BUREAU OF AUTOMOTIVE REPAIR

INITIAL STATEMENT OF REASONS

HEARING DATES: August 31, 2009

SUBJECT MATTER OF THE PROPOSED REGULATIONS: Smog Inspection Requirements

I. Diesel-Powered Vehicle Testing and Repair;
II. Sublet Repairs;
III. Smog Check Inspection Procedures Manual;
IV. Fuel Fillpipe Restrictor Dowel Gauge; and
V. Gasoline Visible Smoke Test

SECTIONS AFFECTED: §§ 3340.5, 3340.15, 3340.16, 3340.42, and 3340.45 of Title 16, Division 33, Chapter 1, Article 5.5, California Code of Regulations

SPECIFIC PURPOSE OF THE REGULATORY PROPOSAL:

The Bureau of Automotive Repair (BAR) is proposing the following amendments to the existing regulations:

I. **Diesel-Powered Vehicle Testing and Repair**: Add diesel-powered vehicle testing to regulations. Pursuant to AB 1488[1], diesel-powered vehicles must be added to the Smog Check Program (Program). Diesel-powered vehicles that are 1998 model year and newer with a gross vehicle weight rating (GVWR) up to and including 13,999 pounds will be subject to the Program starting January 1, 2010. The diesel Smog Check inspection includes a test of the on-board diagnostic (OBD) system, a visual check of the emission control systems, and a diesel visible smoke test. This proposed action will fulfill the requirements of the legislation.

II. **Sublet Repairs**: Expand the circumstances in which licensed Smog Check Test and Repair (T&R) stations may sublet[2] repairs. This proposed action

[1] AB 1488, Mendoza (Chapter 739, Statutes of 2007).
[2] In the Smog Check industry, consumers authorize a particular T&R station to perform needed repairs to their vehicle. Under the circumstances prescribed in CCR § 3340.15 (i), a portion of these repairs may be performed by another repair facility, but the transaction is handled by the originating T&R station which assumes responsibility for the repair. This is commonly referred to as "subletting" the repair.

will allow T&R stations to sublet the repairs of diesel-powered vehicles and vehicle transmissions, and to sublet the corrections to the software version that controls the vehicle's on-board computer systems.

III. **Smog Check Inspection Procedures Manual**: Incorporate by reference the *Smog Check Inspection Procedures Manual* (Manual), dated December 2008, into regulation. This proposed action will consolidate Smog Check inspection procedures into a single reference source. It includes procedures for conducting the liquid fuel leak inspection, low pressure fuel evaporative test (LPFET), and the gasoline visible smoke test. In addition, diesel Smog Check test procedures are included in the proposed Manual.

IV. **Fuel Fillpipe Restrictor Dowel Gauge:** Remove the fuel fillpipe restrictor dowel gauge from the list of equipment required for all Smog Check stations. This proposed action brings the Smog Check equipment requirements in alignment with current fuel technology.

V. **Gasoline Visible Smoke Test**: Revise the gasoline visible smoke test procedure for gasoline- powered vehicles which will be detailed in the new Manual. This proposed action will provide a more effective and consistent test procedure for identifying visible smoke from gasoline- and diesel-powered vehicles.

These proposed actions will make the following changes to existing regulation:

1. Amend Section 3340.5 of Article 5.5, Chapter 1, Division 33, Title 16, California Code of Regulations, as follows:

   a. Remove from subsection (a) (2) "or diesel fuel.", add to subsection (a) (4) "any vehicle powered by diesel fuel until December 31, 2009.", and add subsection (c) with the following text: "On and after January 1, 2010, 1998 model year and newer diesel-powered vehicles, with a gross vehicle weight rating up to and including 13,999 pounds, are not exempt from the program."

      These revisions state that currently exempt diesel-powered vehicles are to be included in the Smog Check Program as of January 1, 2010, pursuant to the provisions of AB 1488.

2. Amend Section 3340.15 of Article 5.5, Chapter 1, Division 33, Title 16, California Code of Regulations, as follows:

   a. Amend subsection (i) to include subparagraph (3) with the following text: "Repairs of diesel-powered vehicles provided the specific smog check station has obtained authorization from the customer to sublet repairs to the vehicle."

This revision specifies when T&R stations may sublet repairs of diesel-powered vehicles. Currently, there are a limited number of Smog Check T&R stations that perform repairs on diesel-powered vehicles. Furthermore, the number of diesel vehicles that will be subject to the Program is relatively small, so it is unlikely that Smog Check T&R stations will obtain the training and equipment needed to repair diesel vehicles. Consequently, it would be more advantageous for T&R stations to sublet these vehicles to repair facilities that currently possess the expertise and equipment necessary to repair diesel-powered vehicles. This proposed action also benefits consumers by providing a single point of contact to obtain needed emission repairs.

b. Amend subsection (i) to include subparagraph (4) with the following text: "Repairs to a vehicle's transmission provided the specific smog check station has obtained authorization from the customer to sublet repairs to the vehicle."

This revision specifies when T&R stations may sublet vehicles that fail their Smog Check inspection and require emission-related transmission repairs. Currently, T&R stations are allowed to sublet transmissions to repair facilities when non-emission-related repairs are necessary. Transmission repairs can be complicated and as a result have become a specialized field of repair performed by a limited number of repair facilities that possess the expertise and equipment necessary to repair transmissions. It would result in more convenient repairs for consumers to allow T&R stations to sublet the emission-related repairs of these vehicles to specialized repair facilities. This proposed action also benefits consumers by providing a single point of contact to obtain needed emission repairs.

c. Amend subsection (i) to include subparagraph (5) with the following text: "Corrections to the vehicle's on-board computer systems' software provided that the malfunction has been previously diagnosed by the specific smog check station originally authorized by the customer to perform repairs to the vehicle."

