicle manufacturers, and representatives of the  
8 automotive aftermarket.

9 We will place on the table all of the technical  
10 issues which we face and seek solutions. We have already  
11 begun this process, and -- with the issues at least that  
12 have been brought forward so far. We pledge today to work  
13 earnestly in good faith to find a means of resolving our  
14 difficulties, and affecting our alliance.

15 We would join with the vehicle manufacturers in  
16 suggesting, however, the deferral of the adoption of the  
17 antitampering provisions until we've been able to deal with  
18 these matters.

19 We appreciate the efforts of the staff in solving  
20 these problems, and we look forward to our continued  
21 involvement with them.

22 Thank you.

23 CHAIRWOMAN RIORDAN: Thank very much. Board  
24 members, are there questions for this witness?

25 MR. LAGARIAS: One question.

1 CHAIRWOMAN RIORDAN: Yes, Mr. Lagarias.

2 MR. LAGARIAS: The manufacturers of automobiles  
3 say that they've spent a lot of money -- and I well believe  
4 it -- to develop their equipment, their emissions control  
5 equipment.

6 And they think it's proprietary or at least it's  
7 money that they've invested, and they would like to continue  
8 selling it.

9 How do you answer the question that they pose?  
10 They say, "We've invested in this. Why should we open up  
11 our big investment to the aftermarket if they haven't put up  
12 their money to enter the market"?

13 MR. DEANE: Well, part of the partnership that I  
14 think that we're going to propose involves the aftermarket  
15 putting up the funding, the resources, the human resources  
16 as well, in dealing with these technological issues.

17 The fact of the matter is that while there has  
18 been a tremendous amount invested in terms of emission  
19 control technology, as well as the on-board diagnostics  
20 systems that are currently in place, the fact of the matter  
21 is that, to deny the aftermarket the opportunity to  
22 participate eliminates an entire industry.

23 And, at this point in time, not only does that  
24 pose a serious threat to the people who are in the industry,  
25 it poses a serious threat to consumers in California who

1 rely upon that industry to work on their cars.

2 MR. LAGARIAS: Well, I think that's a very good  
3 point. But if you invest in technology, that's a  
4 substantial investment. How do you protect your investment,  
5 let's say, from -- in your case, you say, "We'll put up the  
6 money. We'll be partners in it."

7 What happens if this information just leaks out  
8 and goes out all over the world, and then the investment  
9 that has been made in this technology comes back in a  
10 cheaper version to haunt you?

11 MR. DEANE: Well, that deals with the issue of the  
12 release of the information. And there's been a lot of  
13 controversy on how this information might be made available  
14 to the automotive aftermarket. And I think there are a  
15 variety of solutions to that. And it depends upon the  
16 different types of parts we're talking about.

17 But I would see, as there are currently devices  
18 being used and methodologies being used to deal with the  
19 data, which is contained in the on-board diagnostic systems  
20 without actually having access to the information, I believe  
21 that there are intermediary systems that can be used to  
22 protect the proprietary nature of that data and still  
23 provide the aftermarket the opportunity to design parts.

24 MR. LAGARIAS: All right. Well, I certainly would  
25 encourage an alliance between the aftermarket and the

1 primary manufacturers, and our participation to the extent  
2 appropriate.

3 Is that in motion now?

4 MR. DEANE: Yes, it is. And I believe a workshop  
5 has been scheduled for sometime early February, and we're  
6 very much looking forward to that.

7 In the meantime, there are a number of technical  
8 discussions underway to try to identify the very specific  
9 issues that may be of concern, not only to the vehicle  
10 manufacturers but also to the Air Resources Board itself.

11 MR. LAGARIAS: thank you.

12 CHAIRWOMAN RIORDAN: Are there any other questions  
13 for this witness?

14 Supervisor Vagim?

15 SUPERVISOR VAGIM: Well, does your -- does your  
16 aftermarket also include then the independent automobile  
17 repair folk, too?

18 MR. DEANE: Yes.

19 SUPERVISOR VAGIM: Are they a separate group, or  
20 are they all --

21 MR. DEANE: Yes.

22 SUPERVISOR VAGIM: -- part?

23 MS. HUTCHENS: Well, the service industry is  
24 obviously part of the automotive aftermarket. I represent  
25 parts manufacturers and distributors.

1 But they are part of the automotive aftermarket  
2 and they, of course, are affected by this program as well.

3 SUPERVISOR VAGIM: Have they been part of the  
4 dialogue that you --

5 MR. DEANE: They have been, yes.

6  
7 SUPERVISOR VAGIM: Okay. Good. Thank you.

8 CHAIRWOMAN RIORDAN: Ms. Edgerton?

9 MS. EDGERTON: I would assume that some sort of  
10 leasing arrangement or franchising arrangement, something  
11 like that, of their software and technology is what you're  
12 talking about; is it?

13 MR. DEANE: Well, we'd suggest that everything is  
14 on the table. I think that there's going to be -- again,  
15 depending upon the types of parts we're talking about,  
16 there's going to be a need to determine what type of  
17 information must be made available. And the issue of -- God  
18 forbid the word "licensing" -- I think that everything is on  
19 the table in trying to determine how this information can,  
20 in fact, be transferred.

21 So, licensing may well be one of the approaches.

22 MS. EDGERTON: It's not on the table as to whether  
23 they own what they develop, is it?

24 MR. DEANE: No, no. In terms of providing the  
25 information to the automotive aftermarket.

1 MS. EDGERTON: I see.

2 MR. DEANE: That's one of the means by which I  
3 think this information may be made available to the  
4 aftermarket.

5 MS. EDGERTON: Thank you.

6 CHAIRWOMAN RIORDAN: Okay? Staff, any comments?  
7 I think that concludes the Board's questions.

8 MR. ALBU: As Mr. Deane has said, we are trying to  
9 work to form a discussion group to fine solutions to these  
10 problems.

11 I think one of things that we're interested in is  
12 avoiding the incentive for tamperers to get into these  
13 systems. If legitimate aftermarket companies indeed will  
14 participate, we'd like them to do so in a reasonable manner,  
15 in a business relationship, for example.

16 We don't want to cut them out of the whole issue,  
17 then they would be forced into seeking tamperers to try to  
18 get back their business.

19 So, this is part of the security issue overall,  
20 and we think that the staff believes it makes more sense to  
21 try to work this out rather than to force people to do  
22 things that we wouldn't like.

23 CHAIRWOMAN RIORDAN: Okay. Thank you very much.  
24 Thank you --

25 MR. DEANE: Thank you.

1 CHAIRWOMAN RIORDAN: -- Mr. Deane.

2 Let me go back. I had called on Mr. Mark Stepper  
3 from Cummins.

4 Is he now in the room?

5 MR. STEPPER: Thank you for letting me come up and  
6 make the comments, even though I missed my first call there.

7 Ladies and gentlemen of the Board and the staff,  
8 my name is Mark Stepper. I'm the Manager of On-Board  
9 Diagnostic Programs for Cummins Engine Company,  
10 headquartered in Columbus, Indiana.

11 Cummins is a leading worldwide designer and  
12 manufacturer of fuel-efficient diesel engines and related  
13 products for trucks and other equipment.

14 Cummins engines ranging from 76 to 2000 horsepower  
15 provide power for a wide variety of equipment in its key  
16 markets -- heavy-duty truck, midrange truck, power  
17 generation, bus, and light commercial vehicles, industrial  
18 products, government, and marine.

19 In addition, Cummins produces strategic components  
20 and subsystems critical to the engine, including filters,  
21 turbochargers, electronic control systems.

22 Cummins also produces natural gas engines for some  
23 applications. This year, we are celebrating our 75th  
24 anniversary in providing for these very important markets.  
25 And we continue to march forward in developing state-of-the-

1 art products to meet the needs of the future.

2 Cummins offers its support for the latest  
3 revisions on the on-board diagnostic II rule. We have  
4 worked proactively with the ARB staff over the last several  
5 years in identifying and clarifying aspects of this  
6 regulation, and feel confident that the changes and  
7 additions proposed here today are appropriate and  
8 technically justified.

9 The additional clauses identifying differences  
10 between diesel engine technology and gasoline engine  
11 technology, the recognition that some engines are certified  
12 on engine dynamometer, and the recognition of alternate  
13 communications protocol with J1939 are major steps forward  
14 with this regulation, which crosses a multitude of vehicle  
15 classes and weight categories.

16 However, one element of the proposal -- proposed  
17 regulation is of potential concern to us. That is the  
18 requirement for the detection of misfire on diesel engines  
19 effective in 1998.

20 Cummins has only recently begun the research into  
21 the methodology and practical application of misfire  
22 detection and measurement.

23 As we stand before you today, we are not convinced  
24 that over the next two to three years, that we will be able  
25 to reliably detect misfire on a diesel engine.

1           However, the latitude provided by the staff for  
2 detection only of complete lost of combustion, only during  
3 certain operating conditions, and only once per driving  
4 cycle increases our confidence as we continue our research  
5 and development of such a system.

6           We commit to continue to update the staff on our  
7 progress on a periodic basis, and we urge the staff and the  
8 Board to proceed with establishing a workshop and another  
9 status review hearing in 1996, to determine if the changes  
10 would be needed to this or other aspects of the OBD II  
11 regulation that applied to the 1998 and later model year  
12 vehicles.

13           Cummins thanks the Board and the staff for their  
14 attention and for the opportunity to present our views on  
15 this proposal.

16           If there are any questions, I'd be happy to  
17 entertain them at this time.

18           CHAIRWOMAN RIORDAN: Thank, Mr. Stepper. Let me  
19 ask the Board members. Are there any questions from any of  
20 the Board members?

21           I see none. And, sir, we thank you for your  
22 testimony and I appreciate your being here.

23           MR. STEPPER: Thanks.

24           CHAIRWOMAN RIORDAN: Let me go back and also call  
25 on Mr. Michael J. Grossman from Lamborghini? Are you here?

1 MR. GROSSMAN: I'm coming.

2 CHAIRWOMAN RIORDAN: Good.

3 MR. GROSSMAN: The car wasn't fast enough to get  
4 me here.

5 (Laughter.)

6 CHAIRWOMAN RIORDAN: Well, we were afraid that,  
7 you know, maybe you had to go find it somewhere. You never  
8 know.

9 MR. GROSSMAN: No, not in this fine town.

10 CHAIRWOMAN RIORDAN: They're sought after.

11 MR. GROSSMAN: I'm Michael J. Grossman, the United  
12 States Engineering Representative for Lamborghini.

13 The fact that I'm following the gentleman from  
14 Cummins -- let me assure you there's no truth to the rumor  
15 that we're only going to be building diesel passenger cars.

16 (Laughter.)

17 MR. GROSSMAN: In any case, we are a small volume  
18 manufacturer in perhaps the truest form. We support the  
19 staff amendments presented here today, and we are  
20 appreciative of CARB's traditional history of understanding  
21 and consideration of the additional and particular problems  
22 small volume manufacturers must face and, most  
23 particularly, extra small volume manufacturers like us.

24 While the staff amendments address many problems,  
25 there is still an extremely significant problem for us,

1 manufacturers like us, and even some large volume  
2 manufacturers.

3 This problem is particularly for engines larger  
4 than 8 cylinders, particularly 10 and 12 cylinder engines,  
5 and even during the FTP. This is for misfiring.

6 As one could imagine, it's a significant problem  
7 for these engines of 10 and 12 cylinder capacity. We are  
8 working diligently on this, but this still may be a  
9 significant problem for us in future years. We would like  
10 to ask for additional delays for the 10 and 12 cylinder  
11 engines, particularly for small volume manufacturers, and  
12 most specifically during FTP cycle as well as the non-FTP  
13 cycle, up through the year 2000.

14 We also hope that the Board will pay -- or let's  
15 say be particularly sympathetic to our problems and, if not,  
16 if they can't be addressed now, at least leave open to  
17 perhaps a hearing in 1996, where these can be addressed,  
18 depending upon the progress in the future.

19 Thank you for the opportunity.

20 CHAIRWOMAN RIORDAN: Thank you, Mr. Grossman.

21 Maybe staff -- would you care to comment on the  
22 request?

23 MR. ALBU: I think that we acknowledge that the  
24 V10 and the V12 engines are more difficult to accomplish  
25 misfire monitoring on. I think that we're also aware of

1 some new approaches out there that could possibly apply to  
2 these engines, and we'll be looking at those.

3 And I think that we'd like to maybe put Mr.  
4 Grossman in contact with these people to see if we can  
5 explore further this new methodology.

6 We will, of course, reconsider it in 1996. Other  
7 manufacturers -- Ford and Chrysler, for example -- will be  
8 making V10 trucks and so forth. They have similar problems.  
9 So, we will be monitoring this.

10 I think for over the FTP range, I guess time is  
11 getting short, since you have to comply, I think, in 1996,  
12 with the FTP. If -- well, as I say, we can work with you to  
13 get in touch with a couple of vendors that we're aware of  
14 more recently.

15 But sure there be a problem in '96, right now, the  
16 regulations only provide for paying a deficiency (sic) for a  
17 deficiency. That's one alternative, not desirable perhaps,  
18 but hopefully we can avoid that.

19 CHAIRWOMAN RIORDAN: Board members, questions?  
20 Dr. Boston.

21 DR. BOSTON: Mr. Albu, it seems in the past, that  
22 we did have exemptions for small vehicle manufacturers or  
23 small manufacturers of small numbers of vehicles. Do you  
24 recall what that -- how that could be applied here?

25 MR. ALBU: Yes. What we did in the past, when we

1 first adopted a regulation, was we had a phase-in of OBD II  
2 over 1994, '95, and '96. And what we allowed for small  
3 volume was to begin compliance in '96, not 1994. So, that  
4 was the first phase of this greater leniency.

5 In addition, with the new proposal for the full  
6 range of monitoring, we will give the small volume  
7 manufacturer up until the year 2000 to comply with the full  
8 speed and load range.

9 So, I think that, if we can make progress with  
10 these outside developers by 1996, that FTP range requirement  
11 by '96 maybe can be met, and we think that certainly by the  
12 year 2000, the technology will be there to do the full range  
13 as well.

14 So, hopefully, we can avoid the problem.

15 DR. BOSTON: Mr. Grossman, how many cars do you  
16 sell in California every year?

17 MR. GROSSMAN: Well, we manufacture about four or  
18 five hundred vehicles a year worldwide. And of that, about  
19 50 percent are in the United States, and about 40 to 50  
20 percent of that volume is in California.

21 But there's an additional corollary to this as  
22 some of you may be aware. Manufacturers like us, we can't  
23 build separate vehicles for different portions of the United  
24 States.

25 And with the new regulations coming into effect in

1 the Northeast, it virtually demands that a manufacturer like  
2 us, and even some fairly larger than us, must manufacture  
3 what are called 50 State vehicles. So that, essentially the  
4 vehicle that we build for California, we have to sell only  
5 that vehicle across the United States.

6 So, it's not just a problem of the volume that we  
7 have for sale in California, though that is significant --  
8 by our standards at least -- it's a problem of our entire  
9 United States production, which presents 50 percent of our  
10 worldwide sales.

11 DR. BOSTON: Did you just give out a trade secret  
12 about a V10 engine? You don't currently have one.

13 MR. GROSSMAN: Well, we have one on our back shelf  
14 so to speak. But, no, I meant that, in that basically it's  
15 engines larger than V8 that the technology today has had  
16 some problems with, not only us. You probably hear about it  
17 or read about it from other manufacturers. And we still  
18 have problems with it on the -- even on the FTP cycle in  
19 some areas of it.

20 Admittedly, we could take advantage of the  
21 deficiency availability, but our engineers are proud, and  
22 they don't like to -- let's say they don't like to sort of  
23 hang their coat over their head even for one small part.

24 We've been working diligently on this as well as  
25 working together with the staff, speaking numerous times

1 with the staff and getting some pointers in which directions  
2 to move and people to go to.

3 We also have been working together with Dr.  
4 Razoni, (phonetic), a professor who used to be at the  
5 University of Michigan. He's now at the University of Ohio.  
6 And he, together with us, and engineers from the University  
7 of Bologna, we're going to be presenting a paper on misfire  
8 in large engines at the SAE conference next March.

9 And also, I've had contact with some of the sensor  
10 manufacturers and others that have been working on these  
11 projects for other manufacturers, but they haven't -- they  
12 haven't done any work on anything larger than a V8 to date.  
13 So, it is a bit of a problem.

14 DR. BOSTON: Well it sounds like staff is  
15 sympathetic to your needs and will work with you in a  
16 workshop in '96.

17 CHAIRWOMAN RIORDAN: Okay? Any other?

18 MR. LAGARIAS: Madam Chair?

19 CHAIRWOMAN RIORDAN: Mr. Lagarias.

20 MR. LAGARIAS: Tell me, do you have two chips in  
21 your car? One to go through the FTP cycle and one so that a  
22 normal Lamborghini driver would run the car?

