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May 2, 2006

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The Honorable Shirley Horton
Assemblywoman, Seventy-Eighth District
PO Box 942849
Sacramento, California 94249-0078

Dear Assemblywoman Horton:

I am writing in response to your request dated January 4, 2006, regarding the air quality benefits associated with directing vehicles to Test-Only stations. In the intervening time since we received your letter, the Inspection and Maintenance Review Committee's (IMRC) Executive Officer, Rocky Carlisle, has discussed the issues raised in your letter several times with your staff to better understand your questions in order to prepare the best possible response. We appreciate the time and assistance your staff has provided and your patience during the time it has taken for us to research your questions.

My response represents the IMRC's current best understanding of the issues raised in your letter. In addition to meetings with the staff of the Bureau of Automotive Repair (BAR) and the Air Resources Board (ARB), we have relied upon the following documents to prepare this response and have included pertinent portions of them as attachments.

- The 1994 State Implementation Plan (SIP) dated December 1995, and the 2003 revision;
- The ARB Evaluation of California's Enhanced Vehicle Inspection and Maintenance Program, dated July 12, 2000;
- The BAR fact sheet entitled *"Test-Only Directed Vehicles"* dated 2003; and,
- The SIP update letter to U.S. EPA from ARB dated August 17, 2000.

Your questions raise some complicated issues which require some historical background to understand.

BACKGROUND

In 1994, the California Environmental Protection Agency (CalEPA) and the U.S. Environmental Protection Agency (U.S. EPA) negotiated changes to California's existing Smog Check program to ensure compliance with the Federal Clean Air Act of 1990.

Initially, the U.S. EPA established a performance standard for Smog Check programs that required California to implement a program where initial and post-repair inspections were performed at Test-Only stations. The U.S. EPA had concluded that such a program would be more effective in identifying failing vehicles and better ensure adequate repairs for failed vehicles. California's program had no Test-Only stations at that time.

After protracted negotiations, both CalEPA and U.S. EPA agreed to a hybrid program relying upon both Test-Only and Test and Repair stations to perform initial Smog Check inspections. The agreement required establishing a sufficient number of Test-Only stations to perform Smog Check inspections on vehicles most likely to fail the initial inspection and for retesting vehicles that previously failed. The remaining vehicles could continue to receive inspections at Test and Repair stations. The percentage of vehicles to be directed to Test-Only stations was established at 15 percent with provisions to allow increases if emission-reduction performance failed to meet the U.S. EPA performance standards.

As compared to U.S. EPA's proposal to create a network of contracted Test-Only stations, this hybrid approach allowed less disruption of the existing Test and Repair based program. The premise of the compromise was that the hybrid approach could achieve the same emission reductions as the U.S. EPA proposed approach for two reasons: First, those vehicles most likely to fail the Smog Check inspection would receive initial inspections at Test-Only stations. The percentage of "most likely to fail" vehicles was determined by modeling and found to be approximately 36 percent of the fleet needed to achieve the SIP commitment. Second, other features of California's hybrid program exceeded U.S. EPA's minimum program proposals.

The legislation passed to implement this agreement required BAR to establish a Test-Only station network that had the initial capacity to inspect 15 percent of the vehicle fleet subject to Smog Check. The law also provided for the number of Test-Only stations to be expanded as needed to meet the emission-reduction performance standards set forth by the U.S. EPA.

In order to develop the number of Test-Only stations, BAR began promoting the Test-Only licensing concept to the Smog Check industry in early 1997 and soon started directing vehicles to Test-Only stations in areas that had sufficient Test-Only capacity. By the end of 1998, BAR achieved the goal of directing 15 percent of vehicles subject to the program in enhanced areas of the state to Test-Only stations; however, only about 12 percent ended up actually being tested. The difference between the number of vehicles directed to Test-Only stations versus the number of vehicles receiving a test were identified as "no show" vehicles. These "no show" vehicles never appeared at a Test-Only station due in part to transfers in vehicle ownership, vehicles being sold out of state, vehicles being junked, and vehicles placed in a nonoperational status.