This revision specifies when T&R stations may sublet emission-related corrections to the software that controls the vehicle's on-board computer systems. There are incidences where a software correction is necessary to perform emissions-related repairs needed to pass a Smog Check inspection. The software and equipment to perform these corrections is often proprietary and typically performed by new car dealers. Consequently, it would be more convenient to allow T&R stations to sublet the repair of these vehicles to repair facilities that currently possess the expertise and equipment necessary to perform the software corrections.

This proposed action also benefits consumers by providing a single point of contact to obtain needed emission repairs.

d. Add subsection (j) with the following text: "With respect to the sublet of repairs, the smog check station originally authorized by the customer to perform the repairs shall be responsible for any repair in the same manner as if the station or his or her employees had done the repair."

This revision specifies that the T&R station accepting the repair assumes responsibility for the repair even if it is sublet to another repair facility pursuant to Business and Professions Code section 9884.9 (b).

3. Amend Section 3340.16 of Article 5.5, Chapter 1, Division 33, Title 16, California Code of Regulations, as follows:

a. Remove subsection (a) (6) regarding the fuel fillpipe restrictor dowel gauge from the list of equipment required for all Smog Check stations.

This revision removes the fuel fillpipe restrictor gauge from the list of equipment required for all Smog Check stations. The purpose of the dowel gauge was to check the integrity of the leaded gasoline restrictor to ensure the vehicle cannot utilize leaded fuel. Since leaded fuel is no longer available in the United States, Mexico, or Canada, the leaded gasoline restrictor test using a dowel gauge is no longer a required element of the Smog Check test. This proposed action brings the Smog Check equipment requirements in alignment with current fuel technology.

b. Renumber current paragraphs (7), (8), (9), and (10) to be (6), (7), (8), and (9), respectively, to conform to the removal of paragraph (6).

These revisions have no regulatory effect.

c. Remove from renumbered subparagraph (9) the following text: "On and after November 1, 2007,".

This revision deletes a date that is no longer relevant since the requirement for the LPFET equipment took effect November 1, 2007 and has been fully implemented at the time of this change.

4. Amend Section 3340.42 of Article 5.5, Chapter 1, Division 33, Title 16, California Code of Regulations, as follows:

a. Amend the title of the section from "Mandatory Smog Check Inspection and Test Procedures, and Emissions Standards" to "Smog Check Emissions Test Methods and Standards."

This revision allows for a revised title that more accurately describes the contents of the regulatory section.

b. Replace the first paragraph that states “Smog check stations and smog check technicians shall conduct tests and inspections in accordance with the bureau’s BAR-97 Emissions Inspection System Specifications referenced in subsection (b) of Section 3340.17 of this article and the following:” with “With the exception of diesel-powered vehicles addressed in subsection (f) of this section, the following emissions test methods and standards apply to all vehicles, except diesel-powered vehicles:”.

This revision replaces the existing introductory paragraph with a paragraph that is more descriptive of the contents of the section. The existing paragraph requires Smog Check tests to be conducted in accordance with the BAR-97 Emissions Inspection System (EIS) Specification that was written for the development of the test equipment by manufacturers. The replacement text more accurately describes the remaining regulation contents, prescribing the tailpipe emissions test and emissions standards, apply to all vehicles except diesel-powered vehicles.

c. Remove from subsection (a) the following text: “The loaded-mode test procedures, including the preconditioning procedure, shall only be conducted according to the bureau approved procedures specified in this section and include the following: (1) Place the vehicle's driving wheels on a chassis dynamometer and properly restrain the vehicle prior to commencing the test. (2) With the vehicle operating, sample the exhaust system in the following sequence: (A) Accelerate the vehicle to the cruise condition as specified by the test procedures. (B) Operate the vehicle long enough to stabilize emission levels. (C) Measure and record emissions (hydrocarbon, carbon monoxide, carbon dioxide, and oxides of nitrogen).”

This revision eliminates duplication between regulation and the proposed Manual. The test procedures that technicians must follow, including the loaded-mode test procedures and preconditioning procedure, are in the proposed Manual.

d. Remove the numerical sequence (3) so that the text will become the last sentence of subsection (a).

This revision provides reorganization and structure to the subsection.

e. Remove subsection (a) (4) that states “All loaded-mode testing shall be conducted in a manner that does not induce excess emissions from the vehicle being tested.” and subsection (c) that states “All tests shall be performed with the engine at its normal operating temperature.”

This revision provides reorganization and structure to improve the flow, clarity, and readability of the section. In addition, this revision is being made to eliminate redundancy between regulation and the proposed Manual. These provisions are included in the proposed Manual.

f. Remove subsection (d) describing the liquid fuel leak inspection, subsection (e) describing the LPFET, and subsection (f) describing the visible smoke test, from regulation and incorporate the procedural requirements into the proposed Manual.

This revision removes subsections (d), (e), and (f). The procedures described by these sections will be relocated to the proposed Manual. The Manual will provide technicians a single, reference source regarding Smog Check inspection procedures. Currently, some of the test procedures appear in both regulations and the proposed Manual.

It should be noted that the text in the proposed Manual describing the requirements of the LPFET is not verbatim to the existing text in subsection (e). The revisions to the LPFET text in the proposed Manual clarify the procedures involved in the test. Visual inspection failures, found in the tank side portion[3] of the evaporative system, can affect the results of the LPFET. Therefore, currently when a technician finds a visual failure in the tank side, he or she is instructed not to conduct the LPFET. The proposed Manual makes a distinction as to the location of a visual failure, but does not change the existing testing process.

