State of California
AIR RESOURCES BOARD

Resolution 09-37

May 28, 2009

Agenda Item No.: 09-5-2

WHEREAS, sections 39002 and 39003 of the Health and Safety Code charge the Air Resources Board (ARB or the Board) with the responsibility for systematically attacking the serious air pollution problem caused by motor vehicles;

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Board to adopt standards, rules and regulations and to do such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, sections 39515 and 39516 of the Health and Safety Code provide that the Board may delegate any duty to the Executive Officer which the Board deems appropriate and that any power, duty, purpose, function, or jurisdiction which the Board may lawfully delegate shall be conclusively presumed to have been delegated to the Executive Officer unless the Board has expressly reserved such authority onto itself;

WHEREAS, in sections 43000 and 43000.5(a) of the Health and Safety Code, the Legislature declared that the emission of air pollutants from motor vehicles is the primary cause of air pollution in many parts of the state and that despite significant reductions in vehicle emissions in recent years, continued growth in population and vehicle miles traveled throughout California have the potential not only to prevent attainment of the state standards, but in some cases, to result in worsening of air quality;

WHEREAS, section 43000.5(c) of the Health and Safety Code provides that the burden for achieving needed reductions in vehicle emissions should be distributed equitably among various classes of vehicles, including heavy-duty vehicles to accomplish improvements in both the emissions level and in-use performance and durability of all new motor vehicles;

WHEREAS, section 43004 of the Health and Safety Code provides that unless expressly exempted, the exhaust emission standards for gasoline powered motor vehicles shall apply to motor vehicles that have been modified or altered to use a fuel other than gasoline or diesel;

WHEREAS, section 43006 of the Health and Safety Code provides that ARB may certify the fuel system of any motor vehicle powered by a fuel other than gasoline or diesel that meets the standards specified by section 43004 and adopt test procedures for such certification;

WHEREAS, section 43806 of the Health and Safety Code directs the Board to adopt emission standards and procedures applicable to new engines used in publicly owned and privately owned public transit buses;

WHEREAS, sections 43013(a) and (b) of the Health and Safety Code authorizes the Board to adopt emission standards and in-use performance standards and other regulations for light-duty, medium-duty, and heavy-duty engines and vehicles that it finds to be necessary, cost-effective, and technologically feasible;

WHEREAS, section 43013(h) of the Health and Safety Code states that it is the intent of the Legislature that the Board act as expeditiously as feasible to reduce oxides of nitrogen (NOx) emissions from diesel vehicles and other categories of vehicular sources which significantly contribute to air pollution problems;

WHEREAS, the Legislature adopted and the Governor signed Senate Bill 1028 in October 2007, codified in part at Health and Safety Code section 39602.5, which identified that a number of areas within California have not attained national ambient air quality standards (NAAQS) for ozone and particulate matter of 2.5 microns or less (PM2.5), and which directed the Board to adopt every feasible rule and regulation that are sufficient, in conjunction with other applicable measures, to achieve and maintain the NAAQS by the applicable deadlines;

WHEREAS, section 43018(a) of the Health and Safety Code directs the Board to achieve the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to accomplish the attainment of state standards at the earliest practicable date;

WHEREAS, section 43018(c) of the Health and Safety Code further directs the Board that in carrying out the directives of section 43018(a), the Board shall adopt standards and regulations that will result in the most cost-effective combination of control measures on all classes of motor vehicles, including but not limited to, reductions in exhaust and evaporative emissions and reductions in in-use emissions through improvements in motor vehicle emission system durability and performance;

WHEREAS, section 43101 of the Health and Safety Code directs the Board to adopt and implement emission standards for new motor vehicles for the control of emissions therefrom that are necessary and technologically feasible;

WHEREAS, section 43102 of the Health and Safety Code provides that the Board shall not certify a new motor vehicle or motor vehicle engine unless the vehicle or engine meets the emission standards adopted by the ARB pursuant to Part 5 of the Health and Safety Code under test procedures adopted pursuant to section 43104;

WHEREAS, section 43104 of the Health and Safety Code provides that the Board shall adopt test procedures and any other procedures necessary to certify that new motor vehicles and engines are in compliance with the emissions standards established under Part 5 of the Health and Safety Code;