23 MR. GROSSMAN: No, not at all. You're not allowed  
24 to do that.

25 (Laughter.)

1 MR. LAGARIAS: What happens when you have a  
2 misfire?

3 MR. GROSSMAN: That's called something -- that's  
4 something called a defeat device.

5 MR. LAGARIAS: Yes, but --

6 MR. GROSSMAN: We don't even have a switch on our  
7 hood.

8 MR. LAGARIAS: Well, considering --

9 MR. GROSSMAN: That was -- excuse me. That was  
10 the original genesis of the defeat device. It was a switch  
11 on the hood, where it would -- when the hood was opened, the  
12 emission control devices would be effective; and when the  
13 hood was closed, the switch would operate and it would cut  
14 out all the emission control devices.

15 (Laughter.)

16 MR. LAGARIAS: Well, I'm glad to hear --

17 MR. GROSSMAN: Mr. Calhoun, I think, remembers --

18 (Laughter.)

19 MR. GROSSMAN: -- those days.

20 MR. LAGARIAS: What happens if you have a misfire,  
21 does your speed drop from 175 down to 135 or something?

22 MR. GROSSMAN: No. One thing, it's hard to detect  
23 in 12 cylinders. But one thing, you know, to address one of  
24 the concerns of the staff in regard to misfire, we don't  
25 like misfire any more than the staff or perhaps probably

1 even less.

2 If our catalysts get damaged -- and now they're  
3 guaranteed for eight years and 80,000 miles -- our cost is  
4 \$15,000 on a catalyst system.

5 So, that's fairly significant. And we have to pay  
6 for it. In light of that, for the last -- I believe it's  
7 about the last nine years, even on the model that we sold  
8 previous to current model, we've had a device called a  
9 catalytic overheat sensor system. And what that does is  
10 it's thermocouples placed in and around the catalyst area,  
11 which sense any overtemperature conditions.

12 And, as well as processing a warning -- first, a  
13 variable flash, then a steady flash, then an audible tone.  
14 It also shuts off the fuel supply.

15 (Laughter.)

16 MR. GROSSMAN: Because we don't want our catalysts  
17 ruined by customers not paying attention to lights.

18 MR. LAGARIAS: Thank you.

19 MR. GROSSMAN: And we have those -- those devices  
20 are on all our vehicles today.

21 So, that's how we combat it, even when it's  
22 nondetectable.

23 MR. LAGARIAS: Thank you.

24 MR. GROSSMAN: Okay. Thank you very much  
25 gentlemen.

1 CHAIRWOMAN RIORDAN: Thank you --

2 MR. GROSSMAN: Gentlemen and ladies.

3 CHAIRWOMAN RIORDAN: -- Mr. Grossman.

4 That poses an interesting followup to Supervisor  
5 Vagim's theory of lights. You notice what they do on a  
6 Lamborghini.

7 The next speaker represents the Motor and  
8 Equipment Manufacturers Association. Paul Haluza?

9 MR. HALUZA: Following Lamborghini.

10 My name is Paul Haluza, and I'm Director of  
11 Government Relations and Public Affairs for the Motor and  
12 Equipment Manufacturers Association.

13 For those of you that may not be familiar with our  
14 group, we represent about 750 U.S. manufacturers of motor  
15 vehicle parts, accessories, automotive chemicals, and  
16 related equipment.

17 About 55 to 60 percent of our members sell to  
18 vehicle manufacturers original equipment new, and about 75  
19 to 80 percent of our members sell independent parts into the  
20 aftermarket, although I'm going to have to check and see if  
21 we have one that has a \$15,000 catalyst replacement.

22 I don't have a formal statement. My purpose for  
23 being here today is to add our support to the statement that  
24 Mr. Deane introduced into the record, and say that we  
25 support it.

1           Our concern, again, is for the antitampering  
2 provisions in the proposed rule. We do appreciate the fact  
3 that Steve Albu and others on the staff have recognized the  
4 potential adverse impact, unintended impact, of these  
5 regulations. And we're pleased to be working with him in  
6 trying to seek a resolution.

7           In the meantime, I guess our position is that we  
8 think that this provision is premature, in light of a  
9 potential solution between the groups. Because, at that  
10 time, I think we all stand for strong antitampering  
11 provisions.

12           And none of the people in the aftermarket do  
13 support the tampering, but we think that these provisions in  
14 a way pass the key of ownership to the vehicle  
15 manufacturers. And this is a fearful thing for the  
16 independent aftermarket.

17           We've heard some discussion today, I think, with  
18 regard to the service technicians' needs. But we have not  
19 heard any real discussion with respect to the independent  
20 parts manufacturers.

21           In some respects, the antitampering provision does  
22 bestow upon the vehicle manufacturers the right to design a  
23 vehicle. And again, as a matter of public policy, should a  
24 small group control that design?

25           Historically, the aftermarket -- to answer Mr.

1 Lagarias' question earlier to Mr. Deane about the  
2 investment, historically, before we'd gotten into the world  
3 of computerization of vehicles and electronics, everyone  
4 from the vehicle manufacturers on down to the parts  
5 manufacturers used reverse engineering in order to design  
6 component and build replacement parts.

7 Now, with this new-age computer that's running the  
8 vehicle, and with the way the antitampering provision is  
9 written and proposed by staff, what you've created really is  
10 an endorsement for copyright protection and are, in some  
11 ways, deputizing the vehicle manufacturers to enforce  
12 antitampering, because they will have a dual intellectual  
13 property protection as well as, again, the antitampering;  
14 thus, making reverse engineering virtually impossible.  
15 Because if anybody tries to break the software code in order  
16 to design a legitimate part -- I'm not talking now about an  
17 illegitimate part.

18 We share the Board's concern about the possibility  
19 of tampering, computer hacks. But, again, I'll remind you  
20 of an old adage that I remember: Laws are made to keep  
21 honest people honest. Those that have a profit motive are  
22 going to go in and break the codes, and then somehow are  
23 going to break down and sell their parts.

24 I would submit to the Board and to the staff that  
25 here are very ample antitampering provisions in the Clean

1 Air Act right now. In fact, they expanded the antitampering  
2 provisions in the Clean Air Act amendments of 1990 to  
3 include owners as well as manufacturers of defeat devices.

4 Certainly, a software package that defeats the OBD  
5 or the computer, the CPU control systems of the vehicle  
6 manufacturers would be tampering. It would be a defeat  
7 device.

8 So, with that, I just make those comments. And if  
9 you have any questions, I'll be happy -- I appreciate the  
10 opportunity to sort of present our views a little bit.

11 CHAIRWOMAN RIORDAN: We appreciate having you  
12 here. Supervisor Vagim, question for the witness?

13 SUPERVISOR VAGIM: Thank you, Madam Chair.

14 Let me reverse where I was going to go on my  
15 questions with what you last said. And that is, in the  
16 proprietary, exclusivity of the software code, would you see  
17 it being less problematic and without worrying about the  
18 integrity of this system -- which some say that you have to  
19 have this thing absolutely airtight if the integrity of the  
20 system is going to be maintained -- forgetting that for a  
21 second, if this was public domain systems, would the  
22 aftermarket folks have, let's say, more of an equal  
23 opportunity to achieve product development as well as less  
24 of a control -- and also having what we have pretty much  
25 today, less of a control of where you go in the aftermarket

1 world?

2 I see this almost a potential direction towards  
3 the manufacturer. And I've never seen an absolutely  
4 safeguarded piece of code that's out in the public domain  
5 that doesn't eventually become public domain.

6 I mean, you can look at the computer software  
7 world now and very little of it is not available to those  
8 who want to copy it and that type of stuff.

9 MR. HALUZA: Here again, it's very difficult. I  
10 have to empathize with the vehicle manufacturers. They do  
11 have literally tens, if not hundreds, of millions of dollars  
12 invested in fulfilling a mandate by government -- basically  
13 the ARB with OBD II and the lower emission standards.

14 To put it in the public domain at this point  
15 obviously would help anyone who wants to work on a vehicle.  
16 And to be honest with you, I don't have the answer, other  
17 than what was heard today, which was the word "licensing."

18 And that is an anathema to me and to MEMA,  
19 because, again, who -- as your question earlier today -- who  
20 decides? Is it the vehicle manufacturer? Suppose the  
21 vehicle manufacturer doesn't like the color of my tie? I  
22 mean, you're placing -- you're placing the destiny of a  
23 hundred-fifty billion dollar business in this country --  
24 industry in this country -- under the guise of OBD  
25 information -- well, information availability, but also the

1 antitampering provisions as it has been redevised.

2 SUPERVISOR VAGIM: But if you reversed, or we slid  
3 the method on which we are -- being proposed of licensing  
4 now, and that was licensing of those who are going to be  
5 part of the inspection and that type of thing versus have  
6 the aftermarket folks available, at their request, to  
7 purchase the right to sell through a license, that code, so  
8 they could have aftermarket products available.

9 Do you see that as a problem?

10 MR. HALUZA: I see that as a problem only from the  
11 standpoint, again, until someone can respond to my member  
12 companies: Who is going to make that decision of who gets  
13 the license, and how the license is granted. Because you  
14 are giving virtually the vehicle manufacturers an  
15 exclusivity in the development of their systems and their  
16 parts, can they charge -- what is going to be a fair price?

17 I mean there are a number of unanswered questions  
18 here that --

19 SUPERVISOR VAGIM: Let me get something straight.  
20 I guess, presumably in the industry now, your aftermarket  
21 folk can copy a product and sell it, and not infringe on a  
22 copyright or a patent, right?

23 MR. HALUZA: There are no -- virtually, there are  
24 no patents with regard to individual components --

25 SUPERVISOR VAGIM: Components, right.

1 MR. HALUZA: -- that I -- I mean, there may be a  
2 few out there, but mostly, they are not patented.

3 SUPERVISOR VAGIM: So, now we're delving into the  
4 same problem that the computer industry has, which is  
5 licensing of software.

6 And I think it was Microsoft that was just taken  
7 to court over their -- they're a monopoly, and lost, but  
8 won. Same way with IBM a few years ago. They lost, but  
9 won.

10 As a matter of fact, I think they beat the  
11 government. So, it's hard to ever override some of these  
12 things that are almost monopolistic. And that's where I see  
13 a problem. And hopefully, we can sort this out so everyone  
14 has a fair and equal -- even playing field, keeping where we  
15 are today. Because I think the aftermarket world basically  
16 has kept the prices of our components down.

17 I firmly believe that. And I think, if we take  
18 that away, we will start having higher and higher costs of  
19 some of our emission reduction devices.

20 But the question I want to ask you specifically is  
21 that they have a compelling requirement to back up all their  
22 parts in the emission with a hundred thousand mile run.

23 Now, is the aftermarket folk compelled with that  
24 same dilemma?

25 MR. HALUZA: The aftermarket is, to the best -- I

1 mean, the aftermarket is responsible for the part they put  
2 on the vehicle; but, no, they are not -- I mean they are not  
3 part of original equipment vehicle certification. If that's  
4 what you mean, no, they are not.

5 With the exception of replacement catalytic  
6 converters, which I believe California and the federal  
7 government have a 25,000 mile warranty. But the other parts  
8 are not.

9 I know most of our companies do engage in testing,  
10 because obviously they have, as an incentive, not to trigger  
11 the MIL light. But you bring up an interesting point, and  
12 that is with respect to the software. And I've heard a lot  
13 today about -- and we know of the -- I should say -- the  
14 desire to include or to make OBD an I&M tool.

15 I would think that, if the software program of a  
16 vehicle were changed, altered, whether it was legal or  
17 illegal, that that could be uncovered at the time -- at the  
18 time of inspection.

19 We would know at an inspection point. I don't  
20 think it takes a rocket scientist to do it. Because if you  
21 can reprogram E-PROM, you certainly can discover what  
22 program is on an E-PROM

23 SAE is working on a project, of which I am on a  
24 committee. It's called the "Missing Link." And what, in  
25 effect, this is trying to do is set up a mechanism by which

1 the vehicle would carry with it a permanent medical record,  
2 if you want to call it that.

3 It would contain the original configuration and  
4 any alterations that were made to that original  
5 configuration, whether it be a factory update, a field fix,  
6 or whether it would be a legitimate change in components or  
7 an addition of a component that required a program change.

8 But the way I read the current antitampering  
9 provisions in here, that would be illegal.

10 SUPERVISOR VAGIM: But, indeed, we're going to  
11 have to get that level you just mentioned, that the SAE  
12 folks are working on that, if we're ever really going to  
13 assure ourselves of integrity in this program.

14 MR. HALUZA: Yes. My only point is this: We do  
15 not say that we would not live with these antitampering  
16 provisions. I just feel that I would like to see it delayed  
17 until after we at least have some meetings and see if there  
18 is a meeting of the minds between the aftermarket, and work  
19 out maybe even better antitampering language.

20 But with it now, if it's adopted, it sort of gives  
21 the vehicle manufacturers a leg up in negotiations that take  
22 place, because you're bestowing upon them the protective  
23 rights.

24 SUPERVISOR VAGIM: Thank you.

25 CHAIRWOMAN RIORDAN: Mr. Lagarias, and then Mr.

1 Calhoun.

2 MR. LAGARIAS: Well, the availability and/or  
3 protection of proprietary software, which is the subject  
4 we're discussing at the present time, goes far beyond our  
5 interest here alone. While substantial, this is a universal  
6 or a national problem that affects many, many other areas.  
7 So, I think we have to look to see what's being done on a  
8 national and global basis on the protection and availability  
9 of software programs. Because it would be very easy to  
10 booby trap some of these proprietary programs to prevent  
11 their being used.

12 CHAIRWOMAN RIORDAN: Mr. Calhoun.

13 MR. CALHOUN: I guess I would just like to ask the  
14 staff. Do you have any comments concerning Mr. Haluza's  
15 suggestion that would delay the antitampering provisions  
16 until such time as you've had the workshop where you've  
17 addressed this issue?

18 MR. ALBU: I think that our view is that we need  
19 to have these preliminary requirements in place in order for  
20 industry to have an incentive to start dialoguing the issue  
21 with a high degree of good faith.

22 I mean, there's a tradeoff here, you know. Paul  
23 seems to feel that here's a leg up issue, but I think our  
24 ability, as the ARB, to try to get dialogue going depends to  
25 a large extent on the industry believing that we're going to

1 put these provisions in place. And they, too, as you've  
2 heard, would like to dialogue this further.

3 All we would like to do with this proposal is put  
4 a requirement on the books to get people working on it in a  
5 diligent manner. Otherwise, without this requirement, it's  
6 quite likely they may just wait a while and let the whole  
7 thing simmer some more.

8 And plus, we're concerned about cars that are  
9 going to go through I&M. We want them to be tamper proof.  
10 And if we start in 1999 to assure that, that's a good start.  
11 If we wait even longer, then I'm not sure that we can put  
12 OBD II as a replacement for the current smog check as  
13 quickly as we might like.

14 And so, we've got a timing issue here, an  
15 emissions issue, and also the whole issue of good-faith  
16 effort in the discussions that hangs in the balance.

17 Now, we have already committed to further  
18 negotiate and dialogue these issues with industry, both the  
19 aftermarket as well as the OEMs, to try to find a good  
20 position. I think that the dialogues and agreements that we  
21 have so far to continue working on this are fairly strong.  
22 And I think that we can keep these requirements and still  
23 make progress in these other matters.

24 CHAIRWOMAN RIORDAN: Okay. Other --

25 MR. HALUZA: May I respond, Madam Chair, just real

1 quick?

2 CHAIRWOMAN RIORDAN: Yes, you can respond, but not  
3 a debate.

4 MR. HALUZA: Okay. No. Steve and I have had a  
5 number of conversations with respect to this.

6 I would go back and again say that there's ample  
7 protection under current antitampering provisions to  
8 maintain the integrity of the OBD system, its software,  
9 short -- even if the antitampering provisions were not in  
10 your own regulations as a separate entity. So, that would  
11 be the point.

12 CHAIRWOMAN RIORDAN: Okay. Are there any other  
13 questions for this witness?

14 Then, we thank you very much for --

15 MR. HALUZA: Thank you very much.

16 CHAIRWOMAN RIORDAN: -- being here to testify.

17 Let me call next on Mr. Aaron Lowe from the  
18 Automotive Parts and Accessories Association.

19 MR. LOWE: My name is Aaron Lowe, and I'm  
20 Director of Legislative and Regulatory Affairs for the  
21 Automotive Parts and Accessories Association.

22 APAA is a trade association representing over 1600  
23 manufacturers, manufacturers' representatives, distributors,  
24 and retailers of automotive parts and services nationwide.  
25 We are extremely concerned about the proposed antitampering

1 provision that ARB is looking at today.

2 I have prepared comments which I'd like submitted  
3 for the record. And since this has been covered fairly  
4 extensively already, I'd just like to add a few points.