The text in the proposed Manual describing the requirements of the visible smoke test for gasoline-powered vehicles requires an additional step, which is a secondary test for visible smoke, when compared to the existing text in subsection (f). The revisions to the visible smoke test in the proposed Manual will provide a more effective and consistent test procedure for identifying visible smoke from gasoline- and diesel-powered vehicles.

g. Renumber current subsections (g) and (h) to (c) and (d), respectively, to conform with the removal of subsections (c), (d), (e), and (f).

These revisions have no regulatory effect.

h. Remove from current subsection (h) (2) reference to Health and Safety Code section 44017.

This revision removes the reference to Health and Safety Code section

[3] Tank side refers to the portion of the evaporative system between the canister pinch point and fuel tank filler neck.

44017, which is no longer relevant to the provisions pertaining to gross polluting vehicles.

i. Add subsections (e) and (f) regarding Smog Check inspection tests for gasoline- and diesel-powered vehicles.

This new section identifies the tests to be performed during the Smog Check inspection for gasoline-powered vehicles. Additionally, the emissions control systems being evaluated are itemized. This provides an itemized list of mandatory tests. The procedure for each test is incorporated into the Manual.

Furthermore, the list of inspection tests for diesel-powered vehicles is included in this section. Similar to the gasoline-powered inspection description, the emissions control systems being evaluated are itemized. The procedures for each test are incorporated into the Manual.

j. Other minor conforming, grammatical and editorial changes that have no regulatory effect are also included.

5. Add Section 3340.45 Smog Check Inspection Procedures Manual to Article 5.5, Chapter 1, Division 33, Title 16, California Code of Regulations.

This new section adopts the *Smog Check Inspection Procedures Manual*, dated December 2008, which is incorporated by reference. Currently, some of the test procedures appear in both regulation and the proposed Manual. The proposed Manual serves the purpose of being a single, convenient source of procedures required when conducting a Smog Check inspection.

Incorporation by Reference:

The incorporation by reference in Section 3340.45 of the Bureau's *Smog Check Inspection Procedures Manual*, dated December 2008, is appropriate since publishing this document in the California Code of Regulations (CCR) would clearly be cumbersome, unduly expensive, impractical, and unnecessary. The document consists of approximately 35 pages and is technical in nature. The composition of the Manual does not lend itself to publication in the CCR, as it includes specific inspection procedures and test methods, as well as related notes, explanations, examples and possible scenarios that might be encountered during the inspection of vehicles subject to the Program. The Manual will serve as the primary reference source for Smog Check inspection procedures and will aid licensed Smog Check technicians in performing accurate inspections of vehicles. All licensed Smog Check stations receive a copy upon licensure and technicians receive a copy as part of the study materials for Bureau-certified licensing courses and update training courses. In addition, copies of the Manual are available upon request; may be downloaded from the Bureau's Web site www.smogcheck.ca.gov; and

can be obtained at any Bureau field office.

FACTUAL BASIS/RATIONALE:

Background:

The Bureau of Automotive Repair, within the Department of Consumer Affairs, is the state agency charged with administration and implementation of the Smog Check Program (Program). The Program is designed to reduce air pollution from mobile sources, such as passenger vehicles and trucks, by requiring that these vehicles meet specific emissions standards.

The health effects of air pollution have been well documented. At greatest risk are children, the elderly, and those with heart and lung diseases. Pollutants of concern include ozone, particulates, and toxic air pollutants. Ozone is formed from the interaction, in the presence of sunlight, of hydrocarbons (HC) and oxides of nitrogen (NOx), both of which are emitted from gasoline-powered motor vehicles. According to the California Air Resources Board (ARB), the effects from short-term exposure to ozone include hospital admissions for respiratory causes, emergency-room visits for asthma, restricted activity days, acute respiratory symptoms, exacerbation of asthma, and premature mortality.

In addition, air pollution from diesel-powered vehicles is a complex mixture of gases, vapors, and fine particles. In part, diesel exhaust includes particulate matter (PM), NOx and reactive organic gases (ROG) such as HC. Although diesel-powered vehicles tend to have low HC emissions, they can emit higher levels of NOx and PM than similar sized gasoline-powered vehicles. Particulate emissions from diesel-fueled engines have been identified as a toxic air contaminant (TAC) by ARB. TACs are air pollutants that may cause or contribute to an increase in death or serious illness or may pose a present or future hazard to human health.

Diesel-Powered Vehicle Testing and Repair

In 2007, AB 1488 was chaptered, requiring the Bureau to incorporate certain diesel-powered vehicles into the Program, with the following provisions:

1. Include 1998 model year and newer diesel-powered vehicles with a GVWR up to and including 8,500 pounds in the biennial Smog Check Program beginning January 1, 2010.

2. Allow for testing of diesel-powered vehicles with a GVWR up to and including 13,999 pounds once vehicles could be identified and test procedures could be implemented by ARB and BAR, and require the Department of Motor Vehicles (DMV) in consultation with ARB to determine the best method for identifying diesel-powered vehicles with a GVWR of 10,001 to 13,999 pounds inclusive.

3. Include a visual inspection of the emissions control devices and a test of the vehicle's exhaust emissions, in accordance with procedures prescribed by BAR that may include, but are not limited to, on-board diagnostic testing.

At a minimum, AB 1488 requires that 1998 model year and newer vehicles with a GVWR up to and including 8,500 pounds be incorporated into the Smog Check Program. In addition, the legislation requires the inclusion of diesel-powered vehicles with a GVWR up to and including 13,999 pounds and less once DMV determines the best method for identifying these vehicles.

DMV, ARB, and BAR determined that it would be more efficient to include diesel-powered vehicles with a GVWR up to and including 13,999 pounds when the program begins. As a result, emission benefits will be realized by the State sooner. ARB estimates that OBD testing of 1998 model year and newer diesel-powered vehicles with a GVWR less than 8,500 pounds, alone, will reduce 0.7 tons per day of NOx emissions in 2014.