WHEREAS, section 43105 of the Health and Safety Code provides that no new motor vehicle or engine required under Part 5 of the Health and Safety Code to meet emission

standards shall be sold to the ultimate purchaser, ordered or delivered for sale to the ultimate purchaser, or registered in this State if the manufacturer has violated emission standards or test procedures and has failed to take corrective action, which may include recall of vehicles or engines, specified by the Board in accordance with its regulations;

WHEREAS, sections 43105.5 of the Health and Safety Code directs the Board to require motor vehicle manufacturers to provide service information necessary to properly inspect, test and repair motor vehicles;

WHEREAS, sections 43016, 43154, 43211, and 43212 of the Health and Safety Code provide that penalties may be assessed against motor vehicle manufacturers for noncompliance with ARB emission standards, other certification requirements, or other rules and regulations of the Board;

WHEREAS, in July 1990, the Board adopted and the Office of Administrative Law subsequently approved regulations regarding "Malfunction and Diagnostic System Requirements--1994 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines," (OBD II), which are codified at California Code of Regulations, title 13, section 1968.1 (section 1968.1), and which set forth requirements for (1) monitoring catalyst efficiency, engine misfire, evaporative system integrity, secondary air injection, and chlorofluorocarbon containment; (2) improving current monitoring of the fuel system, oxygen sensor, exhaust gas recirculation system, and other emission-related components of the OBD II system; and (3) standardizing fault codes, diagnostic repair equipment, the vehicle connector used for attaching the repair equipment to the vehicle, and the protocol for downloading repair information in order to improve the effectiveness of emission control system repairs;

WHEREAS, the Board adopted amendments to section 1968.1 in 1991, 1993, 1994, and 1996, which were respectively approved by the Office of Administrative Law;

WHEREAS, the United States Environmental Protection Agency (U.S. EPA) on October 3, 1996 approved California's request for a waiver of preemption under section 209(b) of the federal Clean Air Act (CAA) for the OBD II regulation (61 Fed.Reg. 53371 (October 11, 1996));

WHEREAS, in 1998 the Board adopted stringent new tailpipe and evaporative emission standards for low emission vehicles ("LEV II");

WHEREAS, in April 2002, the Board adopted and the Office of Administrative Law subsequently approved regulations regarding "Malfunction and Diagnostic System Requirements for 2004 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines," which are codified at California Code of Regulations, title 13, section 1968.2 (section 1968.2), and which (1) carried over most of the requirements of section 1968.1; (2) revised several monitoring requirements including, among other things, the requirements for catalyst monitoring, misfire monitoring, and oxygen sensor monitoring; and (3) established several new requirements including requirements for cold start emission reduction strategy monitoring, direct ozone reduction monitoring, production vehicle evaluation and verification testing, and standardized measurement of real world monitoring performance;

WHEREAS, in April 2002, the Board also adopted and the Office of Administrative Law subsequently approved an enforcement regulation regarding OBD II compliance, "Enforcement of Malfunction and Diagnostic System Requirements for 2004 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines," (OBD II enforcement regulation), which is codified at California Code of Regulations, title 13, section 1968.5 and which sets specific protocols for enforcement and remedying OBD II noncompliance;

WHEREAS, the Board adopted amendments to section 1968.2 in 2006 which were approved by the Office of Administrative Law;

WHEREAS, in 2001 and 2002, the Board adopted more stringent tailpipe emission standards for 2007 and subsequent model year heavy-duty diesel engines and 2008 and subsequent model year heavy-duty Otto-cycle engines, respectively;

WHEREAS, in May 2004, the Board adopted and the Office of Administrative Law subsequently approved regulations regarding "Engine Manufacturer Diagnostic System Requirements—2007 and Subsequent Model-Year Heavy-Duty Engines," (EMD), which are codified at California Code of Regulations, title 13, section 1971 (section 1971), and which set forth requirements for (1) monitoring the fuel system, exhaust gas recirculation system, particulate matter (PM) trap, and emission-related electronic components; and (2) alerting the vehicle operator to the problem by illuminating a warning light and outputting diagnostic information for use by repair technicians;

WHEREAS, the U.S. EPA approved California's request for a waiver of preemption under section 209(b) of the CAA for the EMD regulation (71 Fed.Reg. 335 (January 4, 2006));

