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BEFORE THE AIR RESOURCES BOARD

**COMMENTS OF
THE ALLIANCE OF AUTOMOBILE MANUFACTURERS (THE ALLIANCE)**

**NOTICE OF PUBLIC HEARING TO CONSIDER TECHNICAL STATUS AND
PROPOSED REVISIONS TO MALFUNCTION AND DIAGNOSTIC SYSTEM
REQUIREMENTS AND ASSOCIATED ENFORCEMENT PROVISIONS FOR
PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY VEHICLES AND
ENGINES (OBD) AND EMISSION WARRANTY REGULATIONS
(RELEASED AUGUST 11, 2006)**

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Before The Air Resources Board

Comments Of The Alliance Of Automobile Manufacturers (Alliance) on

NOTICE OF PUBLIC HEARING TO CONSIDER TECHNICAL STATUS AND PROPOSED REVISIONS TO MALFUNCTION AND DIAGNOSTIC SYSTEM REQUIREMENTS AND ASSOCIATED ENFORCEMENT PROVISIONS FOR PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY VEHICLES AND ENGINES (OBD) AND EMISSION WARRANTY REGULATIONS (RELEASED AUGUST 11, 2006)

I. Introduction and Background

The Alliance of Automobile Manufacturers (the "Alliance")¹ appreciates the opportunity to provide comments to the Air Resources Board concerning the proposed changes in the regulations relating to On-Board Diagnostic II (OBD) systems.²

By way of introduction, the Alliance and our members support OBD. Automobile manufacturers devote tremendous engineering resources developing, testing, validating, and certifying these systems. Automakers believe these systems accurately monitor the vehicle's emission control system, effectively alert the operator if a malfunction occurs, and efficiently provide repair technicians the information to swiftly and accurately diagnose and repair the vehicles. We have and do support many elements of the OBD regulations. However, we do not confuse the OBD system's ability to *monitor* emission components with the emission control system's ability to *reduce* emissions.

¹ The members of the Alliance of Automobile Manufacturers ("the Alliance") are BMW Group of North America, Inc., DaimlerChrysler Corporation, Ford Motor Company, General Motors Corporation, Mazda North American Operations, Mitsubishi Motor Sales of America, Inc., Porsche Cars North America, Inc., Toyota Motor North America, Inc., and Volkswagen of America, Inc.

² See Notice Of Public Hearing To Consider Technical Status And Proposed Revisions To Malfunction And Diagnostic System Requirements And Associated Enforcement Provisions For Passenger Cars, Light-Duty Trucks, And Medium-Duty Vehicles And Engines (OBD) And Emission Warranty Regulations Released August 11, 2006

In fact, the ARB routinely adopts emission standards and officially receives credit for these reductions on systems that have no monitors whatsoever. In the past several years, ARB has adopted standards for lawn mowers, powerboats, and motorcycles, to name just a few. In each case, ARB has requested full credit in the State Implementation Plan for the reductions associated with the new standards, and yet, *none* of these sources is equipped with *any* on-board diagnostic system and certainly none that monitors down to the levels required by today's automobiles.

In this spirit, the Alliance and our members have worked constructively with ARB staff over the past 18 months to refine the light-duty gasoline OBD regulations and build upon our past experience implementing the OBD systems. By and large, our work has been successful and many issues have been resolved. Addressing the few remaining issues would greatly strengthen the regulations, improve the OBD system, and reduce the burden on manufacturers implementing the systems. These issues and suggested changes are outlined in the detailed comments below.

Diesel vehicles offer unique and significant advantages over their gasoline counterparts, including inherently low evaporative emissions, improved fuel efficiency, and better low-end torque. In fact, because of these attributes diesel vehicles capture very significant market share in other countries and in other market segments. The only drawback to light-duty diesel vehicles has been their ability to meet the Low Emission Vehicle II (LEV II) emission standards and the more stringent Federal Tier 2 standards. However, it appears that light-duty diesel vehicles will be capable of meeting both the California LEV II and Federal Tier 2 standards in the near future.