In addition, BAR worked with ARB on the development of diesel Smog Check inspection procedures to meet the implementation date set by AB 1488. In March 2008, BAR and ARB began conducting a study of over 150 privately owned diesel-powered vehicles recruited by an ARB contractor[4]. The sample consisted of 1998 model year and newer diesel-powered vehicles with a GVWR up to and including 13,999 pounds. The study included an on-board diagnostics (OBD-II[5]) test, visual checks for defective or tampered emissions control systems (ECS), and several methods to check for visible smoke in order to establish the Smog Check inspection procedures for diesel-powered vehicles.

One component of the study was designed to test whether the BAR-97 EIS analyzers were able to communicate with the OBD-II on 1998 model year and newer diesel-powered vehicles. Results showed that the BAR-97 EIS analyzers are able to communicate with diesel-powered vehicles in the same manner as gasoline-powered vehicles with regard to OBD-II. However, like gasoline-powered vehicles, diesel-powered vehicles equipped with newer technology OBD-II, known as controller area network (CAN), were not able to communicate with the BAR-97 EIS analyzers.

The study also involved visual checks on the ECS of the diesel-powered vehicles to determine if a failure due to defective or tampered ECS could be readily identified by Smog Check technicians. The study found that technicians would be able to identify defective or tampered ECS when performing a visual check using both the underhood label and ECS application guides per CCR § 3340.16.5 (a) (12).

[4] Details of the study and resulting conclusions are discussed in *Implementation Study to Incorporate Diesel Vehicles into Smog Check* as included in the Underlying Data section of this document.
[5] OBD-II refers to the newest technology in reference to on-board diagnostics. 1996 model year and newer vehicles up to14,000 pounds GVWR are typically OBD-II equipped.

Finally, the study compared several methods to check for visible smoke that would provide a safe, accurate, and repeatable test. Initially, BAR and ARB investigated using the Society of Automotive Engineers (SAE) Snap Idle Test to check for visible smoke on diesel-powered vehicles. During testing, it was found that some light-duty diesel-powered vehicles smoked as a result of exceeding allowable revolutions per minute (RPM) limits, causing false failures. Since the SAE test was originally designed for heavy-duty diesel-powered vehicles, it was determined to be incompatible for testing all light-duty diesel-powered vehicles. As a consequence, BAR and ARB modified the SAE test procedures and developed the "BAR Snap Test.[6]" Following this, BAR and ARB established the applicable standards for the modified test procedures.

In September 2008, BAR conducted a smaller study of 39 diesel-powered vehicles, 1998 model year and newer, for the purposes of evaluating the BAR Snap Test. Diesel-powered vehicles from various vehicle manufacturers were tested at several dealerships located in both Northern and Southern California. A range of RPM limits were evaluated to determine the range necessary to detect visible smoke while providing a safe, accurate, and repeatable test.

In addition to these studies, ARB and BAR held multiple workshops[7] in Northern and Southern California. The purpose of the workshops was to provide information on the new diesel Smog Check program and obtain input from interested parties.

Based on findings from the studies and workshops, ARB and BAR determined the Smog Check inspection for diesel-powered vehicles would consist of an OBD test, a visual check of ECS components, and a visible smoke test per AB 1488.

The diesel-powered vehicle population subject to the biennial Program for calendar year 2010 is expected to be approximately 540,000 vehicles according to ARB. About half of the diesel-powered vehicles subject to the inspection will obtain their first biennial Smog Check in 2010, with the other half to be tested biennially beginning in 2011. In January 2010, DMV will begin notifying owners of diesel-powered vehicles whether an inspection is required on their registration renewal notices. In addition, diesel-powered vehicles that are more than four model years old will require a Smog Check inspection upon change of ownership and upon initial registration in California, beginning January 1, 2010. The total number of diesel-powered Smog Check inspections for 2010 is expected to be 325,000. This includes biennial, change of ownership, and initial registration inspections.

Smog Check stations (Test-Only and Test-and-Repair) will not be required to purchase any new equipment. BAR is planning to provide online diesel specific inspection training to Smog Check technicians at no cost. The training will include instruction on EIS operation, OBD testing, visual testing, and visible smoke testing.

[6] The "BAR Snap Test" is prescribed in the *Smog Check Inspection Procedures Manual*, dated December 2008, as part of the rulemaking file.

[7] Details and descriptions of these workshops have been included in the Underlying Data and as part of the rulemaking file.

Sublet Repairs

Existing law, Business and Professions (B&P) Code section 9884.9 (b), authorizes automotive repair dealers (ARDs) to sublet repairs. T&R stations that perform Smog Check inspections and repairs must be registered as an ARD and licensed as a Smog Check Test and Repair (T&R) station by BAR.

However, CCR section 3340.15 (i) specifies that emissions-related repairs must be performed by T&R stations, except under two specific conditions providing the T&R station has diagnosed the repair and the customer has authorized the repair. The first condition allows for subletting repairs to a vehicle's exhaust system typically performed by muffler shops. The second condition allows for subletting repairs to specific defective vehicle components, such as carburetors and radiators, which have been removed from the vehicle by the T&R station.

Several changes have led to the need for expanding the circumstances in which T&R stations may sublet emission-related repairs. First, the passage of AB 1488 led to the inclusion of diesel-powered vehicles into the Program for the first time. Second, changes in vehicle technology have resulted in specialty shops that currently perform non-emission-related repairs to vehicle transmissions and corrections to the software that controls the vehicle's on-board computer systems.

