Western States Petroleum Association
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Catherine Reheis-Boyd
President

July 5, 2018

Clerk of the Board
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: WSPA comments on the ARB Proposed 15-day Modifications to the Low Carbon Fuel Standard Regulation Amendments

Clerk of the Board:

The Western States Petroleum Association (WSPA) appreciates this opportunity to provide comments to the California Air Resources Board (ARB) regarding Proposed 15-day Modifications to the Low Carbon Fuel Standard (LCFS) Regulation Amendments, dated June 20, 2018. WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California and four other western states.

§ 95481 – Definitions and Acronyms

Throughout the Definitions, it appears that all references to ASTM Specifications have been deleted in the 15-day Modifications. WSPA would prefer that the ASTM Specifications references be retained in the regulation as an example (not a compliance citation) of a known standard for various fuel types. A reference to "the most current version" would suffice to avoid the references becoming outdated.

§ 95482(c)(4) - Exemption for Specific Fuels

The 15-day Modifications propose to limit the small station exemption for fossil CNG and propane until these fuels first begin to generate LCFS deficits. In performing the calculation, an Energy Economy Ratio (EER) of 0.9 was used, reflective of fuels used as a diesel replacement. This is appropriate for CNG as most on-road applications are in the heavy-duty sector (e.g., buses, Class 8 tractors, refuse haulers, etc.). However, because propane engines are based on spark-ignition gasoline engines (and many are converted from gasoline engines), it is more appropriate to use an EER of 1.0 because the vehicles and equipment using propane are displacing gasoline. That would push the first year of deficit generation and mandatory compliance for small fueling stations out to 2027 rather than 2021 as proposed by ARB staff.

§ 95483(a)(3) - Fuel Reporting Entities Transfer Periods

WSPA appreciates the extension of the period in which credit or deficit generator status can be transferred to another entity, for a given amount of fuel, to three calendar quarters.

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§ 95486.2. Generating and Calculating Credits for ZEV Fueling Infrastructure Pathways

WSPA regrettably cannot support these proposed pathways as they do not adhere to our long-held principles for fuel neutrality and emissions integrity in California's suite of climate policies.

§ 95484(b) - Benchmarks for Gasoline and Fuels used as a Substitute for Gasoline

There appears to be an error in Table 1. The 2024 gasoline benchmark is listed as 87.90 gCO2e/MJ. However, the appropriate value should be:

2024 Benchmark = (1 - 0.125) * 99.46 gCO2e/MJ = 87.03 gCO2e/MJ

Where 0.125 reflects a 12.5% reduction and 99.46 gCO2e/MJ is the 2010 base year CI value for California RFG as referenced in footnote **** to Table 1. It appears that the 2024 diesel benchmark in Table 2 (87.90 gCO2e/MJ) was inadvertently also used in Table 1 for gasoline.

§ 95488.5(e), Table 7-1 - Lookup Table

Although most of the changes to Table 7-1 were relatively small, the CI values for the liquefied hydrogen pathways (HYFL and HYBL) changed by over 20 gCO2e/MJ. The Notice of Availability of Modified Text released on June 20, 2018, indicates that changes to Table 7-1 CI values were a result of updates to the transportation and distribution parameters in CA-GREET3.0. However, a review of Table F.3 in Appendix C to the 15-Day Modifications indicates that liquefaction CI decreased by 25.71 gCO2e/MJ. The basis for this change is unclear, as the liquefaction efficiency does not appear to have changed based on inputs summarized in Tables F.4 and F.6 of Attachment C. WSPA requests clarification for the basis of this change to the liquefied hydrogen pathways in Table 7-1.

In addition to the question about liquefied hydrogen as outlined above, our review of the CARBOB and ULSD pathways in Attachment C of the 15-Day Modifications indicates a potential error in the 2010 crude CI from the revised OPGEE model. As noted in Table 1 of Attachment E ("Estimating Carbon Intensity Values for the Crude Lookup Table") of the 15-Day Modifications, the 2010 baseline crude average CI is 11.75 gCO2e/MJ, while Attachment C states that the 2010 crude CI is 11.78 gCO2e/MJ.

This results in a slight overestimate (~0.03 gCO2e/MJ) for the CARBOB and ULSD pathways as presented in Table 7-1 of the modified regulatory text. Revising these estimates would also necessitate revising the benchmarks in Tables 1, 2, and 3 of the revised regulatory text. In addition, the California crude average applicable to 2018 and subsequent years in Table 9 needs to be updated to reflect the correct value as well as the baseline crude average equations in Section 95489(a).

