State of California
AIR RESOURCES BOARD

Resolution 02-25

July 25, 2002

Agenda Item No.: 02-6-2

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 to achieve, by December 31, 2000, specified reductions in the emissions of reactive organic gases, oxides of nitrogen (NOx), 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 necessary, cost-effective, and technologically feasible to carry out the purposes of Division 26 of the Health and Safety Code;

WHEREAS, the ARB administers the Phase 2 California reformulated gasoline (CaRFG2) regulations, which became applicable March 1, 1996 and currently include the following elements:

> Standards for eight gasoline properties – summertime Reid Vapor Pressure (RVP), T50 (50 percent distillation temperature), T90 (90 percent distillation temperature), and aromatic hydrocarbon, benzene, sulfur, olefin, and oxygen contents;

Establishment of an absolute ”cap” limit for each specification, applicable throughout the gasoline distribution system;

Establishment of additional, more stringent “refinery” limits applicable to gasoline when it is initially supplied from the production or import facility for all specifications but RVP, and provisions authorizing compliance through a form of averaging T50, T90, and sulfur, aromatic hydrocarbon, benzene and olefin contents;

An alternative compliance mechanism under which a producer or importer may use the CaRFG2 Predictive Model to identify alternative flat and averaging refinery limits, up to the cap limits, that will result in essentially no increase in emissions of exhaust hydrocarbons, NOx, and potency weighted toxics (benzene, 1,3-butadiene, acetaldehyde and formaldehyde); the CaRFG2 Predictive Model consists of mathematical equations, based on 18 vehicle emissions test programs, that predict the changes in exhaust hydrocarbons, NOx, and potency weighted toxics resulting from different gasoline formulations;

In the case of oxygen content, a requirement that CaRFG2 sold throughout the distribution system in Los Angeles, Orange, Riverside, San Bernardino, Ventura and Imperial Counties during specified winter months must contain at least 1.8 percent by weight (wt.%) oxygen, in order to reduce emissions of CO during the season of highest CO concentrations in areas where the CO ambient air quality standards have not yet been attained; during the rest of the year and in the remainder of the state, CaRFG2 being supplied from a production or import facility is subject to an oxygen content refinery limit of 1.8 to 2.2 wt.%, but the producer or importer may use the CaRFG2 Predictive Model to reduce oxygen content to as low as 0.0 wt.%, or raise it as high as 3.5 wt.%; and

A mechanism allowing a refiner to ship a non-oxygenated gasoline blend – called “California reformulated gasoline blendstock for oxygenate blending,” or “CARBOB” – from the refinery without complying with the CaRFG standards if it is specially formulated to be combined with oxygenate “downstream” from the refinery and the resulting blend will meet all of the CaRFG standards; this allows entities adding oxygenate downstream from the refinery to take advantage of the contribution it can make to complying with the CaRFG standards, particularly by diluting the concentration of compounds like benzene;

WHEREAS, virtually all current California gasoline is subject to alternative refinery flat or averaging limits designated by the producer or importer using the CaRFG2 Predictive Model;

WHEREAS, pursuant to federal Clean Air Act section 211(k), the U.S. Environmental Protection Agency (U.S. EPA) administers federal reformulated gasoline (RFG) regulations that apply – along with the CaRFG2 regulations – 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 oxygen content of 2.0 wt.% or 2.1 wt.% on average, and will apply in the San Joaquin Valley area starting December 10, 2003;

WHEREAS, in order to meet the federal and California requirements for the minimum oxygen content of gasoline, refiners have primarily used the oxygenate methyl tertiary butyl ether (MTBE); in 1998, over 90 percent of California gasoline was blended with MTBE;

WHEREAS, pursuant to "The MTBE Public Health and Environmental Protection Act of 1997" (Stats. 1997, ch. 816; SB 521, Mountjoy), the University of California prepared a report on the "Health and Environmental Assessment of MTBE" and presented it to the Governor on November 12, 1998;

WHEREAS, in response to this report and subsequent written comments and hearing testimony, on March 25, 1999, Governor Gray Davis issued Executive Order D-5-99, in which he found that, "on balance, there is significant risk to the environment from using MTBE in gasoline in California," primarily because of the environmental threat of MTBE contamination of groundwater and drinking water resulting from leaking underground fuel storage tanks;

WHEREAS, Executive Order D-5-99 included a direction to the California Energy Commission (CEC), in consultation with the ARB, to develop a timetable for the removal of MTBE from California gasoline not later than December 31, 2002, and included a direction to the ARB to adopt California Phase 3 Reformulated Gasoline (CaRFG3) regulations that will provide additional flexibility in lowering or removing oxygen and maintain current emissions and air quality benefits and allow compliance with the State Implementation Plan (SIP);