Currently, only a limited number of Smog Check T&R stations perform any type of repair on diesel-powered vehicles. In addition, transmission repairs are complicated and have become a specialized field of repair that is primarily performed by a limited number of repair facilities. Furthermore, on-board computer systems may require a periodic software correction commonly referred to as "reflashing" or reprogramming the on-board computer. There are instances where a software correction is necessary to complete emissions-related repairs needed to pass a Smog Check inspection. The software and equipment to perform these corrections is often proprietary and typically performed by new car dealers. Consequently, it would be more convenient for consumers to allow T&R stations to sublet the necessary emission-related repairs and/or corrections to specialized repair facilities who possess the expertise and equipment.

The proposed regulatory action allows consumers to provide authorization to T&R stations to sublet the emission-related repairs to their vehicles. Subsequently, T&R stations will contact appropriate repair facilities that possess the expertise and equipment to conduct the necessary repairs. Ultimately, this will provide consumers with the convenience of interfacing with a single T&R station for both inspection and repair of their vehicle.

Smog Check Inspection Procedures Manual

The Bureau has provided technicians with an inspection procedures manual since the inception of the Program in 1984. The Manual has served both the Bureau and Smog Check industry well as the Program's primary reference source for conducting Smog

Check inspections. However, after many program improvements, it has become outdated with regard to the various inspection procedures. By incorporating the document by reference, this action clarifies the role of the Manual as a single, authoritative source of procedures for conducting Smog Check inspections.

In addition, the procedures for the liquid fuel leak inspection, LPFET, and visible smoke test are currently detailed in regulation. Regulations do not include additional information such as notes, explanations, and examples that are necessary for the inspection of emissions controls. The proposed action of moving these test procedures from regulation into the proposed Manual will provide technicians with one convenient source to reference when conducting the Smog Check inspection.

The revisions to the LPFET in the proposed Manual clarify the procedures involved in the test. Visual inspection failures, found in the portion of the evaporative system between the canister pinch point and fuel tank filler neck, can affect the performance of the LPFET. Therefore, when a technician finds a visual failure in this location, he or she is instructed not to conduct the LPFET. Visual failures found in any other location of the evaporative system will not affect the LPFET and the technician will proceed with the LPFET. Current regulation text does not make a distinction as to the location of a visual failure. This clarification does not change the existing LPFET testing process. All evaporative system visual inspection failures, regardless of location, are entered into the EIS evaporative system "visual inspection prompt."

The revisions to the gasoline visible smoke test[8] in the proposed Manual will provide a more effective and consistent test procedure to identify visible smoke from gasoline- and diesel-powered vehicles. Upon development of the diesel-powered vehicle test procedures, BAR determined that a similar visible smoke test procedure for gasoline- and diesel-powered vehicles would be the best course of action. The revised gasoline visible smoke test is a more effective and consistent test procedure. During 2008, ARB and BAR developed Smog Check inspection procedures for diesel-powered vehicles in order to meet the January 1, 2010 implementation date set by AB 1488. The inspection procedures for diesel-powered vehicles will be added to the proposed *Smog Check Inspection Procedures Manual,* dated December 2008.

With the introduction of diesel-powered vehicles to the Program, it is necessary to recognize that there are differences between diesel and gas emission systems and those differences necessitate different inspection processes. Therefore, the gasoline- and diesel-powered regulations and the proposed Manual will list the required inspections for both vehicles. Gasoline-powered Smog Check inspections include emissions tests, a visual check of the vehicle's emissions control systems, a functional test of the vehicle's emissions control systems, a liquid fuel leak check, and a gasoline visible smoke test.

By comparison, diesel-powered Smog Check inspections are limited to a visual check of the vehicle's emissions control systems, a functional test of the vehicle's emissions

[8] The gasoline visible smoke test is prescribed in the *Smog Check Inspection Procedures Manual*, dated December 2008, as part of the rulemaking file.

control systems (specifically the OBD system), and a visible smoke test. It is necessary to specify the tests involved in both inspections due to this difference. Details of the inspections are provided in the proposed Manual to ensure a uniform, consistent Smog Check inspection is conducted on the appropriate vehicle.

In taking the proposed action of incorporating by reference the proposed Manual in regulation, moving test procedures from regulation into the proposed Manual, clarifying current test procedures, and adding diesel-powered vehicle test procedures to the proposed Manual, the Bureau has clarified and consolidated the inspection procedures (for both gasoline- and diesel-powered vehicles) into one source.

Fuel Fillpipe Restrictor Dowel Gauge

Current regulation requires the fuel fillpipe restrictor dowel gauge on the list of equipment required by all Smog Check stations. The purpose of the dowel gauge was to check the integrity of the leaded gasoline restrictor to ensure the vehicle cannot utilize leaded fuel[9]. However, leaded fuel is no longer available in the United States, Mexico, or Canada. Consequently, the leaded fuel restrictor test using a dowel gauge is obsolete. Thus, there is no need to continue including the fuel fillpipe restrictor dowel gauge on the regulatory list of equipment required by all Smog Check stations. This proposed action to remove the fuel fillpipe restrictor dowel gauge brings Smog Check test equipment requirements in alignment with current fuel technology.

Gasoline Visible Smoke Test

AB 1870 required BAR to incorporate a visible smoke test into the Program by January 2008. Currently all vehicles subject to a Smog Check inspection are required to have a visible test for smoke emanating from the engine crankcase (e.g., positive crankcase ventilation (PCV) system) and the tailpipe. The proposed regulatory action revises the existing visible smoke test procedures for gasoline-powered vehicles.

The gasoline visible smoke test procedure[10] was developed by an internal working group at BAR, in consultation with ARB. The group was tasked to design a test, as required by statute, that did not impose any new test equipment requirements on Smog Check stations (Test-Only and Test-and-Repair). BAR also wanted to implement a test that could be easily performed by one technician, applied uniformly statewide, and replicated from station to station. BAR met all of these goals in implementing the visible test for smoke. The existing test requires technicians to check for smoke after the loaded-mode portion of the inspection by watching the tailpipe at the rear of the vehicle for ten seconds and then looking under the hood for smoke from the crankcase for ten seconds (10-second idle test).