WHEREAS, in July 2005, the Board adopted and the Office of Administrative Law subsequently approved regulations regarding "On-Board Diagnostic System Requirements for 2010 and Subsequent Model-Year Heavy-Duty Vehicles and Engines," (HD OBD), which are codified at section 1971.1, and which include more comprehensive diagnostic system requirements than the EMD regulation by establishing, among other things, monitoring requirements for virtually every emission-related component or system, standardized requirements defining the content and format of specific diagnostic information required to be output for use by repair technicians, testing requirements to ensure the OBD systems comply with the proposed regulation, and requirements for standardized measurement of real world monitoring performance;

WHEREAS, the U.S. EPA on August 13, 2008 approved California's request for a waiver of preemption under section 209(b) of the CAA for the HD OBD regulation (73 Fed.Reg. 52042 (September 8, 2008));

WHEREAS, the staff has now proposed adoption of amendments to sections 1968.2 and 1971.1;

WHEREAS, the proposed amendments to section 1971.1 would include, among other things, clarifications and/or modifications to several areas of the diesel-related monitoring and standardization requirements including malfunction thresholds and

required implementation dates based on staff experience and manufacturer input, more comprehensive aging requirements for certification demonstration, revisions to the gasoline requirements that are more consistent with the OBD II gasoline requirements of section 1968.2, and additional certification requirements that would include in-use compliance testing by heavy-duty engine manufacturers;

WHEREAS, the proposed amendments to section 1968.2 would update the OBD II diesel-related monitoring and standardization requirements to be consistent with the proposed diesel-related amendments to section 1971.1 and would revise the phase-in implementation schedule for the gasoline primary oxygen sensor response rate monitoring requirement;

WHEREAS, the staff has now further proposed adoption of California Code of Regulations, title 13, section 1971.5 (section 1971.5) that would establish in-use compliance testing and enforcement procedures to ensure compliance with the HD OBD requirements for 2010 and subsequent model year heavy-duty vehicles and engines, and that such procedures would set forth a specific protocol for in-use testing of HD OBD-equipped motor vehicles and engines and remedying noncompliance with the HD OBD requirements;

WHEREAS, the California Environmental Quality Act (CEQA), section 21080.5 of the Public Resources Code and Board regulations at California Code of Regulations, title 17, section 60006 require that no project which may have significant adverse environmental impacts may be adopted as originally proposed if feasible alternatives or mitigation measures are available to reduce or eliminate such impacts;

WHEREAS, pursuant to section 43101 of the Health and Safety Code and section 11346.3 of the Government Code, the Board is required to consider and assess the effects of the proposed regulations on the economy of the State;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of chapter 3.5 (commencing with section 11340), part 1, division 3, title 2 of the Government Code to consider adoption of proposed amendments to sections 1968.2 and 1971.1, and proposed adoption of section 1971.5;

WHEREAS, the Board finds regarding the adoption of proposed amendments to section 1971.1 that:

> Emissions from heavy-duty trucks, especially NOx and PM emissions released from diesel trucks, are of great concern;
>
> NOx is a precursor to ozone and causes lung irritation, diesel PM is carcinogenic and identified as a toxic air contaminant, and both NOx and diesel PM contribute to the formation of PM2.5;
>
> Particulate filters are expected to be universally used on heavy-duty engines by the 2007 model year;
>
> In an effort to meet NAAQS and state ambient air quality standards and comply with the federally mandated State Implementation Plan (SIP) to meet those

standards, California has continued in the forefront in adopting the most stringent motor vehicle emission control program in the nation;

On-Road Heavy-Duty strategy #5 (previously called measure 17) was included as part of the 2007 SIP to complement the new emission standards for heavy-duty diesel engines and with the objective to reduce in-use emissions from on-road heavy-duty diesel vehicles;

Section 1971.1 was adopted in 2005, requiring comprehensive OBD requirements for 2010 and subsequent model year heavy-duty gasoline and diesel vehicles, as part of the State's efforts to meet the obligations of On-Road Heavy-Duty strategy #5;

Since the adoption of section 1971.1 in 2005, it has become apparent that additional requirements and revisions to current requirements are necessary to improve emission-control system monitoring and compliance in light of increasingly stringent emission standards, the need to better serve repair technicians, and manufacturer concerns regarding compliance;

Proposed amendments to section 1971.1 include:

Modifications to malfunction thresholds for three major diesel emission control components (PM filters, NOx catalysts, NOx sensors), delay the implementation dates for some catalyst-based components, and provide clarifications to many of the diesel monitoring requirements;