WHEREAS, Senate Bill 989 (Sher), signed by the Governor on October 10, 1999, (Stats. 1999, ch. 812) enacts new section 43013.1 of the Health and Safety Code, which requires the CEC to develop a timetable for the removal of MTBE from gasoline at the earliest possible date, and requires the ARB to ensure that the CaRFG3 regulations maintain or improve upon emissions and air quality benefits achieved by CaRFG2 as of January 1, 1999, and provide additional flexibility to reduce or remove oxygen from motor vehicle fuel;

WHEREAS, California has requested that U.S. EPA waive application of the federal RFG year-round 2.0 wt.% minimum oxygen mandate, on the ground that the mandate prevents or interferes with attainment of the national ambient ozone standard in California because the mandate will preclude the production of

nonoxygenated CaRFG3 which, on average, would result in lower NOx emissions than oxygenated CaRFG3;

WHEREAS, on June 28, 1999, the CEC determined that, to ensure adequate supply and availability of gasoline for California consumers, the timetable for removal of MTBE from California's gasoline should not be advanced earlier than the deadline of December 31, 2002;

WHEREAS, at a hearing on December 9, 1999, the Board approved the CaRFG3 amendments to the CaRFG regulations, including the following major elements:

A prohibition of the use of MTBE in gasoline starting December 31, 2002;

The adoption of CaRFG3 flat, averaging and cap limits for the eight properties regulated by the CaRFG2 program; these limits become applicable December 31, 2002, although there is a mechanism which allows refiners to produce gasoline subject to the CaRFG3 standards before that date;

A new CaRFG3 Predictive Model, which includes a new evaporative hydrocarbon emissions element that will allow an alternative RVP flat limit between 6.40 and 7.20 pounds per square inch (psi), when compared against a flat limit of 6.90 psi;

Elimination of quality audit requirements in the provisions pertaining to CARBOB; and

Small refiner CaRFG3 standards with less stringent flat limits for benzene and aromatics content, T50, and T90 for a qualifying small refiner who had produced CaRFG2 in 1998 and 1999; the refiner could only use the small refiner CaRFG3 standards, however, if it offsets the excess emissions with changes to its diesel fuel produced pursuant to a mechanism to be added to the ARB's regulation limiting the aromatic hydrocarbon content of California diesel fuel;

WHEREAS, the CaRFG3 amendments became operative on September 2, 2000;

WHEREAS, at the December 9, 1999, hearing the Board directed the Executive Officer to propose to the Board, for consideration by October 2000, appropriate further amendments to the CaRFG3 regulations to assure the practical and effective implementation of the provisions on CARBOB and imported gasoline, specifications for denatured ethanol for use in motor vehicles, and amendments to the ARB's diesel fuel regulations to incorporate a mechanism for calculating small refiner offsets;

WHEREAS, at a hearing on November 16, 2000, the Board approved amendments to the CaRFG3 regulations that included the following elements:

Specifications for denatured ethanol intended for use as an oxygenate in California gasoline, and specifications for denaturants used in such ethanol;

Establishment of a new "CARBOB Model" which refiners and importers could elect to use to set limits directly applicable to the CARBOB, eliminating the need to hand-blend the CARBOB with ethanol and test the blend in order to determine compliance with the CaRFG standards that apply to gasoline being supplied from the production or import facility;

Cap limits for CARBOB that is downstream from the production or import facility;

Allowing exceptions under certain conditions of the prohibition of combining CARBOB with different kinds of CARBOB or with finished gasoline; these exceptions are designed to allow distributors to transition from one product to another if there is no overall adverse emission impact;

Adding a mechanism for a qualifying small refiner to select one of three options for producing diesel fuel in a manner that offsets the excess emissions from gasoline subject to the small refiner CaRFG3 standards in a particular year; and

Amendments that would make various other minor changes to the CaRFG regulations, including reducing the applied reproducibility of automated RVP test methods, clarifying the method for sampling gasoline, and correcting provisions on transitions to the winter oxygenates season for low-throughput stations;

WHEREAS, the existing timetable for removal of MTBE could not ensure adequate supply and availability of gasoline to meet California's demands, and shortages in gasoline supply could increase prices by 50 percent or more;

WHEREAS, on June 12, 2001, the U.S. Environmental Protection Agency denied California's request for a waiver of the federal oxygen content requirement, thereby denying California refiners the flexibility to produce non-oxygenated California reformulated gasoline more efficiently and at less cost;