5 This country has always had a tradition that, when  
6 a vehicle -- the car owner purchases a vehicle, he pays for  
7 a lot of the technology when he buys the vehicle.

8 Once that vehicle is out down the street, the car  
9 owner has always had the opportunity to go where he wants to  
10 get that car repaired and to use the parts that he wants to  
11 get -- for those services.

12 The antitamper provisions are going to be a major  
13 impediment to us producing parts and to a great deal of  
14 services that are being provided to the car owner by the  
15 independents unless they're modified.

16 We support the efforts that have been talked about  
17 today by Mr. Albu. And we are more than willing to begin  
18 the discussions.

19 However, when it comes to how this is going to be  
20 paid for, we think it should be remembered that the  
21 independent aftermarket also has a lot of development cost  
22 that goes into producing parts. We do a lot of work to  
23 improve parts that are made by the vehicle manufacturers to  
24 solve problems and make the cars operate better.

25 So, we're not -- we also have issues here. And,

1 also, the service industry will be spending a lot of money  
2 to use these OBD systems, and they're a much smaller entity  
3 than the new car dealer.

4 So, I just wanted to put that for the record, that  
5 the independents, also, are going to be involved in this  
6 extensive cost for development.

7 We think that this antitampering provision should  
8 be delayed if only to determine what kinds of problems --  
9 what kinds of ways we're going to solve these problems. How  
10 are we going to assure that there isn't an independent parts  
11 industry out there that can produce parts that will work  
12 with these OBD systems.

13 I'm extremely concerned that, if we don't solve  
14 this problem soon, that when these OBD systems get out on  
15 the market and once they get out of warranty, we're going to  
16 be producing parts for those systems, and we want to make  
17 sure that they operate properly. Our members' reputations  
18 are on the line here, and so are the car companies.

19 Because of their cars aren't operating properly,  
20 then we're all out of -- then we're all in trouble, and the  
21 whole OBD system will lose consumer acceptance and consumer  
22 support, which we talked about earlier.

23 So, we would hope that the Board would decide to  
24 hold off on producing -- on approving these antitampering  
25 provisions till we decide exactly how we're going to solve

1 this problem.

2           And we don't think that this is going to hurt  
3 negotiations. I think the car manufacturers know we know  
4 that these antitampering provisions are pending and that  
5 they're going to be considered at some point. And I think  
6 that is enough impetus to get these discussions going. And  
7 I hope the car manufacturers also have the impetus to make  
8 sure that their cars are going to operate for a long time on  
9 the road without problems for the OBD system.

10           Thank you.

11           CHAIRWOMAN RIORDAN: Thank you very much.

12           And let me ask the Board members if there are any  
13 questions for this witness?

14           Mr. Parnell?

15           MR. PARNELL: Not for the witness, but for legal  
16 counsel.

17           CHAIRWOMAN RIORDAN: Yes, Mr. Parnell.

18           MR. PARNELL: A comment was made previously that,  
19 with respect to the antitampering provisions, that there  
20 were plenty of protections outside what the Board may or may  
21 not do.

22           In your view, is it incumbent for the Board to  
23 speak on this issue? Or are those protections indeed there?

24           MR. TERRIS: We have authority. We have authority  
25 under 43018 to establish regulations for the OBD systems.

1 And, as part of that, we have authority to set up  
2 antitampering requirements.

3 To the extent that -- I think some of the written  
4 comments mentioned that we don't have authority under the  
5 Clean Air Act. That's not necessarily true, not true in  
6 fact. We have authority under 209(b) to create California  
7 standards. And we have to go through a waiver process to  
8 basically get an exemption from the preemption -- general  
9 preemptions under 209(a).

10 And we have submitted a waiver request. It's held  
11 in abeyance right now, pending these amendments. And,  
12 hopefully, there'll be a waiver hearing in early winter,  
13 February/March to this year -- next year.

14 MR. PARNELL: My question didn't go to the issue  
15 of whether or not we have authority. It went to the issue  
16 of whether or not there are other protections in the general  
17 body of law someplace that would grant these people the  
18 protections that they need in the absence of the Air Board  
19 speaking on the issue. And that's what I think I heard  
20 someone allude to. It's the other body of law, whatever  
21 that means, that I --

22 MR. TERRIS: Under Section 202, as part of the  
23 waiver process, there'll be an evaluation of whether or not  
24 the California regulations are consistent and more  
25 protective than federal law. And we can create provisions

1 that are more protective than what's required under the  
2 federal law.

3 MR. PARNELL: I'm not explaining myself.

4 CHAIRWOMAN RIORDAN: Ms. Edgerton, do you want to  
5 comment?

6 MR. PARNELL: Counsel, you want to -- it was  
7 alluded to that there is a body of law that grants  
8 automobile or computer, or otherwise computer manufacturers  
9 protections under law that already exists, sufficient so  
10 that, if the Air Board were to take a respite on this issue  
11 until further developments, as has been suggested, were  
12 made, that there would be indeed some protection in place.

13 Which then suggests to me that it's not incumbent  
14 for us to act right now on this issue.

15 MR. ALBU: I think the concern we have is that,  
16 although there may be provisions in place, tampering is  
17 extremely hard to detect, and it may take place. And we  
18 can't enforce against it. That's our concern.

19 Also, if I might just add, the reason we want to  
20 put this in -- the staff wants to put this in place is  
21 because one of the purposes that our regulations provide is  
22 that, when a manager of an engineering department goes to  
23 his boss and says, "We need to develop computer systems that  
24 have antitampering provisions," they need leadtime to do  
25 that and they need to spend resources.

1           If they can't point to something in a regulation  
2 that requires them to look at this, the manager is usually  
3 turned down or may often be turned down. And there are some  
4 technologies being looked at right now between Motorola and  
5 the auto industry on boot loaders that can't be monitored  
6 when they're deencrypting information.

7           And these kinds of technologies will not move  
8 forward if we don't put these regulations in place now. And  
9 that's why we want to do that.

10          We are not trying to foreclose discussions or  
11 other alternatives, but we want to keep the technology  
12 moving forward. Otherwise, the consumers will be paying  
13 more than they need to to do smog checks, when the OBD II  
14 system is far better than the current smog check.

15          MR. PARNELL: Thank you.

16          CHAIRWOMAN RIORDAN: Ms. Edgerton.

17          MS. EDGERTON: It seems to me you can separate out  
18 the issues. And I would want to spend quite a lot of time  
19 looking at these issues before I would say anything  
20 definitive. I'm just speaking as a Board member, not -- but  
21 with respect to the intellectual property rights that  
22 companies have on -- with respect to their software, that's  
23 a proprietary right that they can choose to exercise or not  
24 exercise.

25          That's within their prerogatives. That is

1 different than this private property issue. That's a  
2 different issue in some respects from what we, as the Air  
3 Board, face, in my view, because we are governed by the idea  
4 of we're supposed to be cleaning the air by emissions  
5 reductions.

6 And one of the areas that we've specifically had  
7 difficulty with, as a State and even as a country, is with  
8 inspection and maintenance and the reliability of systems  
9 that try to control emissions over time.

10 So, it seems that the tampering reason -- the  
11 rationale behind ours, our antitampering provision, springs  
12 from a desire to protect the reliability of the emissions  
13 control measures that are in the cars.

14 So, we would have a right to -- the State of  
15 California, or the Air Resources Board, or the public --  
16 would have -- has a public interest, a different kind of  
17 interest, not a private property interest, but a different  
18 kind of interest in ensuring that those are systems which  
19 are reliable so that we can continue to meet our SIP  
20 obligations, and we can continue to achieve those.

21 I think that's something we need to look at. I  
22 think Mr. Kenny says you all will be looking at that some  
23 more to try to split out those issues, so we can look at  
24 them more clearly.

25 It does seem to me that there's a need -- there's

1 a different interest that needs to be protected with respect  
2 to our antitampering and the other intellectual property  
3 interests that the auto manufacturers might have and that  
4 the parts industry might have as you develop your own  
5 software, if you were to do that. It seems to me that's  
6 another option that you would have --

7 MR. LOWE: If we're permitted to, yes.

8 MS. EDGERTON: If you're permitted to.

9 MR. LOWE: Right.

10 MS. EDGERTON: But I don't really see that our  
11 action is precisely blocking you from doing that. And I  
12 think our action is more directed toward the reliability of  
13 the OBD II systems, which we are trying to put in place.

14 If you'd like to comment on that, you can.

15 MR. LOWE: Well, if we can't access the system,  
16 and if we can't build parts that are going to operate  
17 properly with that system, it would make it difficult for us  
18 to do.

19 There might be some cases where we -- a software  
20 change might be necessary. And there might be cases where a  
21 part we may have might improve on the emissions of the  
22 vehicle over the OE part. And if a software change can't be  
23 made or improved in some way, then under the antitampering  
24 provisions, we can't touch that. We're not allowed to go  
25 into it.

1           There's a lot of implications on how we're going  
2 to be able to operate under these new systems, because it  
3 does change. We used to be able to -- it was pretty much,  
4 once the car got out there, it was competitive business  
5 between the OEs, the aftermarket, between aftermarket  
6 companies and how we operated.

7           Now, you're saying, well, the competition is still  
8 there, but the OEs determine who their competitors are going  
9 to be, because they're the ones that allow the key to the  
10 system.

11           And we just want to be able to continue to compete  
12 on a head-to-head basis with the OEs on these systems.  
13 We're not asking for an edge over the OEs, just the ability  
14 to continue to compete in that market.

15           And that's what we're concerned about with this.

16           MS. EDGERTON: Uh-huh. I appreciate your concern.  
17 And I understand that, irrespective of what we do, you'll be  
18 moving forward to try to figure out ways that you can  
19 participate in that market.

20           Our concern here is that the reliability of the  
21 systems, irrespective --

22           MR. LOWE: We're concerned about that, too.

23           MS. EDGERTON: -- irrespective of who's involved  
24 in it --

25           MR. LOWE: We're very concerned about that.

1 MS. EDGERTON: -- is sound, and that's our role.  
2 Thank you.

3 CHAIRWOMAN RIORDAN: Supervisor Vagim.

4 SUPERVISOR VAGIM: Thank you, Madam Chair.

5 You know, we've had antitampering provisions in, I  
6 think, all the California emission laws. The people  
7 tampered with the emission systems. They took them off, and  
8 they bypassed them, and all that kind of stuff. But when  
9 they went to inspection, they wanted to get a certificate,  
10 they had to put them back together again.

11 Now, what we're saying is that we know that  
12 happens, so let's really tightened it up and make it part of  
13 a proprietary trade secret, and lock it up in a safe and  
14 give one guy a key to it.

15 And, again, the computer software industry has  
16 dealt with that since time immemorial, and there hasn't been  
17 one place where they've been actually -- absolutely been  
18 able to safeguard that.

19 It's been busted everytime they try something  
20 different. If you remember, "Don't copy the floppy," and  
21 they had the ability to only copy once and then you couldn't  
22 copy. Well, there were those guys who came out with  
23 software that allowed you to override and copy a hundred  
24 times.

25 Then they tried to do something else. Well, I

1 mean, there is some fairly good evidence it wasn't some  
2 crazy person who put a virus out in the public domain that  
3 caused all these problems with computers. It was the  
4 software writers themselves that kind slid that in there to  
5 say, "I told you so. You shouldn't copy that thing."

6 And so, you've got that kind of brewing here. And  
7 my concerns, and I've watched it, is that you can build the  
8 highest wall and think that no one's ever going to climb it.  
9 But what you do is you complicate the whole issue, because  
10 there's more sophistication in busting the regulation.  
11 Whether it's illegal or some other method in which it's  
12 quietly moved through the process, it all is tampering with  
13 the system.

14 And I think we need to have the ability to know  
15 that these systems -- the integrity of the system's being  
16 maintained, but yet the folks in the open marketplace have  
17 at this so they can be -- so we can continue with what we've  
18 always enjoyed in automobiles, the fact that it's been an  
19 open, competitive marketplace in an aftermarket world.

20 And we're tampering with that with this  
21 regulation. And I'm concerned about it.

22 CHAIRWOMAN RIORDAN: Okay. Thank you. Any other  
23 questions, comments?

24 I'd like to thank this witness and invite the next  
25 witness forward, Jack Heyler, and he represents the

1 California Automotive Service Councils.

2 MR. HEYLER: Good afternoon. Thank you for the  
3 opportunity to be here. I am Jack Heyler, a Diagnostic  
4 Consultant to Automotive Service Councils. It's a fancy  
5 title for a tired old mechanic.

6 (Laughter.)

7 MR. HEYLER: That is basically what I am.

8 Our association is the largest association of  
9 independent repair facilities in California, so I bring you  
10 a little different perspective than you've heard at least so  
11 far today.

12 First, I think it's important to note that ASC  
13 supports these OBD revisions in general. ASC has supported  
14 all on-board diagnostics development since I first became  
15 involved in '85 and '86. And maybe I should mention, I was  
16 one of the founding members of the Diagnostics Committee in  
17 the Society of Automotive Engineers, which developed and is  
18 continuing to develop the standards which support the on-  
19 board diagnostics regulations.

20 There are several provisions we would like to  
21 emphasize, the importance that I want to comment on, and we  
22 do have some concerns.

23 For OBD II to maximize the results from improved  
24 emission system diagnosis and repair, both for I&M fails and  
25 for in-service maintenance, don't forget emissions are

1 repaired everyday, not every two years. That's often  
2 overlooked.

3           The regulation, we feel, must address related  
4 needs and not facilitate restrictions on competition, which  
5 you just heard addressed, in auto repair in general. And I  
6 think this is critical to the success of I&M programs and to  
7 overall emissions maintenance as I said.

8           First, we are concerned that independents have  
9 access to all areas of service information which could  
10 affect emissions. That means almost all systems on the  
11 vehicle.

12           Next, we're concerned that the comprehensive  
13 component monitoring requirement be as strong as possible  
14 for the reason I just mentioned.

15           The systems are interrelated. They work together.  
16 You can have a problem in the right rear brake that could  
17 increase emissions. So, it's important to provide  
18 technicians a complete view of the data from all the  
19 components which can interrelate and which affect emissions.

20           And it also is especially important, since older  
21 cars can have a stackup of conditions, which are hard to  
22 sort out in the field on the shop floor. These are the  
23 vehicles which both fail I&M more frequently and require  
24 more frequent routine service between tests. And they're a  
25 large part of the emitting population of vehicles. You

1 might say high-emitting population of vehicles.

2 Another problem is that we need a standardized  
3 system for reprogramming on-board computer memory. Both the  
4 tools and the procedures need to be addressed here, which  
5 you might define as both hardware and software.

6 We are concerned that the system be secure. And  
7 the reason is that we cannot repair a nonstandard vehicle.  
8 So, we're concerned that the reprogramming methodology be  
9 accessible to us. But we are also concerned that it be  
10 secure. That is just as important to us as it is to the Air  
11 Resources Board and the public in general.

12 As I said before, we can't properly repair  
13 tampered vehicles. But we also know security is not  
14 guaranteed by restricting reprogramming, however it's  
15 restricted -- whether it be the dealers or through any  
16 controlled source that does not allow open competition in  
17 the marketplace.

18 Also, we feel that there's a need to standardize  
19 and facilitate access to service information databases by  
20 requiring the on-board system to electronically identify the  
21 vehicle, its current calibration status, and any approved  
22 modifications which have been introduced.

23 And maybe most important to the repair technician,  
24 to establish automatically a link to appropriate off-board  
25 service information tools and databases.

1           That's implied sort of in this proposed  
2 regulation, but it's not clear to me that that requirement  
3 exists.

4           There's also a problem we see with competitive  
5 parts availability, because, in fact, right now, there are  
6 some vehicle dealers who refuse to discount a part to me,  
7 their competitor. So, I have to add to the part and sell it  
8 over list price in order to stay in business.

9           And it becomes very hard to stay in business when  
10 you're charging more than your competitor. So, we're on an  
11 uneven footing right now, and there are concerns that if the  
12 parts question is not addressed -- and incidentally, as part  
13 of that, information for the toolmakers who design the tools  
14 that we use to diagnose and repair vehicles, the diagnostic  
15 tools being scan tools, electronic devices. If they cannot  
16 have the kind of information as the parts makers that we're  
17 also talking about, then we can't have the sophisticated  
18 kinds of diagnostic equipment we have to have to be  
19 competitive, not to mention, once again, the parts problem.

20           So, to sum up, the independent aftermarket needs  
21 these features. And I think they're needed to make a  
22 successful I&M program or to maintain vehicles and service  
23 properly.

24           There have been current surveys that indicate how  
25 bad the need is. It is bad.

1           So, I would suggest that air quality regulators  
2 cannot expect the best results from OBD II unless  
3 technicians who achieve the emission reductions have all the  
4 tools they need to do that.

