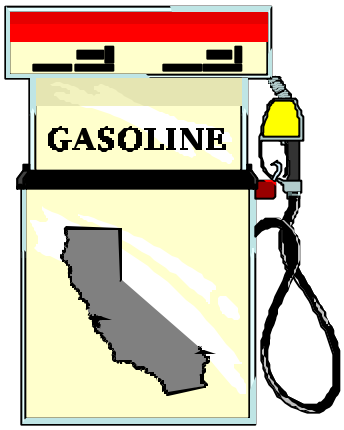
California Environmental Protection Agency

Air Resources Board

Proposed Amendments to the California Phase 3 Reformulated Gasoline Regulations

Proposed Amendments to the California Reformulated Gasoline Regulations Including Refinements to the Prohibitions of MTBE and Other Oxygenates

STAFF REPORT: INITIAL STATEMENT OF REASONS



Release Date: October 25, 2002

State of California
California Environmental Protection Agency
AIR RESOURCES BOARD
Stationary Source Division

STAFF REPORT: INITIAL STATEMENT OF REASONS
PROPOSED AMENDMENTS TO THE CALIFORNIA
PHASE 3 GASOLINE REGULATIONS

Public Hearing to Consider Amendments to the California Reformulated Gasoline Regulations Including Refinements to the Prohibitions of MTBE and Other Oxygenates

Date of Release: October 25, 2002
Scheduled for Consideration: December 12, 2002

Location:

California Air Resources Board
Central Valley Auditorium, Second Floor
1001 I Street
Sacramento, California 95814

This report has been reviewed by the staff of the Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use. To obtain this document 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. This report is available for viewing or downloading from the Air Resources Board's Internet site; **http://www.arb.ca.gov/regact/mtberesid/mtberesid.htm**

Acknowledgments

This report was prepared with the assistance and support from the other divisions and offices of the Air Resources Board. In addition, we would like to acknowledge the assistance and cooperation that we have received from many individuals and organizations.

Authors

Gloria Lindner, Fuels Section
Jim Guthrie, Fuels Section
Bill Riddell, Fuels Section
Jim Peterson, Industrial Section
Tom Jennings, Office of Legal Affairs

Reviewed by:

Michael Scheible, Deputy Executive Officer
Peter D. Venturini, Chief, Stationary Source Division
Robert Barham, Assistant Division Chief, Stationary Source Division
Dean C. Simeroth, Chief, Criteria Pollutants Branch
Steve Brisby, Manager, Fuels Section

Table of Contents

I. Introduction and Summary 1

A. INTRODUCTION 1

B. WHY IS MTBE ADDED TO CALIFORNIA GASOLINE? 1

C. WHY IS MTBE IN GASOLINE OF CONCERN? 2

D. WHAT WERE THE DIRECTIVES OF THE GOVERNOR'S EXECUTIVE ORDER D-5-99? 3

E. WHAT ARE THE PRESENT MTBE PROHIBITIONS? 3

F. WHY ARE FURTHER AMENDMENTS TO THE CARFG3 REGULATIONS NECESSARY? 3
1. Residual Levels of MTBE in California Gasoline 3
2. Residual Levels of Oxygenates Other than MTBE or Ethanol. 4

G. WHAT ARE THE PROPOSED AMENDMENTS? 4
1. Revising the Prohibitions of Gasoline "Produced With The Use Of" MTBE or Other Oxygenates Other than Ethanol 4
2. Revisions to the Schedule for Implementation of De Minimis Levels of MTBE 5
3. Establishment of De Minimis Levels of Oxygenates Other than MTBE and Ethanol 5
4. Documentation of the Presence or Absence of Ethanol in CaRFG Delivered to Retail Outlets 6
5. Other Amendments 6

H. HOW WERE THE PROPOSED AMENDMENTS DEVELOPED? 6

I. WHAT ALTERNATIVES WERE CONSIDERED? 7

J. WHAT OTHER ISSUES WERE CONSIDERED? 7

K. WHAT ARE THE EMISSION IMPACTS OF THE PROPOSED AMENDMENTS? 8

L. WHAT ARE THE ENVIRONMENTAL IMPACTS OF THE PROPOSED AMENDMENTS? 8
1. Water quality 8
2. Air Quality 8
3. Refinery Modifications 8

M. WHAT IS THE COST OF THE PROPOSED AMENDMENTS? 9
1. Production Costs. 9
2. Fuel Supply and Price 9

N. WHAT ARE THE ECONOMIC IMPACTS? 9

II. Recommendations 11

III. Background 13

A. REQUIREMENTS FOR OXYGENATES 13
1. Federal Reformulated Gasoline 13
2. California Wintertime Oxygen Requirement 13

B. CONCERNS WITH THE USE OF MTBE IN CALIFORNIA GASOLINE 14

C. BAN OF THE USE OF MTBE IN CALIFORNIA 14
1. The Governor's Executive Order D-5-99 14
2. CEC's Response to the Directive of Executive Order D-5-99.....15

D. POSTPONEMENT OF THE MTBE BAN 15

IV. Existing Regulations 17

A. CALIFORNIA REGULATIONS 17
1. MTBE Prohibitions in the California's Phase 3 Gasoline Regulations.....17
2. Prohibition of Oxygenates Other Than MTBE or Ethanol 17
3. MTBE Labeling Requirements.....18
4. Restrictions During the RVP Season on Blending Gasoline Containing Ethanol with California Gasoline not Containing Ethanol.....18

B. FEDERAL REGULATIONS 18
1. Federal Gasoline Additive Approval.....18
a) Definition of "Substantially Similar".....18
b) Health Effects Testing.....19
2. DeMinimis Levels for Oxygenates 19

C. LOCAL REGULATIONS.....19

D. ACTIONS BY OTHER STATES 19

V. Prohibitions of Gasoline "Produced With the Use of" MTBE or Other Oxygenates Other than Ethanol 21

A. BACKGROUND.....21

B. MTBE AND OTHER OXYGENATES IN GASOLINE BLENDSTOCKS.....21

C. PROPOSED CLARIFICATION OF "PRODUCED WITH THE USE OF MTBE".....22

D. PROPOSED CLARIFICATION OF "PRODUCED WITH THE USE OF OXYGENATES OTHER THAN MTBE AND ETHANOL".....22

E. RATIONALE.....23

F. ALTERNATIVE 24

VI. Residual Levels of MTBE 25

A. BACKGROUND.....25

B. PROPOSED SCHEDULE FOR REDUCING RESIDUAL LEVELS OF MTBE.....25

C. RATIONALE FOR PROPOSED SCHEDULE FOR REDUCING RESIDUAL MTBE LEVELS 26
1. Current MTBE De Minimis Levels 26
2. MTBE Contamination of the Distribution System 26
3. MTBE in Gasoline Blendstocks.....27
4. Survey of Retail Stations.....27

D. ALTERNATIVES 28

VII. Residual Levels of Oxygenates Other Than Ethanol and MTBE.....29

A. BACKGROUND.....29

B. PROPOSED SCHEDULE FOR REDUCING RESIDUAL LEVELS OF OXYGENATES OTHER THAN ETHANOL AND MTBE 29

C. RATIONALE FOR PROPOSED RESIDUAL LEVELS FOR OTHER OXYGENATES.....31

1. Other Oxygenates in Gasoline Sampled at Various Retail Stations.....31

2. Oxygenate contaminants in alkylates 31

D. ALTERNATIVES 31

VIII. Documentation of Deliveries of Gasoline to Retail Outlets.....33

A. BACKGROUND.....33

B. PROPOSAL TO REQUIRE DOCUMENTATION OF DELIVERIES OF GASOLINE TO RETAIL OUTLETS.....33

C. RATIONALE FOR PROPOSED AMENDMENT 33

D. ALTERNATIVE 33

IX. Other Amendments.....35

A. EXPIRATION OF REQUIREMENT FOR DOCUMENTATION OF DELIVERIES OF MTBE GASOLINE TO RETAIL OUTLETS 35

B. RELATED AMENDMENTS TO THE OXYGENATE PROHIBITIONS FOR EARLY OPT-IN CARFG3.....35

X. Restrictions During the RVP Season on Blending Gasoline Containing Ethanol with California Gasoline not Containing Ethanol.....37

A. BACKGROUND.....37

B. STAFF PROPOSAL.....37

C. RATIONALE FOR STAFF PROPOSAL.....38

XI. Environmental impacts of the proposed Amendments to the CaRFG3 Regulations 39

A. EFFECTS ON WATER QUALITY.....39

B. EFFECTS ON AIR QUALITY.....39

C. EFFECTS ON GREENHOUSE GAS EMISSIONS 39

D. EFFECTS ON ALLOWABLE EMISSIONS 39

E. OTHER ENVIRONMENTAL IMPACTS.....40

F. ENVIRONMENTAL JUSTICE.....40

XII. Economic Effects of the Proposed Amendments to the CaRFG3 Regulations ...41

A. COSTS OF COMPLYING WITH THE PROPOSED REGULATION.....41

1. *Cost of Revisions to Prohibitions of Gasoline "Produced With the Use of" MTBE and Other Oxygenates Other Than Ethanol*.....41
2. *Cost of Changes to the Allowable Levels of MTBE*.....41
3. *Cost of Complying With the Allowable Limits for Oxygenates Other than MTBE and Ethanol*. 41

B. ECONOMIC EFFECTS ON SMALL BUSINESSES 42

APPENDICES

A. Proposed Regulation Order
B. Executive Order D-5-99
C. CEC Report: Timetable for the Phase out of MTBE from California's Gasoline Supply
D. Executive Order D-52-02
E. Resolution 02-25
F. Residual Levels of MTBE and Other Oxygenates in the Distribution System
G. Oxygenate Contaminants in Alkylates
H. References

I. INTRODUCTION AND SUMMARY

A. Introduction

The California Phase 3 Reformulated Gasoline (CaRFG3) regulations were adopted June 16, 2000 following a December 9, 1999 hearing by the Air Resources Board (ARB). The CaRFG3 regulations prohibited production of California gasoline, after December 31, 2002, with the use of Methyl Tertiary-Butyl Ether (MTBE), established CaRFG3 standards, and established a CaRFG3 Predictive Model. The Predictive Model provides refiners with flexibility to use alternative formulations while preserving the benefits of the program.

The CaRFG3 regulations were adopted in response to Governor Davis's March 25, 1999 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. The Executive Order directed the ARB to adopt CaRFG3 regulations to phase out the use of MTBE in California gasoline by no later than December 31, 2002 and provide additional flexibility to producers of RFG in lowering or removing oxygen while preserving the existing air quality benefits of the CaRFG2 program.

In response to Governor Davis's March 14, 2002 Executive Order D-52-02, the Board, at a July 25, 2002 hearing, approved amendments to the CaRFG3 regulations that would postpone the prohibition of the use of MTBE in California gasoline by one year. The Board also approved other amendments necessary to implement the postponement of the MTBE ban. These amendments included the one-year postponement of the dates in the current schedule for reducing residual levels of MTBE in CaRFG3 after the addition of MTBE is banned, and postponement of the imposition of the CaRFG3 limits for gasoline properties for one year, from December 31, 2002 to December 31, 2003.