[9] The fuel fillpipe restrictor dowel gauge test is only performed on vehicles requiring initial registration in the state of California.

[10] The gasoline visible smoke test procedure is presented in greater detail in the regulation package titled "Visible Smoke Test," approved by the Office of Administrative Law on January 11, 2008.

In the process of developing the visible smoke test procedure for diesel-powered vehicles, BAR and ARB realized that a Snap Test could also be performed on gasoline-powered vehicles with smoke emissions. The BAR Snap Test includes three modified snap tests where the technician pushes the vehicle's accelerator pedal smoothly, but quickly, from the idle position all the way to the floor. Then the technician releases the accelerator pedal, thus allowing the engine to return to idle. The first modified snap test is preparatory and the remaining two are used to determine if visible smoke is coming from the tailpipe(s) exhaust plume(s).

In November 2008, BAR recruited gasoline-powered vehicles (some with smoke emissions, and some without) to investigate whether the proposed BAR Snap Test was safe, accurate, and repeatable. Results from this study found the BAR Snap Test will identify some smoking vehicles that would not be identified by the 10-second idle test, and the 10-second idle test will identify some failures that the BAR Snap Test will not identify. The combination of the BAR Snap Test and the 10-second idle test will result in a more stringent test leading to a higher failure rate.

BAR recommends revising the existing visible smoke test procedure to include, in addition to the 10-second idle test, the BAR Snap Test. This will provide consistency between the visible smoke test performed on gasoline and diesel-powered vehicles. Having a 10-second idle test for gasoline-powered vehicles and a different BAR Snap Test for diesel-powered vehicles could result in technicians inadvertently using the wrong test procedure. In order to address this issue, BAR decided to have a more consistent visible smoke test procedure where the 10-second idle test is followed by the BAR Snap Test and would be conducted on both gasoline- and diesel-powered vehicles.

It should also be noted that AB 1870 made changes that affect the eligibility for a repair cost waiver when a vehicle fails the visible smoke test. AB 1870 allowed repair cost waivers to be issued to low-income consumers whose vehicles fail the visible smoke test component of a Smog Check inspection. This income restriction also applies to diesel-powered vehicle owners.

UNDERLYING DATA:

Technical, theoretical or empirical studies or reports relied upon:

- AB 1488, Mendoza (Chapter 739, Statutes of 2007).

- AB 1870, Lieber (Chapter 761, Statutes of 2006).

- Air Resources Board. "Air Pollution and Health." August 21, 2001. <http://www.arb.ca.gov/research/health/fs/fs1/fs1.htm>.

- Air Resources Board. "Governor Schwarzenegger Signs Legislation to Add Urban, Rural Perspective to San Joaquin Valley Air Board." October 15, 2007. <http://www.arb.ca.gov/newsrel/nr10507b.htm>.

- Air Resources Board. "The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines." October 1998. <http://www.arb.ca.gov/toxics/dieseltac/factsht1.pdf>.

- "Case for Banning Lead in Gasoline." *Manufacturers of Emission Controls Association.* January 2003. <http://www.meca.org/galleries/default-file/lead0103_(final).pdf>.

- Department of Consumer Affairs, Bureau of Automotive Repair. Average Inspection Cost and Number of CAP Assisted Repairs. "Executive Summary Report for Calendar Year 2007."

- Department of Consumer Affairs, Bureau of Automotive Repair. *Diesel Dealership Study*. September 2008.

- Department of Consumer Affairs, Bureau of Automotive Repair. *Fuel Fillpipe Restrictor Dowel Gauge*. April 2009.

- Department of Consumer Affairs, Bureau of Automotive Repair. *Implementation Study to Incorporate Diesel Vehicles into Smog Check.* September 2008.

- Department of Consumer Affairs, Bureau of Automotive Repair. Weighted Average Repair Cost. "Executive Summary Report for Calendar Year 2007." January 2008.

- Department of Consumer Affairs, Bureau of Automotive Repair and Air Resources Board. *Diesel Vehicle Smog Check Inspection Workshops.* October 2008 through March 2009.

- Department of Consumer Affairs, Bureau of Automotive Repair and Air Resources Board. *Modification of Visible Smoke for Gasoline-Powered Vehicles*. November 5, 2008.

- Society of Automotive Engineers. "SAE J1667 or Snap Idle Test." <http://www.arb.ca.gov/enf/hdvip/saej1667.pdf>.

BUSINESS IMPACT:

This regulation will not have a significant adverse economic impact on businesses. This initial determination is based on the following facts or evidence/documents/testimony:

Diesel-Powered Vehicle Testing and Repair

Smog Check Station Impact

The proposed action of including diesel-powered vehicles in the Smog Check Program will result in an increase of approximately 325,000 inspections annually (biennial, change of ownership, and initial registration in California) beginning in 2010. Using the average inspection cost of $47.26 for vehicles from the *Executive Summary Report for Calendar Year 2007*, all Smog Check stations would annually see approximately $15.4 million in inspection revenue. For the purpose of this estimate, it was assumed that the average inspection cost for diesel-powered vehicles would be the same as the average inspection cost for gasoline-powered vehicles. While BAR acknowledges that the average inspection cost for gasoline- and diesel-powered vehicles can be different, the figures used for this Business Impact analysis provide estimates based on data from gasoline-powered vehicles. The cost of the Smog Check inspection may be less for diesel-powered vehicles than gasoline-powered vehicles since the diesel inspection is less time consuming.

