

State of California
AIR RESOURCES BOARD

Resolution 98-37

August 27, 1998

Agenda Item No.: 98-9-2

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (the “Board” or “ARB”) 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 43018(a) and (b) of the Health and Safety Code direct 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 the state ambient air quality standards at the earliest practicable date, and to take whatever actions are necessary, cost-effective, and technologically feasible in order to achieve, by December 31, 2000, specified reductions in the emissions of reactive organic gases, oxides of nitrogen (NO_x), particulates, carbon monoxide (CO), and toxic air contaminants from vehicular sources;

WHEREAS, section 43018(c) of the Health and Safety Code provides that in carrying out section 43018, the Board shall adopt standards and regulations which will result in the most cost-effective combination of control measures on all classes of motor vehicles and motor vehicle fuel, including but not limited to specification of vehicular fuel composition;

WHEREAS, Health and Safety Code section 43013 authorizes the Board to adopt and implement motor vehicle fuel specifications for the control of air contaminants and sources of air pollution which the Board has found to be necessary, cost-effective, and technologically feasible to carry out the purposes of Division 26 of the Health and Safety Code;

WHEREAS, following a hearing in November 1991, the Board adopted regulations for California reformulated gasoline (CaRFG), applicable beginning March 1, 1996; these regulations include a comprehensive set of specifications affecting eight different gasoline properties — summertime Reid vapor pressure (RVP), T50, T90, and aromatic hydrocarbon, benzene, sulfur, olefin, and oxygen content — which result in significant reductions in emissions of ozone precursors and toxic air contaminants;

WHEREAS, the CaRFG regulations require that, for each of the eight regulated properties, producers and importers meet either “flat” or, if available, “averaging” limits when their gasoline is supplied from the production or import facility, and require that gasoline at any point in the distribution system not exceed “cap” limits for the properties which in most cases are less stringent than the flat or averaging limits;

WHEREAS, following a hearing in June 1994, the Board amended the CaRFG regulations to give gasoline producers and importers the option of using the “California Predictive Model” (the “Predictive Model”) to assign alternative CaRFG specifications for all of the regulated properties except RVP to batches of gasoline that could be met in lieu of the flat and averaging limits set forth in the regulations, as long as the alternative specifications are within the cap limits and are shown by the predictive model to achieve emissions reductions in hydrocarbons (HC), NO_x and potency-weighted toxics equivalent to those resulting from the flat and averaging limits;

WHEREAS, the CaRFG regulations provide that California gasoline sold or supplied throughout the gasoline distribution system in specified winter months (the “winter control periods”) must contain at least 1.8 percent by weight (wt.%) oxygen, and that gasoline sold throughout the distribution system year-round is subject to a maximum oxygen cap of 2.7 wt.%;

WHEREAS, the CaRFG regulations require that when gasoline is supplied from production or import facilities, it must contain between 1.8 wt.% and 2.2 wt.% oxygen, except that a producer or importer using the predictive model may reduce or eliminate the oxygen outside the winter control period, and may increase the oxygen up to the 2.7 wt.% cap year-round, as long as the gasoline is formulated so that the Predictive Model shows it will result in overall emission reductions equivalent to those resulting from the flat and averaging limits;

WHEREAS, adding oxygen to gasoline reduces emissions of CO from the current motor vehicle fleet, and federal Clean Air Act (CAA) section 211(m), part of the 1990 amendments, conditionally required each state with federal CO nonattainment areas meeting specified criteria to submit a revision of the state’s State Implementation Plan (SIP) to require at least 2.7 wt.% oxygen in the gasoline sold in the Metropolitan Statistical Areas (MSAs) or Consolidated Metropolitan Areas (CSMAs) containing the nonattainment areas during the winter months when the federal ambient standard for CO had been exceeded in the areas;

WHEREAS, as of 1991 the eight California areas in which a wintertime oxygenates program was conditionally required by CAA section 211(m) to be in the SIP were the Chico, Fresno, Modesto, Sacramento, San Diego and Sacramento MSAs, and the Los Angeles-Anaheim-Riverside and San Francisco-Oakland-San Jose CSMAs (hereafter the “section 211(m) areas”);