This report is the initial statement of reasons to support proposed additional amendments to the CaRFG3 regulations that build on the amendments approved by the Board July 25, 2002. The proposed amendments would refine the provisions imposing limits on residual levels of MTBE and other oxygenates. The rulemaking is also being conducted in response to one of the directives of Resolution 99-39 adopted by the Board at the December 1999 hearing. It directed the Executive Officer to further evaluate the practicality of the allowable MTBE residual limits for CaRFG3, including conducting one or more workshops if appropriate, and to report back to the Board with a recommendation on whether the limits should be revised.

These amendments are being proposed to provide an orderly transition away from MTBE use and to prevent any major disruptions to the production and supply of gasoline in California.

B. Why Is MTBE Added to California Gasoline?

Since 1995, most of the state's gasoline has contained about 11 percent MTBE by volume. Such extensive use of MTBE is largely the result of the requirements of the 1990 Federal Clean Air Act Amendments for a federal reformulated gasoline program, and for state-administered wintertime oxygenated gasoline programs, for specified areas in violation of the ambient air quality standards for ozone and carbon monoxide (CO), respectively. To meet the oxygenate

requirements, MTBE became the refiners' oxygenate of choice because of its blending attributes, which include its high octane rating and the fact that it dilutes undesirable gasoline components such as benzene, mixes well with gasoline, and is easily distributed in the state's pipeline system.

Since 1995, the federal reformulated gasoline (RFG) regulations adopted by the United States Environmental Protection Agency (U.S. EPA) have required the year-round use of RFG containing on average 2.0 weight percent oxygen in severe and extreme ozone non-attainment areas. By the end of 2002, the federal RFG oxygen requirement will apply to about 80 percent of the gasoline sold in California.

In response to the Clean Air Act wintertime oxygenate requirements, the ARB in 1991 adopted a program that required that gasoline sold during specified winter months contain an oxygenate. Originally, the ARB's wintertime oxygen requirement applied statewide. Currently, it applies only to Los Angeles, Orange, Riverside, San Bernardino, Ventura, and Imperial counties.

C. Why Is MTBE in Gasoline of Concern?

The main concern with the continued use of MTBE is its potential to contaminate California's ground and surface drinking water systems. Even relatively low levels of MTBE can give drinking water an unpleasant taste and odor, making the drinking water unusable. MTBE is very soluble in water and will transfer to groundwater faster, and will travel farther and more easily than other gasoline constituents such as benzene when gasoline leaks from underground storage tanks or pipelines.

With its increased use, MTBE has been found in many areas of the United States in groundwater in the vicinity of leaking underground gasoline storage tanks, in reservoirs which allow gasoline-powered watercraft, and to a lesser extent in drinking water supplies. In California, MTBE has been detected in some public drinking water supplies in diverse locations that include South Lake Tahoe, Santa Monica, Riverside, Anaheim, Los Angeles, San Francisco, Santa Clara, and San Diego. While only a small percentage of the State's community water supplies has been contaminated, about 75 percent of the drinking water wells in Santa Monica are contaminated with MTBE, and about one-third of the drinking water wells in the South Lake Tahoe Public Utility District are contaminated. A few drinking water wells in the Santa Clara Valley Water District and Sacramento have also been contaminated with MTBE. In addition, some drinking water wells have been closed down in communities as a protective measure to prevent MTBE from being drawn into the water supply system.

The California MTBE Public Health and Environmental Protection Act of 1997 directed the University of California to conduct research on the effects of MTBE. The University of California report was sent to the Governor in November 1998, and was peer reviewed by the Agency for Toxic Substances and Disease Registry, the United States Geological Survey, and other nationally recognized experts. After completion of the University of California report, two public hearings were held in February 1999. Subsequent to the hearings, the Governor issued Executive Order D-5-99, in which he found a "…significant risk to the environment from using MTBE in gasoline in California." The Executive Order directed appropriate state agencies to begin implementation of the phase-out of MTBE from California gasoline.

D. What Were the Directives of the Governor's Executive Order D-5-99?

Executive Order D-5-99 included a directive to the California Energy Commission (CEC) to develop, in consultation with the ARB, a timetable for the removal of MTBE from gasoline at the earliest possible date, but not later than December 31, 2002. The CEC subsequently determined that December 31, 2002 was the earliest feasible date. The Executive Order also directed the ARB to adopt the CaRFG3 regulations by December 1999. In addition, in the Executive Order, the Governor determined that California should request that the U.S. EPA grant California a waiver from the year-round 2.0 percent by weight minimum oxygen mandate of the federal RFG program.

E. What Are the Present MTBE Prohibitions?

The currently pending MTBE prohibitions were approved by the Board at a hearing on July 25, 2002, but they are not yet in effect because the rulemaking process has not been completed. These prohibitions postpone by one year the dates approved in December 1999 and adopted June 15, 2000. They prohibit the addition of MTBE and other oxygenates other than ethanol to California gasoline starting December 31, 2003, consistent with the Governor's March 14, 2002 Executive Order.

To address the question of trace amounts of MTBE that may be present as contamination, the CaRFG3 regulations establish a three-stage schedule for reducing residual levels of MTBE in CaRFG3 in the distribution system. The regulations require that the concentration of MTBE in distributed CaRFG3 not exceed 0.3 percent by volume beginning December 31, 2003. This level must be reduced to 0.15 percent by volume starting December 31, 2004 and 0.05 percent by volume starting December 31, 2005. The Board, in approving the original schedule in 1999, directed staff to monitor the ability of refiners to meet the limits on MTBE residual levels and re-evaluate the specified levels in 2002. This re-evaluation is necessary because if MTBE continues to be used outside California in significant quantities, MTBE could find its way into California as a contaminant in imported fuel. Also, MTBE can be formed as a contaminant in various refining and production facilities.

F. Why Are Further Amendments to the CaRFG3 Regulations Necessary?

1. Residual Levels of MTBE in California Gasoline

Following the 1999 amendments to the CaRFG regulations eliminating the wintertime oxygen requirement for the Lake Tahoe Air Basin, state agencies worked very closely with California's refiners to remove MTBE from the Lake Tahoe region's gasoline. As a result, the gasoline sold in the region has been predominantly MTBE-free since 1999. Staff has reviewed the available data from the Lake Tahoe region to determine the impact of the removal of MTBE from California gasoline sold in the Lake Tahoe Region and has found that there are still low levels of MTBE in non-oxygenated CaRFG and CaRFG with ethanol sold in that region.

Given the continued use of MTBE in other areas of the country, the amount of MTBE that may exist in finished gasoline and blendstocks will not be known until the California phase-out is well underway. The state of New York's MTBE ban will go into effect January 1, 2004. Other

states that produce a significant quantity of federal RFG, such as Texas, will still continue to use MTBE in the production of gasoline. Arizona's phase-out of MTBE will not occur until 180 days after California's phase-out. Since California refineries supply about 60 percent of Arizona's gasoline and MTBE will still be allowed to be added to gasoline for Arizona, gasoline containing MTBE may initially still be produced in California and transported through the California distribution system to Arizona.

A delay in the implementation dates of the various allowable MTBE levels will allow more time for the residual MTBE levels to decline without interfering with the supply and availability of gasoline in California. The proposed changes will provide staff more time to investigate the practicality of the allowable limits and also allow time for the public process necessary to further amend the adopted levels if this were found to be necessary.

2. Residual Levels of Oxygenates Other than MTBE or Ethanol.

Starting December 31, 2003, the CaRFG3 regulations place a conditional prohibition, on the use of oxygenates other than MTBE and ethanol to produce California gasoline. This prohibition will apply unless a multimedia evaluation of the use of the oxygenate in California gasoline has been conducted and the California Environmental Policy Council (CEPC) has determined that such use will not have a significant adverse impact on public health or the environment. This provision is designed to prevent refiners, blenders, and other entities from producing California gasoline with the use of oxygenates that have not been approved by the CEPC.

These other oxygenates may also exist in trace amounts in different refinery streams and can be found in both non-oxygenated gasoline and gasoline containing ethanol. For example, trace amounts of alcohols and ethers may be formed when small amounts of water are present during the production of alkylates.

The current regulation does not set prohibition levels for these oxygenates. Setting limits on residual levels for oxygenates other than MTBE or ethanol would increase the enforceability of the regulation and allow the differentiation between commonly occurring trace contaminants and deliberately added oxygenates.

G. What Are the Proposed Amendments?

1. Revising the Prohibitions of Gasoline "Produced With The Use Of" MTBE or Other Oxygenates Other than Ethanol

To address ambiguities regarding application of the prohibitions of gasoline "produced with the use of" MTBE or other oxygenates other than ethanol, staff is proposing more specific prohibitions that would be coupled with residual limits applying to other oxygenates as well as MTBE. The staff is proposing amendments that would refine the prohibitions to remove the ambiguities that make the prohibitions difficult to administer, and that could under some circumstances exclude imported blendstocks that contain MTBE and other prohibited oxygenates that are incidentally acquired through the production process or during transport.

The staff has proposed language that would be integrated into the MTBE prohibition provisions of section 2262.6(a)(1) to clarify the requirements of the ban on gasoline produced with the use of MTBE. The proposed language states that restrictions on the sale of gasoline produced with the use of MTBE would only apply to gasoline produced in a California production facility. The proposed amendment would prohibit the addition of methyl tertiary-butyl ether (MTBE) in neat form to the California gasoline or to a blending component used in the gasoline. It would also prohibit the use of a blending component that contained greater than 0.60 volume percent MTBE when it was supplied to the California production facility. The proposed restrictions would not apply to imported California gasoline, which would only be subject to the residual MTBE volume percent limits in section 2262.6(a)(2).

Staff is also proposing to add a separate definition in a new section, 2260(a)(26.5), to clarify the use of "produced with the use of" in the prohibition provisions of section 2262.6(c) that apply to oxygenates other than ethanol and MTBE. The restrictions would only apply to gasoline produced in a California production facility. The proposed amendment would prohibit the addition at the production facility of any oxygenate, other than ethanol or MTBE, in neat form to the California gasoline or to a blending component used in the gasoline. It would also prohibit the use of a blending component that contained greater than 0.1 weight percent total oxygen from oxygenates other than ethanol or MTBE when it was supplied to the California production facility. The proposed restrictions would not apply to imported California gasoline, which would be subject to the proposed new total oxygen weight percent de minimis limits described below.

2. Revisions to the Schedule for Implementation of De Minimis Levels of MTBE

The staff is proposing that the Board amend the California reformulated gasoline regulations to modify the schedule for reducing the de minimis levels of MTBE. It is proposed that during the first six months after the MTBE phase-out, starting December 31, 2003, California gasoline could not contain more than 0.60 volume percent MTBE. This level corresponds to the MTBE de minimis level for labeling retail pumps and to the U.S. EPA's de minimis level for MTBE in non-MTBE gasoline. It is also proposed that the schedule for reducing the de minimis levels be extended by six months so that there will be 18 months between each decrement instead of the present 12 months. Starting July 1, 2004, gasoline would be prohibited from containing more than 0.30 volume percent MTBE and eighteen months later, starting December 31, 2005, gasoline would be prohibited from containing more than 0.15 volume percent. The permanent prohibition level of 0.05 volume percent MTBE would apply starting July 1, 2007.

