Western States Petroleum Association
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Catherine H. Reheis-Boyd
President

February 17, 2015

Clerk of the Board, Air Resources Board,
1001 I Street,
Sacramento, CA 95814
http://www.arb.ca.gov/lispub/comm/bclist.php

Re: **Public Hearing to Consider the Proposed Regulation on the Commercialization of Alternative Diesel Fuels – Board Agenda Item 15-2-3**

The Western States Petroleum Association (WSPA) appreciates the opportunity to submit written comments for the record on the above proposed rulemaking. WSPA is a non-profit trade association representing twenty-five 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.

WSPA has worked extensively with ARB over the past few years on this alternative diesel regulation, and believes the approach outlined in the proposed regulation is the best based on the large number of issues and considerations.

Although we do not believe the petroleum industry should be responsible for mitigating the NOx increases of biodiesel through the means of potentially problematic additives or reformulating base diesel formulations, and we question whether the mitigation options indicated in the regulation are realistic in practice, we are prepared to work with staff as implementation issues arise in the coming years.

Sincerely,

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Western States Petroleum Association Comments on CARB's Notice of Public Hearing to Consider the Proposed Regulation on the Commercialization of Alternative Diesel Fuels – February 19th, 2015 Board Hearing

The Western States Petroleum Association (WSPA) appreciates the opportunity to submit written comments for the record on the above proposed rulemaking. WSPA is a non-profit trade association representing twenty-five 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.

We understand that at the February 19-20 ARB Board Hearing, the Board will consider re-adoption of the Low Carbon Fuel Standard (LCFS) Regulation as well as adoption of the Alternative Diesel Fuel (ADF) Regulation. We also understand that staff has jointly progressed these two rulemakings and considers them intimately connected as a joint regulatory action "package" to address Court requirements emanating from the July 15, 2013 State of California Court of Appeal, Fifth Appellate District (Court) opinion in POET LLC *v.* California Air Resources Board (2013) 218 Cal.App.4th 661. The judge's opinion was that ARB did not adequately address biodiesel NOx emissions that could potentially result from LCFS implementation. The ADF regulation represents staff's proposed solution to address California Environmental Quality Act deficiencies associated with biodiesel NOx impacts. WSPA is providing separate comments on the two concurrent rulemakings and we regret the unavoidable overlap that is likely to occur within our respective comment submissions.

WSPA has worked with ARB over the past few years on this alternative diesel regulation and believes the approach outlined in the proposed regulation is the best based on the large number of issues and considerations. We are prepared to discuss our comments further with ARB staff, if needed.

Key Points / Highlights

WSPA's key comments are summarized below. More detailed discussion on individual sub-topics is provided in the balance of our submission:

- **CEQA** - WSPA strongly believes combining the ADF and LCFS processes into one CEQA "project" is not procedurally appropriate, and will result in an insufficient environmental analysis. ARB should analyze the LCFS and the ADF as two separate projects. At the very least, ARB must acknowledge the possibility that the two regulations will not be adopted or implemented concurrently, and should rework the Draft EA to clarify the impacts from each of the regulations, and the specific mitigation measures applicable to each.

  Furthermore, the alternatives analysis presented by the Draft EA is woefully insufficient when it comes to the ADF. In essence, the Draft EA only analyzes a complete, as-is adoption of the ADF and a "no project" alternative for the ADF,

without analyzing any other of the potentially feasible scenarios, such as adoption of a different type of ADF regulation. The Draft EA offers no explanation as to why alternatives to the ADF were not analyzed. CEQA does not permit such an oversight.

- **Regulatory Approach** - WSPA believes ARB has appropriately determined the set points (pollutant control levels) for biodiesel blends in the state comprehending both seasonal requirements and biodiesel quality considerations. WSPA supports ARB's approach which comprehends the contribution of in use-requirements such as New Technology Diesel Engine (NTDE) market penetration and Renewable Diesel use. We believe staff reviewed all available engine testing data and, while we remain skeptical of the strength in the data at low biodiesel blend levels (B5), we concur that higher level biodiesel blends would result in NOx emission increases in the legacy fleet, if left unmitigated.

- **Sunset** - WSPA supports ARB's decision to sunset the program when the percentage of Vehicle Miles Travelled (VMT) by NTDE heavy duty vehicles reaches 90% of the total VMT by heavy duty diesel trucks. We agree that emissions control technology featured in newer heavy duty engines obviates the need for further/continued biodiesel blend NOx mitigation controls.

- **Two-Year Lead Time** - WSPA recommends ARB reconsider its proposal to provide a two-year lead time for affected stakeholders to prepare for mitigation of higher level biodiesel blends as such preparations, in our opinion, will likely require a minimum of three years.