5           Thank you.

6           CHAIRWOMAN RIORDAN: Thank you very much. And let  
7 me ask the Board members if there are any questions for this  
8 witness.

9           Ms. Edgerton?

10          MS. EDGERTON: Do you get any comfort from the  
11 notion that the staff has said that they're prepared to go  
12 forward and have a workshop in 1996, to look at most of  
13 these things. And then, if they see that there's a need to  
14 have changes, they'll get back to us?

15          That's a key point here in this whole discussion,  
16 it seems to me, that it's pretty much already agreed to that  
17 there will be a 1996 workshop. I don't misunderstand that?

18          MR. HEYLER: No. Thank you for asking that  
19 question, because it reminds me of something I skipped over  
20 in my presentation, and I'll answer the question.

21          There are two levels in terms of reprogramming and  
22 tampering protection, and this is from the standpoint of the  
23 aftermarket. The first level is to address the vehicles  
24 that have been out there starting in 1992, a larger  
25 proportion of the fleet every year. If we extend out till

1 1999, a period where independents have no opportunity to  
2 reprogram the vehicle that needs reprogramming for an update  
3 to a problem, then we're in extremely noncompetitive  
4 position. So, that's Tier 1, you might say.

5 Tier 2 -- and this is where I applaud the staff's  
6 work -- is to develop a system perhaps that would  
7 standardize access to assure a higher level of integrity to  
8 the system and resistance to tampering. So, I would say  
9 we'd support that enthusiastically. But it doesn't solve  
10 the problem if, as a businessman, you take six years' worth  
11 of vehicles out of my shop and move them over into a  
12 franchise dealer's shop, I may not survive. At least my  
13 business would be hard to make a living at. As you may be  
14 well aware, when I was in business for 47 years, and I  
15 learned fairly soon that it was the last 10 percent of  
16 volume that provides a hundred percent of profit in the  
17 years when I did make a profit.

18 So, it doesn't take a large bite out of the  
19 independent aftermarket to place a lot of those businesses  
20 in jeopardy. We're very concerned about that. I hope that  
21 answers your question. It may be more than you wanted to  
22 hear.

23 MS. EDGERTON: No. I appreciate all that you have  
24 said. But I also am aware of the points that you made that  
25 there are meetings that are starting with the afterparts

1 (sic), and the manufacturers, and the ARB. I guess they're  
2 starting -- now we're in December of 1994 --

3 MR. CROSS: We're starting immediately. I think  
4 that may be the confusion. In other words, the '96 workshop  
5 is a progress evaluation with -- on what the manufacturers  
6 are doing to meet some of the more difficult requirements.  
7 The meetings to deal with the service problems, the parts  
8 problems are essentially starting immediately. The first  
9 workshop is in February.

10 MR. ALBU: We're going to have some form of  
11 meeting in February, '95, and dialogue this spring. I've  
12 already talked with AAMA again about the aftermarket parts.  
13 And there's already some understanding being gained, in that  
14 they understand that the aftermarket parts manufacturers  
15 have to be in business.

16 And I think they're simply saying, at this point,  
17 at least, that rather than go back and redesign their OBD  
18 system, why not provide the parts specifications for the OEM  
19 parts to the aftermarket directly at a reasonable cost to  
20 let them copy it.

21 So, I think this can work out. It's just that we  
22 have to keep talking. I think Jack's point was that 1999  
23 isn't soon enough to have tampering provisions in place and  
24 the other provisions in place to do the reprogramming  
25 generically.

1           And I think he's also saying that it's important  
2 to have all the parts monitored to ensure the mechanic has a  
3 real good chance to repair the car. I think we support all  
4 those points.

5           MS. EDGERTON: If I understand you, the idea --  
6 from the staff's point of view -- would be that you would be  
7 back to us as -- with proposals for revisions after you have  
8 a series of say the first set of meetings in February, '95.  
9 And if it turns out that our regulations were -- if you  
10 found a better way to deal with these issues that we're  
11 talking about -- it really is kind of difficult for us to --  
12 it is a very complex body of material that's before us.  
13 It's very difficult in this kind of forum to handle that.

14           MR. CROSS: It may turn out that the meetings will  
15 facilitate an awful lot of what needs to be done. Because,  
16 essentially, I think, many of these things are business  
17 transactions, and communication, and relationships which  
18 need to be established in order to get these segments of the  
19 industry working together on solving this problem.

20           It's hard to say whether that will result in  
21 necessarily regulatory changes in the immediate or near  
22 future. I think it's more a matter of -- the first step is  
23 to make sure that everybody's working on the same playing  
24 field and going the same way with the same goals, then we go  
25 from there.

1 MR. HEYLER: Thank you.

2 MS. EDGERTON: Thank you.

3 CHAIRWOMAN RIORDAN: Supervisor Vagim?

4 SUPERVISOR VAGIM: Thank you, Madam Chair.

5 I just want to make sure I understand. You said  
6 six years. That means from now, '94, you have a proprietary  
7 antitampering provision, right? So, '99, you're saying six  
8 years out of your --

9 MR. HEYLER: Basically, what I was referring to  
10 was the application of double E-PROM technology. The  
11 vehicles began, as I understand it, in 1992, but a small  
12 volume.

13 SUPERVISOR VAGIM: And as '94 kicks in --

14 MR. HEYLER: Yeah. You see, that technology is  
15 out on the streets right now. It is completely proprietary.  
16 I cannot work on a vehicle that needs recalibration.

17 SUPERVISOR VAGIM: The question, I guess, that I  
18 derive from that is a lot of proprietary effort goes into  
19 the so-called stagnant or dynamic noncomputerized emission  
20 devices. Yet, that's typically available aftermarket, isn't  
21 it, after the manufacturer puts them out? Or do you still  
22 have to go to the manufacturer for some of those parts?

23 MR. HEYLER: Historically, a larger percentage  
24 were available. Currently, in my view, it's -- from the  
25 field -- it's less and less aftermarket replacement parts,

1 and many emission parts aren't even available.

2 SUPERVISOR VAGIM: Yet, once your folks or the  
3 people in the aftermarket part production tears them down  
4 and sees what they're made of, they put most of those  
5 together. They do that, don't they?

6 MR. HEYLER: That's correct. I can't speak for  
7 that, because I'm really not in the parts business. But I  
8 would observe one thing. And that is that, as I buy a  
9 vehicle, I buy that entire package. I buy it with a water  
10 pump. I buy it with the computer and the program in it.

11 SUPERVISOR VAGIM: So, basically, that's all being  
12 done now. And essentially, even if we made this  
13 proprietary, someone theoretically could break it down -- no  
14 matter how much it's encrypted, could break it down, figure  
15 out what's on the E-PROM, put an E-PROM illegally together,  
16 and sell in the aftermarket black market.

17 MR. HEYLER: That's currently going on. We'd all  
18 like to deal with that and reduce that.

19 SUPERVISOR VAGIM: Sure. So, really, it doesn't  
20 do anything to help our emission control. Really, what  
21 we're after is emission control. So, why not put it out  
22 there so all people can create it, since they're going to  
23 get to it anyway and create a carbon copy of it. And  
24 they're doing that with nonsoftware equipment emission  
25 devices.

1 I don't see what the difference is. I mean, just  
2 because it's software and we can say now it's proprietary,  
3 to me, is -- I don't think you can equate what we're trying  
4 to do here with the computer world and all its different  
5 software ramifications.

6 And so, it's almost like should be available for--  
7 it's still the manufacturer's car with still that emblem on  
8 it that's going to be driving on the streets. And it should  
9 have a reliable part in it. And just because it has another  
10 manufacturer's stamp on it under the hood somewhere should  
11 not be, I don't think, any more proprietary than any of the  
12 other devices that are being put on cars today, even though  
13 they were proprietary when they were being shipped for new  
14 market value because they had to meet a standard that this  
15 Board put out.

16 And what we're doing now is creating a new level  
17 of protection for those who manufacture; even though it will  
18 be illegal, it won't stop it from being done. And I don't  
19 now if that's the goal of this? Are we to clean up air or  
20 are we a -- be a patent office?

21 CHAIRWOMAN RIORDAN: Mr. Cross, did you have a  
22 comment?

23 MR. CROSS: Well, a lot of what was just said I  
24 think is important to clarify.

25 Basically, what happened was that automotive

1 computers used to have chips in them, which contained the  
2 program. You could physically change the chip, which had a  
3 problem.

4           And what's happened, as Mr. Heyler has pointed  
5 out, is that many of the automotive computers have a chip in  
6 them which can be reprogrammed without physically changing  
7 it. In other words, it's a chip which is, quote,  
8 "programmable." And that saves the car manufacturers lots  
9 of money, because they can use the same computer in a whole  
10 bunch of different models, and just tell the chip in there  
11 that this computer is going into a certain model or a  
12 certain version of the car.

13           So, they have very big computers that standardize  
14 them and then program these chips.

15           But the problem is that the amount of information  
16 that goes on those chips now is basically the complete  
17 calibration of the engine and the complete calibration of  
18 the diagnostic system. And so, the chip basically has all  
19 the parameters that control emissions on it and all of the  
20 codes which decide whether or not a component is broken or  
21 not on it; in other words, all the fault codes' decisions.

22           And so, when you're talking about programming  
23 access to these computers, you're really basically talking  
24 about the issue of completely redoing the calibration of the  
25 vehicle or completely -- you can -- if you had,

1 theoretically, full access to this chip on the computer, you  
2 could completely turn off OBD, for example, if you wanted to,  
3 and have it give a smog check station code that there was  
4 nothing wrong with the car.

5 And the staff is obviously a little concerned  
6 about that, because I can envision scenarios where a car has  
7 got 150,000 miles on it and somebody is really not to turn  
8 off OBD and have it check out okay.

9 The way we've been trying to deal with this  
10 dilemma, if you will, is working with the car industry to  
11 make it sort of difficult for the neophyte to get into these  
12 computers. Because the other option would be to go back to  
13 chips which you just burn the code into, and we have to  
14 completely remove them to reprogram, which is more costly  
15 for them.

16 What we've been trying to do is create some  
17 standardized way of getting into the computer to change it  
18 to do legitimate things that need to be done; in other  
19 words, allowing the independents and auto service centers to  
20 all go through sort of the same physical path, which is what  
21 the staff proposal stalks about, through a computer at the  
22 manufacturer's facility and back to the car.

23 And by doing all this, essentially, what you're  
24 doing is you're providing access to the things in the  
25 computer that are likely to need to be changed, and some

1 record of it, but not providing access to completely redo  
2 it.

3 And I think that the Supervisor's right that there  
4 is some risk in any of these things. People are still going  
5 to figure out ways to completely turn off OBD. And,  
6 honestly, that scares the heck out of staff. And that's  
7 something that we're very, very concerned about in the long  
8 term with this system.

9 But we think that putting a standardized way of  
10 connecting the service people to the computer without  
11 completely opening it up is really an important thing to do.  
12 And we think that the tampering provisions that we put in  
13 here establish that, and also kind of get us all talking to  
14 each other about how best to do this.

15 MR. ALBU: I just had one last thing.

16 CHAIRWOMAN RIORDAN: Yes.

17 MR. ALBU: We think that there's not going to be a  
18 real great incentive for hackers to get into the system,  
19 because, from our initial discussions, we will be changing  
20 the encryption and changing the seed and key on a fairly  
21 regular basis; so that any hackers are going to spend an  
22 enormous amount of time doing this kind of work and it won't  
23 be cost-effective.

24 In addition, to provide this service, if you will,  
25 to those who would like to tamper, they would have to

1 advertise to make any money, then we'll get them.

2           So, I think what we're saying is that we think  
3 that a reasonable, practical level of security can be put in  
4 place. And I'm not that concerned about professional  
5 hackers, because I don't think it's going to make a good  
6 business case out of this.

7           Those in the parts industry that develop parts  
8 that are not really appropriate, that don't pass emission, I  
9 don't believe is going to be cost-effective enough to do so.

10           SUPERVISOR VAGIM: I think the fear is that those  
11 who are legitimate, who make parts now, will now have an  
12 inability to make viable copies in the aftermarket world  
13 that work just as well in a production car.

14           MR. CROSS: You're suggesting reverse engineering,  
15 and they basically take the part off and measure its  
16 specifications, and replicate it.

17           SUPERVISOR VAGIM: Okay. But again, if one person  
18 controls the key and you can't have access unless you go to  
19 that person, aren't you really creating a monopoly?

20           MR. ALBU: No, because the part would have to be  
21 certified with us, and we would give the approval to go with  
22 that system.

23           SUPERVISOR VAGIM: So, ARB, then, is going to be  
24 the gatekeeper for those who come in and want to have --

25           MR. ALBU: If there's a certified package that

1 we've approved, we can grant the approval to get into the  
2 system.

3 SUPERVISOR VAGIM: Someone comes up with an  
4 aftermarket (sic) and puts a system together and meets all  
5 the tests, you'll give them the key?

6 MR. ALBU: Yes.

7 SUPERVISOR VAGIM: And what will be the -- who  
8 will have the -- what about the tariff of -- the cost of the  
9 key? Who regulates that?

10 MR. ALBU: The seed and key is provided by the --

11 MR. CROSS: We do it now.

12 MR. ALBU: We do it now.

13 MR. CROSS: It's an executive order essentially.

14 SUPERVISOR VAGIM: But you don't do it -- you  
15 aren't going to do it for free.

16 MR. CROSS: There are two -- we've been talking  
17 about two issues here; that we keep jumping a little bit.  
18 One is the question of the aftermarket part manufacturer  
19 which wants to make replacement parts for a car.

20 SUPERVISOR VAGIM: Uh-huh.

21 MR. CROSS: And the question is whether they need  
22 full access to the computer on the car or not to do that.

23 SUPERVISOR VAGIM: Well, let's say they want to  
24 make the computer. Let's say they want to go to the OEM or  
25 buy some Motorola, or whatever, and put the system together

1 and sell it to him. Now, you're saying that's going to be a  
2 trade secret part that no one else can get to?

3 MR. CROSS: Well, they can make a computer, but  
4 then they have to -- they would have to go through what's  
5 called an aftermarket part certification process. And if  
6 they demonstrate that the computer doesn't cause the vehicle  
7 too exceed emission standards --

8 SUPERVISOR VAGIM: But now, what you're doing  
9 differently here is you're saying, in order to be able to  
10 keep up with the seed and key change and the algorithm  
11 change, you've got to go to the guy that it originated with  
12 and keep asking permission to get into his system, to sign  
13 onto his master computer. Even though you gave him the  
14 seed and key to go in there, who's going to control the  
15 tariff to go into that master computer?

16 MR. ALBU: That's something that they have to work  
17 together on. It's in the best interest of industry to  
18 accomplish this as well.

19 SUPERVISOR VAGIM: Okay. But what he's saying is  
20 that that's -- and what other guys are saying -- that could  
21 become a monopolistic door that they can't go through  
22 without paying higher and higher tariffs to make them  
23 noncompetitive.

24 MR. CROSS: I think he's saying it is now, and he  
25 wants that to change.

1 SUPERVISOR VAGIM: Okay. So, are you saying --

2 MR. CROSS: And we're working -- and we're  
3 endeavoring to change it with him and --

4 SUPERVISOR VAGIM: He's saying that could be six  
5 years' worth of automobiles by the time we get to that.

6 So, what are we going to do about it? Talk more  
7 about it?

8 MR. CROSS: Workshop in February/

9 SUPERVISOR VAGIM: Workshop in February, or  
10 workshop in '96? I'm not sure which.

11 MR. CROSS: Workshop in February. The '96  
12 workshop is on the other stuff relating to OEMs' progress on  
13 meeting the requirements.

14 CHAIRWOMAN RIORDAN: Ms. Edgerton has another  
15 question, followed by Mayor Hilligoss.

16 MS. EDGERTON: Well, I want to comment. I think  
17 that our obligation here -- we are not creating a black  
18 market. This proposal does not create a black market. This  
19 proposal says you can't tamper with the mechanism here,  
20 which would be this antitampering provision.

21 Indirectly, it has an effect on the market. That  
22 is a separate matter. And I -- my preliminary thought on  
23 that is that this is something that needs to be resolved by  
24 the market among the parties -- the industry, the  
25 manufacturers, and the parts people, and so forth. They are

1 the people equipped to do that.

2 We say don't have tampering with these provisions.  
3 I don't think that it's appropriate to say that we are  
4 creating -- by setting up a regulation which provides that  
5 you can't tamper with it -- a black market.

6 SUPERVISOR VAGIM: Let me clarify. The black  
7 market isn't created because we say no tampering. Clearly,  
8 that is an issue that this agency's been standing behind  
9 from Day One. The issue becomes a potential black market or  
10 a violation -- or creating people who want to do something  
11 right, doing something illegal, or without going to one  
12 gatekeeper in each manufacturer's controlled empire.

13 (Thereupon, there was a pause in the  
14 proceedings to allow the reporter to  
15 replenish her Stenograph paper.)

