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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 01 2003

OFFICE OF
AIR AND RADIATION

The Honorable Erin M. Crotty
Commissioner
New York Department of Environmental Conservation
Albany, NY 12233-1010

Dear Commissioner Crotty:

The U.S. Environmental Protection Agency (EPA) received your January 6, 2003 request for a waiver of the federal 2.0 percent oxygen content requirement for reformulated gasoline (RFG). EPA Administrator Whitman has referred the waiver request and the supporting documents to the Office of Air and Radiation (OAR) for technical evaluation. On March 24, 2003, EPA staff met with members of your staff regarding this request.

We fully appreciate and share your concerns about the supply and price of gasoline in New York State, as well as your concerns about the effect of methyl tertiary butyl ether (MTBE) on drinking water supplies. In the last Congress, this Administration supported legislative efforts to address the use of MTBE in gasoline in order to protect drinking water while guaranteeing that clean air benefits are preserved. We recently reaffirmed our support for this type of legislation being considered by the current Congress.

As you know, however, section 211(k)(2)(B) of the Clean Air Act establishes specific criteria that must be met before EPA may grant a waiver of the RFG oxygen content requirement. Under this section, EPA may waive the oxygen mandate, in whole or in part, "upon a determination by the Administrator that compliance with such requirement would prevent or interfere with the attainment by the area of a national primary ambient air quality standard (NAAQS)."

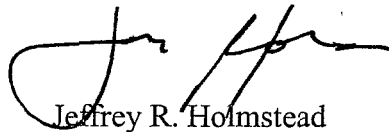
We have reviewed your application and the information provided with it. As we discussed at our meeting with members of your staff, the application and supporting information fail to address the requirements specified in the statute. Without the necessary technical supporting documentation, we are unable to evaluate the merits of the request and can take no further action. The technical information needed from New York falls into three general categories: (1) refinery modeling or comparable analysis that projects fuel quality with and without a waiver; (2) emissions modeling that demonstrates what impact the fuel quality changes associated with a waiver would have on emissions from on-road and nonroad vehicles, and (3) an air quality analysis that indicates the effect of such emission impacts on air quality and attainment of the applicable NAAQS.

This basic information is needed with respect to the New York State portion of the New York RFG covered area. In addition, given the nature of the gasoline distribution system serving New York and other eastern areas, New York should provide similar information for other areas whose fuel quality would be affected by a waiver, or explain why such information is not relevant.

As indicated in previous communications with your office, the New York State Department of Environmental Conservation is responsible for providing the information discussed above. The analytical procedures described in EPA's Technical Support Document for our decision on California's request for a waiver (available at <http://www.epa.gov/otaq/regs/fuels/rfg/r01016.pdf>), provide a good example of the type of information and analyses New York should provide in order for EPA to evaluate the technical issues involved in any request for a waiver of the RFG oxygen content requirement. In addition, please find an enclosure which contains a series of questions related to the technical information we will need in considering New York's waiver request.

If you want to discuss these issues in more detail, we are available to meet with you and your staff. Feel free to have your staff contact Mr. Barry Garelick at (202) 564-9028 with any questions or to schedule a meeting. We look forward to seeing this issue resolved in a manner that meets the needs of the State of New York, and is consistent with our statutory obligations.

Sincerely,



Jeffrey R. Holmstead
Assistant Administrator

Enclosure (1)

QUESTIONS REGARDING NEW YORK'S APPLICATION FOR A WAIVER FROM THE OXYGEN REQUIREMENT IN REFORMULATED GASOLINE

EPA cannot determine whether implementation of the oxygen content requirement in the New York RFG area will prevent or interfere with a National Ambient Air Quality Standard (NAAQS), unless New York's application for a waiver thoroughly evaluates the impact of a waiver on gasoline quality and all emissions that have the potential to impact a NAAQS. Below are comments and questions on the data submitted as well as a general description of additional data needed. Note: The term "New York RFG area" as it is used in this document means the New York State portion of the New York City Consolidated Metropolitan Statistical Area (CMSA) and the opt-in area of Dutchess County, New York..

1. What actual fuels would be used in the New York RFG area with and without a waiver?

In order to determine the likely effect of a waiver on emissions performance, it is necessary to consider the changes in all emission-related fuel properties that would occur as a result of oxygen removal and the net effect of these property changes on NO_x and other emissions.¹ Consequently, it is necessary to estimate the emission-related properties of the RFG that will be sold in the New York RFG area with and without an oxygen waiver. Depending on the formulation of the oxygenated and non-oxygenated fuels, emissions of pollutants which could impact a NAAQS may or may not decrease.