In addition, Smog Check T&R stations and repair facilities performing sublet work on diesel-powered vehicles will derive revenue through increased repairs necessary to repair failing vehicles. According to ARB, approximately 42,250 (13%) of the 325,000 diesel-powered vehicles to be tested annually will fail an inspection and will require a repair. Using the average repair cost for vehicles from the *Executive Summary Report for Calendar Year 2007*, this translates to $8.7 million in repair revenue (based on the 2007 average repair cost of $206.82 for vehicles currently subject to the Program). It is anticipated that the average repair cost for diesel-powered vehicles could be higher than it is for gasoline-powered vehicles, so this estimate is conservative. Further, any Smog Check station that performs retests may derive revenue through additional inspection fees.

A minor software update of the BAR-97 EIS will be required in order for any Smog Check station to perform inspections on diesel-powered vehicles. However, BAR plans to absorb the cost associated with this update (included as part of the Emissions Inspection Specification Revision regulation[11]). Thus, Smog Check stations (Test-Only and Test-and-Repair) will not incur the additional expense typically associated with such

[11] The Emissions Inspection Specification Revision regulation's Notice for Proposed Regulatory Action and Public Hearing was published in the Office of Administrative Law's register as of February 6, 2009. This regulation revises the emissions standards (cutpoints) to more accurately reflect the emission performance capability of individual vehicles and includes pass/fail criteria for On-Board Diagnostic (OBDII) system readiness monitors.

a software update. No other specialized equipment will be required to perform the diesel Smog Check inspection.

The Smog Check industry may need to invest a small amount of time viewing BAR online diesel inspection training at no cost. However, for Test-Only stations this would be offset by additional inspection revenue and for T&R stations this would be offset by additional inspection and repair revenue.

Business Fleet Impact

There are a limited number of businesses exclusively operating diesel-powered vehicles in their fleet. BAR informally surveyed and determined that the majority of these businesses will likely utilize Smog Check stations (Test-Only and Test-and-Repair) to perform the diesel Smog Check inspection. Thus, these vehicles have been included in the total number of 325,000 inspections. The remaining businesses may opt to do self-testing; however, this is not mandated by BAR. This voluntary action would require the purchase of test equipment which would cost between $35,000 - $40,000.

Consumer Impact

BAR anticipates at program start-up the failure rate will be high because these vehicles have no prior Smog Check inspection. Various members of the T&R industry have indicated that a significant portion of the diesel-powered failures will be due to illegal tampering of emissions control systems. The proposed action of including diesel-powered vehicles in the Program will require the owners of diesel-powered vehicles to pay for a Smog Check inspection and any needed repairs if the vehicle fails. Approximately 325,000 vehicle owners will be impacted (for the year 2010). Using the average inspection cost for vehicles from the *Executive Summary Report for Calendar Year 2007*, owners of diesel-powered vehicles may spend as much an estimated $15.4 million for inspections and at least $8.7 million for repairs (see *Smog Check Station Impact* section above). Furthermore, the high failure rate will result with some consumers paying additional retest fees. The average retest fee is expected to be approximately $47.26 (based on 2007 average inspection cost). Over time, BAR anticipates the diesel program may discourage tampering which would lower the failure rate and consequently, reduce the number of vehicles needing repairs and retests.

BAR offers the Consumer Assistance Program (CAP) which help consumers to mitigate the cost of bringing a vehicle into compliance with the Program. CAP provides up to $500 in financial assistance toward emissions-related repairs to qualifying consumers or $1,000 to retire the vehicle. In 2007, CAP assisted 40,381 consumers (*Executive Summary Report for Calendar Year 2007)*. In addition, pursuant to HSC section 44012.1, low-income owners of diesel-powered vehicles whose vehicles fail the visible smoke test may qualify for a one-time repair cost waiver from the State.

BAR projects a negligible increase in the number of consumers that would seek CAP financial assistance once diesel-powered vehicles are included in the Program. First, the

overall number of diesel-powered vehicles is small relative to the overall number of vehicles subject to the Program. Second, consumers would be less likely to retire 1998 model year and newer vehicles. Finally, tampered vehicles are not eligible to participate in CAP and do not qualify for a repair cost waiver. Although BAR projects minimal participation in CAP by consumers who own diesel-powered vehicles, the availability of this resource can serve as a powerful incentive for consumer compliance in the Smog Check Program.

Sublet Repairs

Smog Check Station Impact

The proposed action of authorizing Smog Check T&R stations to sublet the emission-related repairs of diesel-powered vehicles, the emission-related repairs of transmissions, and the emission-related corrections to the software version that controls the vehicle's on-board computer systems will have no adverse impact on businesses. In fact, this change could have a positive impact because it will allow T&R stations to retain customers that need these specialized emission-related repairs.

Consumer Impact

The proposed action of authorizing T&R stations to sublet the emission-related repairs of diesel-powered vehicles, the emission-related repairs of transmissions, and the emission-related corrections to the software version that controls the vehicle's on-board computer system is expected to have minimal impact on consumers. Consumers with failing vehicles will have a choice of selecting a conveniently located T&R station that can sublet these types of emission-related repairs to a specialized repair facility. Upon implementation of this proposed regulatory action T&R stations may charge a convenience fee. However, as more T&R stations choose to sublet and this service becomes more readily used, this fee may lessen.

Smog Check Inspection Procedures Manual

Smog Check Station Impact

The following changes will not adversely impact businesses: incorporating by reference the proposed Manual into regulation; moving the specific test procedures for liquid fuel leak inspection, LPFET, and visible smoke test for gasoline-powered vehicles from regulation into the proposed Manual; clarifying current test procedures; adding the diesel-powered vehicle test procedures into the proposed Manual; and removing the fuel fillpipe restrictor dowel gauge from the list of station (Test-Only and Test-and-Repair) equipment requirements.