In 2000, BAR and ARB determined that the program was not achieving the emission-reduction goals committed to in the SIP. This shortfall resulted in a SIP update that was agreed to by both CalEPA and the U.S. EPA to increase the emission reductions of the program. In a letter addressed to U.S. EPA dated August 17, 2000 (copy attached), both ARB and BAR agreed to a number of program improvements. One of those improvements was to increase the percentage of directed vehicles to Test-Only stations from 15 percent to 36 percent, the same figure used in the 1994 SIP (refer to attachment #1) as needed to achieve emission-reduction performance standards set forth by the U.S. EPA.

The Bureau of Automotive Repair implemented that change according to the following schedule:

- October 1, 2001 – 25 percent
- February 2002 – 30 percent
- August 2002 – 36 percent

In 2005, the statewide vehicle fleet subject to the Smog Check program totaled approximately 23 million vehicles. Based on the ARB/BAR report entitled *April 2004 Evaluation of the California Enhanced Vehicle Inspection and Maintenance (Smog Check) Program*, 87 percent (20 million vehicles) of the vehicle fleet is subject to the enhanced area Smog Check program.

STATE IMPLEMENTATION PLAN (SIP)

It is important to understand the role of the SIP and its impact on the Smog Check program in order to have a proper context to answer your questions. The SIP is California's commitment under the Federal Clean Air Act to implement measures in order to meet federal air quality standards. The SIP is enforceable in federal court. The Code of Federal Regulations Title 40, Chapter I, Part 52, Subpart F, Section 52.220, lists all of the items which are included in the California SIP. The SIP is not a single document, but rather a compilation of new and previously approved plans, programs, local air district rules, state regulations, and federal controls. Therefore, the revised 2003 SIP does not actually supplant the 1994 SIP, but rather serves to build upon the 1994 SIP to enhance and improve California's emission-reduction strategies for future years. The ARB and air districts are now engaged in preparing the new ozone SIP to show how they will comply with new federal standards for the "eight hour average" standard of ozone pollution. This plan must be submitted to U.S. EPA by June 15, 2007. The Smog Check program is expected to continue to provide a significant portion of required emission reductions.

With this information as background, I'll now respond as directly as possible to the questions raised in your letter. From your letter and our Executive Officer's conversations with your staff, we have identified eight questions that require individual answers. I've summarized your questions in italics at the beginning of each of the following sections:

1. *According to law, how many vehicles is the BAR required to direct to Test-Only stations?*

State law requires that California have the capacity to test at least 15 percent of the vehicle fleet, registered in enhanced areas of the state, at Test-Only stations. However, it also states that the capacity shall be increased to ensure attainment of the emission-reduction performance standard set forth by the U.S. EPA. The SIP identifies up to 36 percent as that fraction of the fleet that needs to be tested at Test-Only to achieve the emission-reduction goals (refer to attachment #1). State law identifies the fleet as "the total state vehicle fleet consisting of vehicles subject to inspection each year in the biennial program and that are registered in the enhanced program area." [Sections 44010.5(a) and (b)(1) of the Health and Safety Code].

A key question left unanswered is: "What vehicles are subject to the Smog Check program today?" How this question is answered may impact the number of vehicles that must be directed to Test-Only stations. Suffice it to say at this juncture that ARB and BAR have interpreted the statutes as requiring inclusion of all 1976 and newer gasoline-powered vehicles in defining the fleet. This includes those vehicles exempted from actual inspections (e.g. vehicles less than six years old). This results in a proportionally larger number of vehicles being directed to Test-Only stations than would be directed compared to 36 percent of the number of vehicles that that are actually due for a Smog Check inspection. In reality, the percentage of vehicles currently being directed to Test-Only stations equals 48 percent of those due for a Smog Check inspection.

Although there are policy questions associated with this issue, disagreements regarding the current approach of the agencies must be resolved in the context of the current statutory construction and the SIP. Therefore, you might want to consult with the Office of the Legislative Counsel or the Attorney General for their opinions on this matter.

2. *Why did the Air Resources Board indicate that the State had committed to direct two million vehicles per year to Test-Only stations?*

The number cited by ARB was correct at the time because it did not include the Bay Area vehicle population. The ARB gave a presentation to the IMRC on March 21, 2005, regarding California's Smog Check program requirements. During that presentation, ARB indicated that California was required to "test" two million vehicles (based on the 36 percent figure in the SIP) at Test-Only stations. To achieve the target of two million Test-Only inspections, the Department of Motor Vehicles sent notices to 2.6 million vehicle owners. As previously mentioned, the higher number of notices was needed to compensate for the number of "no shows".

