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December 20, 2019

Alexander "Lex" Mitchell
Manager, Emerging Technology Section
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

RE: Initial NBB Comments on Potential ADF Amendments Discussed at December 13th Workshop

Dear Mr. Mitchell:

Thank you for the opportunity to comment on the potential amendments discussed at the December 13, 2019 workshop. The National Biodiesel Board (NBB) is the national association for the U.S. biodiesel and renewable diesel industries. We continue to appreciate the leadership the California Air Resources Board (CARB) has shown in implementing the groundbreaking Low Carbon Fuel Standard (LCFS) and its companion Alternative Diesel Fuel (ADF) regulation.

Biodiesel and renewable diesel continue to perform well under the LCFS. Biomass-based diesel volumes have increased from 16 million gallons in 2011 to 630 million gallons in 2018 and are expected to reach 1 billion gallons in 2020. These diesel replacements have transitioned from modest credit generators to mainstays of the program, accounting for 46% of LCFS credit generation in 2018. As such, biomass-based diesel fuels have provided the lion's share of the LCFS credits to date (cumulatively 41% of all credits generated since 2011) and have therefore been a key contributor to the LCFS' success. The credits generated by biomass-based diesel fuels have, to a large degree, enabled the LCFS to overcome the challenges in meeting the gasoline compliance standards due to the fact that cellulosic ethanol production never materialized as expected. And given the expected gradual penetration of electrified vehicles in the medium- and heavy-duty sectors, the LCFS will continue to rely on biomass-based diesel for many years to provide the high energy-density fuels that freight transportation and other heavy-duty engine applications require.

With this in mind, NBB is very concerned about the barriers CARB is contemplating to the continued and expanded use of biomass-based diesel with these potential amendments. Our comments are provided in the spirit of improving both the process in which these amendments are developed and the substance of the amendments themselves.

Process concerns: The rescheduled workshop conflicted with the semi-annual ASTM meeting, severely limiting the participation of parties integral to the development of any ADF amendments.

The National Biodiesel Board is very disappointed that the workshop was rescheduled to December 13th, as many of the biodiesel industry technical experts were already committed to participate in the semi-annual ASTM meetings also held that week and could not re-arrange their schedules for the workshop. CARB has a number of ASTM members, so the agency was presumably aware of the conflict. Given the significant amount of biodiesel activity at ASTM, our technical staff has not yet had an opportunity to fully review and evaluate the potential changes proposed at the workshop. Moving forward, we hope that additional public workshops are scheduled to allow for maximum participation of relevant and interested parties, including the National Biodiesel Board.

Substantive concerns: The proposed two-lab certification process is unprecedented, inequitable, and could result in a de facto California-lab veto over the results from other, equally qualified labs.

CARB staff proposes to revise the certification process to require ADF applicants to run duplicate tests through two separate labs. With the added requirement for testing a diesel fuel produced at a California refinery at one of the laboratories, this essentially puts in a requirement that one of the labs be the University of California, Riverside's (UCR) CE-CERT lab. Obviously, this effectively doubles the certification costs for every applicant, and certification with a single lab already constitutes a substantial cost and barrier to market entry for any applicant. More importantly, this proposal is fundamentally flawed and inequitable for several reasons.

First, to our knowledge, such a two-lab certification requirement is unprecedented at CARB (or any other regulatory agency) and is applied to no other fuel, renewable- or petroleum-based. Indeed, it is not even applied to conventional petroleum diesel formulations subject to existing CARB regulations under title 13, California Code of Regulations (CCR), section 2282 or section 2700. As a reminder, those petroleum-based diesel and alternative diesel formulations generate the high GHG and diesel particulate matter emissions that CARB has been trying to reduce through its LCFS and other programs. In effect, CARB would be subjecting to this onerous requirement the same renewable biofuels that are largely responsible for the LCFS' success to date -- the biofuels which have substantially reduced GHG and diesel PM emissions from the heavy duty sector -- while giving petroleum-based, conventional and alternative diesel formulations a pass when they are claimed to achieve equivalent emissions to the reference fuels.