Also, in a waiver scenario, it is likely that a mix of oxygenated and non-oxygenated RFG would be produced. Refiners may use a significant amount of ethanol to help compensate for gasoline volume and octane loss resulting from New York's MTBE ban. Thus, the likely penetration level of non-oxygenated gasoline if a waiver were granted is essential in calculating resulting emissions, and ultimately comparing emissions in a non-waiver to a waiver scenario.

Your analysis should also consider any other factors that may influence gasoline composition and/or emissions performance, and it may be necessary for you to evaluate several possible alternative scenarios.

NYSDEC has provided neither any projections of penetration level of non-oxygenated gasoline in a waiver scenario, nor any information on what the likely composition of such gasoline would be. Information that EPA needs to fully evaluate whether the oxygen content requirement will interfere with a NAAQS in the New York RFG area must include refinery modeling or comparable analyses.

¹ For example complex model parameters affecting NO_x and exhaust VOC emissions are RVP, oxygen, aromatics, olefin, sulfur, E200 and E300. Other models, such as California's predictive model and various models which EPA developed for analysis of California's oxygenate waiver application, substitute T50 and T90 for E200 and E300. EPA recognizes that the effects of certain of these parameters may not be incorporated into certain emission models and that oxygen content may be the most significant parameter affecting CO emissions.

2. **What are the expected changes in emissions that would occur in a waiver and non-waiver scenario, both from on-road and non-road sources?**

The effect of a waiver on emissions is dependent on various combinations of factors if a waiver were granted. The refinery modeling or comparable analyses mentioned in item (1) above would result in likely composition of RFG in a waiver and non-waiver scenario. However, there is uncertainty associated with such forecasts, in part, because economic and other factors affecting refiner's future behavior cannot be precisely determined. Consequently, it may be necessary to model and analyze multiple cases, with different assumptions in order to sufficiently address the potential impact of a waiver. For example, refiners may elect to blend ethanol-oxygenated RFG at 2.0, 2.7 or 3.5 percent by weight if a waiver were not granted. In addition, refiners will attempt to produce non-oxygenated RFG in an economically optimal manner. Thus, the formulation of the RFG in a non-waiver scenario may or may not result in NOx decreases.² Thus, multiple oxygen levels may have to be evaluated along with other factors to construct a set of possible waiver/no-waiver scenarios. Such a set would then be used for emission comparisons.

Possible factors to be considered in constructing scenarios would include (but would not necessarily be limited to) the following:

- With/without waiver
- Oxygen level in waiver and no-waiver scenarios
- Whether MTBE use outside of New York State will continue at present levels, or whether it will be reduced (due to new state bans or refinery liability concerns)
- Fungibility of the fuel distribution system with and without waiver

In order to fully evaluate whether the oxygen content requirement will interfere with a NAAQS in the New York RFG area, EPA will need the estimated changes in emissions (for both on-road and non-road sources) that would be expected for waiver and non-waiver scenarios. Such estimation must address the potential for future technologies and/or regulations to impact the outcome of the waiver evaluation (i.e., whether the difference in emission levels for a waiver versus a non-waiver scenario will change for future vehicle fleets).

² NYSDEC, in its waiver application, expressed concern that the complex model does not fully capture the effect of oxygenates such as ethanol on NOx emissions. NYSDEC may use other models and methodology to estimate emission changes resulting from fuel property changes. For example, NYSDEC may use the model that EPA developed as part of its analysis of California's request for waiver. The model is discussed in Section III.A.5 of the Technical Support Document associated with California's request for a waiver (EPA420-R-01-016, June 2001), and which is available at <http://www.epa.gov/otaq/regs/fuels/rfg/r01016.pdf>. Consistent with EPA's approach in its analysis of the California waiver, NYSDEC may use separate models and methodology to estimate fuel-related emission effects in different segments of the fleet.

3. What are the expected VOC changes that would occur in a waiver and non-waiver scenario from on-road and non-road sources?

In addition to (1) and (2) which are applicable to all emissions that have a potential to impact a NAAQS, there are certain questions and issues specifically or primarily impacting VOC emissions.

a. Increases due to commingling

NYSDEC indicates that the replacement of MTBE with ethanol will result in an increase of VOC emissions of ethanol blended and non-ethanol blended gasolines that are inadvertently commingled in automobile fuel tanks.

In order for EPA to fully evaluate whether the oxygen content requirement will interfere with a NAAQS in the New York RFG area, New York should provide the following information:

- Market penetration of non-oxygenated RFG in the New York RFG area in a waiver scenario, obtained from refinery modeling or comparable analyses as discussed in item (1) above.
- The expected level of commingling and to quantify the resulting VOC increases in the New York RFG area, both with and without a waiver and for each alternative scenario. (See EPA's approach to estimating commingling emissions in the above referenced Technical Support Document associated with California's request for waiver, in Section III.C.2.)

b. Increases due to permeation

NYSDEC has noted that ethanol as a replacement for MTBE will result in VOC increases from permeation of 6.1 tons/day based on a derived emission factor applied to five million vehicles.

