February 14, 2020

Mr. Richard Corey
California Air Resources Board
1001 I ST
Sacramento, CA 95814

Subject: CARB's Newly Proposed Alternative Diesel Fuel (ADF) Testing Protocol

Dear Mr. Corey:

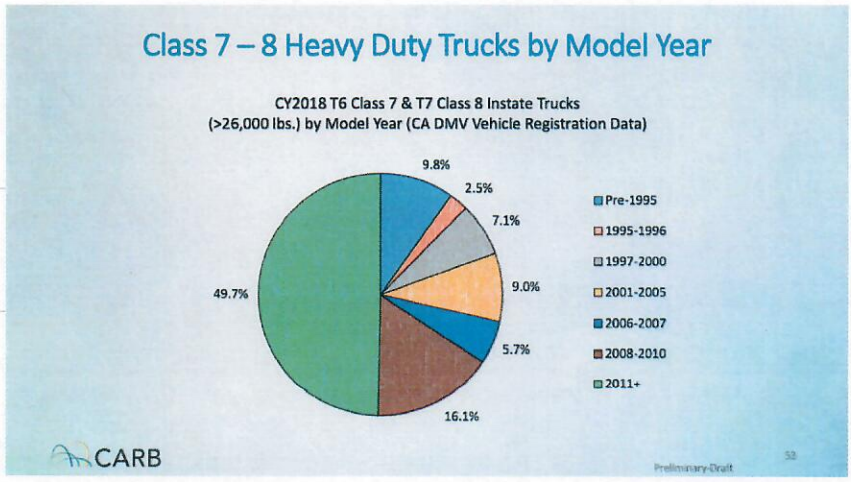
CARB is presently contemplating an update to the ADF regulation. We appreciate CARB looking to implement changes to the regulation to prevent fraud and have been at the forefront of calling for such changes. Unfortunately, CARB has also proposed changes that are counterproductive to the ADF's goals and that we believe would be detrimental to the biodiesel industry. We support all CARB's proposed chain of custody and verification processes which were followed by California Fueling, LLC ("California Fueling") as well as most, but unfortunately not all, ADF Executive Order ("EO") holders. It is our belief that these changes alone will prevent a future fraud. However, CARB is seeking to make changes to the ADF testing regimen which are overly burdensome from a certification perspective. The intent of this letter is to identify our concerns and offer alternatives which we believe are fair to all stakeholders.

Fuel additive dose response is, in most cases, determined using laboratory bench-type testing. Additives normally help fuels meet specifications which are set by ASTM, EPA and in some cases CARB. NOx Mitigants, however, must be engine tested and validated which is a more expensive proposition than bench testing. To date, all ADF EO holders have used the Detroit Diesel Series 60 ("S60") engine at Southwest Research Institute ("SwRI") for certification. CARB has also used the S60 at CE-CERT to conduct certification testing. Beyond the ADF, the S60 has been used by all parties for certification of alternate diesel formulations for which some 30+ exist. CARB has a significant database at its hands from which to understand all sorts of relationships between fuel composition, additive response, emissions impact, etc. From a CARB diesel emissions testing perspective, the S60 is the established "gold standard".

CARB is now proposing to change the engine required for ADF certification and alternate diesel formulations emissions testing, from the 1990-1992 Detroit Diesel Series 60 (S60) to a 2004-2006 Cummins, only two (2) years after ADF regulation implementation requiring the use of NOx Mitigants. The S60 knowledge platform that's been developed by companies to-date will be drastically diminished in technical value because there's no established emissions correlation between the S60 and the Cummins engines. All stakeholders will be required to implement research and development programs geared around testing in the Cummins engine, the considerable costs for which will be addressed below. Further complicating this matter is CARB's proposed timeline – finalization of the new ADF by July 1, 2020 followed by

implementation on January 1, 2021. Research and development activities require significant more time – VESTA® 1000, our first approved mitigant, for example, was the result of twenty (20) months of research and development. In most additive commercialization efforts, like NOx Mitigants, companies would expect some significant period to pass before a test engine change is made. Additionally, companies expect far more notice when changing from one engine to another. While CARB provided advance notice of the S60's expiration, they have not allowed the NOx Mitigant market to properly mature for a period in time and are now proposing to institute a new test regimen in too short an amount of time.

