Feb 24, 2020

Re: Public Comments from BEST Corp related to CARB's "HEARING TO CONSIDER THE PROPOSED AMENDMENTS TO THE REGULATION ON THE COMERCIALIZATION OF ALTERNATIVE DIESEL FUELS" and associated ISOR and related documents.

ISOR BASIS FOR RULEMAKING PROPOSAL:

1. **"II. THE PROBLEM THAT THE PROPOSAL IS INTENDED TO ADDRESS**

   …

   A. DESCRIPTION OF PROBLEMS THAT THIS PROPOSAL IS INTENDED TO ADDRESS

   …. As the ADF regulation has evolved over time, various certified products have been subject to somewhat different testing programs, while staff have developed experience in how best to ensure ADFs meet program goals."

   a. ***Did the "somewhat different testing programs" all meet written ADF regulation requirements, such as the definition of Reference CARB Diesel in 2293.2 (a)(24) and the requirements of Appendix 1 of Subarticle 2 (a)(2)(E), and/or were The candidate fuel production requirements met as listed in Appendix 1 of Subarticle 2 (a)(2)(B) as applicable to the type of formulation ADF formulation or Biodiesel additives?***
   b. ***If the answer isn't "yes" and written regulations weren't followed, then how will implementing new written regulations ensure a uniform playing field and ensure that ADF's meet the desired objectives?***

2. "Staff are undertaking this rulemaking to ensure that all ADFs are certified in accordance with rigorous procedures, ensuring a uniform playing field and appropriate protections for public health."
   a. ***BEST would certainly be in agreement with any appropriate CARB rulemaking and implementation that would meet the objective listed above. However, for CARB regulation to meet its listed objectives, it's imperative that written regulations are clear, concise, include all procedures, and that written regulation is followed without discretion. Discretion is discriminatory, resulting in different testing programs, and does not ensure a uniform playing field (essentially the opposite of the objective).***
3. "Although staff would view these amendments as appropriate regardless of past additive performance, recent testing on certain additives offered in the current market further reinforces the appropriateness of ensuring uniform and high standards for certification."
   a. ***BEST agrees that reasonable amendments are appropriate regardless of past additive performance, and particularly in light of the variability in test procedures allowed by CARB, such as the referenced testing at CE-CERT (resulting in poor reproducibility).***
4. ***CARB has made numerous statements related to the meaning and/or significance of the testing performed at CE-CERT that do not meet scientific rigor and that do need appropriate clarification. The following are some examples of such statements, and related questions:***
   a. "Specifically, as part of its program review of biodiesel in-use requirements, CARB staff has tested existing biodiesel additive formulations and has found some formulations to

be ineffective or insufficiently effective at mitigating NOx increases per the results of those tests." "CARB staff has tested existing biodiesel additive formulations and has found some formulations to be ineffective or insufficiently effective at mitigating NOx increases per the results of those tests ", "Ineffective Biodiesel Additive Formulations", in addition to statements in the Product Alert, Workshop, etc.

b. ***How does the referenced testing at CE-CERT meet the requirements of 2293.6 (a)(6) In-Use Requirement Program Review?***
c. ***Was In-Use CARB Diesel Fuel tested against In-Use B5, B10, and/or B20 (commercially available fuels)?***
d. ***Was commercially available additized in-use B20 fuels tested, or were fuels additized, blended, and handled at CE-CERT?***
e. ***Were the manufacturers of biodiesel additives tested at CE-CERT allowed to review additive and product handling and blending protocols prior to testing, witness the testing, and/or review CE-CERT facilities to ensure scientific rigor was met or provide suggestions?***
f. ***Did CARB/CE-CERT perform the BC-EC1c additive handling procedures as specified by the manufacturer and agreed upon by CARB?***
g. ***Was CARB provided information that CARB/CE-CERT's BC-EC1c additive handling procedures may have compromised the additive and/or its efficacy?***
h. ***Was CARB provided information that CARB/CE-CERT's product handling and blending procedures were deficient and may have compromised the additive, and/or its efficacy, and/or incomplete mixing, and/or inconsistencies between drums?***
i. ***Does CARB believe that drum mixing of a low viscosity fuel, such as diesel fuel, with low concentration additives, provides the necessary complete and thorough mixing and uniformity without introducing variables such as air/oxygen?***
j. ***Does CARB believe that a drill propeller mixing of fuels provides the complete and thorough mixing and uniformity without introducing variables such as air/oxygen?***
k. ***Were standard industry propeller mixing procedures followed, including standard propeller to vessel sizing, circulation rate, height in fluid, angle, and assurance against cavitation or shear?***
l. ***Did the emission test procedures for all tests performed at CE-CERT follow CARB's written regulations for the total number of test runs and daily test sequence?***
m. ***Why did CARB compare an abbreviated set of tests for one fuel and a full set of tests for another fuel?***
n. ***Does CARB believe that when an abbreviated test meets with anticipated results, that such test meets scientific rigor without performing the entire sequence?***
o. ***Why did CARB approve and perform different protocols and procedures for itself compared to those required for stakeholders participating in the regulations?***
p. ***Why did the Reference Fuel during the CE-CERT testing vary in NOx by 5.3%, and the averages vary by 1.92% (aren't formulas and coefficients in place to offset climate differences)?***
q. ***When one compares the BC-EC1c CE-CERT results to the VESTA 1000 CE-CERT results, aren't both of the additized B20 NOx results essentially the same, with the main***