16 SUPERVISOR VAGIM: So, what we're creating, unlike  
17 any other part ever discussed before, which was reverse  
18 engineering to be certified, and to work, and all that -- is  
19 that the master gatekeeper will be the person who originally  
20 wrote it. And in order to go -- for them to go to  
21 manufacture a part that is equal to meet our regulation,  
22 they will always have to go back to that gatekeeper to ask  
23 permission.

24 And that is, basically, we are, through  
25 regulation, creating a path of more like a monopoly.

1 MS. EDGERTON: I guess my thought would be that  
2 perhaps we need to have someone come back and discuss the  
3 macro and microeconomic effects with the tampering  
4 provision.

5 I think your insights are very useful. I don't --  
6 and I understand what you're saying. And I think they are  
7 very important observations.

8 By the same token, it is simply the case, it seems  
9 to me, in our economic system, the technological innovation  
10 in one sector does impact the overall competitive structure.  
11 And I don't know how much we can do about that. It's sort  
12 of like "gravity is."

13 And I'm not sure -- I, personally, am not sure  
14 what the significance of our role is in this overall effect  
15 of technological innovation and advancement in automobiles  
16 and diagnostic systems with respect to the adjustments in  
17 the overall competitive market.

18 I just don't see that as my -- and I'm not sure  
19 that that's my role here, is to make sure they're not a  
20 monopoly. If you want to have more discussion, that's fine.  
21 I just think that is something that happens when there's  
22 technological innovation, irrespective of what the Air Board  
23 does.

24 SUPERVISOR VAGIM: Our regulations shouldn't  
25 create monopolies either, nor should they necessarily try to

1 keep competitors at each other's throats either.

2 But the fact is this is deliberately accomplishing  
3 the latter. And I just don't want to see us getting into  
4 that. We're lending ourselves to the reversal of what kept  
5 the automobile industry available -- the automobile  
6 available to great masses of this country.

7 SUPERVISOR VAGIM: Mayor Hilligoss.

8 MAYOR HILLIGOSS: Yes, I wanted to ask if we put  
9 in the antitampering rule, what would be the incentives for  
10 the manufacturers to even give up that knowledge?

11 SUPERVISOR VAGIM: What's the incentives now --

12 CHAIRWOMAN RIORDAN: Wait, wait. Who were you  
13 asking that off?

14 MAYOR HILLIGOSS: Staff or anybody that wants to  
15 answer it.

16 CHAIRWOMAN RIORDAN: Well, let's let staff answer  
17 it, then go back to Supervisor Vagim.

18 Staff, did you hear the question?

19 MR. CACKETTE: We were having an inappropriate  
20 conference.

21 CHAIRWOMAN RIORDAN: You weren't having a  
22 conference.

23 MR. CACKETTE: On a technical issue.

24 CHAIRWOMAN RIORDAN: Perhaps you can repeat your  
25 question.

1           MAYOR HILLIGOSS: If we pass the antitampering  
2 rule in this today, what would be the incentives for the  
3 manufacturers to give up their knowledge? I see no  
4 incentive at all.

5           In a dealership, the service end of the dealership  
6 is the one that traditionally loses money. And this would  
7 keep the care owners coming back to the dealerships.

8           MR. CACKETTE: Let me answer part of it. On the  
9 reprogramming part of it, which is, if there's a  
10 manufacturer authorized change to the computer code, federal  
11 law requires the manufacturer to make that available to  
12 everybody. And that's the rulemaking we've been talking  
13 about. We've been a staunch supporter of that concept that,  
14 when there are authorized changes going on in the computer  
15 codes, all legitimate repair people ought to have access.

16           And the controls that we've talked about, going  
17 through the manufacturer is one way of making sure that that  
18 stays legitimate. I think that supports that and we've  
19 worked for that a long time.

20           So, on the reprogramming part, there's no way the  
21 manufacturer can say, "Only my dealers can reprogram a car."

22           Now, the parts aspect of it, that's a little bit  
23 different. What we've been saying there is we want to try  
24 to -- the legitimate way out of this, I think, is the  
25 marketplace way, which is that the car manufacturers work

1 with the aftermarket parts people to provide the information  
2 in a way that allows them to design replacement parts and  
3 for enhanced parts as well, specialty parts.

4           And the industry, in large, has relied on the  
5 existence of the aftermarket. I don't think there's been  
6 any attempt to try to put them out of business. I think  
7 they serve a very useful purpose. They provide parts that  
8 the manufacturers no longer want to provide or stock. They  
9 provide enhancements to people's cars and make owning that  
10 car more attractive; that is, they gussy it up, or change  
11 its performance, or whatever.

12           And I think that what we've tried to do is  
13 stimulate the three parties -- the two parties coming  
14 together so that there could be relationship established  
15 that isn't based on having to be a computer hacker to steal  
16 the code directly out of the computer.

17           MAYOR HILLIGOSS: What you're saying, then, is  
18 that there's a federal law saying they have to share?

19           MR. CACKETTE: They have to share on  
20 reprogramming. I don't think it says they have to share on  
21 parts, just on the programming.

22           MR. HEYLER: It's not clarified.

23           MR. CACKETTE: It's just on the programming piece.  
24 So, what we're trying to do is stimulate that other part on  
25 the parts, stimulate the parties coming together. And

1 Steve's already gone to a lot of effort to do that in his  
2 workshops to help it.

3 And I'll ask Steve. Has there been resistance by  
4 the manufacturers?

5 MR. ALBU: I think that the initial discussion and  
6 the conclusion of it -- the consensus out of the meetings,  
7 as I understood it, was that the OEMs felt that it would  
8 make ore sense, rather than trying to change the OBD system  
9 to accommodate a part, a different part design, just simply  
10 give the part manufacturer the OEM part design specs to copy  
11 at some reasonable fee. It's how you deal with anybody. I  
12 mean it's, you know. . .

13 CHAIRWOMAN RIORDAN: Okay? Do you have a follow-  
14 on question, Mayor Hilligoss?

15 MAYOR HILLIGOSS: Well, they say that they have to  
16 share, so that's the incentive then.

17 SUPERVISOR VAGIM: The issue is at some  
18 "reasonable" fee.

19 MAYOR HILLIGOSS: Yeah.

20 SUPERVISOR VAGIM: Now they can basically emulate  
21 a carbon copy and put it in the system, and it does not  
22 infringe.

23 MR. ALBU I think the person could still copy a  
24 part on his own and put it in place. It's just that it  
25 might be easier to just simply get the specs and buy them.

1 CHAIRWOMAN RIORDAN: All right. Let's move on.  
2 One final comment from the witness.

3 MR. HEYLER: I'll make it very brief. But I think  
4 the discussion about monopoly, which would impact my  
5 constituency, the independent auto repair shops, and  
6 probably put a lot of them out of business, is an important  
7 question.

8 And I think the question before the Board really  
9 should be the impact on the air quality program. And I  
10 agree in the sense that the impact on us, while important to  
11 us, will, in turn, have an impact on the air quality  
12 program.

13 I was in every air quality program as a shop owner  
14 and later as a close observer -- a whole lifetime, since the  
15 early sixties. And I have seen three programs fail. And I  
16 know the reasons they failed. And the reasons they failed  
17 were they weren't acceptable to the public and they would  
18 cause the public inconvenience or additional cost in various  
19 ways, or they affected the industry -- repair industry in  
20 various ways. And we conveyed that dissatisfaction to the  
21 public and the legislators who, in turn, took action.

22 So, I think it's important to put the monopoly  
23 concern into that context.

24 CHAIRWOMAN RIORDAN: Thank you.

25 MR. HEYLER: Thank you.

1 CHAIRWOMAN RIORDAN: Let me call on our final  
2 witness today, which is Chris Weaver, representing the  
3 Natural Gas Vehicle Coalition.

4 MR. WEAVER: Calling my name took me a little by  
5 surprise after that long interval.

6 I'm speaking now generally on behalf of the  
7 Natural Gas Vehicle --

8 CHAIRWOMAN RIORDAN: Could you just raise the  
9 microphone.

10 Thank you very much.

11 MR. WEAVER: I'm speaking now generally on behalf  
12 of the natural gas vehicle industry, and I'd like to raise  
13 just a couple of technical issues.

14 I will mention in passing that this issue of  
15 access to OBD calibrations is one of vital interest as well  
16 to people who want to build systems, such as aftermarket  
17 natural gas conversion kits. So, I expect they will be very  
18 much involved in the discussion on it. But I don't want to  
19 offer a position on it now.

20 The technical issues I'd like to address are two.  
21 One concerns the use of the word hydrocarbons throughout the  
22 proposed OBD document, the regulations. Hydrocarbons is, in  
23 our view, a dangerously imprecise word, because it is  
24 generally interpreted to mean total hydrocarbons as measured  
25 by a flame ionization detector.

1           And, in fact, the regulated quantities, when  
2 you're talking about TLEVs, LEVs, and ULEVs, which are  
3 vehicles that will mostly have to deal with these  
4 regulations, is not hydrocarbons, but reactivity adjusted  
5 nonmethane organic gas. And from the standpoint of gasoline  
6 vehicles, the difference between those two terms isn't very  
7 important. From the standpoint of natural gas vehicles,  
8 methanol vehicles, ethanol vehicles, the difference is  
9 critical.

10           And I would like to request the staff, in the  
11 final version of the regulations, go through and substitute  
12 in the correct term, which, if I understand, your intention  
13 is, in fact, reactivity adjusted NMOG and not hydrocarbons,  
14 in order to preclude the appearance of any unfortunate  
15 misunderstandings when the time comes to actually certify  
16 some natural gas vehicles under these regulations.

17           MR. LAGARIAS: Madam Chair?

18           CHAIRWOMAN RIORDAN: Yes, Mr. Lagarias.

19           MR. LAGARIAS: Well, I think you have a point, as  
20 far as nonmethane organic gases are concerned. But we have  
21 not -- the issue of reactivity adjustment is a separate  
22 issue that we deal with in a different manner. I don't  
23 think reactivity adjusted is appropriate.

24           MR. WEAVER: Well --

25           CHAIRWOMAN RIORDAN: Let me just ask staff if

1 there's a comment. I didn't know if you had finished your  
2 testimony or if there's other --

3 MR. WEAVER: I'm sorry. There's one other issue,  
4 and perhaps we should do both of them.

5 CHAIRWOMAN RIORDAN: Why don't you do that, and  
6 then we can ask staff.

7 MR. WEAVER: The other one is also a technical  
8 issue and pretty minor, except to us who are doing natural  
9 gas vehicles.

10 And that is that for lean-burn natural gas  
11 engines, the exact same issues apply as applied to diesel  
12 engines when it comes to assessing catalyst efficiency. We  
13 don't know of any technology that will work for those  
14 engines because of the presence of excess air in the exhaust  
15 stream. We'd like those included in the exemption for the  
16 time being.

17 CHAIRWOMAN RIORDAN: Okay. Now, staff, there are  
18 two issues that are raised by the witness. Do you have any  
19 comments?

20 MR. CROSS: Quite honestly, this one is -- the  
21 first one is on reactivity. The reactivity is one that we  
22 hadn't contemplated until this witness raised it within the  
23 context of the on-board diagnostics regulations, because it  
24 is one of will it or will it not affect the technical  
25 stringency of the regulation.

1           In other words, our frame of reference has always  
2 been primarily gasoline and diesel powered engines. And our  
3 thinking about stringency is in that frame of reference.  
4 And so, I think we agree that needs to be looked at.

5           But I'm not ready at this point to necessarily  
6 agree that it's -- out of hand that the correction that  
7 Chris is asking for is the right thing to do.

8           I think it's something that we want to look at  
9 more closely. Because with different fuels, you have  
10 different things that happen in terms of what technically  
11 can and can't be done.

12           CHAIRWOMAN RIORDAN: Should we leave it that that  
13 is an item that will be looked into and that we'll --

14           MR. CROSS: Sure. I think we can look at it. I  
15 just don't want to speak on it off the cuff right now.

16           CHAIRWOMAN RIORDAN: All right. Then the second.

17           MR. CROSS: We were arguing about that one; so, we  
18 didn't hear the second one. Could you quickly repeat it?

19           MR. WEAVER: Yes. The second item is that for  
20 lean-burn natural gas engines that have catalysts, as some  
21 of them do, the same technical limitations apply as applied  
22 to diesel engines with catalysts. They have excess air in  
23 the exhaust and, therefore, the ways you've defined to  
24 measure catalyst efficiency won't work. And we don't know  
25 of another way.

1 MR. CROSS: Okay. I'd like put that on the same  
2 list.

3 CHAIRWOMAN RIORDAN: We'll study that and get  
4 back.

5 Okay. Well, you've obviously raised two issues  
6 that are something that staff needs to look into. I  
7 appreciate that.

8 Are there any questions for this witness?

9 No. Thank you very much for being here, Mr.  
10 Weaver. Appreciate that.

11 That concludes the list of people who have signed  
12 up on our public comment list. Let me ask the staff, were  
13 there any written comments by people that were not able to  
14 testify today? There were a number of people, of course,  
15 who testified who -- we have taken your written comments to  
16 make them part of the record.

17 But are there others?

18 MR. LYONS: Yes, there are a few. First, Nissan.  
19 They state that the .02 inch leak detection requirement is  
20 premature, and they want additional time to study systems  
21 with .04 inch leak detection systems.

22 For misfire detection, they ask us to consider, in  
23 terms of temporary disablement of the misfire detection  
24 system, things other than transmission shifts or rough  
25 roads.

1           And those two items are the only examples they  
2 mention, but there are other things.

3           And for LEV catalyst monitoring, they state that  
4 the ARB is moving in the right direction; however, they have  
5 some concerns, especially on larger engines, and ask us to  
6 review it in calendar year 1996.

7           The next is IMPCO, two comments. The first is  
8 that our tampering system requirements are overburdensome to  
9 the aftermarket conversion industry.

10           The second is that, in terms of alternative fuel  
11 retrofit, is that the exemption provision for alternative  
12 fuel vehicles should extend until the 1999 model year. And  
13 that actually is the case in the regulation. I think that  
14 our proposal was misread.

15           Southern California Gas Company supports our  
16 rulemaking, particularly the additional leadtime for  
17 alternative fuel retrofits.

18           And the Engine Manufacturers Association supports  
19 our revisions, in particular the provision to extend SAE  
20 J1939 as an alternate communication protocol for medium-duty  
21 vehicles.

22           CHAIRWOMAN RIORDAN: Does that conclude, then, all  
23 of the written testimony?

24           MR. LYONS: Yes, it does.

25           CHAIRWOMAN RIORDAN: Mr. Boyd, are there any other

1 further comments by staff?

2 MR. BOYD: No, Madam Chair. I believe that  
3 concludes any information we have for the record.

4 CHAIRWOMAN RIORDAN: Then I'm going to official  
5 close the record. Since all the testimony, written  
6 submissions, and staff comments for this item have been  
7 entered into the record, and the Board has not granted an  
8 extension of the comment period, so this item will include  
9 the caveat: Written or oral comments received after the  
10 comment period has been closed will not be accepted as part  
11 of the official record on this particular agenda item.

12 We need to address the ex parte communications.  
13 So, Board members, have any of you had any ex parte  
14 communication? And, if so, you need to disclose those now.

15 MR. CALHOUN: I received some written comments  
16 from Ford, GM, and Chrysler. But the comments that they  
17 submitted were essentially the same as their testimony.

18 CHAIRWOMAN RIORDAN: All right. And those were  
19 written.

20 MR. CALHOUN: Yes.

21 CHAIRWOMAN RIORDAN: Thank you, Mr. Calhoun. Is  
22 there anyone else?

23 All right. Seeing none, then that would close  
24 that.

25 A resolution has been passed out to you,

1 Resolution 94-67. Let's take a minute and look through  
2 this.

3 CHAIRWOMAN RIORDAN: Mr. Vagim?

4 SUPERVISOR VAGIM: In the proposed regulation,  
5 there's a provision in the tamper proofing that equivalent  
6 methods shall be considered by the Executive Officer. Is  
7 that sufficient in your coming hearing or workshops?

8 If you find an acceptable alternate method that  
9 would be considered problematic for the aftermarket folks,  
10 it could be put in effect with this clause?

11 MR. ALBU: Yes. We've had some initial  
12 discussions with some manufacturers. There are other  
13 methods besides what we proposed, so there are ways of  
14 handling all these issues.

15 SUPERVISOR VAGIM: Now, I want to make sure,  
16 though, in your future discussions that are pending, that  
17 are imminent in February, or something like that you  
18 mentioned, where some of these problems will be rediscussed,  
19 that if you do find some fixes that are satisfactory to the  
20 aftermarket folks, that can be handled through this clause  
21 then?