In October 2019, CARB delivered a webinar entitled "EMFAC202x, An Update to California On-road Mobile Source Emissions Inventory". As indicated in the presentation slide provided on page 2, pre-1995 vehicles make up approximately 10% of the population. While the heavy-duty vehicle population for the 2004-2006 period is not reported, it is highly likely that the pre-1995 and the 2004-2006 vehicle populations are similar in size. We point this vehicle population comparison out because we believe that the S60 is just as representative of the California fleet as the Cummins. When you then factor in that the S60 produces more NOx emissions than the Cummins engine, the more important metric for NOx mitigant efficacy is an additive's performance in an S60.



Moreover, there is insufficient testing experience to establish the Cummins engine as an ADF benchmark which is a significant downside risk to requiring it. At the December 18, 2019 ADF workshop, CARB indicated that the ADF's new proposed testing requirements are "technically feasible"; we don't understand how CARB can be so confident based on its past experiences. To our knowledge, no ADF engine testing has been conducted since July 2018 which coincides with the expiration date of the S60 on top of which we're not aware of any Cummins engine testing completed recently at any facility resembling the ADF's existing requirements. We believe this is a reflection of stakeholder lack of confidence in the Cummins engine. The

majority of ADF type Cummins engine work has been conducted by CARB at CE-CERT. In October 2011, CARB conducted Cummins engine screening work on biodiesel blends and additives, using a Reference Fuel containing 18.7% aromatics closely resembling CARB's newly proposed "Diesel Equivalent Limits Fuel". In July 2013, CARB screened 5 proprietary additives, each at a different treat rate using a Reference Fuel containing 9% aromatics which meets the ADF's current specification. CARB has spent considerable monies testing fuels and additives in the Cummins engine at CE-CERT and to date has failed to show the Cummins engine as a reliable method for the testing and development of either a NOx mitigant or Formulation per the existing ADF's requirements.

Relatedly, there is no existing Cummins NOx emissions data supporting a linear relationship between either biodiesel blend levels, NOx Mitigant performance, RHD, combinations thereof in a Candidate Fuel versus a Reference Fuel. When the ADF was instituted, CARB used a linear model when determining the relationship between NOx Mitigants or RHD and biodiesel. CARB applied this approach to DTBP as the first approved NOx Mitigant (B20 requires 10,000 ppm DTBP, B10 requires 5,000 ppm of DTBP, etc.). Once a B20 NOx Mitigant level is approved, CARB uses the same scaled down linear model as DTBP. VESTA®'s dose response performance supports CARB's linear view. There is no basis to support a linear model for the Cummins engine for either NOx Mitigants or RHD-based formulations. Further work is required to investigate this matter before positions can be taken and supported.

In Appendix C of the January 2020 ISOR, the "Cost to Industry" section, CARB states "[s]ince the amendments require testing at two independent labs, parts of the emissions tests will have to be contracted with out of state lab(s). There are at least two out-of-state labs potentially available for the testing." Initially, CARB should identify all approved labs.

Regardless, the two (2) facility, two (2) engine and two (2) fuel requirement further raises repeatability and reproducibility concerns beyond which have been separately documented by California Fueling in our January 10, 2020 comment submission. We are not aware of any 2004-2006 Cummins engine-to-engine or lab-to-lab comparative emissions testing of the same fuels. Given this knowledge gap, use of the Cummins engine for ADF certification testing is not appropriate at this time. Placing this experimental Cummins engine repeatability and reproducibility burden of proof on ADF applicants is unfair, will add to NOx Mitigant development costs and only plays against CARB's stated goal of having multiple approved NOx Mitigants in order to increase biodiesel use.