difference in comparative emission results due to a difference in the Reference Fuel result?

r. ***After answering the questions above, can CARB legitimately make the claim that CE-CERT testing is unequivocally representative of the BC-EC1c efficacy, or simply that differences in results between CE-CERT testing and Biodiesel additive certification testing reinforces the need to standardize and improve certification procedures?***

Considering that discrepancies, concerns, and associated questions listed above are based upon limited knowledge (due to the additive manufacturer not being allowed to witness the testing of its additive or the facilities), imagine the breadth of improvement that was really necessary to meet the requirements of scientific rigor.

5. **OBJECTIVE VS. PROPOSED REGULATION:**

   a. "The objective of the proposed amendments is to ensure that those additives or formulations that pass emissions testing are effective in mitigating potential NOx emissions from biodiesel use." "The objective of the proposed amendments is to ensure that the process for certification of additives or alternative diesel fuel formulations provides assurance that those additives or formulations that pass the emissions testing are effective at mitigating the potential NOx emissions from the use of the biodiesel." "The objective of the proposed amendments is to ensure that the process for certification of additives or alternative diesel fuel formulations is uniform going forward and provides fuller assurance that those additives or formulations that pass emissions testing are effective at mitigating the potential NOx emissions from the use of the biodiesel, incorporating lessons learned to date." ***VS.***

   b. "The proposed amendments to the certification procedures would require 1) emissions testing at two independent labs, 2) additional emissions testing with a commercially available Designated Equivalent Limits Diesel, 3) presence of a qualified observer during test fuel preparation and emissions testing, 4) more stringent chain of custody demonstration provisions, and 5) other miscellaneous improvements."

   c. ***Please explain how testing at two separate labs provides an assurance that in use fuels meets the objectives of enabling ADF certification, improved reproducibility, uniformity, and will ensure that potential NOx emissions from in-use biodiesel is mitigated?***

   d. ***CARB/Industry doesn't introduce similar multi lab burdens on other required fuel tests. Instead, procedures, along with repeatability and reproducibility standards are developed to ensure that fuels are tested properly at any credible lab. Wouldn't the development of written product handling, blending, sampling, physical testing, chain of custody, along with incorporating the testing of unadditized candidate fuel at the single lab provide necessary assurances, without unnecessary costs, time detriments, and reproducibility issues associated with multiple labs?***

   e. ***Please explain how two boutique fuels, a lab based Reference CARB Diesel Fuel and a single Refiner's DEL CARB Diesel Fuel, will ensure that potential NOx emissions from in-use biodiesel is mitigated (for example: It's well known that cetane improvers have a***

cetane response curve that provides much less improvement in cetane number as the treat rate is increased. Therefore, in this example, using 2 boutique fuels as Reference Fuels, which contain little to no cetane improver, to certify a cetane based fuel additive, would hardly be representative of a cetane based additive's effectiveness in reducing NOx in biodiesel blends produced with CARB diesel fuels that already contained cetane improver)?