WHEREAS, under CAA section 211(m) the conditional 2.7 wt.% wintertime oxygenates requirement is waived if the state satisfactorily demonstrates that use of the oxygenated gasoline would prevent or interfere with the attainment by the area of a national or state ambient air quality standard for any pollutant other than CO;

WHEREAS, under CAA section 211(m) does not impose any requirements for SIPs covering areas that are in attainment for CO, including a federal CO nonattainment area that is redesignated as attainment to the extent an oxygenated gasoline program is not necessary to maintain attainment of the CO standard;

WHEREAS, when the Board approved the wintertime oxygenates element of the CaRFG regulations in 1991, most of the urban areas in California were section 211(m) areas, and to facilitate enforcement the Board made the wintertime minimum oxygen content requirements applicable statewide;

WHEREAS, the Board in 1991 determined not to require the use of more than 1.8 wt.% oxygen in the wintertime, and to impose the cap and refinery limits on maximum oxygen content, to avoid NOx emission increases associated with higher oxygen contents and the contribution of those NOx increases to wintertime exceedances of the state and federal ambient air quality standards for particulate matter (PM) and ozone;

WHEREAS, the CaRFG regulations as originally adopted, including the minimum and maximum oxygen content requirements, were approved by the U.S. Environmental Protection Agency (U.S. EPA) on August 21, 1995 as a revision to California's SIP;

WHEREAS, since February 1998, the ARB staff has worked intensively with the Western States Petroleum Association (WSPA), environmental groups and others to identify possible changes and additions to the CaRFG regulations to provide refiners and marketers with more compliance flexibility while preserving the overall emissions reductions from the CaRFG program;

WHEREAS, as a result of these activities, the staff has proposed amendments to the CaRFG regulations that would: (1) rescind in most areas the requirement for at least 1.8 wt.% oxygen in gasoline sold in the wintertime, so that the requirement will remain permanently in the counties of Los Angeles, Orange, Riverside, San Bernardino, Ventura and Imperial only, and will remain through January 31, 2000, in Fresno and Madera counties and the Lake Tahoe Air Basin only; (2) increase the "cap" limit for oxygen from 2.7 to 3.5 wt.%; and (3) make minor technical changes to the regulations;

WHEREAS, under Health and Safety Code section 43830(g), a gasoline blend containing at least 10 percent by volume (vol.%) ethanol is exempt from the Board's RVP standard unless the ARB finds that, based on independently verifiable automobile exhaust and evaporative emission tests performed on a representative fleet of automobiles, a blend of gasoline that contains 2.0 wt.% oxygen from an oxygenate other than ethanol and that meets all of the flat specifications for CaRFG including an RVP of 7.0 pounds per square inch (psi) will result in a net decrease in the ozone forming potential of the total emissions, excluding emissions of NOx, compared to the total emissions excluding emissions of NOx from the same automobile fleet operating on the same base gasoline oxygenated with 10 vol.% ethanol;

WHEREAS, pursuant to CAA section 211(k), U.S. EPA has adopted federal reformulated gasoline (federal RFG) regulations applicable to the 70 percent of California gasoline that is sold in the greater Los Angeles, San Diego, and Sacramento areas; these regulations require a year-round minimum oxygen content of 2.0 wt.% and do not provide any RVP exemption for gasoline containing ethanol;

WHEREAS, the California Environmental Quality Act and Board regulations require that an action not be adopted as proposed where it will have significant adverse environmental impacts if feasible alternatives or mitigation measures are available which would substantially reduce or avoid such impacts;

WHEREAS, the Board has considered the impact of the proposed amendments 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; and

WHEREAS, the Board finds that:

On March 31, 1998, at the ARB's request, U.S. EPA published a redesignation to attainment of the federal CO ambient standard for 10 federal planning areas, including the planning areas within all of the section 211(m) areas except for the Los Angeles-Anaheim-Riverside CMSA, which consists of the counties of Los Angeles, Orange, San Bernardino, Riverside and Ventura;