22 MR. ALBU: Yes.

23 SUPERVISOR VAGIM: Thank you.

24 MR. CALHOUN: Madam Chair?

25 CHAIRWOMAN RIORDAN: Yes. Mr. Calhoun, I think

1 everybody's -- we've all read this.

2 MR. CALHOUN: Before I recommend adoption of  
3 Resolution 94-67, I'd like to preface my comments with --  
4 I'd like to preface my comments.

5 We started this discussion off this morning, and I  
6 reminded the Board and the members of the audience that OBD  
7 regulations are, in my view, the most complex regulations  
8 that this Board has had to deal with. And I think the very  
9 fact that we are here today is an indication that they are,  
10 in fact, complex.

11 And some of the things that the staff thought  
12 could be accomplished have not been accomplished, so they  
13 come in today with some recommended changes. And that's  
14 consistent with the way the staff has acted in the past.

15 I'm very concerned about false lights. And I know  
16 they cause a lot of unrest, and a lot of unhappiness, and a  
17 lot of dissatisfaction among customers.

18 So, the suggestions that I'm going to make here  
19 for changes are being made with that point in mind.

20 CHAIRWOMAN RIORDAN: And these are amendments to  
21 the --

22 MR. CALHOUN: The proposed amendments to the  
23 resolution, yes.

24 CHAIRWOMAN RIORDAN: Okay. Fine.

25 MR. CALHOUN: I recommend that the phase-in be

1 changed from 40, 70, and 100 percent to 30, 60, and 100  
2 percent.

3 CHAIRWOMAN RIORDAN: All right.

4 MR. LAGARIAS: That's for catalyst monitoring?

5 MR. CALHOUN: Yes. And the workshop that we  
6 talked about, that we also incorporate that in the  
7 resolution. I think that's just automatic, though, that we  
8 do that.

9 There was some discussion about comprehensive  
10 monitoring of the miscellaneous emission-related components.  
11 The big problem there is it's conceivable that a component  
12 may start to deteriorate, yet the vehicle may not exceed the  
13 emission standards. And that's reality.

14 So, my recommended amendment would be that we not  
15 turn on the lights when the system deteriorates. But,  
16 instead, you would set a code and illuminate the MIL only  
17 when the increase has been exceeded by 15 percent.

18 There were other changes that were suggested. The  
19 one that I'm having difficulty with is the leak orifice for  
20 the evap system. The current regulations propose 40  
21 thousandths inch leak, and the staff is proposing to change  
22 that to 20 thousandths starting in 1998.

23 My recommendation would be that we start that in  
24 the year 2000.

25 There's been some suggestion that the statistical

1 test for illuminating the MIL be done at 10 trips, as  
2 suggested by General Motors. We don't believe that at this  
3 point in time that that's absolutely necessary. And if, in  
4 fact, it becomes necessary, we can address that at some  
5 later point in time.

6 The anti- the two-level antitampering, which  
7 involves encryption, I think we'll accept the staff's  
8 recommendation there.

9 The recall threshold, it had been suggested by  
10 AAMA that the recall threshold be extended to 1996, from --  
11 2.5 times the standard be extended to 1996. And perhaps  
12 that's not appropriate at this particular time.

13 We also recommend that the standards for ULEV and  
14 LEV -- I believe the AAMA recommended that that standard be  
15 increased from 2 to 2.5 times. And we would recommend that  
16 that be incorporated, also.

17 Those are the major changes that -- do we have any  
18 questions by the staff?

19 CHAIRWOMAN RIORDAN: Let me just -- you're going  
20 to make that in the form of a motion?

21 MR. CALHOUN: Yes.

22 CHAIRWOMAN RIORDAN: Okay. Is there a second to  
23 that motion?

24 MR. LAGARIAS: Madam Chair, I'd like to add to  
25 that, if I could, before a second.

1 CHAIRWOMAN RIORDAN: All right. Let's see if the  
2 maker of the motion will accept your suggestions.

3 MR. LAGARIAS: Well, in the comprehensive  
4 monitoring of miscellaneous emission-related components, I  
5 agree that if the -- that the indicator light should not  
6 come on until the standards are exceeded by at least 15  
7 percent over the standard.

8 However, it's always possible that there are  
9 failures in the -- of the components that do not cause the  
10 standard to be exceeded, and we have a computer code in  
11 there in the event that the computer code recognizes that  
12 some of the components have failed, even though the standard  
13 has not been exceeded, the computer code can be programmed  
14 so that when that car is serviced or taken in for a check,  
15 the mechanic will know that that part has failed, and he  
16 could service it, even though it has not resulted in a  
17 failure on the part of our exceedance of the emission  
18 standards?

19 Is that acceptable?

20 CHAIRWOMAN RIORDAN: Is that acceptable?

21 MR. CALHOUN: Yes.

22 CHAIRWOMAN RIORDAN: Okay. We'll make that part  
23 of the original motion.

24 MR. LAGARIAS: On the monitoring of emission -- of  
25 evaporative leaks at .020, you're suggesting that standard

1 be put off to the year 2000. I have no objections to that,  
2 except that at the workshop that is scheduled two years from  
3 now, '96, that that issue be addressed in the event that the  
4 technology is there and it makes sense to enforce that  
5 regulation at an earlier time.

6 MR. CALHOUN: That's acceptable.

7 CHAIRWOMAN RIORDAN: Do you accept that?

8 MR. CALHOUN: Yes.

9 CHAIRWOMAN RIORDAN: Okay.

10 MR. LAGARIAS: And finally, on the recall  
11 threshold, you're suggesting that the standard be increased  
12 from 2.5 to 2 times.

13 MR. CALHOUN: For LEV and ULEV. I'm very  
14 concerned about, when we start moving down to that  
15 particular stringency, whether or not the manufacturers are  
16 going to have the ability to --

17 MR. LAGARIAS: Well, as I recall, if it's 2.5  
18 times for the ULEV, that would allow emissions higher than  
19 the LEV; is that correct?

20 CHAIRWOMAN RIORDAN: I think there's a question to  
21 the staff.

22 MR. CACKETTE: Well, I was a little bit confused  
23 about what the motion was, also, on this ULEV. If I  
24 understand it correctly, for that -- for those standards, we  
25 provide a higher threshold for recall for two years

1 basically.

2 MR. ALBU: For LEV vehicles, they already have a  
3 provision in place that they not be recalled until they  
4 exceed two times the standard, so it's already there.

5 MR. CALHOUN: Okay.

6 MR. LAGARIAS: So, I would say, then, accept that  
7 standard.

8 CHAIRWOMAN RIORDAN: Okay. Is that acceptable to  
9 you?

10 MR. CALHOUN: Yes.

11 CHAIRWOMAN RIORDAN: All right.

12 MR. LAGARIAS: And I think that's a very good  
13 motion, Joe.

14 CHAIRWOMAN RIORDAN: All right. And so, you've  
15 now seconded --

16 MR. LAGARIAS: I second the motion.

17 CHAIRWOMAN RIORDAN: -- this amendment that Mr.  
18 Calhoun now has agreed to some of the additional amendments.

19 You know, for everybody, I recognize it's very  
20 difficult, but the recorder, fortunately, has this all down,  
21 so that you totally understand that if there is any question  
22 by any of the Board members, we certainly can read those  
23 back if you have any questions.

24 MS. EDGERTON: Can I make a substitute motion?

25 CHAIRWOMAN RIORDAN: Pardon me?

1 MR. CACKETTE: Can I have some clarification. I  
2 didn't understand a couple of them.

3 CHAIRWOMAN RIORDAN: All right. Let's go back.

4 MR. CACKETTE: Just so we can understand what we  
5 have to implement.

6 On the .020 -- the 20 thousandths leak  
7 requirement, it wasn't clear to me from the discussion  
8 whether the motion was to change the proposed regulation to  
9 delay implementation to 2000. And then, in '96, if you find  
10 that it turned out it was feasible, to do it earlier, and  
11 come back for another reg change to the Board, or was it  
12 look at it in '96 and --

13 MR. CALHOUN: Right, as you described it.

14 MR. CACKETTE: So, it's delay it and then, if  
15 somehow it can be done earlier, come back. Okay.

16 CHAIRWOMAN RIORDAN: Okay.

17 MR. CACKETTE: And on the comprehensive  
18 monitoring, the level at which the light turns on, I heard--  
19 thought I heard Mr. Calhoun say, when there's a 15 percent  
20 increase in emissions, and that was consistent with the way  
21 the GM person described that today, which was the light  
22 shouldn't have to come on until --

23 MR. CALHOUN: 15 percent above the standard.

24 MR. CACKETTE: Oh, well, okay. That is a major  
25 relaxation compared to the other interpretation, which is --

1 I thought I heard them saying make sure -- wherever the car  
2 is, make sure there's an emissions increase of so many  
3 percent before the light comes on.

4 And the other one is -- let's say the car's at  
5 half the standard.

6 CHAIRWOMAN RIORDAN: It would be 15 percent at the  
7 standard.

8 MR. CACKETTE: Yeah, it would be 15 percent at  
9 the standard versus going all the way to the standard, which  
10 would be 50 percent plus another 15 percent. So, in one  
11 case, you'd have 65 percent increase when the light comes  
12 on; the other one would be a 50 percent increase.

13 CHAIRWOMAN RIORDAN: Mr. Cackette, let's ask Mr.  
14 Calhoun what he meant there.

15 MR. CALHOUN: One of the difficulties we have in  
16 this is I would expect that the Board would really be  
17 challenged in those cases where we're attempting to force a  
18 recall when a vehicle did not exceed the emission standards,  
19 and we go do various test measurements. You find that  
20 there's a lot of test variability. And the manufacturers  
21 are very concerned that, if there is an emissions increase  
22 that's real -- and in this particular case, having a 15  
23 percent increase in emissions, still complying with the  
24 emissions standards, I'm not so sure that we want to impose  
25 a recall based on that.

1 CHAIRWOMAN RIORDAN: So, your motion basically  
2 was, unlike what Mr. Cackette said, yours is 15 percent  
3 above emission level requirement. Okay? That's what we  
4 need to know.

5 MR. CALHOUN: Yes.

6 MR. LAGARIAS: And that's what I'm supporting.

7 CHAIRWOMAN RIORDAN: And that's what Mr. Lagarias  
8 is supporting.

9 Now, there is an offer of a substitute motion.  
10 And let me, just for the Board, because some chairs handle  
11 these differently than others. Let me make very clear how  
12 this would happen.

13 A substitute motion can be advanced, and we will  
14 vote on that, if it is seconded, and deal with that.

15 If it is not successful, then we would go back to  
16 the motion of Mr. Calhoun, seconded by Mr. Lagarias, and  
17 deal with that motion.

18 SUPERVISOR VAGIM: I'm not quite clear. Would  
19 this be an amendment to the amendment, or will this be --

20 CHAIRWOMAN RIORDAN: No. Well, we'll ask Ms.  
21 Edgerton. She had offered -- said a substitute motion,  
22 which may not have been heard by the rest of the Board.

23 So, Ms. Edgerton?

24 MS. EDGERTON: Yes. I'd like to offer a  
25 substitute motion in which I -- includes various components

1 of what Mr. Calhoun and Mr. Lagarias have provided, but has  
2 some differences, which I hope you will think improve the  
3 measure.

4 Certainly, I -- I mean, I would agree with the  
5 phase -- that the phase-in be changed for catalyst to 30,  
6 60, 100 percent. I'm also comfortable with the workshop in  
7 the resolution. And so, that substitute motion would  
8 include that provision.

9 The substitute motion would also include the  
10 acceptance of the antitampering. That's nothing. That  
11 actually doesn't change anything.

12 So, the other two pieces do have to do with the  
13 evaporative monitoring requirement, in which I would propose  
14 that we either remain the same -- well, we do remain and  
15 accept the staff proposal.

16 And I would also propose, with respect to the  
17 components monitoring, that we go with the staff proposal.  
18 And we'll see if there's -- I'd like to have an opportunity  
19 to speak to the motion.

20 CHAIRWOMAN RIORDAN: Right. Let us get a second.

21 DR. BOSTON: Second.

22 CHAIRWOMAN RIORDAN: A second, Dr. Boston.

23 Discussion. Ms. Edgerton?

24 MS. EDGERTON: With respect to the two items at  
25 issue, the comprehensive components monitoring and the leak

1 orifice, it strikes me, with respect to the comprehensive  
2 components monitoring, that the issue before us is what is  
3 really an OBD system. Is it a diagnostic system for the  
4 various components they are monitoring so they tell us which  
5 things are working, which I can see a customer accepting  
6 very favorably.

7 I would like to see that in my car, even if I  
8 wasn't over the emission standards, so I could get it fixed.  
9 Or whether the OBD system is directed at an exceedance of  
10 all the evaporative emissions -- I mean of all the emission  
11 standards generally, my understanding is that it is a --  
12 that I believe the consumers will be able to understanding  
13 it as generally telling them when something's not working  
14 very well and needs to get fixed.

15 And so, I'm comfortable with that.

16 The second piece with respect to -- and I'm not  
17 even -- that's useful. We know technologically that we have  
18 the technology to make those work. We've given a double  
19 deficiency free to the manufacturers. And it seems that  
20 that's a reasonable -- reasonable thing.

21 I don't know how we move ahead to capture all the  
22 reductions we can capture if we don't have the system even  
23 tell the consumer that things aren't working, especially  
24 when we have the capability to tell this person that they're  
25 not working.

1           In any case, I would think, for the time being,  
2 even if -- even if there's further -- even if we do want to  
3 further understand the consumer preferences here, it seems  
4 to me the purpose of today (sic), that that is the better  
5 course, because we can learn so much about how we can help  
6 to really clean the air as much -- and I think it's --  
7 personally, I think it's consistent with our obligations  
8 under California law to achieve the maximum reductions  
9 possible as soon as possible.

10           So, I feel obligated to make this motion -- I mean  
11 the substitute motion.

12           Secondly, with respect to the orifice and the  
13 leaking, I'm not quite sure why, but my understanding is  
14 that Ford and Chrysler said they would be able -- they would  
15 try to comply with the staff proposal, and that General  
16 Motors has said that they do not want to.

17           My inclination is to go with the folks who  
18 indicate that they will try, and let's try.

19           And one reason, which I find completely  
20 compelling, it's to my understanding, it's about 30 days --  
21 30 tons per day of ROG that are at stake if the 0. -- if .02  
22 is not implemented.

23           Now, I can't help but remember, three weeks ago,  
24 we were here talking about the South Coast achieving an  
25 overall budget of ROG for mobile sources of 116 per day.

1           And, of course, as you know, I live in the South  
2 Coast. People are tired of hearing me say that probably.  
3 But I do, and it's part of my obligation on this Board to  
4 discuss, I believe, the effect of our regulations on all of  
5 those Californians who live in the South Coast.

6           So, I would -- that is why I would recommend that  
7 we give us a try. And if it turns out to be something -- if  
8 both of these are tried, and if they turn out to be  
9 something that is creating a problem beyond what I've heard  
10 today, then we'll go back and have another look.

11           MR. CALHOUN: May I comment on this?

12           CHAIRWOMAN RIORDAN: Yes, yes.

13           Further discussion, Mr. Calhoun.

14           MR. CALHOUN: I guess I was in a -- it must have  
15 been a little different room, Ms. Edgerton. I didn't hear  
16 GM say that they didn't want to comply with the .02  
17 standard.

18           I thought what I heard GM, Ford, and Chrysler say  
19 was that they weren't sure what would be required in order  
20 to comply with the .020 standard, and that it may, in some  
21 cases, require a change in hardware.

22           And this could also require system changes, or  
23 require some additional time. And that's one of the reasons  
24 why I'd suggested that we phase it in at a later date. Give  
25 them a little time, because we don't want the customers

1 unhappy.

2 I agree with you. I want to get all of the  
3 evaporative emissions that we can possibly get, but I can  
4 also suggest one other way we can get these evaporative  
5 emissions without this particular requirement. And that is  
6 to do something about the evap systems that are occurring on  
7 the vehicles on the road. But I won't go into that.

8 So, I don't think that I heard anybody say, "We  
9 don't want to comply with this particular regulation."

10 The other comment I would make would be, my  
11 proposed amendment would have required that the code be set  
12 whenever there was a measurable increase in emissions, which  
13 would not turn the light on until the emission standard had  
14 been exceeded by 15 percent above the standard --- that the  
15 violation not be until you exceed the 15 percent above the  
16 standard.

17 So, what you are hoping to accomplish would also  
18 be accomplished, because the very code would already be set.  
19 And so, when the people take their vehicle in for repair,  
20 this work would automatically -- this would automatically be  
21 indicated to the people.

22 MS. EDGERTON: Let me get one answer back.

23 CHAIRWOMAN RIORDAN: I'll let you comment, and  
24 then Mr. Lagarias.

25 MS. EDGERTON: I'll just follow the process of

1 point, counterpoint just to those two.

