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RESOURCES AGENCY OF CALIFORNIA

State of California
AIR RESOURCES BOARD

Resolution 97-34

July 24, 1997

Agenda Item No.: 97-6-1

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (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, in section 43000 of the Health and Safety Code, the Legislature has declared that the emission of air pollutants from motor vehicles is the primary cause of air pollution in many parts of the State, and sections 39002 and 39003 of the Health and Safety Code charge the Board with the responsibility of air pollution control from motor vehicles;

WHEREAS, sections 43013, 43101, and 43104 of the Health and Safety Code authorize the Board to adopt emission standards and test procedures to control air pollution caused by motor vehicles;

WHEREAS, section 43018 of the Health and Safety Code directs the Board to endeavor to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of state ambient air quality standards at the earliest practicable date;

WHEREAS, section 39667 of the Health and Safety Code directs the Board to consider the revision of emission standards for vehicular sources to achieve the maximum possible reduction in public exposure to toxic air contaminants and provides that standards for new motor vehicles shall be based on the most advanced technology feasible;

WHEREAS, the determination of a manufacturer's compliance with the ARB's exhaust emission standards for passenger cars, light-duty trucks, and medium-duty vehicles is based on the results of vehicle testing under a test procedure which is known as the Federal Test Procedure (FTP) and is also used in emission testing for compliance with the exhaust emission standards of the U.S. Environmental Protection Agency (U.S. EPA);

WHEREAS, the current FTP, which is intended to represent a typical urban commuter trip, was developed based on driving characteristics surveyed in 1970 and has not been modified since it was first used for motor vehicle certification in 1975;

WHEREAS, current dynamometer systems on which the FTP is conducted can only handle acceleration rates up to 3.3 miles per hour per second, and thus limit the FTP to modest acceleration rates;

WHEREAS, the FTP does not accurately simulate the real-world emission impact of air-conditioner usage; while the air-conditioner is not turned on during the FTP, its load on the engine is simulated by increasing the power absorption of the dynamometer load by 10 percent; in several recent test programs air-conditioner usage resulted in significant increases in exhaust emissions, including increases in oxides of nitrogen emissions of more than 90 percent;

WHEREAS, an extensive 1992 study showed that approximately 28 percent of the current light-duty vehicle miles recorded were traveled during speeds or acceleration rates that are higher than those represented by the FTP, and another U.S. EPA test program showed that exhaust emissions from light-duty vehicles increase significantly during higher speed or acceleration regimes not covered by the FTP;

WHEREAS, on October 22, 1996, the U.S. EPA promulgated a final rule adopting two supplemental test procedures, collectively referred to as the SFTP, which consist of the SC03 air-conditioner test and a high-speed, high-acceleration test known as the US06 test; the rule also requires the use of improved dynamometer systems that can handle the greater acceleration rates in the US06 test;

WHEREAS, the U.S. EPA final rule also establishes emission standards for gasoline and diesel fuel vehicles when tested under the SFTP, to be phased-in beginning in the 2000 model year; the federal SFTP standards are set at levels appropriate for vehicles subject to the federal "Tier 1" FTP exhaust emission standards that apply at least through the 2003 model year, and are equivalent to California's 1994 model-year exhaust emission standards;

WHEREAS, the motor vehicle industry and ARB staff have conducted a series of test programs, involving tests on over sixty vehicles during 1995 to 1997, to develop SFTP emission standards for California's low-emission passenger cars, light-duty trucks, and medium-duty vehicles under 8,501 pounds gross vehicle weight rating (GVWR);

WHEREAS, the staff has proposed regulatory amendments which would, for gasoline, diesel, and hybrid (gasoline and diesel) electric passenger cars, light-duty trucks, and medium-duty vehicles under 8,501 lbs. GVWR, establish (1) high-speed, high acceleration and air-conditioner supplemental test procedures that are in all respects identical to the SFTP adopted by U.S. EPA, and (2) 4,000-mile SFTP emission standards that, for low-emission, ultra-low-emission and super-ultra-low-emission vehicles, are substantially more stringent than the Federal SFTP standards; consistent with the federal requirements, the proposed tests and standards do not apply to alternative fuel vehicles;

WHEREAS, under the staff proposal passenger cars and light-duty trucks would be subject to the SFTP standards under a phase-in schedule of 25 percent compliance in the 2001 model year, 50 percent in the 2002 model year, 85 percent in the 2003 model year, and 100 percent in 2004 and subsequent model years, and medium-duty vehicles would be subject to a later phase-in schedule of 25 percent, 50 percent and 100 percent beginning in the 2003 model year;

WHEREAS, the staff proposal includes various other related elements, including SFTP standards for California "Tier 1" and transitional-low-emission vehicles that are identical to the Federal SFTP standards, specifications of new improved dynamometer systems for SFTP and FTP testing, identical to those adopted by the U.S. EPA, and application of new vehicle audit requirements to confirm compliance with the SFTP emission standards beginning in the 2002 model year;

WHEREAS, the staff proposal consists of amendments to sections 1960.1 and 2101, title 13, California Code of Regulations, as set forth in Attachment A hereto, to the incorporated "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," as set forth in Attachment B hereto, and to the "California New Vehicle Compliance Test Procedure," as set forth in Attachment C hereto;