§ 95488.9(f)(3)(B) - Avoided Methane Emissions from Dairy and Swine Manure

The 15-day Modifications propose to limit credits for avoided methane emissions from dairy and swine manure projects in the event that any law or regulation requiring GHG reductions from these sources comes into effect in California during a project's crediting period (three 10-year crediting periods are being proposed). Applying this restriction appears inconsistent with allowing credits for eOGVs, which are also being implemented as a result of regulatory action. We encourage ARB to be consistent in its treatment of all fuels in the LCFS program and remove this limitation.

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To that point, RNG from dairy and swine manure projects may come from jurisdictions outside California due to the use of indirect accounting. WSPA suggests that both in-state and out-of-state projects receive credit for avoided methane emissions once SB 1383 is fully implemented to maintain the global GHG reduction benefits provided by those out-of-state projects.

In addition, livestock operations that capture manure methane and convert it to renewable natural gas vehicle fuel should be allowed to generate LCFS credits based on the methane capture and destruction for at least 20 years. The proposed regulation limits credit generation to 10 years in event of regulation of livestock emissions and that will be counter-productive to meeting the goals of SB 1383 and the LCFS.

§ 95489(b)(3)(C) - Provisions for Petroleum-Based Fuels and Table 9

The changes in § 95489(b)(3)(C) presented in the 15-day Modifications reflect direct input from the Oil Production Greenhouse Gas Estimator (OPGEE). A key element to the accuracy of OPGEE is the availability of field data to support the complex model algorithms. Based on the fact the concerns about data unavailability have previously been raised, we are surprised that an update to this intricate tool with a wide number of parameters was completed before validating the inputs to the model. Further, the model contains structural defects in the use of unverified default values that make the model inaccurate when compared to verified GHG inventories. Finally, the model does not take into account reductions due to California's Cap & Trade program, Federal and State regulations, or third-party verified voluntary emission reduction initiatives. The paragraphs below detail these concerns and propose changes to further the integrity of the LCFS program.

Data on Field Characteristics

WSPA continues to express concern regarding the apparent lack of detailed data with which to populate the tool for a vast number of fields outside North America. Without such data, use of the tool is without factual basis and may tend to underestimate carbon intensities for fields that exceed default values for flaring and venting among other emission scenarios.

While there are hundreds of crude types and associated CIs listed in the LCFS at Table 9, 26 made up 90 percent of the crude refined in California in 2015-17. In reviewing the 11 non-North American origin crudes in that 90th percentile group, of the 60 plus variables that the model will accommodate, an average of 14 variables are specific to the field and are used to estimate CI. Several of those variables are estimates or assumptions.[1] However, in reviewing the 15 North American crudes (Alaska plus 14 California crudes) that make of the rest of the 90th volume percentile, an average of 30 variables are specific to the field. Where data is unavailable, default values are used in the model leading to inaccuracies. The large uncertainty introduced with the use of default values again brings into question the practical usefulness and validity of the OPGEE tool in a regulatory setting.

Calculation of Field CI

While we are aware that component counts for some fugitive sources were based on 2007 California-specific survey data, the emission factors are very outdated and do not reflect current monitoring activities for state and federal programs. As with most industries, much has changed in the California oil fields in

[1] Of the missing data for all non-North American entries include gas-to-oil ratio, water-to-oil-ratio, fraction of electricity generated onsite, associated gas processing technology, flaring-to-oil ratio, venting-to-oil ratio, among the many.

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the past 25 years. California producers have been at the forefront of voluntary and regulatory emission control over the past two decades including implementation of leak detection and repair programs (LDAR) and replacement of pneumatic devices with low or no-emitting devices that make these emission factors, including component counts obsolete if not outright incorrect. Further with the implementation of federal rules (e.g., NSPS OOOO/OOOOa) and state rules (e.g., ARB's Oil and Gas Methane Regulation), many other sources (such as tanks and well completions) in the U.S. and especially in California have been significantly reduced or eliminated.

Many California producers are also required to exhaustively inventory and report GHG emissions under State and Federal laws. Equipment is counted and cataloged, fuel is measured, meters are calibrated and emissions are calculated based on science-based protocols. Emissions and production data reported under the California program are further third-party verified for covered emissions and petroleum products. However, the results of these inventoried emissions and verified production do not correlate well with CIs generated by OPGEE for California fields.

This lack of convergence is especially troubling given the much greater reliability and availability of data on crude production in California compared with the hundreds of crudes produced outside California and lack of reliable data for foreign crudes as detailed in the paragraphs above. WSPA proposes that for fields in California, ARB add an option to LCFS that allows, at the discretion of the operator, a calculation of a field CI using verified emissions and production data.