Manufacturers developed today's very sophisticated gasoline OBD systems during nearly two decades of research, development, validation, testing, and certification. In contrast, diesel vehicles emission control technology is still evolving and the monitoring strategies for some of these technologies are still in their infancy. Before this year's OBD review, the California OBD regulations did not fully consider the differing emission control technologies and monitoring strategies of diesel-powered vehicles. In fact, ARB just adopted OBD regulations for heavy-duty diesel vehicles last year. After much engineering analysis and investigation, the Alliance proposed light- and medium-duty diesel OBD thresholds (attached) that we believe are technically feasible.

While the ARB staff did not adopt our recommendations, the Alliance appreciates ARB staff's recognition of the early stages of diesel OBD and our members are committed to working toward the proposed standards. However, a great deal of uncertainty remains as to whether these standards can be met across many manufacturers, many product lines, and many different engine sizes now and in the coming years. While manufacturers are committed to developing the systems and technologies in an attempt to meet the standards, there are a couple of very burdensome requirements in the proposed regulations that will distract manufacturers from improving either the emission control or OBD monitoring systems. Specifically, these are the in-use emission testing of 20 vehicles at two different periods in vehicle life and the requirement to develop infrequent regeneration adjustment factors (IRAFs) for each threshold monitor in the OBD system. Both of these are addressed in the more detailed comments below.

The recommendations offered in this response include alternatives that reduce burden on the automobile industry, maintain the integrity of the OBD program, and improve the regulations. To that end, we are willing to meet with ARB staff to discuss these comments should ARB find this helpful.

Finally, while these comments are primarily focused on light-duty vehicles (both gasoline and diesel powered), Alliance members also produce, certify, and sell a large portion of the medium-duty diesel vehicles in coordination with engine manufacturers represented by the Engine Manufacturers Association (EMA). To the extent that our comments do not address or overlap with issues covered by the Engine Manufacturers Association, the Alliance fully supports their comments and recommendations.

II. Detailed Comments –

A. Oxygen Sensor Monitoring – Detection of Asymmetric Malfunctions (e)(7.2.1)

ARB's Proposed Requirement

The OBD regulations require the OBD system to detect oxygen (O₂) sensor malfunctions in voltage, response rate, amplitude, or other characteristics that would cause the vehicle's emissions to exceed 1.5 times the applicable FTP standards. With respect to response rate deterioration or failure, the latest proposal requires that manufacturers detect six different failure

modes: lean-to-rich, rich-to-lean, and symmetric for both slope (the time required to transition from rich-to-lean or lean-to-rich) and delay (the time it takes the sensor to initially respond).

The current proposal requires manufacturers to demonstrate, using data or engineering judgment, proper detection of all symmetric and asymmetric malfunctions. This demonstration is phased in beginning with 25 percent of 2009 model year vehicles, 50 percent of 2010 model year vehicles, and 100 percent of 2011 model year vehicles.

Manufacturers' Issues

Manufacturers are concerned about demonstrating their OBD systems can detect the delayed response (both symmetric and asymmetric). While ARB staff believes that current algorithms employed by manufacturers will detect the delayed failure modes, manufacturers must still prove this is the case. This proof requires the development of test equipment and procedures. Moreover, if the manufacturer determines that their system cannot detect a delayed response, appropriate changes must be made and additional testing and validation must be performed to demonstrate the effectiveness of the changes. All of this additional testing and validation is only justified if the delay is a real-world problem; otherwise, the work solves an academic problem with no air quality benefit.

Manufacturers' Recommendation

As a first step, ARB staff should demonstrate that O2 sensor delayed detection is a real-world problem. If the requirement can be justified based on real-world data or if ARB chooses to go forward before a demonstrated need for the requirement, the Alliance recommends phasing in the requirement with 25 percent of 2011, 50 percent of 2012, and 100 percent of 2013 model year vehicles. This phase-in allows sufficient time for manufacturers to develop the necessary test equipment and procedures.