These revisions are being proposed to ensure an orderly reduction in residual MTBE levels and to prevent disruptions in the production and supply of gasoline in California.

3. Establishment of De Minimis Levels of Oxygenates Other than MTBE and Ethanol

Staff is proposing that the Board adopt a schedule for specifications for total oxygen content in gasoline from all oxygenates listed in ASTM D 4815-99 except MTBE and ethanol. This will significantly improve the enforceability of the restrictions on these oxygenates both in gasoline produced in the state and imported gasoline. During the first six months after the MTBE phase-out, starting December 31, 2003, the combined oxygen concentration due to these prohibited

oxygenates could not exceed 0.10 percent by weight. This limit of 0.10 weight percent is the oxygen level equivalent to the de minimis level of 0.60 volume percent for MTBE during the first six months of the phase-out. The final prohibition level of 0.06 weight percent would apply starting July 1, 2004.

4. Documentation of the Presence or Absence of Ethanol in CaRFG Delivered to Retail Outlets

The staff is proposing a new provision to require documentation of gasoline deliveries to retail outlets. The proposed amendment would require any person delivering gasoline to a retail outlet to provide to the outlet operator or responsible employee, at the time of delivery of the fuel, an invoice, bill of lading, shipping paper, or other documentation which states whether the gasoline does or does not contain ethanol. This proposal will provide retailers and distributors with the information needed to prevent inadvertent mixing of gasoline containing ethanol with gasoline not containing ethanol and ensure compliance with the restrictions of the CaRFG3 regulations on such mixing.

5. Other Amendments

The staff is proposing the following changes to clarify the requirements of the regulations and to ensure that the regulations work effectively.

The regulation currently requires that persons delivering gasoline containing MTBE to retailers provide documentation indicating the presence of MTBE in the gasoline. As this requirement will no longer be necessary after the December 31, 2003 MTBE prohibition date, staff is proposing an amendment to specify the applicable dates for this documentation.

Staff proposes that the recently added provision regarding oxygenates in early opt-in CaRFG3 be replaced by imposition of the de minimis MTBE and oxygenate limits that will apply when CaRFG3 is first required – 0.60 volume percent for MTBE and 0.10 weight percent oxygen collectively from the specified oxygenates other than MTBE or ethanol. This will provide specific standards that can be monitored by refiners and importers and be readily enforced by ARB inspectors.

H. How Were the Proposed Amendments Developed?

The staff held five workshops where the de minimis levels of MTBE and other oxygenates were discussed. The issues of blending of gasoline and documentation of gasoline deliveries with a bill of lading were discussed at the two most recent workshops. Also, there were meetings and discussions with representatives from the Western States Petroleum Association (WSPA), individual refiners, environmental organizations, the ethanol industry, representatives of other interests such as fuel suppliers and marketing associations such as the California Independent Oil Marketers Association (CIOMA). The proposed changes to the time periods associated with the allowable levels of MTBE in California gasoline are based on an assessment of other states' plans to phase out MTBE from their gasoline and how much time will be required to flush out the current statewide gasoline distribution system.

I. What Alternatives Were Considered?

Three alternatives to the proposed changes to the prohibitions on MTBE and other oxygenates other than ethanol are: maintaining the current requirements, shortening the period allowed for complying with the allowable final limits on residual levels, and extending the period even further.

The current schedule is not considered satisfactory, as it would not allow sufficient time for staff to evaluate the practicality of the allowable MTBE residual limits at each stage of the MTBE reduction. Not making the proposed change maintains a schedule that could be impractical and could lead to disruptions in the supply and availability of California gasoline. With no change to the regulation for other oxygenates, there would still be no limits specified for residual levels of oxygenates other than MTBE and ethanol, thereby making this requirement of the regulation difficult to enforce.

Decreasing the time required to meet the allowable levels of MTBE in gasoline is not consistent with staff's findings that more time is needed to evaluate the practicality of the current schedule. The effect of decreasing the time is to increase the likelihood of disruptions in the supply and availability of California gasoline.

Based on the results of a survey of retail stations, the staff believes that additional time is not needed beyond that provided in the proposed amendment. The proposed time is adequate to reduce MTBE to the final allowable residual levels. It is also adequate for evaluating the practicality of the allowable limits at each stage of the timetable and reporting to the Board as directed.

The proposed requirement for documentation of ethanol gasoline deliveries to retail outlets protects against inadvertent mixing of ethanol-blended gasoline with non-ethanol-blended gasoline at retail outlets. The alternative – not changing the regulation – was not considered satisfactory as the current regulation does not provide the documentation necessary to prevent RVP increases from inadvertent mixing.

J. What Other Issues Were Considered?

The Staff is considering a request to provide flexibility for gasoline distributors in the event that the CaRFG available to the distributor is not the same kind of CaRFG as that required by the final distribution center. Distributors are concerned that this could be an issue over the next year when there will be at least two types of oxygenated gasoline in the marketplace during the transition from MTBE gasoline to gasoline containing ethanol. Because of restrictions of the CaRFG3 regulations on mixing, the distributor must always obtain a gasoline that is the same kind as that in the retail station's storage tank. Distributors are concerned that during this transition period, there may be occasions when the available gasoline is different from the type of gasoline currently in the retail station's storage tank.

Staff believes that revisions to the regulations are not necessary to address the distributors' concerns. The CEC will have information on the availability of gasoline and the type of gasoline at terminals throughout the state. The unavailability of the correct fuel is expected to be a rare

occurrence even in those regions where the transition to ethanol fuel is still not close to completion. The ARB and CEC staffs will work together to determine the supply situation and how relief can be provided, if the need arises, without compromising air quality benefits.

K. What Are the Emission Impacts of the Proposed Amendments?

There will be no significant negative impact on emissions. The proposed limits on residual levels for MTBE and oxygenates other than MTBE and ethanol would not affect the actual content of these compounds in the gasoline. The proposed change to the dates associated with the allowable levels of MTBE in California gasoline only provides the additional time necessary to evaluate the practicality of the allowable limits and return to the Board with changes, if necessary. The proposed changes would not alter the CaRFG3 specifications that CaRFG3 be produced with no added MTBE or other oxygenates other than ethanol and therefore would not significantly impact the expected emission levels.

L. What are the Environmental Impacts of the Proposed Amendments?

1. Water quality.

There will be no significant negative impacts on water quality. The basic prohibitions against adding MTBE and other oxygenates other than ethanol remain unchanged. The proposed changes increase the enforceability of the regulations by placing a specific limit on total oxygen that may be provided by oxygenates other than MTBE and ethanol in California gasoline. Given that the prohibited oxygenates could have properties similar to those of MTBE, providing specific enforceable limits on their content in California gasoline will limit their possible impact on water quality. The changes to the schedule for reducing the allowable residual MTBE levels in California gasoline would allow evaluation of the practicality of such limits and allow sufficient time for the staff to propose amendments to the Board if necessary.

2. Air Quality

There should be no significant negative impacts on air quality as the basic MTBE prohibitions are unchanged. The proposed changes will not significantly affect the formulation of California gasoline and as such will not adversely affect emissions. The proposed changes increase the enforceability of the regulations by placing a specific enforceable limit on the trace quantities of oxygenates other than MTBE and ethanol allowable in California gasoline.

3. Refinery Modifications

The proposed changes increase the enforceability of the regulations by placing a specific limit on the trace quantities of oxygenates other than MTBE and ethanol allowable in California gasoline. The changes to the timetable for reducing the allowable residual levels of MTBE in California gasoline are to evaluate the practicality of such limits and allow sufficient time for the staff to take amendments to the Board if necessary. The proposed changes will not significantly affect the formulation or production of California gasoline, and therefore the proposed changes are not expected to affect operations at California refineries.

M. What is the Cost of the Proposed Amendments?

1. Production Costs.

There should be no significant negative impacts on the cost for production of California gasoline. The change to the schedule for reducing the allowable MTBE levels may prove beneficial by providing additional time to determine whether the allowable limits for MTBE in California gasoline are practical. Setting de minimis levels for oxygenates other than MTBE and ethanol may also have a beneficial effect by removing uncertainties regarding contamination by oxygenates other than MTBE and ethanol.

2. Fuel Supply and Price.

There should be no significant negative impacts on the supply and price of California gasoline. The proposed amendments are not expected to significantly affect the operation of California refineries. The changes could in fact provide a benefit for the supply and price of California gasoline by allowing additional time to flush the distribution and marketing system and reduce the levels of residual MTBE without the need for extraordinary efforts.

N. What are the Economic Impacts?

There should be no negative economic impacts associated with the proposed changes. The proposed changes will provide clearly enforceable criteria for determining the acceptability of blendstocks and California gasoline. The proposed changes may provide an economic benefit as it removes the ambiguities that could have unnecessarily limited a refiner's access to imported blendstocks that contain MTBE and other prohibited oxygenates other than ethanol that are incidentally acquired through the production process or during transport and storage.

The change to the schedule for reducing residual MTBE levels in California gasoline will not have a significant negative economic impact and in fact may prove beneficial by providing additional time to determine whether the allowable limits for MTBE in California gasoline are practical. Delaying the implementation of limits that may be impractical could mean prevention of interruptions in the supply and availability of gasoline for California consumers.

There will be no negative economic impacts for small businesses, as the actions of small businesses will not be affected by the proposed changes.

II. RECOMMENDATIONS.

The staff recommends that the Board adopt the proposed amendments to the California reformulated gasoline regulations, as contained in Appendix A. These amendments will:

1. Provide clarification of the phrase "produced with the use of" as it applies to the ban on the use of MTBE and other prohibited oxygenates;

2. Revise the schedule for implementation of the allowable residual MTBE levels in California gasoline;

3. Propose a schedule for implementation of allowable residual levels of total weight percent oxygen supplied by oxygenates other than MTBE and ethanol; and

4. Require documentation of the presence or absence of ethanol in CaRFG delivered to retail outlets.

Staff also recommends that cooperative efforts continue with the California Energy Commission to closely monitor gasoline supplies and to cooperatively address issues that may develop.

III. BACKGROUND

The extensive use of MTBE in California gasoline at this time is largely the result of requirements of the Federal Clean Air Act Amendments for federal reformulated gasoline that contains oxygen year round and for state administered oxygenated gasoline programs in the wintertime. Neither the Clean Air Act nor the regulations adopted to implement the Act specify which oxygenate must be used. This choice is left to the producers. MTBE and ethanol are the two principal oxygenates used to meet both the federal RFG and wintertime oxygen content requirements. In California, MTBE became the refiners' oxygenate of choice because of its blending attributes, which include its high octane rating and the fact that it dilutes undesirable gasoline components such as benzene, mixes well with gasoline, and is easily distributed in the state's pipeline system. Since 1995, most of the state's gasoline has contained about 11 percent MTBE.