WHEREAS, the California Environmental Quality Act and Board regulations require that no project which may have significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available to reduce or eliminate such impacts;

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;

WHEREAS, the Board has considered the effect of the proposed amendments on the economy of the state;

WHEREAS, the Board finds that:

Adoption of the proposed supplemental test procedures is necessary and appropriate to measure exhaust emissions under common driving conditions outside the FTP, such as aggressive driving and air-conditioner usage, which can contribute to substantial emission increases;

Adoption of supplemental test procedures that are identical to the federal supplemental test procedures will continue to permit manufacturers to put a vehicle through one set of

tests to demonstrate compliance with the California and Federal standards and will assure that manufacturers will be able to use the same equipment for California and Federal testing;

The proposed SFTP emission standards will significantly reduce the combined emissions of non-methane hydrocarbon and oxides of nitrogen from low-emission, ultra-low-emission and super-ultra-low-emission vehicles during aggressive driving and air-conditioner usage;

Based on the test programs conducted by ARB staff and the motor vehicle industry, the proposed SFTP emission standards are technologically feasible; at least 70 percent of low-emission, ultra-low-emission and super-ultra-low-emission vehicles are expected to comply with only software modifications, typically consisting of a rich-bias calibration, and the remaining vehicles are expected to be able to comply through the use of catalyst hardware modifications;

Establishment of SFTP standards at 4,000 miles is appropriate because it allows the standards to be derived from the very low SFTP emissions achieved by the optimized low-mileage vehicles in the joint ARB/industry test programs; some deterioration in SFTP emissions will be expected over 50,000 and 100,000 miles, but gross deterioration should be avoided by the existence of 50,000 and 100,000 mile FTP emission standards and by the use of On-board Diagnostics II systems;

The proposed new dynamometer system specifications are necessary to conduct the proposed high-speed, high-acceleration test and to more accurately simulate actual road load forces; and

Beginning the new vehicle audit testing requirements in the second year of the SFTP phase-in for passenger cars and light-duty trucks will allow time during the first year implementation to evaluate the accuracy of testing new vehicles at essentially zero mileage to determine compliance with the proposed 4,000 mile standards; and

WHEREAS, the Board further finds that:

Adoption of the proposed tests and standards will result in estimated statewide reactive organic gases plus oxides of nitrogen emission reductions of 115 tons per day in 2010, and of 133 tons per day in 2020 when fleet turnover will be largely complete;

The air quality impacts of aggressive driving and air-conditioner operation were not included in the 1994 State Implementation Plan, and the projected emission reductions associated with implementation of the proposed tests and standards thus do not directly affect the State Implementation Plan; and

The best estimate of the projected costs to comply with the proposed amendments is \$43.2 to \$57.9 million annually, or \$28.80 to \$38.60 per vehicle; the estimated cost-effectiveness is \$890 to \$1,200 per ton, or \$0.44 to \$0.60 per pound, which compares favorably to the typical cost-effectiveness values for current air pollution control measures.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves amendments to sections 1960.1 and 2101, title 13, California Code of Regulations, as set forth in Attachment A hereto, to the incorporated "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," as set forth in Attachment B hereto, and to the incorporated "California New Vehicle Compliance Test Procedure," as set forth in Attachment C hereto, with the modifications set forth in Attachment D hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to incorporate into the approved amendments the modifications described in Attachment D hereto, with such other conforming modifications as may be appropriate, and then to adopt the modified amendments, after making the modified regulatory language available for public comment for a period of 15 days, provided that the Executive Officer shall consider such written comments regarding the modified text as may be submitted during this period, shall make modifications as may be appropriate in light of the comments received, and shall 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 the regulations adopted herein will not cause California motor vehicle emission standards, in the aggregate, to be less protective of public health and welfare than applicable federal standards.

BE IT FURTHER RESOLVED that the Board hereby finds that separate California emission standards and test procedures are necessary to meet compelling and extraordinary conditions.

BE IT FURTHER RESOLVED that the Board finds that the California emission standards and test procedures as adopted herein will not cause the California requirements to be inconsistent with section 202(a) of the Clean Air Act and raise no new issues affecting previous waiver determinations of the Administrator of the Environmental Protection Agency pursuant to section 209(b) of the Clean Air Act.

BE IT FURTHER RESOLVED that the Executive Officer shall, upon adoption, forward the regulations to the U.S. EPA with a request for a waiver or confirmation that the regulations are within the scope of an existing waiver of federal preemption pursuant to section 209(b) of the Clean Air Act, as appropriate.

I hereby certify that the above is a true and correct copy of Resolution 97-34, as adopted by the Air Resources Board.

Pat Hutchens

Pat Hutchens, Clerk of the Board

Resolution 97-34

July 24, 1997

Identification of Attachments to the Resolution

Attachment A: Proposed amendments to sections 1960.1 and 2101, title 13, California Code of Regulations, as set forth in Appendix 4 to the Staff Report.

Attachment B: Proposed amendments to the "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as set forth in Appendix 5 to the Technical Support Document.

Attachment C: Proposed amendments to the "California New Vehicle Compliance Test Procedure," as set forth in Appendix 6 to the Technical Support Document.

Attachment D: Staff's Suggested Changes to the Original Proposal, distributed at the hearing on July 24, 1997.