WHEREAS, in order to comply with the federal requirements and also eliminate the use of MTBE, California would need up to 950 million gallons of ethanol per year;

WHEREAS, the current transportation and distribution of ethanol is insufficient to allow California to meet federal requirements and eliminate use of MTBE on January 1, 2003;

WHEREAS, on March 14, 2002, Governor Gray Davis issued Executive Order D-52-02, in which he found that it is not possible to eliminate use of MTBE on January 1, 2003 without significantly risking disruption of the availability of gasoline in California;

WHEREAS, Executive Order D-52-02 found that eliminating the use of MTBE on January 1, 2003 would substantially increase prices, harm California's economy and impose an unjustified burden on motorists;

WHEREAS, Executive Order D-52-02 included a direction to the ARB to take the necessary actions, by July 31, 2002, to postpone for one year the prohibitions of the use of MTBE and other specified oxygenates in California gasoline, and the related requirements for California Phase 3 reformulated gasoline;

WHEREAS, the ARB staff has proposed amendments to the CaRFG3 regulations which would be consistent with the Governor's Executive Order D-52-02, including the following elements:

Postponement of the prohibitions regarding methyl tertiary butyl ether (MTBE) and other oxygenates other than ethanol in California gasoline supplied by refiners and importers from December 31, 2002 to December 31, 2003, with the downstream phase-in requirements also postponed by one year;

Postponement by one year the dates in the current schedule for reducing residual levels of MTBE in CaRFG3 after the addition of MTBE is banned;

Postponement of the imposition of the CaRFG3 standards for gasoline properties for one year, from December 31, 2002 to December 31, 2003; and

Amendments that would make various minor changes to the CaRFG3 regulations, including simplifying the testing provisions for determining whether gasoline blendstock designed for blending with ethanol will comply with the CaRFG standards after it is oxygenated, and correcting errors in the assignment of RVP regulatory control periods for the North Coast Air Basin and the North Central Coast Air Basin.

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;

WHEREAS, at the hearing the staff has suggested several modifications to the originally proposed amendments; the modifications include:

Postponing, by one year, the date for the reduction of the CaRFG3 sulfur content cap limit from 60 parts per million (ppm) to 30 ppm to make it consistent with the proposed one-year delay for implementation of the other CaRFG3 gasoline specifications;

Delaying the start of the 2003 RVP regulatory control season in the South Coast by one month to provide production and import facilities in the South Coast that comply with the original phase-out schedule the flexibility to make the transition from MTBE gasoline to ethanol gasoline and comply with RVP standards; and

Retaining the original 2002 date for the removal of the month of October from the wintertime oxygen requirement in the South Coast Air Basin as it has been demonstrated that by that date, the requirement would no longer be needed to assure that attainment of the federal carbon monoxide standard is maintained in that month;

WHEREAS, the Board finds that:

Phasing out MTBE from gasoline as scheduled by the end of 2002 with replacement by ethanol is expected to reduce the ability of in-state refineries to produce sufficient fuel to meet demand, and since the availability of imported finished gasoline or blendstocks is uncertain, there could be significant constraints on gasoline supply;

With a significant reduction in supply, prices could be expected to increase by 50 percent or more;

With the U.S. EPA's denial of California's request for a waiver of the federal oxygenate requirement, the use of MTBE cannot be eliminated until ethanol production capability in producing states is adequate, the ethanol infrastructure in state has been put into place, and sufficient ethanol reserves built up within the state;

California will need 750 to 950 million gallons of ethanol annually if MTBE is removed while the federal oxygenate requirement is still in effect, but the logistics of moving such large volumes of ethanol have not been fully resolved and there is a high probability that significant operational problems could occur in areas such as rail coordination, tank car unloading, marine receipts,

distribution of ethanol to gasoline truck terminals, and the ability to store and blend the ethanol at the gasoline truck terminals;

Therefore the amendments approved herein regarding the postponement of the ban on use of MTBE and other oxygenates other than ethanol and the postponement of the related CaRFG3 regulations are necessary to ensure compliance with the directive of Executive Order D-5-99 that the timetable for the removal of MTBE must ensure adequate supply and availability of gasoline for California consumers;

WHEREAS, pursuant to the requirements of the California Environmental Quality Act, and the Board's regulations, the Board further finds that:

The postponement of the MTBE ban and the implementation of the related CaRFG3 regulations should have no significant negative impacts on air quality; the additional emissions reductions expected with the CaRFG3 program will be postponed by one year, but only to the extent that refiners choose not to produce Phase 3 reformulated gasoline prior to the mandated deadline;