§ 95489(c) - Credits for Producing and Transporting Crudes using Innovative Methods

Pursuant to § 95489(c), Credits for Producing and Transporting Crudes using Innovative Methods – General Requirements (A.6), ARB has elected to not permit book and claim for RNG usage under this section. Yet it allows book and claim for both transportation fuel end use and renewable hydrogen production at refineries. The differentiator of RNG as a fuel versus raw material to produce transportation fuel provides no greater or lesser reductions. Book and claim is an essential enabler for matching RNG supply with demand because the projects are frequently located in different geographical areas.

The restriction of direct supply also adds unnecessary and redundant pipelines to the project along with associated costs and encroachments, which will further hinder RNG use as an innovative crude production method. Finally, WSPA anticipates that allowing book and claim for these provisions could be a market driver for RNG projects across the entire country, providing the co-benefits of California's SB 1383 to a larger population and demonstrating California's global leadership in methane emission reduction.

Similarly, the proposed regulatory language requires solar electricity be supplied directly to oil and gas fields and not through indirect accounting. This language is too limiting as implementation requirements for solar such as flat, level ground for ease of maintenance and optimal performance do not coincide with all oil production which often occurs in hilly areas.

In summary, WSPA views the requirement for direct physical supply of RNG and solar energy to crude oil production facilities as a missed opportunity to provide an appropriate incentive to develop this area of the program. We encourage ARB to re-evaluate their position and allow book and claim for RNG and solar energy under the LCFS. WSPA does appreciate that the 15-day Modifications include credits for transporting crudes using innovative methods.

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§95489(e) - Refinery Investment Credit Pilot Program

ARB staff has indicated an intention to remove the word "Pilot" from the title of this program. That edit to the regulation does not appear to have been made. Removing the word "Pilot" would instill greater confidence in the future of the Refinery Investment Credit Program (RICP) and better encourage investment.

§95489(e)(1)(B) – RICP General Requirements

Projects that supply Renewable Natural Gas (RNG) to a refinery to displace fossil natural gas, should be eligible to generate LCFS credits through indirect accounting of biomethane as described in section 95488.8(i) ("book and claim accounting for pipeline-injected biomethane"), as it is not likely that segregated pipelines of RNG will be built to supply refineries due to permitting and economic reasons.

§95489(e)(1)(G) – RICP General Requirements

The beginning of the sections reads: *"~~(H)~~(G) Credits generated pursuant to section 95489(e)(1)(D)5~~.(E)(5)~~ may not ~~be~~:"* The term "may not" appears to be applicable to §95489(e)(1)(G)1 and §95489(e)(1)(G)2 but not to §95489(e)(1)(G)3 - *Crediting Periods*, which appears to be mislabeled. WSPA suggests that §95489(e)(1)(G)3 be relabeled as §95489(e)(1)(H). In addition, WSPA suggests the following language change:

> "*Crediting is limited to 15 years from the quarter in which the ~~Executive Officer approves the project's application~~ project is started up."*

§95489(e)(2)(B) - RICP Credits for Gasoline/Diesel Production

ARB proposes a limitation on credit generation for RICP projects (including Carbon Capture & Sequestration and Renewable Hydrogen), using the numerator $Volume^{XD}$, to limit credit generation to that portion of gasoline and diesel production supplied to the state of California. In order to encourage investment in GHG reduction projects, ARB should remove this limitation and allow credits to be generated for all gasoline and diesel production. This will make additional GHG reduction projects economical and result in real, material progress in reducing refinery emissions based on LCFS credit value.

Attachment C - CA-GREET 3.0

Table A.5 shows a change to the CI contribution of CARBOB refining under the CA-GREET 3.0 column, from 14.92 to 14.81, but there are no reported changes to the efficiency or the share of other energy inputs for the 15-day Modifications. WSPA requests that ARB clarify this change in CI contribution.

The note below Table 35 indicates: "Note that the OPGEE model defaults to most equipment used in CA crude recovery being powered by natural gas, due to the lack of real-world data. The fuel shares of the CA crude recovery are weighted averages of the top 16 crude sources, which represent 76.6% of the total crude volume in CA." WSPA requests that ARB provide the rationale why only 16 crudes or 76.6% of crude volume are used instead of using all the crudes supplied to California since all the crudes are available in OPGEE.

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WSPA looks forward to ARB's responses to our comments. If you have any questions, please contact me at this office, or Tom Umenhofer of my staff at (805) 701-9142 or via email at tom@wspa.org.

Sincerely,

cc: Tom Umenhofer - WSPA

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