A. Requirements for Oxygenates

1. Federal Reformulated Gasoline

The federal Clean Air Act (CAA) Amendments of 1990 directed the U.S. EPA to adopt federal RFG regulations, applicable starting January 1995. These regulations require the year-round use of RFG containing on average at least 2.0 weight percent oxygen in on-road vehicles in severe and extreme non-attainment areas for ozone. By the end of 2002, the federal RFG requirements will apply in San Diego County, the greater Los Angeles area (Los Angeles, Orange and Ventura Counties, and parts of Riverside and San Bernardino Counties), the greater Sacramento area (Sacramento County and parts of Yolo, Solano, Sutter, Placer, and El Dorado Counties), and the San Joaquin Valley Air Basin. Together, these areas account for about 80 percent of the gasoline sold in California.

2. California Wintertime Oxygen Requirement

In addition to the federal RFG program, the CAA amendments also required states to establish wintertime oxygenated fuel programs. This requirement generally applied to areas of the country that were in non-attainment of the National Ambient Air Quality Standard (NAAQS) for CO. Ambient CO concentrations are highest in the winter.

In 1991, ARB adopted a wintertime oxygenate requirement for gasoline to comply with federal law. Starting with the winter of 1992-1993, all California gasoline sold during specified winter months was required to contain 1.8 to 2.2 volume percent oxygen. The wintertime program was also incorporated into the Phase 2 CaRFG (CaRFG2) regulations effective in 1996.

Initially, the wintertime oxygenate requirement applied statewide because 80 percent of gasoline was consumed in CO non-attainment areas and the distribution system could not efficiently accommodate oxygenated and non-oxygenated gasoline. However, as a result of its mobile source emissions reduction programs, California no longer has exceedances of either the State or federal ambient CO standard, except in a limited region in the Los Angeles area and in Calexico in Imperial County.

In 1998, the ARB ended the wintertime oxygenate requirement for gasoline sold in areas that had demonstrated attainment of the ambient CO standard. At that time, the ARB continued the wintertime oxygen requirements until January 31, 2000 for the Lake Tahoe Air Basin and Fresno and Madera counties. In 1999, the ARB approved regulations rescinding the wintertime oxygenate requirement in the Lake Tahoe Air Basin after January 1999, to facilitate the removal of MTBE from the gasoline sold in the Lake Tahoe region. The wintertime oxygen requirements remain unchanged in Los Angeles, Orange, Riverside, San Bernardino, Ventura, and Imperial counties.

B. Concerns with the Use of MTBE in California Gasoline

The widespread use of MTBE and leaks and spills associated with the distribution of gasoline have resulted in detectable MTBE levels in a number of drinking water wells and surface water resources. Even relatively low levels of MTBE can give drinking water an unpleasant taste and odor that renders the drinking water unusable.

The main concern with the continued use of MTBE is the potential to contaminate California's groundwater, surface water, and drinking water systems. MTBE is very soluble in water and will transfer to groundwater faster, and will travel farther and more easily than other gasoline constituents such as benzene when gasoline leaks from underground storage tanks or pipelines. Lawrence Livermore National Laboratory data show that MTBE is likely present at over 10,000 underground fuel tank sites in the state. While underground storage tanks were ordered replaced or upgraded by December 22, 1998, even upgraded storage tanks are not leak-proof and leaks from upgraded gasoline storage tanks in the state are expected in the future. However, these leaks should occur much less frequently and be much less severe than what was experienced prior to the upgrade program. Also, spillage during transfers of gasoline will continue to occur as a result of accidents and equipment failure.

The California MTBE Public Health and Environmental Protection Act of 1997 directed the University of California (U.C.) to conduct research on the effects of MTBE. The legislation also required the Governor to take appropriate action based on the U.C. findings and information from public hearings conducted on the U.C. report. The University of California report was sent to the Governor in November 1998, and was peer reviewed by the Agency for Toxic Substances and Disease Registry, the United States Geological Survey, and other nationally recognized experts. After completion of the University of California report, two public hearings were held in February 1999. The Governor then issued Executive Order D-5-99 based on the UC report, the peer review comments, and information from the public hearings.

C. Ban of the Use of MTBE in California

1. The Governor's Executive Order D-5-99

On March 25, 1999, Governor Davis issued Executive Order D-5-99 (Appendix B) in which he found that "on balance, there is significant risk to the environment from using MTBE in gasoline in California." Executive Order D-5-99 also directed specific action to be taken.

The Executive Order was implemented by State agencies including the ARB, the State Water Resources Control Board (SWRCB), Office of Environmental Health Hazard Assessment (OEHHA), California Energy Commission (CEC), and the Department of Health Services (DHS). The Governor's Executive Order called for a number of steps to be taken to prohibit the use of MTBE, to evaluate the appropriate phase-out period, and to investigate the environmental effects of alternative oxygenates. The Executive Order directed the CEC to develop a timetable for removing MTBE from gasoline at the earliest possible date, but not later than December 31, 2002. The Governor further directed that steps be taken immediately to significantly reduce MTBE usage in the Lake Tahoe area and to require the labeling of gasoline pumps where CaRFG with MTBE is dispensed.

2. CEC's Response to the Directive of Executive Order D-5-99

The CEC determined that December 31, 2002 was the earliest feasible date that MTBE could be removed from RFG and that would comply with the Executive Order's directive to ensure adequate supply and availability of gasoline for California consumers. The CEC adopted their findings in the report, "Commission Findings: Timetable for the Phase-out of MTBE from California's Gasoline Supply" on June 28, 1999. A copy of the CEC analysis of the appropriate timetable to phase out the use of MTBE is in Appendix C.

The report identified several factors that would determine the feasibility of the December 31, 2002 phase-out date. The report described the refinery modifications needed to remove MTBE from the gasoline supply in California, including modifications to the gasoline distribution infrastructure. It also addressed the issues of the adequacy of ethanol supplies, project timelines, and other barriers to removing MTBE from gasoline prior to December 31, 2002. The CEC report (Appendix C) includes their findings on the factors that could affect the timetable for the phase out of MTBE.

D. Postponement of the MTBE Ban

On March 14, 2002, Governor Davis issued Executive Order D-52-02 (Appendix D), which directed 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 (CaRFG3). The Governor 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.

At a July 25, 2002 hearing, the Board approved amendments to the CaRFG3 regulations consistent with the Governor's Executive Order. The amendments postponed the prohibition of the use of 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. Similarly, the schedule for reducing residual levels of MTBE in CaRFG3 was postponed one year. Starting December 31, 2003, California gasoline could not contain more than 0.30 volume percent MTBE. A residual limit of 0.15 volume percent MTBE would apply starting December 31, 2004, with a 0.05 volume percent residual limit starting December 31, 2005.

The amendments also postponed the imposition of the CaRFG3 limits for gasoline properties by one year, from December 31, 2002 to December 31, 2003. With the delay in the imposition of the MTBE prohibition, the imposition of the CaRFG3 standards will not be necessary until the new date at which the MTBE prohibition becomes effective.

There were no changes to the provisions that allow early compliance with the CaRFG3 standards. Under these provisions refiners are allowed to produce gasoline subject to the CaRFG3 standards prior to the mandatory MTBE phase-out deadline of December 31, 2003.

IV. EXISTING REGULATIONS

A. California Regulations

In response to Governor Davis's March 25, 1999 Executive Order D-5-99, the Board approved the CaRFG3 regulations at a hearing on December 9, 1999. The regulations included amendments to the CaRFG2 regulations that were designed to comply with the Executive Order directive to provide additional flexibility in lowering or removing the oxygen content requirement while maintaining current emissions and air quality benefits. A copy of the Executive Order is in Appendix B.

At a hearing on July 25, 2002, the ARB approved amendments postponing the imposition of the CaRFG3 standards and the prohibition of MTBE and other oxygenates other than ethanol in California gasoline from December 31, 2002 to December 31, 2003. Resolution 02-25, approving the amendments, is contained in Appendix E.

1. MTBE Prohibitions in the California's Phase 3 Gasoline Regulations

The CaRFG3 regulations ban gasoline produced with the use of MTBE for all California gasoline supplied from production and import facilities starting December 31, 2003. The prohibition will be phased-in downstream from refineries according to a schedule similar to the one used to phase in CaRFG2 in 1996. The regulations also establish a three-stage schedule for reducing allowable residual levels of MTBE to a final limit of 0.05 volume percent. Table 1 summarizes the current MTBE prohibitions of the CaRFG3 regulations, showing the MTBE levels that must not be exceeded during each phase of the timetable.

Table 1
Current Allowable Residual MTBE Levels

Allowable Residual MTBE Levels (volume percent)	Effective Date
0.30	Starting December 31, 2003
0.15	Starting December 31, 2004
0.05	Starting December 31, 2005

2. Prohibition of Oxygenates Other Than MTBE or Ethanol

The CaRFG3 regulations also place a conditional ban, starting December 31, 2003, on the use of oxygenates other than MTBE or ethanol to produce California gasoline. Such oxygenates may not be used to produce California gasoline unless a multimedia evaluation of the use of the oxygenate in California gasoline has been conducted, and the California Environmental Policy Council has determined that its use will not cause a significant adverse impact on pubic health or the environment. The current regulations do not specify residual limits for these oxygenates.

3. MTBE Labeling Requirements

In September 1999, the CaRFG regulations were amended to add labeling requirements for gasoline pumps dispensing gasoline containing MTBE. The regulation requires that gasoline containing MTBE in excess of 0.6 percent by volume be labeled at the retail level as gasoline containing MTBE. The purpose of the labeling requirements was to identify gasoline being sold at a retail gasoline outlet that had been intentionally produced with MTBE. The regulation did not limit or inhibit the use of MTBE in California gasoline.

4. Restrictions During the RVP Season on Blending Gasoline Containing Ethanol with California Gasoline not Containing Ethanol

The CaRFG3 regulations prohibit persons from combining California gasoline produced using ethanol with gasoline produced without using ethanol during the RVP season, unless the person can affirmatively demonstrate that the resulting blend complies with the RVP cap limit (section 2266.5(i)(1). This is because of the RVP increase that occurs when ethanol is added to a non-ethanol gasoline. The regulation also allows exceptions for those instances in which the RVP standard would not apply to the gasoline because of other provisions of the regulations or because the gasoline is no longer California gasoline. The restriction does not apply to combining California gasolines that are in a motor vehicle's tank.