f. ***Wouldn't an average CARB diesel fuel, obtained from comingled storage by CARB and used by all applicants be more representative of in-use CARB diesel and eliminate the need for multiple fuels?***
g. ***BEST agrees that a qualified observer would prove beneficial in providing necessary assurances. However, please explain how verification by independent state-licensed professional engineers, in an undefined field of engineering and paid by the applicant, provides the necessary verification or assurance?***
h. ***Wouldn't a qualified observer with experience in fuel handling, blending, sampling, testing, and emission testing, paid by CARB, provide a less disputable verification and better assurance?***
i. ***Much has been conveyed regarding Chain of Custody concerns. Based upon unfounded accusations of a competitor, CARB launched an investigation into BEST Corp. and physically tested BEST Corp's fuels after the completion of emissions testing. Did CARB find evidence that the fuels tested in its investigation were different than the fuels represented in BEST's BC-EC1c protocol?***
j. ***If fuels are the same before and after emissions testing, then is Chain of Custody really an issue in that instance?***
k. ***Regardless, BEST does agree with incorporating sound improvements to Chain of Custody requirements that improve uniformity and assurances during the promulgation of regulation or amendments of regulations.***
l. ***Please explain how shipment of fuels directly from source or lab ensures adequate chain of custody assurances?***
m. ***How does CARB envision such shipments would take place and in what type of containment, etc. (for example: Does CARB expect a Refiner or Terminal to drum up DEL Test Fuels, or tank truck, or what if the source is also the applicant)?***
n. ***How does CARB see this procedure impacting R&D efforts (Imagine the time necessary to ship products to the labs, then the lab sending samples to the physical test labs, then results, just to find out the either a lab test is slightly off spec, or that the treat rate needs to be changed, then the next reiteration, and so on)?***
o. ***Wouldn't it make more sense for Chain of Custody improvements to be based upon defined written procedures that include tamper proof seals, witnessing/qualified observer verification, documentation, and any other requirements that maintain security and assurances without impeding product certification, etc.?***
p. ***Last, but certainly not least – "***other miscellaneous improvements"
    i. ***"***Demonstration that use of the proposed ADF additive or formulation to mitigate NOx emissions is based on sound principles of science and engineering.

Such a basis may be demonstrated with data from peerreviewed journal articles or a description of the Appendix A: Proposed Regulation Page A-3/A-17 2. 3. proposed chemical mechanism of pollutant reduction during combustion along with preliminary test data and independent academic analysis."

1. ***Please explain how this proposed demonstration language ensures a uniform playing field, without discrimination and unwritten discretion, and the effect such language will have on the enabling of new technologies (particularly in light of such information infringing upon IP, and CARB's potential inability to maintain Confidential Trade Secret information)?***
2. ***Doesn't following comprehensive <u>written</u> certification procedures and regulations provide the necessary assurance of ADF efficacy, ensure uniformity, and enable technology?***
3. ***Is there a concern that the addition of discretionary language circumvents the purpose of rulemaking requirements?***

ii. ***"***After the test protocol has been approved by the Executive Officer, and before the beginning of any emissions testing, each emission test facility shall ship to the California Air Resources Board retained samples of all test fuels, additives, and blending components, identical in composition and volume to the samples sent to the independent laboratory for analyses. The emission tests shall not be conducted until the Executive Officer has notified the applicant in writing that the retained samples have been received by the California Air Resources Board facility",

1. ***Please explain how the proposed retains ensure a uniform playing field and how any applicant could justify investing in emission testing certification, knowing that after the fact, CARB could perform unknown tests of old retains, and with unknown consequences (the new proposed procedures will likely take longer than the shelf life of the fuels)?***
2. ***What is the accepted shelf life of Biodiesel and B20 blends?***
3. ***Can the chemical composition of fuel change once it has exceeded its shelf life, and if so, would the samples continue to be representative of the fuel that was emission tested?***
4. ***BEST doesn't disagree with CARB's ability to verify physical lab test data. However, if CARB wishes to test or verify lab tests as listed in iv. above, then shouldn't the samples be sent to CARB at the same time as they are sent to the independent lab and shouldn't there be a required timeframe in which CARB has the opportunity to perform any potential testing, then destroy retains (two weeks for example: or another reasonable and defined time determined necessary to perform at least some minimal confirmatory testing along with the opportunity to perform comprehensive verification, to avoid product degradation, to***

enable stakeholder control of investment, to maintain confidentiality, and to eliminate discrimination)?

iii. ***"*** the applicant must submit data to CARB that demonstrates meeting this provision prior to test fuel approval",

1. ***Please explain specifically what data, as this must be defined to ensure uniformity and necessary assurances?***

iv. ***"***add the requirement for three measurements of the Unadditized Cetane Number to be performed with the same equipment and operator as for Diesel Test Fuels."