If CARB are going to insist on requiring the Cummins engine for ADF certification, CARB should address engine repeatability and reproducibility concerns in the new ADF and consider building a "tolerance" into the two-facility approach. In addition, CARB's ADF statistical analysis, Appendix 1(G)(3), provides for an allowance of 1% for NOx. As CARB knows, there is a significant NOx rating difference between the S60 and the Cummins engine. It's only fair that these tolerance levels be part of any new ADF.

Appendix C further states "[t]he proposed amendments require three testing cycles for certification testing. Estimated cost of completing a certification testing is $525,000 ($175,000/cycle x 3 cycles)." We believe this section requires clarification. The $525,000 CARB estimate is a floor, or the minimum testing investment required simply for retesting previously approved mitigants. Before CARB's estimates can be confirmed, we need to have CARB's opinion on the CE-CERT repeatability and reproducibility issues and whether they plan to incorporate a "tolerance" into the new ADF. Only then can we comment of CARB's estimates. If, however, CARB switch to the Cummins engine and the ADF moves forward as proposed, requiring a new research and development program, costs will be significantly higher, potentially 2X CARB's estimates, either decreasing competition by dissuading research and development or increasing the cost of NOx Mitigants, either of which will drive up the cost of B100 and any other blends above the seasonal allowances.

Current EO holders have invested in certification testing at considerable costs. Two (2) companies have six (6) EO's which using CARB's estimates equates to a collective investment of over $1 million. Businesses have been built to support the EO's, including storage at third party facilities, transportation arrangements, equipment investments, etc. CARB is now asking these companies to make a difficult choice – (1) ante up the new testing costs or (2) exit the business. This is a lose/lose proposition wherein CARB is being unfair to existing and valid EO holders. California Fueling proposes that CARB grandfather certain EO's, and if warranted, subject them to an "in-use", to be defined, testing requirement using the newly proposed chain of custody requirements in a "Designated Equivalent Limits Diesel" using the S60. In fairness to the front-end investments made and ongoing businesses developed by successful ADF applicants, the regulations need to provide for a grandfathering provision.

Relatedly, we wish to address VESTA®'s performance which CARB addressed during the Poet litigation wherein Poet questioned "... the evidence concerning the certification and efficacy of the alternative additive [VESTA®]." CARB responded to this question by indicating that "... the certification is indisputable [VESTA®]."[1] In the same CARB filing addressing the use of DTBP, CARB attorneys indicated "... the ADF regulation expressly anticipated the development of other ways to mitigate biodiesel-related NOx emissions and created a path for certification of such measures. As of July 20, 2017, a different additive – VESTA® 1000 – has been certified as compliant with the ADF requirements to reduce NOx emission from biodiesel"[1] and further that "VESTA® provides a separate, independent and unchallenged way to reduce those very emissions."[1] CARB's on the record view of VESTA® through the Poet litigation, and reliance on the same in its efforts to show compliance with the Court's Orders issued in connection therewith, support our grandfathering request.

[1] Poet, LLC v. California Air Resources Board, "Respondents Reply to Petitioners' Opposition to Respondents Motion for Judgement on the Pleadings", Case No. 15 CE CG 03380, pages 9-10, 16.

In closing, if CARB nullifies all EO's and no additional/new EO's are granted, in 2021 approximately 25% of the biodiesel market will vanish. More than 50 million gallons of biodiesel may not find a home in the marketplace, representing some 500,000 LCFS credits. Such a loss will negatively impact the bank, raise credit prices further (which are currently at an all-time high) and potentially increase consumer pricing. As we said at the onset and want to stress again, California Fueling supports all CARB's newly proposed chain of custody and verification processes. It is our belief that these changes are the only required changes to the ADF at this time.

Sincerely,

Patrick J McDuff
CEO
California Fueling, LLC

CALIFORNIA FUELING