- **Interim Program Reviews** - WSPA recommends ARB incorporate additional interim program reviews in the ADF regulation and align the schedule for such reviews with any corresponding interim program reviews or staff reports stipulated in the LCFS. We recommend a minimum of two reviews for both programs by 2020, and prefer annual staff reports to the Board to assess the health of the programs. We presume staff will be monitoring the status/progress of both programs closely and believe annual staff reports to the Board will help identify any elements needing program changes, as well as any market condition issues necessitating accelerated agency response.

- **DTBP** - We do not believe ARB has conducted a thorough assessment of the NOx reduction additive (di-term-butyl- peroxide – DTBP) which is included as a NOx mitigation measure in the ADF regulation. We recommend staff fully re-examine the use of DTBP for a purpose other than it was originally intended (which was cetane enhancement) and at levels substantially higher than the parts per million range that is recommended for use in other applications. We also recommend ARB check on notification requirements with EPA relative to requiring a PMN (Pre-manufacturing notification) or other documentation for materials being used for other than their intended purpose. Impacts to be evaluated should include, but not be limited to, the following:

- Full multimedia evaluation of environmental impacts (e.g. fate and transport and non-combustion air emissions),
- Toxicological impacts,
- Safety impacts (e.g. peroxide stability and interactions with other additives such as anti-oxidants), and,
- Materials compatibility impacts (e.g. OEM approval, metallurgical compatibility in distribution storage, piping, and fueling equipment).

Detailed Comments

1. Satisfying CEQA

A. Combining into One Project:

Combining the ADF and LCFS processes into one CEQA "project" is not procedurally appropriate, and results in an insufficient environmental analysis. ARB should analyze the LCFS and the ADF as two separate projects. At the very least, ARB must acknowledge the possibility that the two regulations will not pass concurrently, and should revise the Draft EA to clarify the impacts from each of the regulations, and the specific mitigation measures applicable to each.

The Draft EA published by ARB is the environmental document for both the LCFS and the ADF regulations. While these two rulemakings are being developed concurrently, they are also being treated as two separate processes. Because the two regulations are subject to two separate rulemakings, there is the possibility that one regulation could pass but the other could not, or that one regulation could be challenged and its implementation delayed while the other continues to move forward.

ARB has cited CEQA Guidelines §15378(a) in support of its approach to combine environmental review of the two regulations into one CEQA "project." However, section 15378(a) of the Guidelines simply states that a "project" is "the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment…" While section 15378(c) of the Guidelines clarifies that a "project" can include an activity that requires more than one discretionary approval by one or multiple government agencies, the Guidelines nowhere provide for a "project" that encompasses two separate activities that happen to be related to one another, but are not interdependent. *See* CEQA Guidelines §15378(c).

Interdependence, an element lacking here, is key to including separate actions under the umbrella of one CEQA "project" for purposes of environmental review. *Tuolumne County Citizens for Responsible Growth, Inc. v. City of Sonora* (2007) 155 Cal.App.4th 1214, 1230-1231 [finding a road realignment and construction of a shopping center were part of the same "project" because the shopping center's opening was legally dependent upon the road's realignment]. The LCFS and

ADF regulations certainly pertain to related subject matter, but they are not legally dependent upon one another—the LCFS can exist without the ADF (and indeed has in the past), and vice versa.

Both statute and regulation recognize the need to analyze separate "projects" in circumstances similar to these. For example, while a real estate developer may request a rezoning of property, as well as a tentative subdivision map, for purposes of effectuating development, those two related but separate actions are recognized as distinct "projects." *See El Dorado Union High School Dist. v. City of Placerville* (1983) 144 Cal.App.3d 123, 129-130; CEQA Guidelines §15037. Just as with the two related but distinct rulemakings here, each of these two legal actions, which may very well impact the same development, nonetheless may occur without the other and in completely separate processes, and may produce significantly different impacts.

Simply put, CEQA does not allow ARB to take two different activities which each have different impacts and require different analyses and pass them off as one "project" to streamline its environmental review process. The process that ARB has adopted here makes it impossible to separate out which impacts stem from the LCFS regulations and which from the ADF regulations, even though the two rules are being considered in separate rulemakings, have distinct impacts as a practical matter, and may not both be adopted, or may be adopted on different schedules.

CEQA requires that environmental review documents be "written in a manner that will be meaningful and useful to decision makers and to the public." Cal. Pub. Res. Code §21003(b); *see Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 392. When neither decision makers nor the public can meaningfully understand the impacts that will arise from each proposal and available mitigation, the usefulness of the Draft EA as a valuable decision-making tool is significantly undermined, contravening the intent of CEQA.

B. Inadequate Alternatives Addressed:

The Draft EA also fails to adequately analyze alternatives. Under CEQA, an environmental review document "must consider a reasonable range of alternatives to the project" and must "make an in-depth discussion of those alternatives identified as at least potentially feasible." *See Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336, 1350; *Sierra Club v. County of Napa* (2004) 121 Cal.App.4th 1490. The purpose of such an analysis is to allow informed decision making, and the onus for analyzing a sufficient range of alternatives falls squarely on the agency. *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 405.