The revisions to the LPFET in the proposed Manual clarify the procedures involved in the test, specifically in regards to the fuel evaporative system's tank side. The revisions to the visible smoke test in the proposed Manual, as compared to current regulation,

provide a consistent test for gasoline- and diesel-powered vehicles. The revisions will not have an adverse impact on businesses since the test procedure adds negligible time to the inspection procedure and does not require additional equipment.

The addition of the diesel-powered vehicle test procedures to the proposed Manual includes an OBD test, a visual check of emissions control components, and a visible smoke test. This addition will not have an adverse impact on businesses. The Smog Check industry will benefit from having one convenient source for technicians to refer to for Smog Check inspection procedures.

Consumer Impact

No impact on consumers.

Fuel Fillpipe Restrictor Dowel Gauge

Smog Check Station Impact

The removal of the fuel fillpipe restrictor dowel gauge equipment requirement from the regulation (that in effect eliminates the check of the fuel fillpipe restrictor from the Smog Check inspection) will not have an adverse impact on businesses. Based on BAR data from Calendar Year 2008, approximately 770,000 vehicles per year will no longer be subject to this portion of the Smog Check inspection. Consequently, the Smog Check industry may benefit from a slight reduction in inspection time.

Consumer Impact

Consumers would benefit from the removal of the fuel fillpipe restrictor dowel gauge. Upon initial registration in the state of California, vehicles would no longer require this test.

Gasoline Visible Smoke Test

Smog Check Station Impact

All Smog Check stations will benefit from the proposed action of modifying the visible smoke test for gasoline-powered vehicles. BAR anticipates more gasoline-powered vehicles will fail from adding the BAR Snap Test to the existing 10-second idle test, thus, making the revised gasoline visible smoke test more stringent. BAR anticipates at most 0.03% of the vehicles inspected will fail due to the revised gasoline visible smoke test. T&R Stations would receive revenue from the repair of failing vehicles at a total of $620,000[12] (based on an average repair cost of $206.82). Any Smog Check station may benefit from the retest fees as a result of the higher failure rate. In addition, the revised test procedure adds negligible time to the inspection procedure and does not require

[12] Approximately 9.3 million initial inspections were conducted during Calendar Year 2007. Based on the stated failure rate of 0.03%, approximately 3000 vehicles would require repair.

additional equipment. Smog Check technicians that require additional training will need to invest a small amount of time viewing training material. BAR is planning to provide online gasoline visible smoke test training to Smog Check technicians at no cost.

Consumer Impact

BAR anticipates at most 0.03% of the vehicles inspected will fail due to the revised gasoline visible smoke test. Consumers whose vehicles fail the revised visible smoke test may incur costs from repairing their vehicles totaling $620,000 (based on an average repair cost of $206.82).

However, BAR offers the Consumer Assistance Program (CAP) which helps consumers to mitigate the cost of bringing a vehicle into compliance with the Smog Check Program. CAP provides either up to $500 in financial assistance toward emissions-related repairs to qualifying consumers or $1,000 to retire the vehicle. In addition, pursuant to HSC section 44012.1, low-income owners of vehicles who fail the visible smoke test may qualify for a one-time repair cost waiver from the State.

SPECIFIC TECHNOLOGIES OR EQUIPMENT:

The regulation mandates the use of specific technologies or equipment.

Specifically, a minor software update will be required for the diesel inspection to be performed on the BAR-97 EIS. This software update is addressed in a previous regulation referred to as the "Emissions Inspection System Revision." This regulation revises the emissions standards (cutpoints) and places in the CCR the OBD readiness requirements, both requiring a software update. Furthermore, the diesel functionality is added to the software update. The alternative of having two separate revisions to accommodate the subsequent diesel modifications would be cumbersome, unduly expensive, impractical, and unnecessary.

CONSIDERATION OF ALTERNATIVES:

No reasonable alternative to the regulation would be either more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed regulation.

Set forth below are the alternatives which were considered and the reasons each alternative was rejected.

Diesel-Powered Vehicle Testing and Repair

BAR considered taking no action. However, BAR would not be able to implement AB 1488 as mandated and anticipated emissions reductions would not be achieved, thereby diminishing air quality improvements.

Sublet Repairs

BAR considered taking no action. This option deprives consumers of the convenience that would be afforded if a T&R Smog Check station was allowed to sublet specific repairs to shops that specialize in the emission-related repairs of diesel-powered vehicles, the emission-related repairs of transmissions, and/or the emission-related corrections to the on-board computer systems' software.

Smog Check Inspection Procedures Manual

BAR considered taking no action. However, BAR acknowledges all Smog Check stations and technicians would benefit from having a uniform, consistent reference for conducting Smog Check inspections. Rather than having multiple sources, including regulations and the existing manual, Smog Check technicians will benefit from having a single manual to look up inspection procedures, including the liquid fuel leak inspection, LPFET and visible smoke test. Additionally, the revisions to the LPFET and visible smoke test are necessary to provide consistency with respect to current practice and regulation. Diesel-powered vehicle test procedures also will be added into the proposed Manual. Placing the diesel procedures in regulation would have been counter to the direction planned for inclusion of all inspection procedures for all types of vehicles in a single resource document.

Fuel Fillpipe Restrictor Dowel Gauge

BAR considered taking no action. However, the Smog Check equipment requirements would not be in alignment with current fuel technology.

Gasoline Visible Smoke Test

BAR considered taking no action. However, this could cause inconsistency between the gasoline- and diesel-powered visible smoke test procedures and result in reduced air quality benefits. The combination of the BAR Snap Test and the 10-second idle test is a more stringent test that better identifies excessively smoking vehicles in need of repair.