Revisions to the monitoring requirements for gasoline vehicles to make them more consistent with those recently adopted for light-duty and medium-duty vehicles in section 1968.2;

Requirements that manufacturers test actual aged engines in-use to verify that its aging procedures ensure that heavy-duty engines certified to the 2010 and subsequent model year emission standards perform at or near such levels in-use and that HD OBD systems are able to detect faults before the malfunction emission thresholds are exceeded for the full useful life of the engines;

Requirements that the HD OBD system must be capable of outputting additional data to a scan tool to help assist the service and repair industry in the repair of emission-related malfunctions and to better allow ARB staff to determine compliance;

A requirement that as a condition for certification, engine manufacturers would be required to agree to conduct in-use compliance testing of their engines in accordance with proposed section 1971.5;

The proposed amendments to section 1971.1 are necessary, cost-effective, and technologically feasible to carry out the purposes of the California CAA; and

WHEREAS, the Board finds regarding the adoption of proposed amendments to section 1968.2 that:

With the introduction of 1996 model year motor vehicles and engines, manufacturers have incorporated OBD II systems into nearly all of their light- and medium-duty vehicle models and engines pursuant to the standards and other requirements of sections 1968.1 and 1968.2;

Additional amendments to section 1968.2 were adopted in 2006 requiring more comprehensive monitoring requirements for diesel vehicles to make it more consistent with the requirements adopted in 2005 for heavy-duty vehicles in section 1971.1;

Since the adoption of section 1971.1 in 2005 and the amendments to section 1968.2 in 2006, additional amendments to section 1968.2 are necessary to improve emission-control system monitoring and compliance in light of increasingly stringent emission standards, the need to better serve repair technicians and to incorporate the use of OBD systems into inspection programs, and concerns of manufacturers regarding compliance;

Proposed amendments to section 1968.2 include:

Revising the monitoring and standardization requirements for diesel vehicles to make them more consistent with those currently being proposed for heavy-duty vehicles in section 1971.1;

Delaying implementation of the gasoline primary oxygen sensor monitoring requirement that requires manufacturers to submit data demonstrating proper calibration and detection of all response rate malfunctions to ensure that manufacturers have sufficient time to properly implement the requirement;

Adding new requirements and revising existing provisions to ensure that a motor vehicle certified to the LEV II emission standards will continue to operate in-use at or near certification levels throughout the motor vehicle's life;

The proposed amendments to section 1968.2 are necessary, cost-effective, and technologically feasible to carry out the purposes of the California CAA; and

WHEREAS, the Board finds regarding the adoption of proposed section 1971.5 that:

The Legislature has entrusted the Board with express and implied authority to adopt HD OBD specific in-use compliance and enforcement procedures;

Based on past experience in enforcing light-duty and medium-duty OBD II requirements, HD OBD-specific enforcement procedures are necessary and should be used instead of the general in-use enforcement provisions, set forth at California Code of Regulations, title 13, section 2111 through 2153, to better

address the unique issues involved in compliance with the HD OBD regulation;

The proposed enforcement procedures would clarify the rights and responsibilities of all parties in complying with the HD OBD requirements and the HD OBD specific in-use testing procedures and remedies should ensure greater and more effective compliance while providing engine manufacturers with fair notice and process;

To effectively ensure in-use compliance, engine manufacturers need to self-test in-use engines in that they are uniquely qualified to test their own engines at a substantial economic savings relative to anyone else because engine dynamometer testing requires very detailed knowledge about the engine and often requires custom equipment or parts created by the manufacturer to successfully conduct testing;

At this time alternatives to engine dynamometer testing are not feasible; however, should alternatives become feasible and need to be used before a future biennial review can incorporate it, the Executive Officer would have authority to accept alternative testing procedures upon a manufacturer demonstrating that the alternative procedure would provide an equivalently robust determination regarding compliance of the HD OBD system.

WHEREAS, the Board further finds regarding the adoption of proposed amendments to sections 1968.2 and 1971.1 and adoption of proposed section 1971.5 that:

With respect to the requirements of CEQA, proposed amendments to sections 1968.2 and 1971.1 and proposed section 1971.5 may, but is unlikely, to have a minimal adverse impact in the aggregate on the environment. The impact may occur as a result of the higher interim malfunction thresholds for diesel PM filter and NOx aftertreatment monitoring during the 2010 through 2012 model years and the delay in implementation dates for a few catalyst-based components; the impact, however, is likely to be offset because of the incorporation of additional monitoring requirements and the new in-use compliance and enforcement procedures, which result in more durable and robust monitoring systems;

To the extent that increased impacts do occur, overriding considerations exist in that the higher thresholds and delays are necessary because many of the diesel emission control technologies and associated monitoring systems involved are new and evolving and have never previously existed on diesel vehicles;

The identified potential emissions should not have a disproportionate impact on any community in the State, especially low-income or minority communities, in that expected emissions are expected to be insignificant and affected diesel vehicles will be located throughout the state and not congregated in any specific area;

The economic and cost impacts of proposed sections 1968.2, 1971.1, and 1971.5 have been analyzed as required by California law, and the conclusions and supporting documentation for this analysis are set forth in the Initial Statement of Reasons for this regulatory action;

The reporting requirements of sections 1968.2, 1971.1, and 1971.5 that are applicable to businesses are necessary for the health, safety, and welfare of the people of the State; and

The requirements of sections 1968.2, 1971.1, and 1971.5 are similar but not identical to requirements addressed in federal regulations; different California regulations are authorized by the Health and Safety Code and the cost of the different state provisions is justified by the benefit to human health, public safety, public welfare, or the environment.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves proposed amendments to the California Code of Regulation, title 13, sections 1968.2 and 1971.1 and proposed section 1971.5, as set forth in Attachments A through C.

BE IT FURTHER RESOLVED that the Board directs the staff to modify the regulation as necessary to allow industry's proposal for monitoring of the vehicle speed sensor using information from the transmission electronic control unit.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to adopt proposed amendments to sections 1968.2 and 1971.1 and proposed section 1971.5, after making the modified regulatory language and any additional supporting documents and information available for public comment for a period of 15 days, provided that the Executive Officer shall consider such written comments regarding the modification and additional supporting documents and information as may be submitted during this period, make modifications as may be appropriate in light of the comments received, and present the regulations to the Board for further consideration if he determines that this is warranted.

BE IT FURTHER RESOLVED that the Board hereby determines that pursuant to section 209(b) of the CAA, the amendments to sections 1968.2 and 1971.1 and the requirements of section 1971.5 do not undermine California's previous determinations that the State's standards are in the aggregate, at least as protective of the public health and welfare as applicable federal standards or that requirements and procedures are consistent with section 202(a) of the CAA and do not raise any new issues.

BE IT FURTHER RESOLVED that the Executive Officer shall, upon adoption, forward the amendments to sections 1968.2 and 1971.1 and the requirements of section 1971.5 to the Administrator of U.S. EPA with a request that the amendments and regulation be found to be within the scope of the existing waiver(s) that has been requested and/or granted under section 209(b) of the CAA for title 13, California Code of Regulations, sections 1968.2 and 1971.1or, to the extent that the Executive Officer deems necessary, be granted a new waiver.

BE IT FURTHER RESOLVED that to the extent a new waiver is required, the Board hereby determines that California continues to need its own motor vehicle emission reductions program to meet compelling and extraordinary environmental conditions.

BE IT FURTHER RESOLVED that the Board directs the staff to continue to closely monitor vehicle manufacturers in complying with the requirements of the California Code of Regulations, sections 1968.2 and 1971.1, title 13, and the implementation of the California Code of Regulations, section 1971.5, title 13, and to report to the Board in approximately two years, if amendments to the regulations are necessary.

I hereby certify that the above is a true and correct copy of Resolution 09-37, as adopted by the Air Resources Board.

Monica Vejar

Monica Vejar, Clerk of the Board

May 28, 2009

Identification of Attachments to the Resolution

Attachment A: On-Board Diagnostic System Requirements for 2010 and Subsequent Model Year Heavy-Duty Engines, California Code of Regulations, Title 13, section 1971.1

Attachment B: Malfunction and Diagnostic System Requirements for 2004 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines, California Code of Regulations, Title 13, section 1968.2

Attachment C: Enforcement of Malfunction and Diagnostic System Requirements for 2010 and Subsequent Model Year Heavy-Duty Vehicles and Engines, California Code of Regulations, Title 13, section 1971.5