Continued application of a mandatory minimum oxygen limit for wintertime gasoline is not necessary to maintain attainment of the federal and state CO standard in any of the redesignated section 211(m) areas except for the Fresno MSA (Fresno and Madera Counties), where continued application of a mandatory minimum oxygen limit for wintertime gasoline will not be necessary after January 31, 2000 to maintain attainment of the federal and state CO standard;

Continued application of a mandatory minimum oxygen limit for wintertime gasoline in the Lake Tahoe Air Basin will not be necessary after January 31, 2000 to maintain attainment of the federal and state CO standard;

The Los Angeles area and Calexico currently violate the state and federal ambient CO standards and it is accordingly inappropriate to eliminate the mandatory minimum oxygen limit of 1.8 wt.% for wintertime gasoline in the CMSA containing Los Angeles and in Imperial County;

Adoption of the partial elimination of the wintertime minimum oxygen requirements proposed by staff are necessary and appropriate to expand to the winter period the flexibility that gasoline producers and importers already have in the rest of the year to use less or no oxygenate where to do so is more cost-effective or otherwise advantageous;

The practical effect of the amendments to the wintertime oxygenate requirements adopted herein is limited in that the 70 percent of the state's gasoline sold in federal RFG areas will still be subject to the year-round requirement for at least 2 wt.% gasoline in federal RFG;

Adoption of the minor technical changes proposed by staff to the CaRFG regulations are necessary and appropriate in that they (1) correct drafting errors in the CaRFG provisions on averaging when not using the Predictive Model, (2) specifically exclude racing gasoline from applicability of the CaRFG regulations, reflecting the ARB's longstanding interpretation of its fuels regulations, (3) making application of the RVP limit for gasoline shipped from northern California refineries to southern marine terminals consistent with treatment of gasoline imported to those terminals from out of state and produced at those facilities, and (4) accommodate low-throughput service stations at the beginning of the wintertime oxygenates season;

Increasing the oxygen cap from 2.7 to 3.5 wt.% as proposed by staff in the amendment to section 2262.5(b) would permit the sale of gasoline containing 10 vol.% ethanol as long as it meets the Predictive Model criteria, and such gasoline would be exempt from the RVP standard in the CaRFG regulations unless the Board makes the finding specified in Health and Safety Code section 43830(g);

When 10 vol.% ethanol is added to gasoline meeting the RVP standard of 7.0 psi, the RVP of the gasoline increases by approximately 1 psi and mass HC evaporative emissions will increase significantly; the ozone-forming potential of the emissions other than NO_x from RVP-exempt gasoline will accordingly increase unless the contribution to ozone formation from the mass HC evaporative emissions increase is fully offset by any decreases in exhaust HC emissions, any decreases in reactivity of the exhaust and evaporative HC emissions, and decreases in exhaust CO emissions, to the extent CO contributes to ozone formation;

The staff plans to present at the December 10-11, 1998 Board meeting a report on the likely overall emissions impact of the RVP exemption and a recommendation on whether the Board should make the finding set forth in Health and Safety Code section 43830(g);

In order to avoid possible increases in the ozone-forming potential of vehicular emissions resulting from the RVP exemption for gasoline containing 10 vol.% ethanol, it is appropriate to continue consideration of the proposed amendment of section 2262.5(b), title 13, California Code of Regulations, raising the oxygen cap to the December 10-11, 1998 Board meeting so that it can be considered at the same time the Board considers whether to make the Health and Safety Code section 43830(g) finding that would eliminate the RVP exemption for gasoline containing 10 vol.% ethanol;

While the CaRFG regulations as amended herein are different from the reformulated gasoline regulations contained in the Federal Code of Regulations, the regulations approved herein are authorized by state law;

The CaRFG regulations, as revised by the amendments approved herein, remain technologically feasible; the amendments enhance the technological feasibility of the CaRFG regulations by providing additional compliance feasibility;

