



State of Louisiana

Department of Environmental Quality



KATHLEEN BABINEAUX BLANCO
GOVERNOR

MIKE D. McDANIEL, Ph.D.
SECRETARY

June 1, 2004

The Honorable Michael Leavitt
Administrator
United States Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Administrator Leavitt:

The Louisiana Department of Environmental Quality (LDEQ) formally requests that the United States Environmental Protection Agency (EPA) take action to waive the oxygenate requirement for reformulated gasoline (RFG) required to be sold in the Baton Rouge nonattainment area. For the reasons cited in this letter, the LDEQ believes that the EPA now has sufficient information to determine that the oxygenate requirement in RFG will interfere with attainment of the ozone standard. Alternatively, the LDEQ requests that the EPA grant an extension of the deadline for the RFG requirement to provide time for the EPA to further investigate Louisiana's concerns presented in this letter.

Introduction

In the April 24, 2003 Federal Register, the EPA reclassified the Baton Rouge Nonattainment Area as severe for the one-hour ozone standard. As a result, effective June 23, 2004, the Clean Air Act and EPA regulations require the sale of RFG and prohibit the sale of conventional gasoline within the area. Ethanol will be used to meet the oxygenate requirement of RFG in Baton Rouge as a result of concerns with the use of MTBE.

While the Clean Air Act requires RFG for the Baton Rouge area, the statute also provides the Administrator with the authority to grant a waiver of the oxygenate requirement. The statute does not provide a higher technical standard for this determination than any other determination rendered by the agency. The Administrator's determination should simply be a reasonable determination based upon the totality of the circumstances. The EPA should consider both the known and potential impact of RFG on the area and make a determination if RFG with ethanol would interfere with attainment of the ozone standard.

The Baton Rouge Nonattainment area is relatively small compared to most other covered areas requiring RFG. Emissions from on-road vehicles, which contribute 18% and 21% of Volatile Organic Compounds (VOC) and Nitrogen Oxides (NOx) respectively, are not the primary source of ozone precursor emissions. Instead, major stationary sources provide a much greater proportion of emissions. Prior to the reclassification, EPA had approved the Baton Rouge attainment plan that demonstrated that the reduction of NOx from industrial sources by 30% would bring the area into attainment. Thus, LDEQ has already enacted requirements to bring the area into attainment and RFG is not necessary.

Results from Urban Airshed modeling have clearly demonstrated that the Baton Rouge area must employ a NOx control strategy. Model runs were insensitive to even large reductions in VOC. These results were approved by EPA as part of the attainment demonstration mentioned above. Also, Mobil6 runs were made to compare RFG with conventional gasoline. There was no improvement (no ozone reduction) shown with RFG. This result was not surprising because mobile emissions are not a large contributor to ozone formation in the Baton Rouge area.

Because a NOx control strategy is required to bring the area into attainment, even small increases of NOx, as a result of implementing RFG, could interfere with ozone attainment. Small changes of VOC emissions would have negligible impact on attainment.

RFG Concerns

Louisiana's main concern is that the use of RFG with ethanol in the Baton Rouge area will result in an increase of NOx, the very pollutant that the model shows needs to be reduced in order to bring the area into ozone attainment. While there are several reasons that NOx emissions are expected to increase, the primary reason is that gasoline blended with ethanol contains less fuel energy than conventional gasoline. This is because ethanol has 30% less fuel energy than conventional gasoline. The result is that, for the same miles traveled, a vehicle will use 3% more gasoline. The following table shows the effect of this reduced mileage per gallon on mobile and non-road sources in the Baton Rouge area.

Source Category	VMT Increase (%)	Increased NOx (tons per year)	Increased VOC (tons per year)
MOBILE (1)	3	303	172
NONROAD	-	7	95
Totals		310	267

(1) Vehicle Miles Traveled (VMT) increased as a surrogate for less miles per gallon

As can be seen from the table, the use of RFG with ethanol will result in 310 more tons per year of NOx being emitted into the atmosphere in the Baton Rouge area. This amount will cause a shortfall in the amount of NOx reductions that are needed to bring the area into attainment.

Louisiana has several other concerns with real or potential increases of NO_x and/or VOC emissions from the use of RFG in the Baton Rouge area. These concerns are briefly summarized in the following bullet items.