EPA needs the following information in order to evaluate NYSDEC's petition:

- Explain what the five million vehicles represents; i.e., is it total vehicles in the New York RFG area, in all of New York State, and if the latter is it only that portion of vehicles that would use gasoline containing ethanol? Also explain any other assumptions pertaining to this estimate and New York's use of this estimate.
- Derivation of the permeation emission factor used to compute emissions.
- Using the results of the refinery modeling or comparable analyses discussed in item (1), adjust the permeation emissions by the penetration level of non-oxygenated and ethanol-oxygenated fuels, as well as the expected volume percent of ethanol to be used in ethanol-oxygenated fuels both with and without the waiver and for each alternative scenario.

c. How does EPA's VOC Adjustment Rule cause an increase in the Reid Vapor Pressure (RVP) of the RFG sold in the New York RFG area?

NYSDEC has estimated increases in VOC in the New York RFG area based on an increase in RVP by 0.3 psi if a waiver is not granted. (Enclosure G) NYSDEC attributes such increase in RVP to a regulation that EPA promulgated on July 17, 2001 that allows a more lenient VOC performance standard (equivalent to an increase in RVP by 0.3 psi) for RFG containing 10 volume percent ethanol. Since the regulation applies only in Chicago and Milwaukee, (see 66 FR 37157 and 40 CFR 80.40(c)(3)), explain why New York believes that EPA's rule would result in increased RVP in the New York RFG area.

d. Why would there be statewide increases in RVP of either 0.3 psi or 1.0 psi in conventional gasoline if a waiver were not granted?

In Enclosure G, NYSDEC claims that the RVP in areas outside the New York RFG area, for the entire state, could increase and has provided estimates of VOC increases based on two scenarios: (1) an RVP increase of 0.3 psi increase statewide, and (2) a 1.0 psi increase statewide due to the RVP waiver for conventional gasoline (CG) that contains 10 volume percent ethanol.

To fully evaluate your request, EPA needs the following information:

- How the oxygen requirement of 211(k)(2)(B) for RFG would result in an increase in RVP of 0.3 psi in all CG statewide including all relevant assumptions that New York makes in reaching this conclusion;
- How the oxygen requirement of 211(k)(2)(B) for RFG would contribute to a level of 10 volume percent ethanol in all conventional gasoline in New York State including all relevant assumptions that New York makes in reaching this conclusion.

e. What are the changes in VOC exhaust emissions?

NYSDEC concluded that VOC emissions may increase with ethanol use through several evaporative mechanisms (e.g. commingling, permeation, application of a "VOC adjustment" for RFG and RVP waiver for CG).

To fully evaluate your request EPA needs the following information:

- Clarify the extent to which the effect of oxygen and other fuel parameter changes have been taken into account in estimations of exhaust emissions of VOC for on-road and non-road vehicles using ethanol-oxygenated RFG.

4. **What are the emission increases due to transport of ethanol to the New York City RFG area?**

Enclosure I of NYSDEC's application is a document prepared by NESCAUM, and contains an estimate of emission increases due to the transport of ethanol to the northeast states. In order for EPA to fully evaluate NYSDEC's petition New York must provide an estimate of the emission increase associated with transport of ethanol to the New York RFG area, both with and without a waiver. Such estimate should take into account the projected penetration levels of non-oxygenated gasoline derived from the refinery modeling or comparable analyses discussed in item (1) above, including any assumptions relevant to New York's conclusions.

5. **What will be the change in carbon monoxide (CO) emissions in the New York City RFG area?**

In order to fully evaluate NYSDEC's petition EPA needs estimates of CO emissions from on-road and non-road sources, for both the waiver and non-waiver scenarios in the New York RFG area, based on the make-up and penetration level of non-oxygenated RFG derived from refinery modeling. Such analysis must also address the potential for future technologies and/or regulations to impact the outcome of the waiver evaluation (i.e., whether the difference in emission levels for waiver versus a non-waiver scenarios will change for future vehicle fleets).

6. **What is the overall effect of any changes in emissions on attainment of each applicable NAAQS in the New York RFG area?**

EPA needs a detailed analysis of the overall impact of any changes in emissions from gasoline on attainment of each applicable NAAQS in the New York RFG Area. In order for EPA to grant a waiver, the analysis must demonstrate that the emissions without a waiver compared to those with a waiver are such that implementation of the oxygen requirement in 211(k)(2)(B) would interfere with the attainment of an applicable NAAQS in the New York RFG Area.