2           With the respect too the 1998 -- the proposal to  
3 extend the -- going down to the 0.02 (sic) to the year 2000  
4 as opposed to 1998, I -- reasonable people disagree and  
5 differ on these things, but I see in the description of the  
6 way the future would unfold in the 1996 workshop provision  
7 in this memo, which would enable us -- which would enable  
8 the staff then to come back and recommend to us -- make  
9 recommendations to us that this was not achievable, or that  
10 there were problems with having that go in 1998.

11           I feel constrained to keep as much as possible the  
12 goals, the direction in which we're trying to go, and to  
13 keep the necessary focus in each segment, so that everyone  
14 is moving in the same direction.

15           So, while I appreciate what you say, I  
16 respectfully would prefer -- and that's why I make the  
17 motion -- would prefer to move forward with 1998, with the  
18 understanding that we have this 1996 workshop and can report  
19 back to us.

20           On the lights, I understand that there would be a  
21 code for when people take their lights in -- I mean take  
22 their car in and that, if that was something that was  
23 checked, it could be checked and the owner could make a  
24 change.

25           By the same token, my -- I think it would be very

1 good to have the light go on. I think people are used to  
2 having a light go on when they don't plug in their seat  
3 belt. They're used to having the light go on for a lot --  
4 when the door is open. I know the light goes on and the  
5 door isn't open on my car. There are lots of little lights  
6 that go on, and makes me feel very technologically advanced  
7 in my Geo Prizm, which I think very much. Made in  
8 California.

9 But, in any case -- so, I'd like to have my lights  
10 go on when all of my emissions control stuff is not working,  
11 I'd like to have my lights go on. And I think the people in  
12 Southern California would like to have the lights go on if  
13 it means that we can have -- have more emissions reductions.

14 I would like to strive for it. Thank you.

15 CHAIRWOMAN RIORDAN: Okay. Thank you. Mr.  
16 Lagarias.

17 DR. BOSTON: Can I withdraw my second if she  
18 drives a Geo?

19 (Laughter.)

20 CHAIRWOMAN RIORDAN: No, Dr. Boston. No, Dr.  
21 Boston, that's not acceptable.

22 All right. Mr. Lagarias.

23 MR. LAGARIAS: When the lights go on again all  
24 over California --

25 (Laughter.)

1 MR. LAGARIAS: -- there's the one (pointing to Ms.  
2 Edgerton).

3 (Laughter.)

4 MR. LAGARIAS: Our authority, as an Air Board, is  
5 based on controlling emissions, not on controlling cars.  
6 And if we're going to control emissions, we want to have an  
7 indication that indicates the emissions are exceeding the  
8 regulations, not necessarily that there's something broken  
9 in the car.

10 Now, the code would address that issue. But since  
11 our authority's based on emission control, the light should  
12 come on when the standards are being exceeded, not  
13 necessarily when something else is happening. And,  
14 therefore, I support Joe's position that we work on that  
15 basis.

16 Now, I'm ambivalent on the .020 leak. But I heard  
17 conflicting testimony from the Board and from the people  
18 testifying today on the significance of the leak. And so --  
19 and I know that Ford and Chrysler have said they are working  
20 toward achieving it and, so, I'm sure will everyone else be  
21 there.

22 But I feel that with a technical issue of this  
23 type, it's appropriate -- since there are conflicting data  
24 in my mind -- that we resolve it by getting more  
25 information. I like the idea of an industry/government

1 workshop to look into this issue more completely.

2 If it turns, as the staff has suggested, that  
3 software changes can address this issue, then we have no  
4 problem in implementing it. Am I correct in remembering  
5 that? In implementing it at an earlier date.

6 But I feel that this is a technology pushing issue  
7 that needs more discussion.

8 CHAIRWOMAN RIORDAN: Okay. Mr. Lagarias, thank  
9 you.

10 Is there any further discussion? Dr. Boston.

11 DR. BOSTON: Well, I would like to speak in favor  
12 of Ms. Edgerton's position.

13 MR. CALHOUN: I thought you withdrew your second.

14 (Laughter.)

15 DR. BOSTON: It's because she drove that Geo.

16 MS. EDGERTON: I'll change my car.

17 DR. BOSTON: I feel that, number one, on the .02  
18 standard for the leak detection and the evaporative system,  
19 that there has been a lot of progress made, and that to  
20 suddenly delay it for another two years really defeats our  
21 purpose.

22 I think we want to force this technology. And I  
23 look at it the way Lynne does. If they cannot and they put  
24 forth a very substantial effort, and it just doesn't work,  
25 then we can look at it again, and we can delay it at that

1 point.

2 But why delay it now when it may work and we can  
3 get another two years of air benefits out of the program.  
4 So that, I like Lynne's approach on that. And I would  
5 support that approach.

6 As far as the MIL light coming on, I don't  
7 disagree with the 15 percent, but I think if there's a major  
8 component of the emission system that fails, I think the  
9 light ought to come on immediately.

10 I think if the catalytic converter isn't working,  
11 I think a light ought to come on. I think if an oxygen  
12 sensor isn't working, I think a light ought to come on right  
13 now. I don't want to wait until the emissions become  
14 significant.

15 I think when one system like that starts to fail,  
16 then many things could happen down the line, and I think it  
17 would be a benefit to the manufacturer to repair that as  
18 soon as possible if he knows a major system has failed.

19 So, maybe there's two different lights here that  
20 are involved. But I think a light failure -- I mean a  
21 component failure ought to trigger a light right away.  
22 Maybe an emission light, you know, for the 15 percent I  
23 wouldn't object to.

24 But the other aspects of Lynne's proposal I also  
25 agree with -- the 30, 60, 100, the workshops, the

1 antitampering, and so forth.

2 So, I find myself more in agreement with Lynne's  
3 position than yours, Joe.

4 MR. CALHOUN: Well, I guess I --

5 CHAIRWOMAN RIORDAN: Mr. Calhoun, if you don't  
6 mind, Mr. Lagarias wanted to say something, then I will go  
7 to you. Because he wanted to talk about, I believe, the  
8 lights.

9 MR. LAGARIAS: Dr. Boston, if a catalyst fails,  
10 the emissions will increase, the light will come on. If the  
11 oxygen sensor fails, the emissions will increase, the light  
12 will come on.

13 This is only a component that fails that does not  
14 increase the emissions above the allowable standard that  
15 we're suggesting.

16 CHAIRWOMAN RIORDAN: Okay. Thank you, Mr.  
17 Lagarias.

18 Mr. Calhoun.

19 MR. CALHOUN: Well, I was going to point out that  
20 there's a difference between a deterioration in the system  
21 and a complete failure. But I think Jack's comments are  
22 appropriate.

23 CHAIRWOMAN RIORDAN: All right. Ms. Edgerton?

24 MS. EDGERTON: Yeah. I noticed when Mr. Lagarias  
25 spoke, there were -- a hand went up here from Mr. Cross. Is

1 that -- I would like to understand how this works.

2 MR. CROSS: I can --

3 MS. EDGERTON: Is that correct, that anything that  
4 goes --

5 MR. CROSS: I think that -- I'm going to let Mr.  
6 Albu follow this up. But I think that when we're talking  
7 about emissions increases as big as 15 percent above the  
8 standard, some pretty major stuff will not trigger the  
9 light, like an oxygen sensor failure, for example, in some  
10 cars.

11 So, I think that the point that I would want to  
12 make is that the staff kind of agrees with the idea that if  
13 it's a part that breaks and causes a significant increase,  
14 the light ought to be on.

15 But I think the question is the definition of  
16 significant and whether or not it's linked to the standards.  
17 And I think the reason the staff is concerned about having  
18 that definition tied to the standards or in exceedance of  
19 the standard is that there are some fairly major components  
20 that can fail that will not cause the vehicle to exceed the  
21 standard, certainly not immediately, maybe over time.

22 MR. LAGARIAS: Like what?

23 MR. CROSS: Like the oxygen sensor. In some cars,  
24 the EGR system. Others, Steve?

25 MR. ALBU: Those are typical examples, but that's

1 exactly right. And that's why we're a little bit concerned  
2 about giving that much latitude.

3 I think even GM suggested only a 25 percent  
4 increase of the standard. Even they were comfortable with  
5 that. And it seems like you're going beyond even that.

6 CHAIRWOMAN RIORDAN: Okay. Mr. Lagarias.

7 MR. LAGARIAS: Now, when you're saying 25 percent  
8 of the standard, you're not saying 25 percent above the  
9 standard, are you?

10 MR. ALBU: That's correct.

11 MS. EDGERTON: That's right, no.

12 MR. LAGARIAS: Well, I'm --

13 MS. EDGERTON: Just a point of information. I  
14 just wanted to ask Mr. Calhoun. Were you saying 15 percent  
15 over the standard, or 15 percent of the standard?

16 DR. BOSTON: He said over.

17 MS. EDGERTON: You meant over or of?

18 MR. CALHOUN: I said 15 percent over the standard.

19 CHAIRWOMAN RIORDAN: Over the standard.

20 MR. LAGARIAS: But I think I understood "of" the  
21 standard.

22 MR. CALHOUN: That's fine. I'm willing to accept  
23 that.

24 MR. LAGARIAS: So, our language says that 15  
25 percent "of" the standard would trigger the --

1 DR. BOSTON: Well, that's different, and I support  
2 that.

3 CHAIRWOMAN RIORDAN: All right. Let's be sure.

4 SUPERVISOR VAGIM: I think we need some  
5 clarification of "of" and "over."

6 CHAIRWOMAN RIORDAN: This is the most interesting  
7 discussion this Board has had in a long time in probably the  
8 hottest room that we've ever had at a hearing.

9 Normally, we're freezing here; now, it's finally  
10 air I think is coming out.

11 All right. Because I think it is important,  
12 because the Board is going to have to choose between these  
13 two motions ultimately -- or heaven forbid, another one.  
14 But it is important that Mr. Calhoun's definition be clearly  
15 understood. So, Mr. Calhoun, let me ask you to restate that  
16 so it's very clear to this Board what you meant.

17 MR. CALHOUN: Okay. I will restate that part of  
18 the motion pertaining to the comprehensive monitoring of  
19 the emission related to components.

20 My recommendation was that the Board approve the  
21 setting of a code at any measurable increase in emission;  
22 that the code be set, but that a light not be turned on.  
23 Okay.

24 And that whenever there's -- my original  
25 recommendation was a 15 percent increase above the FTP

1 standard that turned the light on.

2 But after listening to the various comments, I'm  
3 willing to change that, such that if there's an increase  
4 that's equivalent to 15 percent of the standard, that they  
5 turn the light on.

6 CHAIRWOMAN RIORDAN: Okay. Mr. Lagarias, is that  
7 acceptable to you? All right.

8 SUPERVISOR VAGIM: Okay. Madam Chair, I need a  
9 clarification on that.

10 15 percent over -- if there is an increase of 15  
11 of, now, does that mean you're taking the standard, taking  
12 15 percent of that and adding it on top?

13 MR. CALHOUN: Yes.

14 SUPERVISOR VAGIM: So, it becomes an over anyway--

15 MR. CALHOUN: Yes.

16 SUPERVISOR VAGIM: -- but not necessarily 15.

17 MR. LAGARIAS: No.

18 MR. CALHOUN: It wouldn't 15 over the standard.

19 CHAIRWOMAN RIORDAN: Now, wait. Now, say that  
20 again, Mr. Calhoun, so that we're real clear.

21 MR. CALHOUN: Okay. My recommendation was that we  
22 set a code and not turn the light on whenever there is a  
23 measurable increase in emissions.

24 SUPERVISOR VAGIM: Exceeding the standard.

25 MR. KENNY: No.

1 MR. CALHOUN: No.

2 SUPERVISOR VAGIM: At any time then?

3 MR. CALHOUN: Yes, at any time.

4 CHAIRWOMAN RIORDAN: All right.

5 SUPERVISOR VAGIM: But then the light comes on.

6 MR. CALHOUN: You turn the light on whenever there  
7 is a 15 percent increase in emissions, and this increase be  
8 based on the emission standard.

9 Someone else mentioned -- I think one of the auto  
10 manufacturers had this in his testimony, the precise  
11 language. But they had suggested 25 percent. We're talking  
12 about 15 percent.

13 CHAIRWOMAN RIORDAN: Okay.

14 SUPERVISOR VAGIM: Can I ask a question to try to  
15 get some clarification for myself?

16 CHAIRWOMAN RIORDAN: Sure.

17 SUPERVISOR VAGIM: Okay. Joe, when you say we  
18 have a threshold standard the system's going to be  
19 registered at, what you're saying is, when you exceed that  
20 by 15 percent, only then will the light come on, but the  
21 system itself will record that at that first exceedance.

22 MR. CALHOUN: Yes.

23 SUPERVISOR VAGIM: One person.

24 MR. CALHOUN: The code would be set.

25 SUPERVISOR VAGIM: Right. But what the attempt

1 here is to keep the light from flashing on at times --

2 MR. CALHOUN: False illumination.

3 SUPERVISOR VAGIM: False illuminations.

4 But the whole purpose and the thrust of your  
5 motion is to keep that light from arbitrarily coming on, and  
6 perhaps being arbitrarily turned off by the user of the  
7 automobile with tape or some other device, which actually  
8 fails the whole system by ignoring the light.

9 MR. CALHOUN: I think the main concern that I have  
10 that I indicated earlier, that we not have false lights.  
11 And it's possible that the light will come on at any  
12 measurable -- the way it was initially set, the light would  
13 come on at almost any measurement --

14 SUPERVISOR VAGIM: I understand that.

15 MR. CALHOUN: -- of emissions.

16 SUPERVISOR VAGIM: I understand that. But your  
17 thrust -- what I'm trying to get is your thrust of your  
18 motion that was a key system's integrity to the user --  
19 that's the driver -- that they -- when it comes on, it  
20 really means something, not just always coming on and then  
21 starting to be ignored.

22 MR. CALHOUN: That's correct. Right.

23 SUPERVISOR VAGIM: Thank you.

24 CHAIRWOMAN RIORDAN: All right.

25 MS. EDGERTON: Point of information?

1 CHAIRWOMAN RIORDAN: Yes, point of information.

2 MS. EDGERTON: Mr. Calhoun, I see here in the AAMA  
3 testimony on page 3, paragraph 1, 2, 3, a sentence which  
4 maybe is the one that you're referring to. I just want to  
5 check.

6 It says, "AAMA. . ." I'll wait for you get there.  
7 Page 3 of the AAMA testimony.

8 MR. CALHOUN: Yes.

9 MS. EDGERTON: (Reading) AAMA recommends that  
10 section (b)(10.1) be revised to apply only to electronic  
11 powertrain components that can cause exhaust emissions to  
12 increase by an amount greater than 25 percent of the  
13 applicable standard under FTP test cycle conditions only,  
14 essentially for that component. 25 percent It says an  
15 additive 25 percent. And you're saying --

16 Is that what you're talking about? So, it should  
17 be 15 percent instead of 25 percent overage for the  
18 particular component?

19 MR. LAGARIAS: Component or components, whatever.

20 MS. EDGERTON: Component or components.

21 MR. CROSS: Can I -- this is going to add more  
22 confusion, or should I wait?

23 MS. EDGERTON: It's a point of information.

24 SUPERVISOR VAGIM: He's reading it.

25 CHAIRWOMAN RIORDAN: Mr. Calhoun, do you mind if I

1 ask staff something while you look at that?

2 MR. CALHOUN: Go ahead.

3 CHAIRWOMAN RIORDAN: Okay. Staff?

4 MR. CROSS: Can I give a hypothetical example of  
5 what --

6 CHAIRWOMAN RIORDAN: Yes.

7 MR. CROSS: -- the issue is here?

8 CHAIRWOMAN RIORDAN: Yes, Mr. Cross.

9 MR. CROSS: If you had a car which was certified  
10 to a standard of 1, 15 percent would be .15, and in one  
11 case, if the car -- even though it was certified to the  
12 standard of 1 -- was running at say a half; in one case,  
13 what we're suggesting is that the light would be turned off  
14 at a half plus .15, which would be .65. In other words, a  
15 15 percent increase of the standard no matter where the car  
16 is.

17 And so, you just established an absolute minimum  
18 increase, if you will, that is acceptable.

19 In the other case, what's being suggested is that  
20 a level be established of 1.15, which is where the light  
21 gets turned on no matter where the car starts out. So, it's  
22 sort of saying, we don't care where the car starts out. But  
23 if it goes over 1.15, the light better be on.

24 And I think, in the staff's view, the 1.15 view of  
25 things is not stringent enough. It doesn't turn the light

1 on early enough to alert the consumer of some fairly major  
2 problems.

3 And so, we and GM's -- or not GM's, but the auto  
4 manufacturers' suggestion is also consistent with the 1,  
5 where we're saying, if it was at .15, it would go to -- I'm  
6 sorry. If it was a .5 (sic), it would go to .65. In other  
7 words, the more stringent version. Except they wanted .25  
8 percent increase rather than 15 percent.