However, the two million-vehicle figure cited by ARB did not include vehicles in the Bay Area since the Bay Area had just become subject to the enhanced Smog Check testing requirements by the Legislature pursuant to the provisions of AB2637, stats. 2002, chap. 1001. Consequently, when the Bay Area vehicle population was added, the total number of vehicles directed to Test-Only stations increased to approximately 3.4 million per year.

3. *What are the emission-reduction benefits the state receives by directing vehicles to Test-Only stations?*

The California Air Resources Board quantifies emission benefits of Smog Check. The only report that quantifies emission reductions for vehicles directed to Test-Only stations is the July 12, 2000 ARB *Evaluation of California's Enhanced Inspection and Maintenance Program*, p. VI-8, Table VI-5 (refer to attachment #2). In the South Coast Air Basin, this report indicates that by increasing the number of vehicles directed to Test-Only stations from 15 percent to 36 percent, the reduction of hydrocarbon emissions (HC) improves by 0.8 tons per day (tpd) and the reduction of oxides of nitrogen (NOx) improves by 2.5 tpd by 2005. This represents a two percent increase in HC reductions and a 14 percent increase in NOx reductions towards the SIP commitment of 32.9 tpd of HC and 18 tpd of NOx in the South Coast Air Basin (refer to attachment #3).

4. *How many vehicles are required to be directed to Test-Only to comply with the State Implementation Plan (SIP)?*

The 1994 SIP required that a minimum of 15 percent (750,000 vehicles annually) be tested at Test-Only stations. The SIP further states that the number of directed vehicles should be adjusted in order to meet the desired emission-reduction performance standards set forth by the U.S. EPA. The 2003 SIP revision states that the increase from 15 percent to 36 percent was one of the improvements being made to augment Smog Check performance. The SIP does not limit the percentage of vehicles directed to Test-Only stations, but rather declares that the state may need to adjust the actual number of vehicles required for Test-Only to achieve sufficient emission reductions committed to in the SIP. Although the SIP states that motorists voluntarily choosing to go to a Test-Only station would be included in the percentage of vehicles directed to Test-Only, the volunteers are not counted at this time. Only vehicles directed from the High Emitter Profile (HEP) and random selection are currently counted in the 36 percent. This issue has been a source of controversy between Test-Only station owners and Test and Repair station owners since the percentage of directed vehicles was increased to 36 percent.

5. *Within the context of the SIP, is California required to direct vehicles using a High Emitter Profile model to Test-Only stations?*

The SIP does not specify the sole use of the HEP for vehicles directed to Test-Only stations. The 1994 SIP states in pertinent part:

> *"The vehicles required to go to test-only stations for initial tests will consist of: 2 percent random sample, high mileage fleet vehicles, vehicles for hire, annual test for 2-5 years for vehicles previously identified as high emitters, likely high emitters identified through remote sensing and test and repair stations, and motorists voluntarily choosing to go to test-only stations. The remainder of the capacity will be used as necessary to meet the performance standard through likely high-emitters identified with the high-emitter profile (HEP)."*

State law requires a Test-Only station network with the capacity to test enough vehicles to achieve the emission-reduction performance standards set forth by the U.S. EPA. The vehicles directed to Test-Only stations should be those vehicles most likely to fail the Smog Check inspection, and computer modeling established that number to be 36 percent. The HEP was designed to select those vehicles most likely to fail and those vehicles are directed to Test-Only stations. [It should be noted that the annual test for 2-5 years for vehicles previously identified as high emitters referenced in the 1994 SIP was eliminated by legislation in 1997 (AB1492, stats. 1997, chap. 803).]

Currently, BAR directs 34 percent of the vehicles to Test-Only stations based on the HEP while the remaining two percent are selected at random. The BAR explains the methodology used to direct vehicles to Test-Only stations in a fact sheet entitled "Test-Only Directed Vehicles". The following is a quote from that fact sheet:

> *"The majority of vehicles directed to Test-Only stations are selected by application of the High Emitter Profile (HEP) which identifies the vehicles most likely to fail their Smog Checks. The High Emitter Profile (HEP) uses data from several different sources. Some of it comes from the state Vehicle Identification Database (VID), which collects data from each Smog Check performed in California. The VID is used by the Department of Motor Vehicles (DMV), BAR, and other government agencies. In addition, general vehicle data such as make, model-year, vehicle miles traveled, and engine size help define the HEP."* (Refer to attachment #4)