B. Cold Start Emission Reduction Strategy – (e)(11.2.2)(A) and (f)(12.2.1)

ARB's Proposed Requirement

The proposed regulation requires the OBD system to detect cold start emission reduction strategy malfunctions in two ways: 1) the OBD system must detect any single commanded element that

does not respond to the commanded action; 2) the OBD system must detect any failure or deterioration that would cause the vehicle's emissions to exceed 1.5 times the applicable FTP standard.

Manufacturer Issues

For the reasons outlined below, manufacturers oppose the requirement to light the MIL when the system is operating below 1.5 times the applicable FTP Standard (i.e., with the ARB proposal to detect "any single command element that does not respond to the commanded action."

First, it penalizes those manufacturers with a less sensitive emission control system that does not require significant changes during cold start. For example, the emission control system of one manufacturer may require a cold start idle boost of only 20-RPM, while another manufacturer's control system may require a 500-RPM boost. Clearly, the emission control system that needs only 20-RPM of boost is a less sensitive emission control system; however, detecting a 20-RPM change in idle speed is far more difficult than detecting a 500-RPM change. Moreover, detecting such a small incremental RPM change increases the likelihood of inducing a false MIL. Thus, rather than encouraging less sensitive emission control system design, this requirement penalizes the very behavior that ARB hopes to encourage.

ARB staff notes that the OBD regulations contain similar requirements to monitor components below the typical 1.5 times the applicable standard in the comprehensive component monitoring (CCM) section. The rationale behind these requirements is to aid the technician when repairing a vehicle. However, unlike comprehensive component monitoring (CCM) that detects a *component* malfunction to repair or replace, the cold start emission reduction strategies are just that – strategies; there is no component to repair or replace.

Manufacturers have supported requirements that provide for more rapid diagnosis and repair of vehicle emission control systems; however, this requirement would not result in more timely repair. In fact, this requirement could frustrate repair technicians. The malfunction indicator light (MIL) would be illuminated, the OBD system would report a fault in the cold-start emission reduction strategy, and an emission test would show the vehicle operating well within its

emission limits. Such conflicting results will undermine repair technician (and by extension public) confidence in the OBD system.

Finally, ARB staff notes that without the requirement vehicles could operate at a level above the standard. However, cold start emission reduction strategies would still be monitored to 1.5 times the standard under section (e)(11.2.2)(B) or (f)(12.2.2) and any failure or deterioration in the cold start emission control strategy that resulted in emission exceeding 1.5 times the standard would light the MIL. It would, in fact, be monitored like every other threshold monitor. There is no justification for holding cold start emission reduction strategies to a more stringent threshold than catalyst, EGR, O2 sensors, etc. The emission standards are extraordinarily low and setting malfunction thresholds at 1.5 times the standard ensures that the vehicles' emission control system is operating at its optimal level. Additional monitoring below the 1.5 times threshold is not only unnecessary but can be counter-productive if it leads to false MILs, faults that technicians cannot readily repair, or conflicts in the OBD system and vehicle emission testing.

Manufacturers' Recommendation

The Alliance recommends deleting sections (e)(11.2.2)(A) and (f)(12.2.1), which requires the OBD system to detect any single commanded element that does not respond to the commanded action, and maintaining sections (e)(11.2.2)(B) and (f)(12.2.2), which requires the OBD system to detect any failure or deterioration that would cause the vehicle's emissions to exceed 1.5 times the applicable FTP standard. The latter requirement does not penalize manufacturers with a robust emission control system and yet ensures that the vehicle's emission control system is operating properly.

C. CVN and CAL-ID - (g)(4.7.4)

ARB's Proposed Requirement

The current regulation requires manufacturers to make CVN and CAL-ID information available in a "standardized electronic format" for 2005 and later model year vehicles. This requirement has been in the regulation for some time to assist Inspection and Maintenance (I&M) programs. However, ARB staff just issued the "standardized electronic format" in draft form on September 8, 2006.