B. Federal Regulations

1. Federal Gasoline Additive Approval

The 1990 CAA amendments required the U.S. EPA to establish regulations for approving gasoline additives. The U.S. EPA has registered six oxygenates for use in gasoline. MTBE, ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), diisopropyl ether (DIPE), and tertiary butyl alcohol (TBA) are registered for use at concentrations up to 2.7 percent oxygen by weight. Ethanol is approved for up to 3.5 percent oxygen or 3.7 percent oxygen if it is equivalent to 10 percent ethanol by volume. The U.S. EPA restricts the use of oxygenates in gasoline through its "substantially similar gasoline" requirement and through the requirements for compliance with the requirements of the fuels and fuel additives health effects testing regulations.

a) Definition of "Substantially Similar"

The federal Clean Air Act prohibits the use of any fuel or fuel additive in light-duty motor vehicles which is not substantially similar to that used in vehicle emissions certification unless the U.S. EPA has granted a waiver or failed to take timely action to deny a waiver. The term "substantially similar" was first defined by the U.S. EPA in an interpretive rule in 1981 [46F.R 38582 (July 28, 1981)] and then revised in 1991. The revision increased the allowable oxygen content limit in unleaded gasoline from 2.0 percent by weight to 2.7 percent by weight. Under the revision, a substantially similar unleaded gasoline may contain up to 2.7 percent oxygen by weight from any combination of aliphatic ethers and/or aliphatic alcohols excluding methanol. As a result of U.S. EPA's inaction on a waiver request in 1979, ethanol is allowed to provide 3.5 percent oxygen or 3.7 percent oxygen if it is equivalent to 10 percent ethanol by volume. The restriction for methanol content remained unchanged at 0.3 percent by volume.

b) Health Effects Testing

A gasoline with an oxygen content of 1.5 percent by weight or greater is subject to the Alternative Tier 2 provision of the fuel and fuel additive health effects testing regulation, as required by the Clean Air Act. The current U.S. EPA approval process requires information based on tests conducted to determine potential health effects, including, but not limited to, carcinogenic, teratogenic or mutagenic effects. A health effects testing program is currently underway to evaluate the six oxygenates registered by the U.S. EPA.

2. DeMinimis Levels for Oxygenates

The U.S. EPA has published de minimis levels for oxygenates that are not intended by the producer to be blended into the reformulated gasoline, but are present as a result of operational necessity. The de minimis levels are specified in the U.S. EPA's document, "RFG Questions and Answers, May 9, 1995," which provides guidance on compliance with the Agency's RFG regulations. For purposes of meeting the applicable oxygen requirements for a final gasoline blend, the U.S. EPA will not consider the introduction of an oxygenate intentional if the amount of the oxygenate is not more than 0.4 volume percent for ethanol, or 0.6 volume percent for MTBE, ETBE, TAME or t-butanol, or 0.2 volume percent for methanol.

C. Local Regulations

On March 28, 2000, the Board of Supervisors of the County of El Dorado adopted an amendment to Title 8 of the El Dorado County Code to ban the sale of fuel containing MTBE in the Lake Tahoe Basin within El Dorado County. The ban became effective thirty days following adoption.

Some local agencies are implementing programs to restrict the use of MTBE and monitor the impact of MTBE on water resources. For example, since June 1994, the Los Angeles Department of Water and Power has sampled for MTBE as part of its routine well-water monitoring. Also, the East Bay Municipal Utility District (EBMUD) allows only four-cycle engines using MTBE-free gasoline in the San Pablo Reservoir. The EBMUD also proposes to ban all motor boat engines that discharge any fuel pollutants effective January 2003.

D. Actions by Other States

The use of MTBE in gasoline in other states has resulted in contamination of drinking water and ground water resources. Some of these states have acted to protect their water supplies against contamination from MTBE by either substantially restricting or banning the use, sale or importation of fuels containing MTBE. Table 2 is a summary of the actions taken by 13 states to prohibit or reduce MTBE use in gasoline.

No state actually banned the use of MTBE prior to 1999. States either provided economic incentives to use ethanol or set oxygen specifications (3.5 weight percent) that could not be met with the use of MTBE.

Table 2

STATES OUTSIDE OF CALIFORNIA PROHIBITING OR REDUCING THE USE OF MTBE[1]

STATE	MTBE ACTION	DATE
Arizona	Ban	June 30, 2003 (180 days after CA)
Colorado	Phase out	May 1, 2002
Connecticut	Phase out	October 1, 2003
Illinois	Ban	July 24, 2004
Indiana	Ban	July 23, 2004
Iowa	Prohibit sale of gasoline with MTBE >2 volume %	2000
Kansas	Ban	July 1, 2004
Michigan	Prohibit use of MTBE	June 1, 2003
Minnesota	Prohibit sale of gasoline sale with MTBE >0.3 volume %	July 1, 2005
Nebraska	Prohibit sale of petroleum product with MTBE >1 volume %	2000
New York	Phase out	January 1, 2004
South Dakota	Prohibit sale of gasoline with MTBE >2 volume %	2000
Washington	Ban	December 31, 2003

[1] Platts Global Energy: http://www.platts.com/features/mtbe/history.shtml
Illinois Corn: www.ilcorn.org/update/html

V. PROHIBITIONS OF GASOLINE "PRODUCED WITH THE USE OF" MTBE OR OTHER OXYGENATES OTHER THAN ETHANOL

This chapter describes the staff's proposed amendments to clarify the meaning of the phrase "produced with the use of" as it applies to the ban on the use of MTBE and other oxygenates other than ethanol and MTBE in California gasoline. Staff is proposing to integrate language into the MTBE prohibition provisions of the regulation to clarify the requirements for the MTBE prohibition. Staff is also proposing a separate definition of "produced with the use of" in a new section to clarify the requirements for the prohibition on the use of other oxygenates other than ethanol and MTBE.

A. Background

The CaRFG3 regulations ban gasoline produced with the use of MTBE, for all California gasoline supplied from production and import facilities starting December 31, 2003. The regulation also sets limits on residual levels of MTBE in California gasoline once the ban has been implemented. The intent of the regulation is to prohibit the intentional blending of MTBE into California gasoline and to control the amount of MTBE present in California gasoline because of contamination or because it is an unavoidable byproduct of the production process.

The CaRFG3 regulations also prohibit gasoline produced with the use of any oxygenate other than ethanol or MTBE, starting December 31, 2003, unless its use has been approved by the California Environmental Policy Council. Currently, the regulation does not set separate residual limits for these compounds.

The focus of the discussions of the prohibitions of oxygenates in the CaRFG3 regulations has been on MTBE, but the need for clarification of "produced with the use of" also applies to the oxygenates other than ethanol and MTBE.

B. MTBE and Other Oxygenates in Gasoline Blendstocks

The staff understands that small amounts of MTBE may be unavoidably introduced into gasoline as a contaminant in the production of gasoline blendstocks such as alkylate. Alkylates have been used increasingly in gasoline to increase volume and octane. The staff believes that significant amounts of alkylate will be used in Phase 3 gasoline to replace some of the octane and volume now provided by MTBE. When blended with other gasoline components, the contribution of MTBE and other oxygenates from this source is expected to be very low. The staff estimated that alkylate could contribute 0.01 volume percent MTBE and 0.01 to 0.04 percent oxygen by weight from the other prohibited oxygenates. These levels of contamination from production of gasoline and blendstocks are very small compared to the levels of MTBE contamination expected from transport and storage operations. Small amounts of oxygenated gasoline may be commingled with non-oxygenated gasoline or blendstocks during storage and transfer operations.

One of the concerns of refiners was that the current regulation could exclude blendstocks that contain oxygenates other than ethanol that are acquired through the production process. The

regulation does not allow a non-conforming blendstock to be blended with a conforming product to produce a final gasoline that complies with the CaRFG3 standards. This restriction of the regulation could limit access to gasoline and blendstocks. A clear definition of the words "produced with the use of" is needed to avoid the overly restrictive consequences of the regulation.

C. Proposed Clarification of "Produced With the Use of MTBE"

The staff has proposed language that would be integrated into the MTBE prohibition provisions of section 2262.6(a)(1). The proposed amended section would read as follows:

> "Starting December 31, 2003, no person shall sell, offer for sale, supply or offer for supply California gasoline which has been produced at a California production facility in part by either (i) adding at the California production facility any methyl tertiary-butyl ether (MTBE) in neat form to the California gasoline or to a blending component used in the gasoline; or (ii) using a blending component that contained greater than 0.60 volume percent MTBE when it was supplied to the California production facility."

Under the staff proposal, a California refiner would be prohibited at the refinery from adding MTBE in neat form either to gasoline or blendstocks used to produce gasoline at the refinery. The refiner would also be prohibited from using any gasoline blendstock that contains more than 0.6 volume percent MTBE when it is supplied to the refinery. Since the prohibitions would apply to gasoline production facilities, they would cover both a traditional refinery and a gasoline blending facility. Incidental amounts of MTBE in acquired blendstocks that occur during production processes or due to commingling would not preclude their use in the production of CaRFG in California, as long as the MTBE does not exceed the 0.6 volume percent threshold level. Blendstocks above the threshold level would never be permitted to be blended because permitting such blendstocks would result in excessive levels of MTBE in the state's gasoline.

There would be no parallel prohibition in imported gasoline that is "produced with the use of" MTBE because of the difficulties in monitoring the way imported gasoline has been produced at some out-of-state locations. Imported California gasoline would only be subject to the residual MTBE volume percent limits in section 2262.6(a)(2). Application of the de minimis limits on MTBE in imported gasoline should be sufficient to prohibit unacceptable MTBE levels while avoiding undue constraints in gasoline imports during potential supply shortages. Since importers are allowed to treat imported product as blendstock rather than finished gasoline, imported gasoline exceeding a de minimis limit of 0.3 volume percent or lower but not exceeding 0.6 volume percent could still be used as a blendstock for a California production facility as long as all requirements are met.

D. Proposed Clarification of "Produced With the Use of Oxygenates Other Than MTBE and Ethanol"

It is not practical to incorporate clarifying language into the prohibition provisions for these oxygenates in section 2262.6(c). Instead, staff is proposing to add the following definition in a new section 2260(a)(26.5).

> "Produced at a California production facility with the use of any oxygenate other than ethanol or MTBE" means produced at a California production facility in part by either (i) adding at the California production facility any oxygenate, other than ethanol or MTBE, in neat form to the California gasoline or to a blending component used in the gasoline; or (ii) by using a blending component that contained greater than 0.1 weight percent total oxygen from oxygenates other than ethanol or MTBE when it was supplied to the California production facility".

The restrictions on the sale of gasoline "produced with the use of" any oxygenate other than ethanol or MTBE parallel those proposed for MTBE. The restrictions would only apply to gasoline produced in a California production facility. The proposed amendment would prohibit the addition of any oxygenate, other than ethanol or MTBE, in neat form to the California gasoline or to a blending component used in the gasoline. It would also prohibit the use of a blending component that contained greater than 0.1 weight percent total oxygen from oxygenates other than ethanol or MTBE when it was supplied to the California production facility. The proposed restrictions would not apply to imported California gasoline, which would only be subject to the total oxygen weight percent limits in section 2262.6(c)(2)&(3). This is possible because of the proposed new de minimis limits for these oxygenates.

E. Rationale

There have been two areas of ambiguity regarding the application of the prohibition of gasoline produced with the use of MTBE or other oxygenates other than ethanol. The first concerns contamination with very low levels of oxygenates that result from production of the blend components. The second concerns contamination that results from commingling of oxygenated gasoline with non-oxygenated gasoline or blendstocks during storage and transfer operations. These ambiguities make the prohibitions difficult to administer, and could under some circumstances exclude imported blendstocks that contain MTBE and other prohibited oxygenates other than ethanol that are incidentally acquired through the production process or during transport. It was therefore necessary to provide clear enforcement criteria that also addressed the concerns regarding imported gasoline and blendstocks. By clearly separating the restrictions on production at a California facility from the restrictions on finished product levels, the proposed amendment provide a means for California producers to blend a non-conforming imported blendstock containing low levels of MTBE with a conforming product but they also require that the final gasoline product comply with the CaRFG3 standards.