- As shown in the above table, with the reduction in miles per gallon due to RFG with ethanol, VOC emissions will increase by approximately 267 tons per year.
- An EPA study (EPA 420-P-04-003) has shown that NO_x emissions from non-road engines will increase when using oxygenated fuel. For four-stroke engines, the NO_x increase is 25.2% and for two-stroke engines, the increase is 18.6%. Using the EPA's NONROAD model for the Baton Rouge area, a consultant, Environ International, determined that the NO_x emissions increase would be approximately 72 tons per year.
- When RFG was introduced in 1995, ethanol-blended RFG was supplied to Midwestern nonattainment areas near ethanol production centers. Other RFG areas received MTBE-blended RFG. A comparison of ozone exceedances was then made between 1993-1994 and 1995-1996. Ozone exceedances generally decreased in MTBE-blended RFG areas whereas ethanol-blended RFG areas showed a substantial increase in ozone exceedances of 78-119 percent. ("Ethanol use in US Gasoline Should be Banned, Not Expanded" by Cal Hodge, Oil & Gas Journal / Sept. 9, 2002.
- The use of ethanol as the oxygenate will also result in an increase of VOC emissions if ethanol-blended and non-ethanol-blended gasolines are commingled in automobile fuel tanks. Ethanol-blended RFG can be formulated to meet stringent Reid Vapor Pressure (RVP) limits. However, if a small amount is mixed with gasoline without a similar low RVP formulation, the overall volatility of the blend will increase, which will result in an increase in VOC emissions. The potential for such commingling is particularly high in the Baton Rouge area because of the small geographic area, which is roughly a circle with a 26-mile radius.
- Mobile and non-road emissions from trucks, marine, and rail equipment will increase due to the transport of ethanol to the Baton Rouge area from production centers in the Midwest. Ethanol is not transported via pipelines, as is conventional fuel.
- Ethanol as an oxygenate will result in VOC emission increases from permeation. Permeation is the process by which gasoline escapes through the walls of fuel line hoses and fuel tanks. Test data from the Society of Automotive Engineers (SAE) has reported that the permeation rate for a 10 percent ethanol-blended hydrocarbon fuel is roughly 1.5 times greater than that with no ethanol.

- Research has also shown that RFG containing ethanol as the oxygenate may degrade the performance of vehicle on-board vapor recovery systems over time leading to increased evaporative emissions.
- Lastly, LDEQ believes that because of the higher gasoline prices and the small geographic area, drivers will price shop for cheaper gasoline, both inside and outside the Baton Rouge area. This will increase the vehicle miles traveled (VMT) and automobile emissions. While it is unknown how much this will occur, LDEQ has estimated that a 1% increase in VMT will cause an additional increase of 100 tons per year of NOx and 55 tons per year of VOC. If the VMT increases by 2%, the additional emissions would double those in the previous statement.

Summary

The LDEQ does not have the resources or the expertise to quantify the extent of all the RFG related emission increases discussed. However, it is reasonable to conclude that there will be substantial emission increases as a result of the RFG requirement. In particular, the LDEQ anticipates that there will be an overall increase in NOx emissions associated with the use of ethanol as the oxygenate and that these increases will be sufficient to interfere with the attainment of the ozone standard.

The projected cost of RFG usage in the Baton Rouge Area is 10 to 15 cents per gallon, for an annual expenditure of \$48 to \$72 million. Dr. Loren Scott, an LSU economics professor, has estimated the overall cost of RFG to the Baton Rouge community to be up to \$150 million and 1,000 jobs. These costs coupled with already record high gas prices are sure to present a serious financial burden on the economically disadvantaged as well as many businesses in the community.

The EPA recently proposed approving a revision to the State Implementation Plan for New Hampshire to provide for oxygen flexible reformulated gasoline that will allow New Hampshire to meet the SIP requirements for emission reductions and demonstration of attainment without the requirement for oxygenated fuels. Louisiana has already clearly demonstrated attainment without the use of RFG. The LDEQ believes that the EPA proposal with respect to New Hampshire is reasonable and fully supports the decision. The EPA has essentially granted New Hampshire a waiver of the oxygenate requirement. The LDEQ believes the Baton Rouge Nonattainment Area should be treated in a similar fashion.

In conclusion, the LDEQ formally requests that the EPA grant a waiver of the oxygenate requirement for RFG pursuant to §211(k)(2)(B) of the Clean Air Act as amended. At the least, the LDEQ believes the information presents a compelling case that warrants further investigation. Accordingly, the LDEQ requests that the EPA extend the compliance deadline for the oxygenate requirement and assist the LDEQ in its further development of the quantification necessary to make such a determination.

As we are now less than one month away from the June 23rd RFG implementation deadline, we respectfully ask for a response to our request as soon as possible but no later than 10 days.

I thank you for your prompt attention to this matter and look forward to working closely with you to resolve this important issue. If you have any questions or require any additional information, please contact me at (225) 219-3950.

Sincerely,

A handwritten signature in black ink that reads "Mike D. McDaniel". The signature is written in a cursive style with a large, stylized "M" and "D".

Mike D. McDaniel, Ph.D.
Secretary

c: Governor Kathleen Babineaux Blanco
Richard Greene, EPA Region 6
Louisiana Congressional Delegation
Bobby Simpson, East Baton Rouge Parish President
Riley L. Berthelot, West Baton Rouge Parish President
Ronnie Hughes, Ascension Parish President
Mike Grimmer, Livingston Parish President
J. Mitchell Ourso, Jr., Iberville Parish President