Manufacturers' Issues

Manufacturers have three basic issues with the proposed requirement: 1) Automobile manufacturers issue thousands of CVNs and CAL-IDs each year. Consequently, complying with this requirement and populating the electronic databases in a meaningful way will require significant resources. Moreover, manufacturers are concerned that the extraordinary amount of data in the database will result in vehicles failing I&M if a single data point is corrupt (for example, due to data errors, out-of-date data, or hacking into the database). 2) The requirement to populate the databases with legacy information back to 2005 model year vehicles adds unnecessary burden of this requirement and to the possibility of corrupt data. 3) Manufacturers have not had adequate time to review the proposed standardized format and provide comments and suggestions to ARB staff that will ensure that data is useful for I&M testing.

Manufacturers' Recommendation

The Alliance recommends three steps. First, ARB staff should work with I&M stations, EPA, and manufacturers to develop a robust "standardized electronic data format" that provides the most useful information to I&M stations, does so with the least amount of burden on manufacturers, and reduces the likelihood of data corruption. This step should not be trivialized. The "standardized electronic data format" will be the backbone of a vast database that will house millions of constantly changing data points that directly interface with consumers already distrustful of I&M programs.

Second, once the "standardized electronic format" is finalized, manufacturers should begin populating the database with information for the next model year provided the next model year begins at least six months after ARB finalizes the "standardized electronic format." For example, if ARB finalizes the format by March 2007, manufacturers would begin populating the database with 2008 model year vehicle information.

Third, ARB should develop and conduct a pilot program to test the stability and usefulness of this system. Again, it's worth noting that this program will interact with consumers across the country who are already distrustful of I&M programs. A system might be used to fail vehicles should be thoroughly tested before it is released for wide-spread implementation. This is a

reasonable stepwise approach that should minimize potential confusion and inaccuracies and result in useful information.

D. In-Use Performance Ratio for New Monitors – (d)(3.2.1)(D)

ARB's Proposed Requirement

For introductory years, the OBD regulations allow manufacturers to meet a reduced in-use ratio (that is, the monitor does not have to run as frequently) for the first three years. This provision provides manufacturers time to gain experience with a performance ratio monitor before facing potential enforcement action.

Manufacturers' Issues

In some cases, manufacturers implement entirely different monitoring strategies that improve the ability of the OBD system to detect malfunctions. For example, a manufacturer may use an vacuum pump evaporative monitor for several years, but decide that an engine-off monitor will provide more robust detection of small evaporative leaks. Even though the manufacturer is attempting to improve the diagnostic capability of the OBD system, the improved system would place that manufacturer at a greater risk of non-compliance with the in-use performance ratio than continuing to use a less effective system.

Manufacturers' Recommendation

The Alliance recommends revising the regulation to allow the Executive Officer to grant an in-use performance ratio at 0.1 for the first three years that a manufacturer implements a new diagnostic that they have not implemented on any other vehicle, provided the monitor is designed for the final ratio. This could be limited to cases where the Executive Officer agrees that the new monitoring strategy is sufficiently more robust to warrant the additional flexibility.

E. Air-Fuel Ratio Cylinder Imbalance – (d)(6.2.1)(C)

ARB's Proposed Requirement

Beginning with the 2011 model year, ARB requires the OBD system to detect an air-fuel ratio cylinder imbalance (e.g., air-fuel ratio in one cylinder is different than the other cylinders) if the system is unable to maintain emissions below 3.0 times the FTP standard for 2011 through 2013 model years and 1.5 times the applicable FTP standard for 2014 and later model years.

Manufacturers' Issues

The regulation does not allow a higher threshold for the Super Ultra Low Emission Vehicles (SULEVs). SULEVs meet much lower emission standards than LEVs and ULEVs, and to prevent false MILs the regulation allow higher thresholds for SULEVs throughout (typically 2.5 times the FTP standard).

Manufacturers' Recommendation

For SULEVs, the Alliance recommends ARB adopt malfunction thresholds of 5.0 times the FTP standard for 2011 through 2013 model years (with the same provision for carry over to the 2014 model year), and 2.5 times the FTP standard for 2014 model year and beyond.

F. In-Use Testing for light-duty diesel vehicles (d)(6.3)

ARB's Proposed Requirement

The proposed regulations require manufacturers to conduct in-use emission testing of 10 vehicles with 30,000 to 40,000 miles and another 10 vehicles at 90,000 to 100,000 miles. This requirement applies to EVERY engine family certified in EVERY model year.

Manufacturers' Issues

1. Unnecessarily Burdensome: The testing is excessively burdensome, to put this in perspective, manufacturers typically conduct confirmatory testing on only three vehicles. Thus, from a testing standpoint alone, this is a six- to seven-fold increase that will strain the testing facilities needed for certification, calibration, and development testing. All of the latter testing actually improves the vehicle emission control systems or OBD monitoring systems potentially leading to

real environmental benefits. In contrast, the additional testing proposed provides absolutely no environmental benefits.

2. Unprecedented: The OBD regulations have always been technology forcing and many times with gasoline or with alternative fueled vehicles, the regulations allowed higher thresholds to accommodate the technological needs and allow manufacturers to gain experience with monitoring technology and strategies. At no time did ARB require emission tests unrelated to the OBD systems.

3. Unnecessarily Redundant: Putting aside the testing resources for the moment, procuring 10 qualified vehicles late in life is difficult, time consuming, expensive, and inconvenient for the customers particularly on low volume vehicle lines. Moreover, the proposal requires testing of at least 20 vehicles regardless of the test results from the first vehicles. For example, if emission tests from three vehicles (or five vehicles or eight vehicles) demonstrate the vehicles in that mileage category are well below the standard, additional tests must still be performed until 10 vehicles have been tested in that mileage group. Such redundant testing is unnecessary, costly, and unjustified from an air quality standpoint.

Vehicles sold in California will fully comply with the emission requirements, the durability requirements, and the OBD requirements for the full useful life of the vehicles. Conducting emission tests on 20 vehicles for every engine family in every model year dramatically increases the testing, is entirely unnecessary, and should be eliminated or significantly scaled back. The resources spent on this testing would be far better used developing new emission control strategies or more robust monitoring strategies.

Manufacturers' Recommendation

The Alliance recommends ARB eliminate the additional testing requirements beyond 2009. Beginning with the 2010 model year, the thresholds for light-duty diesel and gasoline vehicles are closely aligned and additional testing is unnecessary.

G. Infrequent Regeneration Adjustment Factors (IRAFs) – (d)(6.2)

ARB's Proposed Requirement

Some diesel vehicle emission controls (notably, particulate matter (PM) filter and NO_x adsorber) automatically regenerate at infrequent intervals to ensure the component maintains its effectiveness over the life of the vehicle without operator interaction. Vehicle emissions typically increase during this regeneration event.

Manufacturers measure the emissions with and without regeneration and then calculate an adjustment factor based on how frequently the regeneration occurs. Subsequently, when the vehicle is tested and no regeneration event occurs, calculated emissions are adjusted upward by a factor known as the upward adjustment factor or UAF. Conversely, when emissions are tested and a regeneration event occurs, calculated emissions are adjusted downward by a factor known as the downward adjustment factor or DAF.

The proposed OBD regulations require manufacturers to adjust the malfunction thresholds using the emission certification adjustment factors for 2007 through 2009 model years, develop a unique OBD infrequent regeneration adjustment factor (IRAF) for NMHC catalyst in 2008 model year and beyond, and develop all new IRAFs for all threshold monitors for 2010 model year and beyond.

Manufacturers' Issues

1. OBD Threshold Feasibility: The OBD thresholds were developed without consideration of IRAFs. Despite numerous meetings and the November 2005 workshop, the topic of adjusting OBD thresholds based on infrequent regeneration events was not highlighted or discussed. Until recently, manufacturers assumed that the OBD thresholds were baseline thresholds unadjusted for regeneration events. Manufacturers and ARB staff agree that including IRAFs does increase the stringency of the OBD thresholds. However, as noted earlier, the feasibility of the OBD thresholds are already questionable and increasing the stringency using IRAFs could tip the scale of feasibility for diesel vehicles and engines.