Under the proposed amendments, any blendstock brought to a California production facility to produce gasoline is subject to a 0.6 volume percent MTBE limit and a 0.10 weight percent limit on oxygen from oxygenates other than MTBE and ethanol. The proposed limit of 0.6 volume percent for MTBE is the same as that allowed by U.S. EPA in non-MTBE blended fuel. After the first six months following the mandatory MTBE phase-out deadline of December 31, 2003, the proposed MTBE limit for imported blendstocks will be higher than the residual limits required for finished gasoline. Since the ARB would continue the current practice of allowing imported gasoline to be treated as blendstock in the sorts of situations where it is allowed under the federal RFG regulations, gasoline over the permitted residual levels could be imported if it is

used as a blendstock at a California production facility and that California facility meets all applicable requirements.

F. Alternative

The proposed clarification addresses the ambiguities of the current regulation. Not responding to the concerns of the refiners was not an acceptable alternative. The proposed revisions establish clearly enforceable criteria and respond to the concerns of refiners that the current regulation could unnecessarily exclude imported blendstocks that contain MTBE and other prohibited oxygenates other than ethanol that are incidentally acquired through the production process or during transport and storage operations.

VI. RESIDUAL LEVELS OF MTBE

This chapter describes the staff's proposed amendments to the residual MTBE prohibitions of the CaRFG3 regulations. Staff is proposing to amend Title 13, CCR, Section 2262.6 to modify the schedule for reducing residual levels of MTBE prior to the implementation of a final prohibition level.

The text of the proposed amended regulation is presented in Appendix A.

A. Background

Since 1995, most of the state's gasoline has contained 11 percent MTBE by volume. Because of such widespread use, it is expected that MTBE will continue to be detected, although at low levels, in parts of the distribution system even after MTBE is no longer added to gasoline. The extent of this contamination will also depend on how extensively MTBE is used outside California, and how much of it finds its way into California as a contaminant in imported fuel. A significant source of blendstocks for California gasoline is the state of Texas, which has not phased out MTBE. This could be a continuing source of contamination. California gasoline produced for export could also be a source of MTBE contamination after the ban goes into effect. Eighty percent of Nevada's gasoline and 60 percent of Arizona's is produced in California. Nevada has not banned MTBE and Arizona's ban does not become effective until 180 days after California's.

The CaRFG3 regulations set an allowable residual limit of 0.3 volume percent for the first phase of a three-phase schedule. The staff expected that residual limit to be achievable once the MTBE ban became applicable and there was no more MTBE gasoline entering the gasoline distribution system in California. This took into account a transition to non-MTBE gasoline by November-December 2002 and the 45-day phase-in periods for midstream and downstream facilities. However, as directed by the Board, staff has evaluated the appropriateness of the allowable residual MTBE limits and is now proposing amendments to the current requirements.

B. Proposed Schedule for Reducing Residual Levels of MTBE

Staff is proposing a four-phase reduction in the allowable residual levels of MTBE to replace the three-phase reduction currently required by the regulations. A residual limit of 0.6 volume percent is being proposed for an initial 6-month phase and the 0.3 volume % de minimis level would become effective on July 1, 2004 instead of December 31, 2003.

The proposed amended schedule is summarized in Table 3 below. As proposed, during the first six months after the MTBE phase-out – starting December 31, 2003 – California gasoline could not contain more than 0.60 volume percent MTBE. Starting July 1, 2004, gasoline would be prohibited from containing more than 0.30 volume percent MTBE and eighteen months later, starting December 31, 2005, gasoline would be prohibited from containing more than 0.15 volume percent. The residual MTBE limit would be further reduced to 0.05 volume percent starting July 1, 2007. Staff will continue to monitor the ability of refiners to meet the later limits.

Table 3
Proposed Revisions to the Basic MTBE Prohibitions in the CaRFG3 Regulations

Allowable Residual MTBE Levels (volume percent)	Effective Date
0.60	Starting December 31, 2003
0.30	Starting July 1, 2004
0.15	Starting December 31, 2005
0.05	Starting July 1, 2007

C. Rationale for Proposed Schedule for Reducing Residual MTBE Levels

1. Current MTBE De Minimis Levels

The proposed residual MTBE limit of 0.6 volume percent for the first phase is consistent with the ARB's MTBE labeling requirements for retail pump dispensing and with the U.S. EPA's de minimis level for MTBE discussed earlier. For RFG not intentionally blended with MTBE, U.S. EPA allows up to 0.6 volume percent MTBE to be present in the non-MTBE blended fuel.

At a public hearing in June 1999, the ARB staff proposed a residual level of 0.3 volume percent for the labeling of "non-MTBE" gasoline sold in the Lake Tahoe Area. This limit was ultimately changed to 0.6 volume percent in response to comments by interested parties, and adopted September 1999. This change was made largely to account for the potential for non-MTBE RFG to be contaminated with the substantial amounts of MTBE RFG expected to remain in the California distribution system through 2002.

2. MTBE Contamination of the Distribution System

Since most gasoline in California is shipped through common pipelines, there will be many opportunities for contact, in the distribution system, between non-MTBE gasoline and gasoline containing residual amounts of MTBE. Contamination by MTBE could be expected in storage tanks, delivery trucks, and the pipeline from prior deliveries of gasoline containing MTBE. A concentration of 0.6 volume percent was believed to be sufficiently low to prevent gasoline intentionally blended with MTBE from being labeled as non-MTBE, but high enough to allow gasoline blended without MTBE to be shipped within the current gasoline distribution system.

Staff expected that once the MTBE ban became applicable, there would be no more MTBE gasoline entering the system in California and that a lower concentration of 0.3 volume percent would be appropriate for the allowable level for the first stage in the reduction of MTBE residual levels. This requirement was approved at the December 1999 public hearing.

Since then, repeated comments have suggested that the initial level of MTBE allowed in non-MTBE gasoline should be set at the same level at which it is now set for labeling, that is, 0.6 volume percent at the refinery, and that this level be maintained. It was suggested that if the initial level was not changed, refiners would be forced to begin their MTBE phase-out several

months prior to December 31, 2003. Based on these comments and the results of the staff's survey of non-MTBE gasoline at retail gas stations (Appendix F), staff proposes an initial six-month period during which the allowable residual level would be 0.6 volume percent. This timetable is compatible with the 180-day phase-out proposed in Arizona. This would then be followed by the 0.3 volume percent requirement.

3. MTBE in Gasoline Blendstocks

As discussed earlier, small amounts of MTBE may be unavoidably introduced into gasoline as a contaminant in the production of gasoline blendstocks such as alkylate. Alkylates are a mixture of high-octane, low vapor pressure, branched chain paraffinic hydrocarbons. Alkylates have been used increasingly in gasoline to increase volume and octane. The staff believes that significant amounts of alkylate will be used in Phase 3 gasoline to replace some of the octane and volume now provided by MTBE. This is supported by the Linear Programming analysis performed by MathPro Inc. for the U.S EPA to estimate the impacts of an oxygenate waiver on Phase 3 gasoline production.

The staff estimates that alkylate could contribute about 0.02 volume percent MTBE, assuming isooctane would constitute about 20 percent of the final gasoline volume. When blended into gasoline, MTBE from the alkylate should not be present at significant levels. Appendix G reports the results of the isooctane analysis and the assumptions used in the staff's estimates.

4. Survey of Retail Stations

Based on the results from a survey of retail stations, staff is proposing a delay in the step down from 0.30 volume percent to 0.15 volume percent. The survey results suggest that it may require more than 12 months to reduce MTBE levels below 0.30 volume percent, even in an MTBE free gasoline distribution system. The data indicate that even after two years there is still contamination in the fuel delivery system for the Lake Tahoe area. The stations in the Bay area, which are much closer to the source of production for non-MTBE fuels, also show average MTBE levels higher than 0.15 percent. This creates some uncertainty as to whether the 0.15 volume percent limit is practical. Extending this period from 12 months to 18 months will allow staff time to collect more data on residual MTBE levels in California gasoline. Staff can then determine whether the proposed lower levels are practical or propose changes if necessary.

Staff examined data collected for nine stations in the Lake Tahoe area and six in the Bay Area to determine whether the allowable residual limits could accommodate likely sources of MTBE contamination. Residual MTBE levels in these two areas were expected to be reasonable indicators of the appropriateness of the allowable residual MTBE levels. The Lake Tahoe area was considered suitable because the wintertime oxygenate requirement for the Lake Tahoe Air Basin had been eliminated prior to the start of the winter of 1999-2000. The recission of the Lake Tahoe wintertime oxygenate requirement did not prohibit the use of MTBE in the Lake Tahoe Air Basin. Nevertheless, virtually all of the gasoline shipped to the Lake Tahoe Air Basin is believed to be MTBE-free as a result of joint efforts of CEC, ARB, and refiners to implement the directive in the Governor's Executive order to significantly reduce MTBE usage in the Lake Tahoe area, and the ordinance adopted by the El Dorado County Board of Supervisors to ban the sale of fuel containing MTBE in the Lake Tahoe Basin within El Dorado County. The Bay Area

was included because it represented the only other market in California with significant penetration of non-oxygenated gasoline.

D. Alternatives

Staff considered the following alternatives to the proposed changes:

- Not changing the regulation,
- Decreasing the time allowed to comply with the allowable residual MTBE levels, and
- Further extending the residual MTBE compliance deadlines.

No Change to the Regulation Maintaining the current requirements was not considered acceptable as this does not take account of staff's findings that the current schedule for the reduction of MTBE levels could be impractical. The staff's survey results suggest that the current regulation does not allow sufficient time to reduce the contamination of the distribution system that will continue after the MTBE ban. The current requirements could also limit the supply of imports from areas which produce MTBE gasoline. They do not make adequate allowance for imports as a source of contamination. Without enough time to reduce MTBE levels on the current schedule, suppliers could have no choice but to restrict imports from areas which produce MTBE gasoline. Also, the current schedule does not allow adequate time to evaluate the practicality of the allowable limits for MTBE at each stage of the timetable for residual MTBE reduction.

Decrease the Time Allowed to Comply with the Allowable Residual MTBE levels This alternative is inconsistent with the results of the staff's survey of retail stations. All of the reasons given above apply to this alternative. Because it allows even less time than the current regulation, this alternative would be even less effective than the current regulation.

Further Extend the Residual MTBE Compliance Deadlines Additional time is not needed beyond that proposed by staff in the amendment to the regulation. The results of the staff's survey of retail stations indicate that the proposed revised schedule allows adequate time to reduce MTBE to the allowable residual levels. The proposed amendments also provide adequate time to evaluate the practicality of the allowable limits for MTBE at each stage of the timetable for MTBE reduction and report to the Board as directed. In addition, the time proposed in the amendments should be sufficient for staff to determine whether there exists potential for significant negative impacts on the supply and availability of gasoline to California's consumers.