The proposed amendments will not affect the creation or elimination of jobs within the State of California, the creation of new businesses or the elimination of existing businesses within California, the expansion of businesses currently doing business within California, or the ability of California businesses to compete with businesses in other states;

The amendments approved herein will not have any adverse impact on the economy of the state; and

WHEREAS, the Board further finds that:

The amendments adopted herein regarding minimum oxygen content are not expected to have an adverse or beneficial impact on exhaust emissions of HC, NO_x or potency-weighted toxics because gasoline containing less than 1.8 wt.% oxygen will only be permitted if it meets the Predictive Model criteria;

To the extent that refiners and importers reduce the amount of oxygen in gasoline in response to the wintertime oxygen amendments adopted herein, CO emissions from motor vehicles operating on that gasoline will increase as a result of the reduced oxygen content;

Even in the worst possible case, vehicular CO emissions under the partial elimination of the wintertime minimum oxygen requirements would remain less than they were in 1995, and would decline annually from the turnover of the vehicle fleet to new vehicles;

At this time, CO emissions increases from the wintertime oxygen amendments would be limited to the 30 percent of the state's gasoline that is not subject to the federal RFG requirements;

The limitations incorporated into the wintertime oxygen amendments will assure that any CO emission increases resulting from the amendments will not interfere with the attainment or maintenance of the federal or state ambient CO standards;

The benefits from the increased flexibility refiners and importers will have as a result of the wintertime oxygen amendments constitute an overriding consideration which justifies the adverse CO emissions impacts identified above, and the limitations in the amendments substantially mitigate the impacts; there are no other feasible alternatives or mitigation measures available that would further reduce or avoid such impacts while maintaining the increase in producer and importer flexibility;

The partial elimination of the wintertime minimum oxygenate requirement adopted herein may lead to somewhat reduced use of methyl tertiary butyl ether (MTBE), currently the primary oxygenate used in California, and such reduced use could to a small degree lessen the threat of ground and surface water contamination by MTBE; and

The other technical amendments adopted herein will not result in any significant adverse environmental impacts.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby amends sections 2260, 2262.1, 2262.2, 2262.3, 2262.4, 2262.5(a) & (e), 2262.6, and 2262.7 in title 13, California Code of Regulations” as set forth in Attachment A hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to submit the amendments adopted herein to the U.S. EPA as a revision to the California SIP, and to take whatever actions are necessary to assure prompt approval of the SIP revision by U.S. EPA.

BE IT FURTHER RESOLVED that the Board authorizes and directs the Executive Officer to promptly take all necessary or appropriate actions to achieve the full and immediate effectiveness of the rescission of the winter minimum oxygen requirements in the CO attainment areas of the state as soon as possible, including promptly obtaining U.S. EPA’s approval and notifying fuel suppliers.

BE IT FURTHER RESOLVED that the Board continues consideration of the proposed amendment to section 2262.5(b), increasing the maximum oxygen content limit to 3.5 wt.%, to December 10, 1998, at 9:30 a.m., at the Board Hearing Room at 2020 L Street, Sacramento.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to present to the Board at the Board’s December 10, 1998 meeting a report on the emissions impacts of the RVP exemption for gasoline containing 10 vol.% ethanol, and a recommendation whether the Board should make the finding specified in Health and Safety Code section 43830(g).

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to continue to work with all interested parties to perform a complete update of the exhaust models in the Predictive Model and to continue to evaluate the appropriateness of incorporating an evaporative emissions model into the Predictive Model.

I hereby certify that the above is a true and correct copy of Resolution 98-37, as adopted by the Air Resources Board.

Pat Hutchens, Clerk of the Board

Resolution 98-37

August 27, 1998

Identification of Attachments to the Resolution

Attachment A: Proposed amendments to sections 2260, 2262.1, 2262.2, 2262.3, 2262.4, 2262.5, 2262.6, 2262.7, and 2265, in title 13, California Code of Regulations, and amendments to the “California Procedures for Evaluating Alternative Specifications for Phase 2 Reformulated Gasoline Using the California Predictive Model,” as set forth in Attachment A of the Staff Report.