2. Workload: The amount of resources devoted to developing, validating, certifying, and testing OBD systems is already out of proportion to the benefit. In fact, automobile manufacturers now frequently devote more resources to *monitoring* emissions than they do to *reducing* emissions. The IRAF requirement dramatically increases the already overwhelming workload involved with OBD system development and certification. This provision requires the manufacturer to:

- Develop a threshold component (one that causes the emissions to just exceed the baseline threshold). (This is current practice for OBD development.)
- Determine emissions with and without a regeneration event, with the threshold component installed.
- Determine if the frequency of regeneration is affected and, if so, by how much.
- Calculate DAF and UAF using the results from the preceding three tests.
- Using the UAF and DAF, develop a “new threshold component” (one that caused emissions to just exceed the threshold using the newly established DAF and UAF).
- Calibrate the OBD system to detect the “new threshold component.”

Several items are worth noting. First, determining emissions during a regeneration event will require several tests, since by definition “infrequent” regeneration does not occur during every test cycle. Second, the entire process must be repeated for each regeneration component (e.g., for the PM filter and again for the NO_x adsorber). Third, the entire process (including both tests for both regeneration components) must be repeated for each of the 13+ threshold monitors required. Even if manufacturers use engineering analysis to eliminate some of this testing, the significant increase in workload is indisputable.

3. Benefit: ARB has not established a benefit for this proposal. In light of the substantial increase in development, testing, calibration, and certification resources to meet the requirement, it would seem appropriate for ARB to determine the benefit associated with this new requirement. However, the Initial Statement of Reasons is completely silent on the benefit or even the potential benefit of this provision.

A simple review of possible failures would reveal the benefit of this provision is limited to situations where a failed component causes substantial emission increases only during regeneration but does not cause emissions to exceed the malfunction threshold when regeneration is not occurring. Given that most component failures cause emission increases regardless of regeneration activity and the LEV II emission standards are extraordinarily low, a reasonable review would suggest that the benefits of this provision are very low and probably entirely insignificant.

Manufacturers' Recommendation

Given the short time to review the impact of the IRAF provision on OBD feasibility, the likely small benefit, the extraordinary workload impact, the Alliance recommends ARB delete this requirement for the 2007 through 2009 model year vehicles. Between now and the next biennial review, ARB should work with industry and EPA to quantify the benefits and, if justified based on the benefits, develop regulations that can provide those benefits in a manner that minimizes the burden on industry and provides more certainty in the testing.

H. Catalyst NOx Monitoring – (e)(1.2.5)

ARB's Proposed Requirement

The Initial Statement of Reasons (ISOR) indicates that the OBD regulation has been revised to “allow the higher interim threshold of 3.5 times the NOx standard to be used for an additional two model years (i.e., 2007 and 2008 model years) and to allow carry-over of those calibrations until the 2010 model year. This additional phase-in time should allow all manufacturers to make any further changes needed to comply with the final threshold of 1.75 times the NOx standard in the 2009 and 2010 model years.” (see ISOR, pages 16-17)

Allowing manufacturers to carry over their NOx catalyst monitoring strategies to the 2009 and 2010 model years provides time to develop more robust monitoring strategies without the need to waste resources redesigning an existing monitor during the middle of a product cycle. The Alliance appreciates ARB's recognition of the need for the additional time and the need to stagger introduction of new monitors.

Manufacturers' Issues

There appears to be a typographical error in the actual regulatory text. Section (e)(1.2.5) only allows carry over through the 2009 model year.

Manufacturers' Recommendation

Revise section (e)(1.2.5) to allow carry over through the 2010 model year.

I. Emission Increasing Auxiliary Emission Control Device (EI-AECD) – (g)(6.2)

ARB's Proposed Requirement

AECDs are strategies that alter the way an engine or its emission control system works when specific conditions are met in order to protect the vehicle, engine, or other emission control components from damage. The proposed amendments would require the OBD II system to keep track of how often a subset of "auxiliary emission control devices" ("AECDs") are activated. Specifically, the regulations would require manufacturers to track AECDs that: (a) are justified by the manufacturer as necessary to avoid vehicle, engine, or emission control component damage; and (b) reduce the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered during normal vehicle operation and use (hereinafter, "emission-increasing AECDs" or "EI-AECDs"). An AECD that does not sense, measure, or calculate any parameter or command or trigger any action, algorithm, or alternate strategy will not be considered an EI-AECD.