VII. RESIDUAL LEVELS OF OXYGENATES OTHER THAN ETHANOL AND MTBE

This chapter describes the staff's proposed amendments to the prohibitions of the CaRFG3 regulations on the use of oxygenates other than ethanol or MTBE in California gasoline. Staff is proposing amendments to Title 13, CCR, Section 2262.6(c) that would add a schedule for reducing residual levels of these prohibited oxygenates.

The text of the proposed amended regulation is presented in Appendix A.

A. Background

Theoretically, any of the six oxygenates registered by the U.S. EPA may be used in gasoline. MTBE, ETBE, TAME, DIPE, and TBA may be used at concentrations up to 2.7 percent oxygen by weight, while ethanol is approved for concentrations up to 3.5 percent oxygen or 3.7 percent oxygen if it is equivalent to 10 percent ethanol by volume. MTBE and ethanol have been the two principal oxygenates used both inside and outside of California, with TAME and ETBE used only in a small percentage of gasoline. Even with such limited use, it is expected that it will take some time for the levels of these ethers to be reduced in the distribution and marketing system. Also, as with MTBE, the extent of such contamination will also depend on how much of it finds its way into California as a contaminant in imported fuel.

The CaRFG3 gasoline regulations place a conditional ban, starting December 31, 2003, on the use of oxygenates other than ethanol or MTBE to produce California gasoline. Such oxygenates may not be used unless a multimedia evaluation of the use of the oxygenate in California gasoline has been conducted, and the California Environmental Policy Council (CEPC) has determined that such use will not have a significant adverse impact on public health or the environment.

The intent of the regulation is to prevent the intentional blending of oxygenates that have not been approved by the CEPC. However, as is the case with MTBE, these oxygenates may be present in the gasoline as trace contaminants either through unavoidable formation during the production of blendstocks or through contamination of the distribution system. The current regulations do not specify residual limits for these oxygenates that could permit the distinction between oxygenates present in the gasoline as trace contaminants and oxygenates that are intentionally added to the gasoline.

B. Proposed Schedule for Reducing Residual Levels of Oxygenates Other Than Ethanol and MTBE

Staff is proposing adoption of a schedule, summarized in Table 4, for reducing total oxygen content in gasoline from the prohibited oxygenates. These oxygenates include all of the compounds listed in ASTM D 4815-99 (Table 5) except MTBE and ethanol.

During the first six months of the MTBE phaseout, starting December 31, 2003, the total oxygen concentration from the prohibited oxygenates could not exceed 0.10 weight percent. This limit is the oxygen level equivalent to the allowable MTBE residual level during the first six months of

the MTBE phase out. By using the oxygen concentration for the limit rather than the oxygenate concentration, the effect of the differences in molecular weight of the oxygenates is eliminated. The total oxygen concentration from all of the prohibited oxygenates cannot exceed 0.06 weight percent starting July 1, 2004. The prohibition would apply unless a multimedia evaluation of the use of the oxygenate in California gasoline has been conducted, and the California Environmental Policy Council has determined that such use will not cause a significant adverse impact on public health or the environment.

Table 4

Proposed Prohibition Levels for Oxygenates not Approved by the California Environmental Policy Council

Allowable Total Oxygen Levels (total wt. % oxygen)	Effective Date
0.10	Starting December 31, 2003
0.06	Starting July 1, 2004

Table 5

Alcohols and Ethers Analyzed by ASTM Test Method D4815-99

Methanol
Ethanol
Isopropanol
n-propanol
iso-Butanol
tert-Butanol
sec-Butanol
n-Butanol
Tert-pentanol (*tert*- amylalcohol)
Methyl *tert*-butylether (MTBE)
Ethyl *tert*-butylether (ETBE)
Diisopropylether (DIPE)
Tert-amylmethylether (TAME)

C. Rationale for Proposed Residual Levels for Other Oxygenates

1. Other Oxygenates in Gasoline Sampled at Various Retail Stations

The results of the staff's survey of retail stations (Appendix F) indicate the need for a schedule to address residual levels of oxygenates other than MTBE and ethanol. TAME was present in six of the 12 Bay Area stations included in the staff's survey. There was none detected in the Lake Tahoe area samples. TAME was the only oxygenate other than MTBE and ethanol detected in any of the gasolines collected by staff. In gasolines oxygenated with both TAME and MTBE, TAME provided 30 to 35 percent of the total oxygen. Where TAME appeared to be at residual levels in MTBE gasoline, the oxygen content due to TAME was 0.02 percent by weight.

2. Oxygenate contaminants in alkylates

The primary alkylation reaction between isobutane and butene forms the high octane 2,2,4 trimethyl pentane isomer (isooctane). However, side reactions may occur during alkylation, as described in Appendix G, to form alcohol and ether contaminants of the alkylate. Such reactions are possible because of the acidic environment during the alkylation process and the presence of small amounts of water.

Butene dimerization technologies may also be used to produce isooctene or isooctane. These processes dimerize isobutenes to isooctene and offer an optional step to hydrogenate the isooctene to isooctane. This process requires a small amount of water to form alcohols which are used to improve the selectivity to dimers and limit the formation of heavier polymers. Ether by-products are also formed, with the majority being C8 ethers (typically, di-sec-butyl ether and isobutyl-sec-butyl ether). Total oxygen concentration due to the alcohols and ethers in isooctene could range from 0.4 to 0.6 percent by weight. The hydrogenation step to produce isooctane also reduces the concentration of oxygenates. The oxygen concentration in the isooctane is expected to be in the range of 0.01 to 0.04 percent oxygen by weight. Since total olefins concentration in gasoline must be less than 10 percent, the oxygen contribution from dimerization products is expected to be very low.

D. Alternatives

Staff considered the following alternatives to the proposed changes:

- Not changing the regulation,
- Allowing less time to comply with the proposed allowable residual levels, and
- Further extending the proposed compliance deadlines.

<u>No Change to the Regulation</u> Maintaining the current requirements was not considered acceptable because the regulation does not define allowable residual levels for oxygenates other than MTBE and ethanol. This lack of well-defined limits makes it difficult for refiners to determine compliance with the ban against the use of these prohibited oxygenates. It also makes enforcement of the ban harder. The current regulation does not make adequate allowance for imports as a source of contamination. With the proposed change, it is now possible to apply the new residual limits to prohibit unacceptable levels in imported gasoline or blendstocks while avoiding constraints that could curtail gasoline imports during potential supply shortages. Also,

the current regulation does not establish a schedule that would allow evaluation of the practicality of the ban on the use of the prohibited oxygenates.

Decrease the Time Allowed to Comply with the Proposed Residual levels This alternative is inconsistent with the results of the staff's survey of retail stations which suggest that a shorter time period could be inadequate to reduce the contamination of the distribution system that will continue after the ban on these oxygenates.

Further Extend the Compliance Deadlines for the Proposed Residual Levels. The staff does not believe additional time is needed beyond that proposed in the amendment to the regulation. The proposed amendments also provide adequate time to evaluate the practicality of the proposed allowable residual levels at each stage of the timetable and report to the Board as directed. In addition, the time proposed in the amendments should be sufficient for staff to determine whether there exists potential for significant negative impacts on the supply and availability of gasoline to California's consumers.

VIII. DOCUMENTATION OF DELIVERIES OF GASOLINE TO RETAIL OUTLETS

This chapter discusses the staff's proposal to add a new section to the CaRFG3 regulations to require documentation of the presence of ethanol in gasoline delivered to gasoline retail outlets.

A. Background

The CaRFG3 regulations do not require labeling of pumps dispensing gasoline containing ethanol. Also, the regulations do not require any other documentation that would identify the presence of ethanol in the gasoline delivered to the retail station or the presence of ethanol in the gasoline in the retail station's storage tank at the time of delivery.

The one-year postponement of the MTBE ban together with the early opt-in provisions will likely result in at least two types of oxygenated gasoline in the marketplace over the next year. Depending on the extent to which refiners phase out MTBE early, there will be increased opportunities for inadvertent commingling of gasolines containing ethanol and non-ethanol gasoline in areas where these types of gasolines are both marketed. This inadvertent commingling could result in an increase in evaporative emissions. Documentation will provide the information needed to comply with the restrictions on commingling.

As discussed earlier, federal regulations prohibit the combining of VOC-controlled gasoline containing ethanol and VOC-controlled gasoline not containing ethanol between January 1 and September 15 to prevent RVP increases during the ozone season.

B. Proposal to Require Documentation of Deliveries of Gasoline to Retail Outlets

The staff is proposing to amend the regulations to require documentation of gasoline deliveries to retail outlets. The proposed amendment would require any person delivering gasoline to a retail outlet to provide to the outlet operator or responsible employee, at the time of delivery of the fuel, an invoice, bill of lading, shipping paper, or other documentation which identifies the presence or absence of ethanol in the gasoline.

C. Rationale for Proposed Amendment

The proposed requirement provides retailers and distributors with the information needed to prevent inadvertent mixing of gasoline containing ethanol with gasoline not containing ethanol. This information is needed to ensure compliance with the restrictions of section 2266.5(i) on the blending of gasoline containing ethanol with gasoline not containing ethanol.

D. Alternative

The staff considered not making the proposed change to the regulations but this alternative was deemed unacceptable. The current regulations do not require the documentation necessary to protect against violations of the CaRFG3 restrictions on combining California gasoline produced using ethanol with gasoline produced without using ethanol during the RVP season. The proposed amendment will provide the necessary documentation.

IX. OTHER AMENDMENTS

This chapter describes amendments proposed by staff to clarify requirements of the regulations and to ensure that the regulations work effectively.

A. Expiration of Requirement for Documentation of Deliveries of MTBE Gasoline to Retail Outlets

Staff is proposing to amend section 2273 (d) to revise the requirements for deliveries of MTBE gasoline to retail outlets. The regulation currently requires the labeling of equipment dispensing gasoline containing MTBE. This requirement was adopted in response to the Governor's Executive Order D-5-99 which directed the ARB to develop gasoline pump labeling regulations to allow consumers to make an informed choice on the type of gasoline they purchase. The regulation also required persons delivering gasoline containing MTBE to retailers to provide documentation indicating the presence of MTBE in the gasoline. This documentation provided retailers with the information needed to comply with the dispenser labeling requirements. This requirement of section 2273 (d) will no longer be necessary after the December 31, 2003 MTBE prohibition date. Therefore, staff is proposing an amendment to specify the applicable dates for the documentation requirement.

B. Related Amendments to the Oxygenate Prohibitions for Early Opt-in CaRFG3

The staff is proposing related amendments to the prohibitions of MTBE and other oxygenates other than ethanol in batches of gasoline that a refiner or importer may choose to designate as subject to the CaRFG3 standards prior to December 31, 2003 when those standards become mandatory. The amendments approved by the Board at the July 25, 2002 hearing included the addition of a provision in section 2261(b)(3)(B)4 stating that when early opt-in CaRFG3 is supplied from the refinery or import facility, it is subject to the prohibitions regarding California gasoline produced with the use of MTBE and other oxygenates other than ethanol, but not the MTBE de minimis limits. Revisions to these provisions are necessary because the current rulemaking includes the proposed elimination of the conditional prohibition of imported gasoline produced with the use of oxygenates other than MTBE or ethanol, along with the proposed addition of specific residual oxygen content limits for oxygen from the prohibited oxygenates.

