NOTICE OF PUBLIC MEETING TO CONSIDER A PROPOSED DETERMINATION PURSUANT TO HEALTH AND SAFETY CODE SECTION 43830(g) OF THE COMPARATIVE OZONE FORMING POTENTIAL OF ELEVATED RVP GASOLINE CONTAINING 10 VOLUME PERCENT ETHANOL

The Air Resources Board (ARB or Board) will conduct a public meeting at the time and place noted below to consider a staff proposal that the Board make a determination, pursuant to Health and Safety Code (HSC) section 43830(g), of the ozone forming potential of elevated Reid vapor pressure (RVP) gasoline containing 10 volume percent (hereafter "10 percent") ethanol compared to gasoline meeting all of the standards for California reformulated gasoline (CaRFG).

DATE: December 10, 1998
TIME: 8:30 a.m.
PLACE: Board Hearing Room, Lower Level
2020 L Street
Sacramento, California 95814

This item will be considered at a two-day meeting of the Board, which will commence at 8:30 a.m., December 10, 1998, and may continue at 8:30 a.m., December 11, 1998. This item may not be considered until December 11, 1998. Please consult the agenda for the meeting, which will be available at least 10 days before December 10, 1998, to determine the day on which this item will be considered.

This facility is accessible to persons with disabilities. If accommodation is needed, please contact ARB's Clerk of the Board at (916) 322-5594, or TDD (916) 324-9531, or (800) 700-8326 for TDD calls from outside the Sacramento area by November 25, 1998.

BACKGROUND

The CaRFG regulations, which became applicable in the spring of 1996, establish a comprehensive set of standards for gasoline designed to reduce emissions of air pollutants from motor vehicles. The standards cover sulfur, benzene, olefin, oxygen, and aromatic hydrocarbon contents, 50 percent (T50) and 90 percent (T90) distillation temperatures, and RVP.

The CaRFG standards include stringent limits for each regulated property that apply to gasoline when it is supplied from a production facility (typically a refinery) or an import facility. A refiner is allowed to designate a batch of gasoline as being subject to an alternative set of specifications if the alternative specifications have been shown using the "California Predictive Model" to result in equivalent reductions in exhaust emissions of hydrocarbons, oxides of nitrogen (NOx) and potency-weighted toxic air contaminants. All California gasoline -- including batches of gasoline sold using the Predictive Model -- must meet the CaRFG "cap" limits for each regulated property, which apply throughout the gasoline distribution system.

The RVP of gasoline is a measure of its volatility. Gasoline with a higher RVP is more volatile than gasoline with a lower RVP, and thus has a greater propensity to evaporate. The CaRFG regulations limit the RVP of summertime gasoline to 7.0 pounds per square inch (psi) throughout the gasoline distribution system, in order to control evaporative emissions of hydrocarbons. HSC section 43830(g), enacted in 1991, exempts gasoline blends containing 10 percent ethanol from the RVP standard. But the statute makes the exemption inapplicable if the ARB determines, on the basis of independently verifiable automobile exhaust and evaporative emission tests performed on a representative fleet of automobiles, that the blend would result in a net increase in the ozone forming potential of the total emissions, excluding emissions of oxides of nitrogen, when compared to the total emissions, excluding emissions of oxides of nitrogen, from the same automobile fleet using gasoline that meets all applicable specifications for Phase II gasoline established by the State Board.

Adding ethanol increases the RVP of the gasoline blend by about 1 psi, and thus increases evaporative emissions. Adding ethanol to gasoline also introduces oxygen. Until now, the oxygen cap limit of 2.7 weight

percent (wt.%) in the CaRFG regulations has restricted the amount of ethanol blended into gasoline to about 7.7 percent by volume, thus precluding gasoline containing ethanol from qualifying for the exemption for 10 percent ethanol blends. However, the Board is considering a staff proposal that the oxygen cap be increased to 3.5 wt.% in order to give refiners more flexibility in formulating gasoline. This would permit the use of 10 percent ethanol in gasoline which, in turn, would allow refiners to market gasoline that exceeds the 7.0 psi RVP limit. The Board accordingly will first consider whether to make the HSC section 43830(g) determination that would remove the RVP exemption for gasoline containing 10 percent ethanol. At its December 10-11, 1998, meeting, the Board will also conduct a hearing on the proposal to increase the oxygen cap in the CaRFG regulations. This hearing is described in a separate hearing notice.