Under the heading of "Two Percent Randomly Selected", the same fact sheet states the following:

> *"As required by State law, two percent of the vehicles in the Enhanced Areas are also directed to Test-Only stations for their Smog Checks. These vehicles are selected randomly to evaluate the overall effectiveness of the Smog Check Program."*

6. *If the answer to question 5 is "yes", then what portion of directed vehicles would be categorized as "high emitters"?*

Although many documents refer to high emitters, the term "high emitter" is not defined in statute or regulation. A more accurate term would be "potential high emitter" as a result of the vehicle being ranked high on the HEP. The HEP applies a methodology to rank all vehicles each month that are coming due for the biennial Smog Check inspection. By ranking, it assigns a probability of failure to each vehicle based on the likelihood of that vehicle failing the inspection. The BAR uses the HEP to select the vehicles more likely to fail Smog Check than other vehicles and these probable higher failing vehicles are directed to Test-Only stations; consequently, 34 percent could be categorized as being "potential higher emitters" since they are in the highest third of the HEP database. The remaining two percent are selected at random from vehicles subject to the Smog Check program.

7. *Is it possible for California to receive the same emissions reductions by directing only "high emitters" to Test-Only stations?*

Assuming this question refers to the previously identified "potential high emitters", I believe this question refers to the exclusion of the two percent random selection. Any incremental loss in emission reductions from eliminating the two percent random selection directed to Test-Only stations, while unknown at this time, is not likely to be significant and may not even be measurable. However, elimination of testing of this random two percent would compromise an important source of data used to assess the effectiveness of Smog Check.

The purpose of the two percent selection is to collect data that can be used to analyze the emission reductions achieved by the Smog Check program. The random sample is directed to Test-Only stations because that type of station is believed by the agencies to provide the most unbiased testing which improves data analysis.

8. *If the answer to question 7 is "no", then what are the incremental benefits, in terms of emission reductions that are being achieved, by sending nonhigh-emitter vehicles to Test-Only stations versus "Gold Shield" stations?*

The loss of emission reductions that result from dropping the two percent of directed vehicles has not been quantified. It appears likely that the state would receive the same SIP credit if it were to eliminate the two percent random selection that is directed to Test-Only stations.

OTHER CONSIDERATIONS

The July 12, 2000 ARB report states that the top 25 percent of Test and Repair stations are equivalent in performance to Test-Only stations (refer to attachment #5). The same report also states that additional emission benefits are gained by directing more vehicles to Test-Only and/or higher performing Test and Repair stations. Therefore, performance measures could be the standard by which stations qualify to test directed vehicles.

The ARB and BAR have contracted with Sierra Research to perform a significant program evaluation which includes comparing the performance of the various Smog Check station types. Given the many variables that exist in the Smog Check program, determining the proper metrics to measure station performance is a challenging task. The IMRC is working with ARB and BAR on this important program evaluation.

I recognize that this is a somewhat complex and confusing mélange of issues and answers and truly hope my responses to your questions have been helpful. If you need additional information on these issues, please contact me directly at (415) 512-7890, extension 16, or the IMRC's Executive Officer, Rocky Carlisle, at (916) 322-8249. We look forward to working with you to improve the Smog Check program since it provides one of the most effective strategies for improving air quality in California.

Sincerely,

Victor Weisser
Chairman

Attachments: #1 - Excerpt from the 1994 State Implementation Plan (SIP) dated December 1995.
#2 - Excerpt from the ARB *Evaluation of California's Enhanced Vehicle Inspection and Maintenance Program* dated July 12, 2000.
#3 - Excerpt from the ARB *Evaluation of California's Enhanced Vehicle Inspection and Maintenance Program* dated July 12, 2000.
#4 - The BAR fact sheet entitled *"Test-Only Directed Vehicles"* dated 2003.
#5 - Excerpt from the ARB *Evaluation of California's Enhanced Vehicle Inspection and Maintenance Program* dated July 12, 2000.
#6 - The SIP update letter to U.S. EPA from ARB with Attachments A through E, dated August 17, 2000 .

cc: Mr. Tom Cackette, Chief Deputy Executive Officer
ARB
Mr. Richard Ross, Chief
BAR