Second, the proposal is structured to not only essentially require UCR CE-CERT to be one of the two labs, but it also provides that UCR CE-CERT's results would trump the results from any other lab used. This would be true even if an applicant used three labs, with UCR CE-CERT's results overriding corroborating results from the other labs. There seems to be little point in requiring two labs for certification testing; if CARB's intent is to have all testing be done by one lab in the U.S., why not simply state that? Of course, we are not suggesting that all certification be done by UCR CE-CERT, but

the proposed amendments would effectively render moot the use of any other lab besides UCR CE-CERT (as well as being a superfluous and substantial expenditure of resources by the applicant).

Third, the two-lab proposed requirement, and the implicit requirement for UCR CE-CERT to be one of the labs with veto power over the results of any other lab, appears to be premised on the assumption that Southwest Research Institute's (SwRI) compliance with the existing test protocols is somehow faulty. This assumption would also apply by extension to similar testing performed by West Virginia University (WVU) or any other qualified lab. As a reminder, it is our understanding that all or nearly all testing submitted by the petroleum refiners under 13 CCR 2282 or 2700 have been performed by SwRI or WVU. If CARB staff is concerned about the validity of the testing performed by those labs, wouldn't that raise questions about the validity of all Executive Orders issued under 13 CCR sections 2282 or 2700? Again, applying this assumption against testing done for biofuels, but not for conventional petroleum diesel formulations, suggests a potential agency bias against the very biofuels that are central to the success of the LCFS program.

<u>Substantive concerns: If CARB's aim is to improve the testing of ADF formulations and additives, quantifying intra- and interlaboratory bias and variability is a much better and more valid way to accomplish that without requiring a two-lab certification process.</u>

Respectfully, we believe the proposed requirement for a two-lab certification misses the point. As noted above, the proposal appears to assume without proof that UCR CE-CERT performs the testing the "correct" way while SwRI and WVU do not. But it is equally valid to assume the reverse: that UCR CE-CERT is incorrectly applying the protocol, and SwRI and WVU have been applying it correctly. Clearly, it is unproductive to make either assumption. The desired approach and outcome, for both CARB and applicants, should be testing to determine intra-laboratory biases, if they exist, and establish an improved certification protocol with better quantified variability so that any single, qualified lab can perform the testing -- the results, if they fall within that variability, should be held as valid.

NBB was just one of the entities that worked with SwRI to conduct the testing on B20 additive formulations for NOx mitigation under the recent ADF certification test procedures put into place for B20 by CARB. The ADF certification procedures were put into place by CARB after a significant amount of public input and internal CARB review in order to support increasing levels of new low carbon fuels coming into California expected as a response to the LCFS' strong market signal. While there may be opportunities for improvement, the existing CARB emissions testing procedures are far in excess of any other regulatory entity in the U.S., and they already represent a significant financial burden and barrier to entry for the new low carbon fuels needed to meet the California LCFS.

While the CARB protocols are the most stringent available, CARB's proposed amendments would further exacerbate the situation by potentially resulting in two different but well-qualified laboratories conducting tests using prescribed procedures and protocols allowed under the

regulation and coming up with fairly similar results—but results that are nonetheless different enough to result in one lab showing the fuel package as meeting the NOx equivalency value, and the other failing the same value. This dilemma is not resolved by having one lab's results trump the other's (as discussed above); the scientifically valid practice is instead to identify and quantify intralaboratory biases and interlaboratory variability and reflect that information in the protocol.

When differing results from different laboratories happen in other areas—as it often does when different entities use the same testing methods but different equipment, analysts, and lab facilities—the most common and scientifically valid way to address these discrepancies is to conduct round robin testing using the same exact fuels and the same exact testing procedures, along with careful attention to following the procedures used. In drastic cases, a third-party auditor is used to review and evaluate the testing procedures of each lab before-hand, as well as witness the testing as it is performed in order to identify discrepancies. This comparison can be used to help determine whether there is an inherent bias from one lab versus another due to a procedure or practice which is either not being followed properly or that is having an unanticipated impact on the test result, or just simply normal variation that is expected to occur from one testing laboratory to another.