THE PROPOSED DETERMINATION

The staff is proposing that the Board determine, pursuant to HSC section 43830(g), that elevated RVP gasoline that contains 10 percent ethanol and is exempt from the RVP standard in the CaRFG regulations results in increased emissions and increased ozone forming potential, not considering NOx, compared to gasoline fully complying with the CaRFG standards. As a result of this determination, gasoline containing 10 percent ethanol would not be exempt from the RVP standard in the CaRFG regulations.

The staff's recommended finding is based on the results of a recently completed ARB test program evaluating the emission impacts of elevated RVP gasoline containing 10 percent ethanol, as well as on a variety of other emission test programs and analyses. The test program showed an overall increase of about 17 percent in ozone forming potential for the ethanol blend compared to a fully complying gasoline.

The ARB test program used a fleet of vehicles to represent the types of vehicles most operated in California. Additionally, the results of the test program are independently verifiable. Staff believes that, given the careful documentation of the test program and the confirmation from other test programs, the assessment of ozone forming potential meets the criteria of HSC section 43830(g).

The ARB test program evaluated two fuels, both blended from the same base gasoline. The fully complying gasoline blend was representative of a typical in-use fuel in 1997 and met all specifications for CaRFG. This gasoline blend contained 11 percent methyl tertiary butyl ether (MTBE), which resulted in about 2.0 wt.% oxygen content and had an RVP of about 7.0 psi. The other gasoline blend contained 10 percent ethanol -- which resulted in approximately 3.5 wt.% oxygen -- and had an RVP of about 8.0 psi. Except for exceeding the current RVP and oxygen specifications, this fuel also complied with the CaRFG specifications.

While the ARB test program is the study that directly compares the ozone forming potential of the emissions from an elevated RVP gasoline containing 10 percent ethanol to a representative fully complying CaRFG blend, several studies have evaluated the effect of other ethanol blends on motor vehicle emissions. Even though these studies were not designed in a way that exactly compares the two fuels of most interest, and therefore are not individually sufficient to make the finding about ozone forming potential, the studies do offer strong supporting evidence on how increasing RVP and oxygen affects motor vehicle mass emissions and their associated ozone forming potential.

AVAILABILITY OF DOCUMENTS AND CONTACT PERSON

The staff has prepared a Staff Report which includes the staff's assessment of the ozone forming potential of elevated RVP gasoline containing 10 percent ethanol. Copies of the Staff Report may be obtained from the Board's Public Information Office, 2020 L Street, Sacramento, California 95814, (916) 322-2990. The material will also be available online at the ARB's Internet web site for the Cleaner-Burning Gasoline Program; the Internet address is /fuels/gasoline/ .

To obtain this document and the Staff Report in an alternative format, please contact the Air Resources Board ADA Coordinator at (916) 322-4505, TDD (916) 324-9531, or (800) 700-8326 for TDD calls from outside the Sacramento area.

Further inquiries regarding this matter should be directed to Mr. Gary M. Yee, Manager, Industrial Section, Criteria Pollutants Branch, Stationary Source Division, at (916) 327-5986.

SUBMITTAL OF COMMENTS

The public may present comments relating to this matter orally or in writing. To be considered by the Board, written submissions must be addressed to and received by the Clerk of the Board, Air Resources Board, P. O. Box 2815, Sacramento, California 95812, no later than 12:00 noon, December 9, 1998, or received by the Clerk of the Board at the hearing. The Board requests (but does not require) that 20 copies of any written statement be submitted and that all written statements be filed at least 10 days prior to the hearing. The Board encourages members of the public to bring to the attention of staff (in advance of the hearing) any suggestions for modification of the proposed action.

CALIFORNIA AIR RESOURCES BOARD

Michael P. Kenny
Executive Officer

Date: