Endicott Biofuels
A Cleaner Alternative

June 18, 2010

Mr. Alexander Mitchell
Air Pollution Specialist
Industrial Section, SSD
California Air Resources Board
1001 I Street
Sacramento, California 95812

RE: Comments on Biodiesel and Renewable Diesel Rulemaking

Dear Mr. Mitchell:

The purpose of this correspondence is to provide input on the proposed rulemaking process pertaining to biodiesel as a transportation fuel in California. This input is based on our attendance at the two rulemaking workshops sponsored by CARB in 2010 as well as our comprehensive literature review on the impact of biodiesel consumption on exhaust emissions and on the complex chemical relationship between the two primary ozone precursor pollutants, VOC and NO_x, and ground level ozone formation. Our overall intent is to encourage CARB to approach any regulatory action from a multi-dimensional perspective and not to impose regulations on the production of biodiesel that will undermine its penetration into the California transportation fuel market.

From our knowledge as a producer of biodiesel and from a detailed literature review, there is little doubt that when compared to traditional transportation diesel fuel, biodiesel results in substantial reductions in emissions of most criteria pollutants as well toxic and greenhouse gas emissions. Typical reductions when compared to traditional diesel fuel are as follows:

- Particulate Matter – Greater than 50 percent;
- Carbon Monoxide – Greater than 40 percent;
- Hydrocarbons (VOCs) – Greater than 60 percent;
- Sulfur Oxides – Equal to or lower than ULSD;
- Greenhouse Gases – Greater than 80 percent.

While there is a strong level of consistency in the data with respect to the reductions indicated above, there is, however, considerable variation in the literature as to the impact of biodiesel on emissions of NO_x. A synopsis of information reviewed indicates that biodiesel blends of up to and including B20 result in NO_x emissions that range from a small decrease to up to an approximately 2 percent increase in NO_x emissions when compared to traditional diesel fuel. As the biodiesel blend increases, the trend appears to be slightly positive, indicating that at B100 concentrations, NO_x emission comparisons range from near neutral to about a 10 percent increase. The National Renewable Energy Laboratory (NREL) has presented information which suggests that using updated vehicle exhaust testing methods and a newer vehicle fleet (as compared to the data cited from previous studies) may demonstrate that biodiesel does not result in an increase in NO_x emissions. In addition, since this NREL study has been done, and given the transition to Ultra-low Sulfur Diesel (ULSD), the vehicles that will comprise a newer fleet are being equipped with advanced emission control systems that will significantly reduce NO_x emissions thus further muting these statistically unclear differences between petroleum diesel and biodiesel with respect to their absolute NO_x generation.

Regardless of how historic and more recent data is interpreted, it is indisputable that biodiesel presents unique opportunities for states such as California to substantially reduce legacy pollutants such as PM, SO_2, VOC and CO while also fully supporting the state's recently enacted Low Carbon Fuel Standard. In addition, we believe, from our review of literature on this subject, that there is a strong likelihood that even if it is agreed that biodiesel does result in a modest increase in NO_x emissions as compared to traditional

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diesel fuel, the larger reduction in VOC emissions will result in biodiesel being essentially ozone neutral. This is also supported by NREL in a May 2003 study that included an evaluation of impacts of biodiesel use on ozone concentrations in four regions of the country, including the South Coast Air Basin. The conclusions of this study state that "....the use of biodiesel is estimated to have no measurable adverse impact on 1-hour or 8-hour ozone attainment in Southern California...."

From the rulemaking workshops it appears to us that CARB is on a path that would eventually result in a requirement that biodiesel producers address the increase in NO_x emissions associated with the previous exhaust emissions studies. This would likely include a requirement that biodiesel producers modify the fuel production process and include additives to reduce combustion NO_x emissions. If ultimately required to do so, this will add a cost burden on the production of biodiesel that would result in this fuel not being cost competitive with other transportation fuels on the market – other fuels that do not present the overall benefits to the environment that biodiesel does. This could adversely impact the ability and desire for biodiesel producers and blenders to sell biodiesel within the California transportation fuel market. If this were to happen, it would undermine many of the other initiatives that California has taken to improve air quality and reduce greenhouse gas emissions. As such, Endicott Biofuels respectfully requests that as part of the biodiesel rulemaking process that CARB takes a multidimensional approach and considers the overall benefits of increased biodiesel penetration into the California transportation fuel market and the potentially adverse results associated with rulemaking actions that undermine the ability for biodiesel producers to sell their fuel within the state of California. Thank you very much for consideration of our comments on this important matter.

Sincerely,

Christopher Frantz
Principal

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