1. ***Although BEST agrees with the concept, given the sheer volume of fuels to be tested from two separate labs, has CARB determined that it is feasible for a physical lab and applicant to meet this proposed requirement, and would this testing need to be performed over multiple days and performed around lab personnel scheduling?***

v. ***"***Subsection (a)(2)(H) Purpose The proposed amendments clarify that determination of emission equivalency for each emission test with each Diesel Test Fuel is required for certification by the Executive Officer and deletes "…except for an additive demonstrated by the applicant to have the sole effect of increasing cetane number." Rationale These amendments are necessary to implement new proposed requirements. The deletion is necessary because the exception for additives that have the sole effect of increasing cetane number is an unnecessary remnant of the California Diesel Fuel Regulations and should not apply to Alternative Diesel Fuels."

1. ***It's well known that cetane improvers have a response curve that provides less cetane improvement as the treat rate is increased. The California Diesel Fuel Regulation required the following language (that is now being proposed for deletion) due to the varying efficacy of cetane improvers, and required a cetane number spec instead of a treat rate.***
2. ***How did CARB make the determination that "additives that have the sole effect of increasing cetane number is an unnecessary remnant".***
3. ***Did CARB obtain cetane number results on fuels that CARB determined to meet ADF NOx mitigation, such as DTBP?***
4. ***Has CARB tested B20 fuels that were produced from CARB diesel fuel that already contained high levels of cetane improver against those produced from CARB diesel with low levels of cetane improver, etc.?***

vi. Subsection (a)(2)(I) Purpose The proposed amendments replace the previously specified administrative hearing designation with a specific procedure for modification or revocation of an executive order for cause, including emissions testing that does not show emissions equivalence. The amended procedures require notification and opportunity for the entity to whom the Executive Order was issued to submit additional information for consideration prior to

finalization of a determination to revoke or modify. Proposed amendments to subsection (a)(2)(I)2 address noticing of intent to revoke or modify, discontinuation of sales, and optional request for Executive Order withdrawal. The proposed amendments. Rationale These amendments are necessary to ensure that an Executive Order may be modified or revoked based on a demonstration that such modification or revocation is warranted. This specified procedure will facilitate prompt administrative correction of any certification inconsistent with in-use emissions control requirements. The previous administrative hearing requirement inadequately accounted for the strong public interest in, and importance of, immediate mitigation in potential air pollution by designating a hearing process that could allow an ineffective certification to remain in effect for many months while a hearing was pending. Because a primary purpose of the ADF Regulation is to ensure appropriate mitigation by addressing air quality effects of ADFs, potential delays of this sort that could otherwise affect public health are not appropriate. The amended process more appropriately incorporates considerations of public health in the context of potential pollution abatement and mitigation consistent with ADF regulatory requirements, while retaining an adequate opportunity for an applicant to be heard and provide relevant information in support of their certification and underlying investment.

1. ***Although not mentioned in the purpose or rationale, please explain how removing the requirement of testing a commercially available in-use biodiesel fuel blend and replacing with the proposed language that allows discretionary test procedures and or testing with any lab based CARB Reference Fuel better meets the objective of ensuring that those additives or formulations that pass emissions testing are effective in mitigating potential NOx emissions from biodiesel use?***
2. ***Please explain how eliminating the hearing process and instituting discretionary language meets the objective of ensuring a uniform playing field, and if such language circumvents the purpose of the rulemaking process?***
3. ***As an example, under the proposed amendment above, could the testing performed by CE-CERT, which has led in part to the proposed amendments, be used by the Executive Officer to modify or revoke an existing Executive Order?***

6. **Consideration of Alternatives (Gov. Code, 11346.5, subd. (a)(13))**
   a. ***Has CARB determined that a multi lab approach, with two boutique reference fuels, that includes discretionary language, and more than triples the cost of certification, is more cost effective, ensures a more uniform playing field, and better ensures that additives or formulations that pass emissions testing <u>are effective in mitigating potential NOx emissions from biodiesel use</u>, than regulation that would utilize average in-use CARB Diesel as the Reference Fuel, that uses the same Refernce Fuel and***

Biodiesel for all potential applicants, that is tested in a single emissions lab under written well defined procedures, that also emission tests untreated Candidate fuel to verify lab performance and additive efficacy, and with strict adherence to specific written regulatory procedures, and without discretion?