The proposed amendments do not affect an individual refiner's and importer's ongoing ability to elect to use the provisions of the CaRFG3 regulations to produce non-MTBE gasoline prior to the December 31, 2003 mandatory phase-out deadline;

The proposed one-year delay could result in an increase in evaporative emissions associated with the use of ethanol depending on the extent to which refiners elect to phase out MTBE early;

The delay could result in increased commingling of ethanol blends with non-ethanol containing gasoline in the motor vehicle fuel tank, depending on refiner choices regarding early phase-out of MTBE and replacement with ethanol; the mix of gasolines in a given area, and customer choices regarding brand and grade loyalty;

There should be no overall increase in evaporative emissions with the increase in commingling because ARB staff's field study and simulation model demonstrates that the potential RVP increase due to commingling is less than 0.1 psi and the RVP offset of 0.1 psi provided by the CaRFG3 regulations would adequately protect against an increase in evaporative emissions due to commingling;

Ethanol can have an evaporative emissions impact due to permeation of ethanol through the soft fuel system components of motor vehicles, but a delay in the phase out of MTBE will postpone the increase in ethanol

permeation emissions in so far as individual refiners choose not to remove MTBE;

The magnitude of the permeation emissions impact remains somewhat uncertain at this time, but as directed by the Board when the Board approved the CaRFG3 regulations, ARB staff is evaluating the impact of permeation through a research study co-funded by the ARB;

The proposed delay in the phase out of MTBE should result in no significant increase in greenhouse gas emissions over what would occur without the postponement;

WHEREAS, the Board further finds that:

Results of field tests conducted by the State Water Resources Control Board indicate that the strengthened underground storage tank requirements and enforcement have been very successful in reducing liquid releases of gasoline;

MTBE will continue to be in any remaining liquid and vapor leaks of gasoline from underground storage tanks during the additional year, but this impact is expected to be small compared to existing contamination;

The primary neighborhood impacts of the proposed delay of the MTBE ban would be the continued risk of contamination of groundwater and drinking water;

The neighborhood impact is mitigated to the extent that refiners remove MTBE from gasoline and change to ethanol before the mandated deadline;

WHEREAS, the Board further finds that:

Without a delay, gasoline supply shortages are likely, and with a significant reduction in supply, prices could be expected to increase by 50 percent or more;

Refiners, ethanol producers and others who have made investments to comply with the current MTBE phase out deadline may incur some costs if they elect not to phase out MTBE early;

Those businesses that have not completed the conversion may experience an economic benefit from the proposed amendments as the delay allows them time to complete the infrastructure improvements and contingency provisions needed to ensure adequate supply of MTBE-free gasoline by the new deadline;

Continued use of MTBE as a fuel oxygenate for an additional year may also add to the cleanup needs the state will face over the next decade, and could extend the risk of further contamination of groundwater and drinking water;

WHEREAS, the Board further finds that there are no feasible mitigation measures or alternatives available to the Board which would further substantially reduce the potential adverse impacts of the proposed regulations herein, while at the same time providing the substantial overall public health and economic benefits as noted herein;

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the amendments to sections 2261, 2262, 2262.4, 2262.5, 2262.6, 2262.9, 2266.5, 2269, 2271, 2272, and 2296 of title 13, California Code of Regulations, as set forth in Attachment A hereto, with the modifications to those sections set forth in Attachment B hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer: (1) to incorporate into the approved regulations and incorporated documents the modifications described in Attachment B hereto and such other conforming modifications as may be appropriate; (2) to make the modified regulations and incorporated documents, with the modifications clearly indicated, available for public comment for a period of at least 15 days; (3) to consider any comments on the modifications received during the supplemental comment period; and then (4) consistent with this Resolution, either to adopt the regulations as made available with any appropriate additional nonsubstantial modifications, to make additional modifications available for public comment for an additional period of at least 15 days, or to present the regulations to the Board for further consideration if he determines that this is warranted.

I hereby certify that the above is a true and correct copy of Resolution 02-25, as adopted by the Air Resources Board.

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Stacey Dorais, Clerk of the Board

Resolution 02-25

July 25, 2002

Identification of Attachments to the Resolution

Attachment A: The Proposed Regulation Order attached as Appendix A to the Staff Report: Initial Statement of Reasons, release date June 7, 2002.

Attachment B: Staff's Suggested Changes to the Original Regulatory Proposal, dated July 25, 2002, and distributed at the July 25, 2002 hearing.