Manufacturers' Issues

The proposed OBD II requirements for EI-AECDs will require substantial engineering resources that will not yield any environmental benefit. In fact, the Staff report does not attempt to calculate a benefit from these requirements. Rather staff anticipates using this information to "support modifications to future model year applications and better ensure equity among all manufacturers." Thus, this requirement is, in fact, completely unrelated to the OBD system (i.e., monitoring the vehicle emission system).

With respect to the engineering resources required. Manufacturers of diesel engines will need to develop software to individually track and report in a standardized format the total engine run time during the time period that each separate EI-AECD is active (e.g., total run time with EI-AECD #1 active, total run time with EI-AECD #2 active, and so on up to total run time with EI-AECD #n active). In addition, for any EI-AECDs that have variable actions or degrees of action, those EI-AECDs will need to be tracked with two separate counters. The first of the two counters is required to be incremented whenever the EI-AECD is commanding some amount of reduced emission control effectiveness up to but not including 75% of the maximum reduced emission control effectiveness that the EI-AECD is capable of commanding during in-use vehicle or engine operation. The second of the two counters is required to be incremented whenever the EI-AECD is commanding 75% or more of the maximum reduced emission control effectiveness that the EI-AECD is capable of commanding during in-use vehicle or engine operation.

Manufacturers' Recommendation

The Alliance recommends deleting this requirement since it provides no environmental benefit, is unrelated to the OBD system, and is a substantial burden on manufacturers.

J. Section 1968.5, Enforcement, Mandatory Recall – (b)(6)(C)(ii) & (c)(3)(vi)

ARB's Proposed Requirement

Section 1968.5, (b)(6)(C)(ii) was revised to include all of the possible communication failures that would prevent an I&M station from obtaining a valid test result. This dramatically increases the number of failures that fall into the "Mandatory Recall" under Section 1968.5, (c)(3)(vi). (This latter section was revised to reference section 1968.5 (b)(6)(C)(ii).)

Manufacturers' Issues

The Alliance does not agree that very costly mandatory recalls are appropriate for communication system failures. Nonetheless, the issue raised in this comment is the retroactive nature of the requirement. As written Section 1968.5, (c)(3)(vi) appears to apply to vehicles produced before these regulations are adopted. Such retroactive requirements are inappropriate.

Manufacturers' Recommendation

Revise Section 1968.5, (c)(3)(vi) to apply to 2009 model year vehicles and later.

K. Biennial Review

As noted above, automobile manufacturers routinely spend more engineering resources on the OBD system than on the emission control system. The OBD regulations are by all means and measure the most technologically forcing regulations that ARB adopts and result in extraordinarily complex OBD systems on vehicles. Because of this complexity, ARB long ago implemented a biennial review of the regulations to review manufacturers progress meeting the requirements.

At no point in the history of OBD have the requirements changed so dramatically so quickly as they do for light-duty diesel vehicles over the next six years. The proposed regulations apply to 2007 model year vehicles even though 2008 model year vehicles will be available long before California finalizes these regulations. Just two model years later, in 2010, the standards drop dramatically. And three years after that, the standards take another dramatic dip to merge with light-duty gasoline vehicle requirements. Throughout the next six years, manufacturers will devote tremendous resources to developing new and better monitoring strategies and technologies. Some will succeed and some will undoubtedly fail.

In the past, the OBD biennial reviews have languished as ARB turned its attention to other matters. However, in the next few years, timely biennial reviews are absolutely essential to the success of the OBD program. Moreover, the biennial reviews should be just that – an honest assessment of the technology and costs of the existing requirements compared against the assumptions made in adopting the regulations. They should not be, as they have in each of the past biennial reviews, an opportunity to add additional monitors, new requirements, and more stringent thresholds.