Many of the OEMs utilize SwRI because of their many years of testing experience and their expertise in conducting emissions testing. Over the years, OEMs—as well as NBB—have become confident in the emissions values produced at SwRI, which is why SwRI is such a well-respected laboratory for emissions regulatory work. Indeed, according to SwRI many of the previous CARB certifications for existing petroleum-based diesel fuel were run at SwRI. It may very well be that UCR CE-CERT has an inherently high bias on NOx results, and that could be the reason why ALL of the UCR CE-CERT retest results for the B20 formulations were higher than those from SwRI. If these biases do exist, then the proposed changes of running the testing at two different labs against two different fuels could result in the same conflicting results as CARB is currently facing—if UCR CE-CERT is one of the labs chosen. Alternatively, if the bias exists on the SwRI side, then it could very well bring into question most, if not all, of the existing CARB certifications for conventional diesel fuel in addition to the existing B20 additive formulations.

As noted, the proposed changes would serve as an onerous and substantial barrier to NOx mitigated biodiesel formulations entering the California market, a market in which biodiesel has played a substantial role in ensuring the success of the LCFS (along with renewable diesel). Therefore, we recommend that CARB institute round-robin emissions testing between SwRI, WVU, and UCR CE-CERT (and potentially other qualified facilities) to determine if the differences observed are simply lab or other procedural biases. This testing should use the prescribed Series 60 engine with the same exact CARB48-10 reference fuels and additized fuels and use the same exact protocol to determine the extent the differences observed may be due to an inherent bias between the labs or the procedures or due to random variation between the laboratories. The fuels can be sourced and blended at an agreed-upon third party, as is commonly done for ASTM round robins on analytical test procedures.

NBB will offer to work with ASTM to assist CARB in locating an acceptable third-party blending laboratory.

Further, a third-party expert emissions auditor (or panel of auditors) should review the QA/QC and testing procedures of each entity (which will mostly likely need to be done under confidentiality) to identify potential discrepancies and observe the testing done at each laboratory. Based on this, an assessment can be made on whether there is an inherent bias between labs or other procedural differences which may have resulted in the existing varying results, or whether the differences observed may have been due to other factors CARB has addressed in the proposal such as chain of custody, additive blending, replicate analytical testing, etc.

It is our hope this data could be used by CARB to identify whether sources of variation or bias due to the laboratory practices and/or engine operation exist, and that changes or modifications to reduce that variation could be put into play so only one laboratory engine test and one reference fuel is needed for B20 additive formulation testing—or other future emissions certification testing under the ADF or other CARB certifications. This will not only help ensure emission testing for CARB is of the highest quality and scientific veracity, it will also substantially lessen the barriers to entry for new low carbon fuels needed to meet the LCFS.

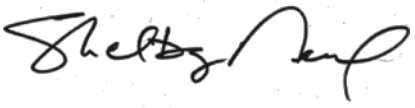
Substantive concerns: Timing of retesting, engine selection and additional CARB fuel for testing

Our initial review has also raised concerns on the overall inadequate amount of time for retesting and the lack of availability of test cells with the proposed changes should they be implemented as-is; the requirement for the testing to be done only with the Cummins ISB engine with which no other fuels have been certified and with which limited data are available; and the requirement for testing with an additional CARB diesel, which is also not required for other fuel formulations.

Conclusions

We appreciate the good working relationship we have developed with CARB and look forward to working cooperatively and productively with CARB to address the concerns we raised above. Because we were limited in our ability to review the potential amendments discussed at the workshop, we offer our initial procedural and substantive comments and may provide further comments after the holidays when our staff has had more time to consider the significant changes proposed by CARB.

Sincerely,



Shelby Neal
Director of State Governmental Affairs