9 SUPERVISOR VAGIM: In the of category. Could I  
10 ask one question of Mr. Cross on that particular point?

11 CHAIRWOMAN RIORDAN: Yes, on that particular  
12 point.

13 SUPERVISOR VAGIM: When you talk about this "of,"  
14 first of all, you said a 1 would be again, what, the  
15 standard, or --

16 MR. CROSS: Yes.

17 SUPERVISOR VAGIM: Okay.

18 MR. CROSS: The hypothetical standard.

19 SUPERVISOR VAGIM: Hypothetical standard. But  
20 when you said, .5 --

21 MR. CROSS: Cars don't typically run at the  
22 standard.

23 SUPERVISOR VAGIM: Right.

24 MR. CROSS: They always -- they run below.

25 SUPERVISOR VAGIM: Right.

1           MR. CROSS: Except when they break down. But for  
2 under certification conditions, they run below.

3           SUPERVISOR VAGIM: Right.

4           MR. CROSS: So --

5           SUPERVISOR VAGIM: So, you're going to have to set  
6 something in there that says that's where that "below" is  
7 going to be the benchmark, right?

8           MR. CROSS: Don't need to. In other words, we're  
9 saying that, if you use the standard as the yardstick and  
10 say 15 percent of that, then you've established how much it  
11 can increase from wherever it is.

12           SUPERVISOR VAGIM: Okay. But from wherever it is  
13 below the standard, if it's running below the standard? Is  
14 that what you're saying?

15           MR. CROSS: Right.

16           SUPERVISOR VAGIM: So, in other words, you'll be  
17 monitoring the so-called nominal run. And if that increases  
18 above the nominal 15 percent or, in this case, 25 percent is  
19 suggested, it's only one way of looking at it.

20           MR. CROSS: Yeah. You've established a  
21 hypothetical test where you can take a car that is running  
22 wherever it is, you take a good part off and put a bad part  
23 on, and measure the emissions increase. And if it's more  
24 than say 15 percent and the light isn't on, then OBD isn't  
25 working right.

1 SUPERVISOR VAGIM: Let me ask a followup. Your  
2 proposed regulation, though, doesn't turn a light on till  
3 you exceed the standard itself, for one.

4 MR. CROSS: That varies. For comprehensive  
5 component monitoring, it's supposed to turn the light on for  
6 any, quote, "measurable emissions increase," as --

7 SUPERVISOR VAGIM: Increase.

8 MR. CROSS: -- it exists now.

9 SUPERVISOR VAGIM: Okay.

10 MR. CROSS: And we're -- and I think what your --  
11 what AAMA was suggesting was to put some minimum definition  
12 on measurable, so that you don't end up having --

13 SUPERVISOR VAGIM: They build a 25 percent --

14 MR. CROSS: Right.

15 SUPERVISOR VAGIM: -- cushion in there, rather  
16 nominal.

17 MR. CROSS: We felt that seemed a little large,  
18 too. But it's kind of the Board's discretion.

19 SUPERVISOR VAGIM: You wouldn't have as much of a  
20 problem with that as you would with a 15 percent increase  
21 over the standard.

22 MR. CROSS: Absolutely. Nowhere near as much.

23 SUPERVISOR VAGIM: But that would build in a  
24 cushion for the system.

25 Would it also protect, let's say -- one of the

1 concerns is, if the device itself is not running at its  
2 optimum, but yet is still under the standard and is under,  
3 let's say, 25 percent, if it has a little glitch here and  
4 there, and it goes up above the nominal, the proposed  
5 regulation is to turn it on right now. If they have a 25  
6 percent cushion, that would protect that device itself from  
7 being a little off from time to time; is that correct?

8 I mean, the device may fail -- not absolute fail,  
9 but --

10 MR. CROSS: I think so.

11 SUPERVISOR VAGIM: -- intermittent failure.

12 MR. CROSS: Yeah, there's multiple checks before  
13 the light goes on, as Tom said, so you would --

14 SUPERVISOR VAGIM: Pardon me?

15 MR. CACKETTE: It's not the first time that it's  
16 detected. Built out throughout OBD, when a fault's  
17 detected, there's -- it has to be detected again and again,  
18 at least twice, before you turn the light on. So, there is  
19 that way of dealing with a glitch as you pointed out.

20 SUPERVISOR VAGIM: Right. But that is a --

21 MR. CACKETTE: That's inherent in the whole  
22 regulation.

23 SUPERVISOR VAGIM: The whole regulation. But  
24 they're asking for a 25 percent cushion on top of that,  
25 right?

1 MR. CACKETTE: Yes.

2 SUPERVISOR VAGIM: From any increase.

3 MR. CACKETTE: Right.

4 SUPERVISOR VAGIM: No matter if it happens once --

5 MR. CACKETTE: The two, GM or AAMA thing's at 25  
6 percent, and -- but whichever one that you pick, it still  
7 has to be detected at least twice before a light would come  
8 on.

9 SUPERVISOR VAGIM: Is that on any exceedance on  
10 any incident, or is that on an average?

11 MR. CACKETTE: It's on any monitored aspect, I  
12 think.

13 SUPERVISOR VAGIM: At a point in time, not on an  
14 average?

15 MR. CACKETTE: Yeah. So, it has to be verified  
16 before something happens to turn the light on.

17 CHAIRWOMAN RIORDAN: Okay.

18 SUPERVISOR VAGIM: But the peaking; it's a measure  
19 of peaking.

20 CHAIRWOMAN RIORDAN: Yes. Dr. Boston?

21 DR. BOSTON: Maybe you should take Mr. Calhoun's  
22 answer first.

23 CHAIRWOMAN RIORDAN: Mr. Calhoun.

24 MR. CALHOUN: The question Ms. Edgerton asked,  
25 yes, that is the precise sentence, except that they had

1 suggested 25 percent.

2 CHAIRWOMAN RIORDAN: And you are --

3 MR. CALHOUN: And I suggested 15 percent.

4 CHAIRWOMAN RIORDAN: -- at 15. Okay. All right.

5 Dr. Boston.

6 DR. BOSTON: A question of Mr. Cross.

7 If I had a total failure of an oxygen sensor in  
8 the exhaust system and the engine fuel system picked that up  
9 and ran the car very rich, wouldn't that destroy the  
10 catalytic converter if it was running very rich for a long  
11 period of time?

12 MR. CROSS: Yes, it would. But that doesn't  
13 happen anymore. In other words -- well, it would if you had  
14 an air pump.

15 DR. BOSTON: Well --

16 MR. CROSS: But the way that the cars currently  
17 run now, though, that wouldn't happen. In other words, the  
18 backup calibration is so good that it would stay very close  
19 to stoichiometric.

20 But eventually -- eventually, with the lack of  
21 input, it would cause it to drift. In other words, you --

22 DR. BOSTON: But it is possible to damage a  
23 \$15,000 catalytic converter unless you get that -- whatever  
24 it is fixed that goes wrong, isn't it?

25 MR. CROSS: In some cases, yes.

1 DR. BOSTON: Yeah.

2 MS. EDGERTON: Point of information?

3 CHAIRWOMAN RIORDAN: Yes. And I think this will  
4 be the last, because I'd like to move on.

5 MS. EDGERTON: With respect to my substitute  
6 motion, I moved -- I mean the differences are the  
7 components, and I'm moving staff's proposal. What is the  
8 difference, in your view, on staff proposal from Mr.  
9 Calhoun's motion on the comprehensive components monitoring?  
10 Mr. Calhoun's motion as revised.

11 MR. CROSS: In terms of tons per day?

12 MS. EDGERTON: No. Just in terms of -- in terms  
13 of the actual electronic power --

14 MR. CROSS: Yeah, it's fine.

15 MS. EDGERTON: Hmm?

16 MR. CROSS: I'm sorry.

17 CHAIRWOMAN RIORDAN: She's trying to get a  
18 comparison of the two particular motions here.

19 MS. EDGERTON: I'd just like to hear you say the  
20 difference between --

21 MR. CROSS: They're very --

22 MS. EDGERTON: -- Mr. Calhoun is --

23 MR. CROSS: They're very, very close actually. In  
24 other words, your measurables may be plus or minus 10  
25 percent. And so, 15 percent becomes measurable with some

1 sold margin, if you will.

2 MS. EDGERTON: Okay. What I'd like to do is --  
3 that's fine. I'll take the 15 percent from Mr. --

4 (Laughter.)

5 MS. EDGERTON: I'll take the 15 percent in my  
6 motion. I'll amend my motion to include the 15 percent.  
7 So, the only difference left --

8 CHAIRWOMAN RIORDAN: Well, you have to get the  
9 second.

10 MS. EDGERTON: Oh, do I have to get a second? Did  
11 you hear that?

12 DR. BOSTON: I will accept it.

13 MS. EDGERTON: All right. So now, my substitute  
14 motion has the phase-in change for the 30, 60, 100; it has  
15 the workshop resolution; it has this -- instead of saying  
16 measurable, it has section -- it has section (b)(10.1) would  
17 be revised to apply only to electronic powertrain components  
18 that can cause exhaust emissions to increase by an amount  
19 greater than 15 percent of the applicable standard under FTP  
20 test cycle conditions only.

21 And then the last piece that I still have in my  
22 substitute motion -- and I think maybe the only thing that's  
23 different between the two now -- is the matter of this --  
24 whether we want -- I mean my motion is to have the staff  
25 proposal, which would put the .02 in in 1998, as opposed to

1 2000, subject, of course, to the further input after the  
2 1996 workshop.

3 CHAIRWOMAN RIORDAN: Okay.

4 MS. EDGERTON: Thank you.

5 CHAIRWOMAN RIORDAN: Very good.

6 SUPERVISOR VAGIM: Madam Chair, there's still one  
7 point of clarification on the nominal versus the 15 percent.  
8 I want to make sure.

9 Is it in staff's mind -- and, Mr. Cross, because  
10 you're the one who had this dialogue here -- 15 percent; in  
11 other words, we're talking 15, not 25. Of 15 percent,  
12 computed based on the nominal and in addition, or 15 percent  
13 of the standard added to the nominal?

14 MR. CROSS: The threshold would become 15 percent  
15 of the standard added to the nominal.

16 SUPERVISOR VAGIM: Added to the nominal. Okay.  
17 We're all on that same track. Okay.

18 CHAIRWOMAN RIORDAN: Okay. Now, we're going to  
19 deal with the substitute motion first. And let me ask the  
20 Secretary to call roll. And my assumption is --

21 SUPERVISOR VAGIM: Can there be some discussion on  
22 the motions themselves, because I think just coldly --

23 CHAIRWOMAN RIORDAN: Supervisor Vagim, what have  
24 we been doing?

25 SUPERVISOR VAGIM: Well, yeah, but --

1 (Laughter.)

2 SUPERVISOR VAGIM: We've been defining what the  
3 heck the motion's are.

4 CHAIRWOMAN RIORDAN: Oh, you've been defining.  
5 Okay. We're going to move on to something new. Yes, a very  
6 limited discussion, because I really think we are moving it  
7 too far.

8 SUPERVISOR VAGIM: Because, I mean, if we're going  
9 to shoot, I don't want to shoot someone between the eyes  
10 without at least delivering a wrapper anyway.

11 (Laughter.)

12 SUPERVISOR VAGIM: And that is this. I think  
13 there are some fine points in this. And, Ms. Edgerton, I  
14 believe you're right on about the fact of the tons, but,  
15 remember, there's a difference between '98 and 2000. And  
16 the emission standards that you in Southern California need  
17 are 2010 issues. And by far, that'll be a 10-year-old car  
18 at the minimum, even with Mr. Calhoun's motion.

19 So, I think there's sufficient time to bring this  
20 in. So, that's why, with all due respect, I'm going to not  
21 support the amendment to the amendment.

22 CHAIRWOMAN RIORDAN: All right. Any other  
23 discussion?

24 All right. Let us call roll on first the  
25 substitute motion, please.

1 MR. LAGARIAS: Which one is that?  
2 CHAIRWOMAN RIORDAN: Well, that's --  
3 MS. EDGERTON: Mine.  
4 CHAIRWOMAN RIORDAN: That's hers.  
5 And, Madam Secretary?  
6 MS. HUTCHENS: Boston?  
7 DR. BOSTON: Yes.  
8 MS. HUTCHENS: Calhoun?  
9 MR. CALHOUN: No.  
10 MS. HUTCHENS: Edgerton?  
11 MS. EDGERTON: Yes.  
12 MS. HUTCHENS: Hilligoss?  
13 MAYOR HILLIGOSS: No.  
14 MS. HUTCHENS: Lagarias?  
15 MR. LAGARIAS: No.  
16 MS. HUTCHENS: Parnell?  
17 MR. PARNELL: No.  
18 MS. HUTCHENS: Riordan?  
19 CHAIRWOMAN RIORDAN: Aye.  
20 MS. HUTCHENS: Vagim?  
21 SUPERVISOR VAGIM: No.  
22 CHAIRWOMAN RIORDAN: Okay. The motion fails.  
23 SUPERVISOR VAGIM: Now, can we discuss real  
24 quickly the amendment -- the original amendment?  
25 CHAIRWOMAN RIORDAN: The original?>

1 SUPERVISOR VAGIM: Because that's what you're  
2 going to vote on next, right?

3 CHAIRWOMAN RIORDAN: No, there is no --

4 SUPERVISOR VAGIM: You made an amendment to the  
5 resolution, which is inclusive.

6 CHAIRWOMAN RIORDAN: Oh, Mr. Calhoun's motion  
7 includes some amendments, yes, but there's no amendment to  
8 the motion, because he accepted all of Mr. Lagarias'  
9 amendments.

10 SUPERVISOR VAGIM: It's an amendment to the  
11 written resolution.

12 CHAIRWOMAN RIORDAN: Yes.

13 SUPERVISOR VAGIM: I just want to stress that I  
14 agree with all the points. And the reason why I feel  
15 comfortable at this particular point -- and I want to stress  
16 this at this particular point -- and that is, that the  
17 equivalent methods of this tampering protection shall be  
18 considered by the Executive Officer.

19 I think -- I want to stress that we are a  
20 regulatory agency to clean up the air, not to be in the  
21 patent business. And I hope you folks in February will all  
22 entertain that.

23 So, thank you.

24 CHAIRWOMAN RIORDAN: Okay. Any other discussion?  
25 Madam Secretary, will you call roll, please?

1 MS. HUTCHENS: Is this for the Joe Calhoun motion?

2 CHAIRWOMAN RIORDAN: This is for Mr. Calhoun's  
3 motion. Mr. Lagarias seconded.

4 MS. HUTCHENS: Boston?

5 MR. KENNY: Excuse me, Madam Chair?

6 CHAIRWOMAN RIORDAN: Yes.

7 MR. KENNY: Isn't it for Mr. Calhoun's motion as  
8 it amends the resolution?

9 CHAIRWOMAN RIORDAN: Correct. Yes. Well, and it  
10 encompasses the resolution as well.

11 SUPERVISOR VAGIM: It's a direct amendment to the  
12 resolution.

13 CHAIRWOMAN RIORDAN: And the amendments are added  
14 to, so that they may indeed cause some changes to that  
15 original motion -- or resolution, pardon me. Okay?

16 Madam Secretary?

17 MS. HUTCHENS: Boston?

18 DR. BOSTON: No.

19 MS. HUTCHENS: Calhoun?

20 MR. CALHOUN: Yes.

21 MS. HUTCHENS: Edgerton?

22 MS. EDGERTON: No.

23 MS. HUTCHENS: Hilligoss?

24 MAYOR HILLIGOSS: Aye.

25 MS. HUTCHENS: Lagarias?

1 MR. LAGARIAS: Yes.

2 MS. HUTCHENS: Parnell?

3 MR. PARNELL: Yes.

4 MS. HUTCHENS: Riordan?

5 CHAIRWOMAN RIORDAN: Aye.

6 MS. HUTCHENS: Vagim?

7 SUPERVISOR VAGIM: Aye.

8 MS. HUTCHENS: Passes 6-2.

9 CHAIRWOMAN RIORDAN: Motion passes.

10 I wish to thank all of those of you who gave  
11 testimony today who are in the audience, who stayed with us  
12 through a rather difficult discussion, because this is such  
13 a technical issue.

14 I want to thank the staff, and thank the Board  
15 members, and let's take a ten-minute break. We deserve it,  
16 somehow.

17 (Thereupon a recess was taken.)

18 CHAIRWOMAN RIORDAN: I'll call the Board back to  
19 order. If you would like to testify on the next item,  
20 please sign up with our Board Secretary.

21 The next agenda item today is the 94-12-3. This  
22 is a public hearing to consider amendments to the fuel  
23 specifications for M100 fuel methanol.

24 Alternative fuels specifications for M100 fuel  
25 methanol were adopted by this Board in 1992. Included in