Staff proposes that the recently added provision regarding oxygenates in early opt-in CaRFG3 be replaced by imposition of the de minimis MTBE and oxygenate limits that will apply when CaRFG3 is first required – 0.60 volume percent for MTBE and 0.10 weight percent oxygen collectively from the specified oxygenates other than MTBE or ethanol. This will provide specific standards that can be monitored by refiners and importers and be readily enforced by ARB inspectors.

X. RESTRICTIONS DURING THE RVP SEASON ON BLENDING GASOLINE CONTAINING ETHANOL WITH CALIFORNIA GASOLINE NOT CONTAINING ETHANOL

This chapter describes staff's consideration of a request to provide flexibility for gasoline distributors in the event that the CaRFG available to the distributor is not the same kind of CaRFG as that required by the final distribution center. Staff has found that revisions to the regulations are not necessary to address the distributors' concerns.

A. Background

When a gasoline containing ethanol is mixed with a non-ethanol gasoline, there is an increase in evaporative emissions of volatile organic compounds (VOC). This effect is due to the RVP increase that occurs when ethanol is added to a non-ethanol gasoline. The RVP increase resulting from this commingling is called the commingling impact. The federal RFG regulations prohibit the combining of VOC-controlled gasoline containing ethanol and VOC-controlled gasoline not containing ethanol in the distribution and marketing system, from January 1 through September 15, to prevent RVP increases during the ozone season. However, neither the federal nor the CaRFG3 regulations restrict the mixing of ethanol-blended gasoline with non-ethanol-blended gasoline in the vehicle fuel tank.

At a hearing on July 25, 2002, the Board approved amendments to postpone by one year the effective date of the CaRFG3 regulations and the prohibition of MTBE and other oxygenates other than ethanol in California gasoline. There were no changes to the provisions that allow early compliance with CaRFG3 standards. Individual refiners and importers will retain the ability to elect to have batches of gasoline subject to the CaRFG3 standards – including the prohibition of MTBE – prior to the new mandatory MTBE phase-out deadline of December 31, 2003. This means that over the next year, there will be two types of oxygenated gasoline in the marketplace and increased opportunities for commingling gasoline containing ethanol with MTBE gasoline or with non-oxygenated gasoline.

Gasoline distributors change suppliers as needed during temporary supply shortfalls. When most of the state's gasoline contained MTBE, the restrictions of the CaRFG3 regulations on mixing did not affect the availability of gasoline to cover temporary shortages. This situation will change as ethanol gasoline is phased in. Because of the restrictions on mixing, the distributor can only change to a supplier that can provide the same type of oxygenated gasoline as that in the retailer's storage tank. A shortage of one type of gasoline could have an impact on the supply of that gasoline to the consumers.

B. Staff Proposal

The ARB staff will continue to work with the CEC to identify and confirm the supply situation and the need for relief for a distributor. It would have to be recognized that any ARB action would not exempt a distributor in a federal RFG area from the 40 CFR section 80.78(a)(8) prohibition against combining VOC-controlled gasoline containing ethanol and VOC-controlled gasoline not containing ethanol between January 1 and September 15.

The gasoline delivered to the final distribution center may be a different type of CaRFG from the gasoline in the storage tanks only when the distributor can demonstrate that the following conditions are met:

1. The distributor has confirmed with the California Energy Commission (CEC) a determination that the conforming type of CaRFG is not available at the primary terminal and backup terminals and the CEC provides this information to the ARB's Executive Officer or designated representative;

2. The distributor has obtained approval from the Executive Officer or designated representative;

3. The approval would be subject to appropriate conditions to minimize the emissions impact. These could include reducing the gasoline volume in the storage tanks to a level sufficient to avoid a significant air quality impact, and requiring that any future fuel change be done in the non-RVP controlled season.

C. Rationale for Staff Proposal

Distributors of gasoline to retail outlets have identified the potential for interruptions of gasoline supply to retail stations as a result of the presence of at least two types of oxygenated gasoline during the transition from MTBE gasoline to gasoline containing ethanol. Because of restrictions of the CaRFG3 regulations on mixing, the distributor must always obtain a gasoline that is the same kind as that in the retail station's storage tank. Distributors are concerned that during this transition period, there may be occasions when the available gasoline is different from the type of gasoline currently in the retail station's storage tank.

The CEC will have information on the availability of gasoline and the type of gasoline at terminals throughout the state. The unavailability of the correct fuel is expected to be a rare occurrence even in those regions where the transition to ethanol fuel is still not close to completion. It is expected that the ARB and CEC staffs will work together to identify how relief can be provided without compromising air quality benefits. It is also expected that these circumstances will only occur rarely and the emissions impact is not expected to be significant.

XI. ENVIRONMENTAL IMPACTS OF THE PROPOSED AMENDMENTS TO THE CARFG3 REGULATIONS

This chapter presents a summary of the results of the analysis of the environmental effects of the proposed amendments. The proposed amendments are required to ensure the enforceability of the regulation. The staff does not anticipate any significant adverse environmental effects associated with the proposed amendments.

The proposed amendments do not affect the requirements specified in Sections 43013.1 and 43830.8 of the California Health and Safety Code (H&SC), nor do they present any issues that were not adressed during the review by the California Environmental Policy Council which determined in 2000 that there will not be a significant adverse environmental impact on public health or the environment, including any impact on air, water, or soil, that is likely to result from the change in gasoline that is expected to be implemented to meet the CaRFG3 regulations approved by the ARB.

A. Effects on Water Quality

The proposed amendments would not change any of the CaRFG2 or CaRFG3 performance specifications, and would not create changes to the CaRFG3 regulations that would have significant impacts on water quality. The proposed revisions to the oxygenate prohibitions separates the restrictions on production at a California facility from the restrictions on finished product levels, thereby making it easier for California producers to blend a non-conforming imported blendstock containing low levels of MTBE with a conforming product, but they also require that the final gasoline product comply with the CaRFG3 standards. The proposal to set residual limits for other oxygenates other than MTBE and ethanol acknowledges the presence of these oxygenates but it sets residual limits on them as stringent as for those for the MTBE which is being phased out.

B. Effects on Air Quality

The proposed amendments do not materially affect emissions. The proposed amendments would not create a change to the intent of the CaRFG3 regulations approved in 1999 and would have no effect regarding impacts on air quality.

C. Effects on Greenhouse Gas Emissions

The proposal to modify the schedule for reducing residual levels of MTBE and other oxygenates other than ethanol should result in no significant increase or decrease of greenhouse gas emissions over what would occur with the present schedule.

D. Effects on Allowable Emissions

The proposed amendments to the CaRFG3 regulations will not adversely affect the emissions benefits from the CaRFG3 program in comparison to the existing CaRFG2 program. Thus, the amendments would maintain the consistency of the CaRFG3 regulations with the requirements of Section 43013.1(b)(1) of the California Health and Safety Code, enacted by Senate Bill 989

and the Governor's Executive Order D-5-99, that the CaRFG3 regulations maintain or improve upon the emissions and air quality benefits of CaRFG2.

E. Other Environmental Impacts

The staff has concluded that the proposed amendments will not have any other significant adverse environmental impacts.

F. Environmental Justice

There should be no environmental justice and neighborhood impacts of the proposed action. The proposed amendments are intended to comply with Governor Davis' March 25, 1999 Executive Order for the phase-out of MTBE from California gasoline while ensuring an adequate supply and availability of gasoline for California consumers and with the ARB's December 16, 1999 resolution to evaluate the practicality of the allowable MTBE residual limits for CaRFG3.

The proposed amendments provide a more practical schedule for reducing residual levels of the prohibited oxygenates. This reduces the potential for interruptions in the supply of gasoline to California consumers and the associated increases in fuel costs.

The proposed amendments do not change the basic prohibitions against adding MTBE and other oxygenates other than ethanol to California gasoline. The proposed changes set clearly enforceable limits for all of the prohibited oxygenates. This improvement in the enforceability of the prohibitions in the regulations will provide an additional level of protection for Californians living near refineries and gasoline storage facilities.

XII. ECONOMIC EFFECTS OF THE PROPOSED AMENDMENTS TO THE CARFG3 REGULATIONS

This chapter presents a summary of the staff's analysis of the economic effects of the proposed amendment. The proposed amendments to the CaRFG3 regulations would change the interim allowable residual limits of MTBE and the phase-in schedule for those limits, and add a timetable for reducing residual levels of total oxygenates other than ethanol and MTBE. The remaining changes are clean-up changes and technical modifications that clarify the intent of the regulation, and assure effective enforcement of the regulations. Therefore, the staff does not anticipate any adverse economic effects associated with the proposed amendments.

A. Costs of Complying with the Proposed Regulation

1. Cost of Revisions to Prohibitions of Gasoline "Produced With the Use of" MTBE and Other Oxygenates Other Than Ethanol

Staff expects the revisions will have a positive impact and potentially reduce the cost of compliance with the regulations. The proposed amendments provide clear enforcement criteria that also make it easier for California refiners to import gasoline or blendstocks. This could be an economic benefit for refiners as they will be able to avoid unnecessary constraints on gasoline imports during supply shortages.

2. Cost of Changes to the Allowable Levels of MTBE.

Staff expects that the changes in the timetable for reducing the allowable residual MTBE levels will not have any significant negative impacts on the cost of compliance with the regulations. The proposed changes to the MTBE prohibition requirements could prove beneficial by providing additional time to collect more data to determine whether the residual limits are practical. The changes could also provide a benefit for the supply and price of California gasoline by allowing additional time to flush the distribution and marketing system and reduce the levels of residual MTBE without the need for extraordinary efforts.

3. Cost of Complying With the Allowable Limits for Oxygenates Other than MTBE and Ethanol.

Staff expects that there will be no added cost associated with complying with the proposed residual limits for oxygenates other than MTBE and ethanol. Staff proposes to define allowable residual levels for oxygen that may be present in California gasoline from oxygenates that have not been approved by the CEPC for use in California gasoline. Currently, the CaRFG3 regulations simply prohibit their use. In fact, there may be an economic benefit associated with the proposed regulation as well-defined levels will allow refiners to determine whether a blend is in compliance with regulation. The removal of the uncertainty regarding the status of a blend will increase the efficiency of the refining process. Also, the test method proposed by staff is currently being used by the refiners to determine the oxygen content of California gasoline.

B. Economic Effects on Small Businesses

Government Code section 11346.2(b)(4)(B) requires the ARB to describe any alternatives it has identified that would lessen any adverse impact on small business. In defining small business, Government Code section 11342(h) explicitly excludes refiners from the definition. Also the definition includes only businesses that are independently owned and, if in retail trade, gross less than $2,000,000 per year. Thus, our analysis of the economic effects on small business is limited to the costs to certain gasoline retailers and jobbers, where a jobber is an individual or business that purchases wholesale gasoline and delivers and sells it to another party, usually a retailer or other end-user.

The proposed amendments to the CaRFG3 regulations are designed to assure the practical and effective implementation of the CaRFG3 prohibitions on the use of MTBE and other oxygenates other than ethanol in California gasoline. As such, no significant negative economic impact is expected.