But ARB's Draft EA falls far short of this requirement. The Draft EA only analyzes a "no project" alternative—LCFS regulations being set aside as a result of the *POET* decision and no adoption of the ADF; a second alternative—re-

adopting the existing LCFS without any of the proposed updates and adopting the ADF regulation as proposed; and finally, a "Gasoline-Only Compliance Curve" alternative—an alternative that would remove the diesel standard from the LCFS so that the compliance curves apply only to gasoline and gasoline substitute fuels. Despite the Draft EA's statement that it presents a fourth action alternative—the "No Trading Case Alternative" –ARB never includes a description of that alternative in the Draft EA.

Additionally, ARB's description of the alternatives is somewhat misleading. The alternatives that ARB discusses are more accurately described as: (1) no LCFS and no ADF; (2) re-adoption of the existing LCFS and adoption of the proposed ADF as-is; and (3) the "Gasoline-Only Compliance Curve Alternative," which, like the first alternative, would not adopt the proposed ADF, or any rule on alternative diesel fuels. There is no analysis of an alternative that would involve re-adoption of the proposed LCFS with a different ADF regulation. In contravention of CEQA, this analysis overlooks potentially less impactful options. *See Citizens of Goleta Valley v. Board of Supervisors* (1990) 53 Cal.3d 553, 566.

The mere three alternatives presented by the Draft EA insufficiently represent the broad scope of alternatives, and fail to take into account clearly feasible scenarios—such as an ADF regulation that is substantively different from the one proposed by ARB. In fact, the Draft EA analyzes no alternatives beyond a "no project" alternative for ADF: either the ADF is not adopted at all, or it is adopted exactly as is. ARB cannot limit the alternatives analysis on the ADF without explaining "in meaningful detail" the basis for its conclusion that there are no feasible alternatives to the ADF as proposed. *Laurel Heights Improvement Assn.*, 47 Cal.3d at 405.

CEQA requires the Draft EA explore more alternatives than the three presented here. ARB has provided an insufficient "alternatives analysis" in connection with these rulemakings, and therefore the Draft EA should be revised accordingly.

2. Program Dates & Timetables

A. Start Date and Timeline:

WSPA appreciates and supports ARB's apparent effort to provide lead time for affected parties (biodiesel producers and blenders) to implement the necessary capital facility modifications to enable the biodiesel blend NOx mitigation that will be required to enable higher level biodiesel blending in the future. We also recognize that staff acknowledges the relationship between ADF and LCFS program requirements and the fact that, directionally, increased LCFS CI reduction requirements as we approach 2020 will drive the need for higher levels of biodiesel in the CA marketplace.

Our industry will likely not be called upon to provide the lion's share of the facilities necessary to mitigate higher level biodiesel blends as this task will be far greater for biofuel producers. However, we are concerned about the potential

availability and cost of pre-mitigated biodiesel by 2018 and question whether the lead time provided is sufficient (approximately 2 years if the regulation is adopted in 2015 and goes into effect in 2016).

We disagree with staff's statement that a two year lead time is consistent with "established CARB policy" which, in our experience, has been a minimum of three years and oftentimes four years, depending on the degree of complexity of the preparations required. Staff has recognized the need for additional logistical capabilities (additive storage and injection facilities to address the safety and environmental risks poses by DTBP) to be put in place, the need for additional changes by fleet operators focusing on exempted NTDE or light-duty diesel fleets, and the lead time required for testing and certification of alternative formulations comprehending higher biodiesel blend levels. Recognizing that all these are valid concerns, WSPA recommends staff reexamine their two year proposal to complete preparations, as it seems unduly optimistic given current construction and permitting timetables (and lead times) necessary in California, and the typical three year timeframe required to prepare for and conduct a successful alternative diesel formulation certification engine test program.

B. Sunset Date:

WSPA supports staff's proposal to set a program "sunset date" and to have that date comprehend the degree of market penetration of NTDEs in the California heavy duty diesel market. We expect staff will examine and further refine the in-use requirements and market outlook during interim program reviews/reports to the Board. In conducting such reviews we believe staff should examine the net NOx impact of the relevant factors (e.g., degree of Low Saturation B5 blending, renewable diesel use and NTDE VMT market share) in determining whether the proposed sunset can be advanced. We note the projections of Table 4.1 include significant NOx reductions starting in 2018 and recommend that staff consider sunsetting the program as early as possible, provided that doing so results in no projected NOx increase.

WSPA also recommends that staff define the particulars/specifics of how the program sunset will be implemented by affected stakeholders, including better definition of how staff plans to advise our industry that the program will be sunsetting (i.e., Guidance document, Board Action, etc.) and how much time staff envisions will transpire between when the time analyses indicate the sunset trigger has been met, and the time industry can actually implement the associated changes. Obviously, we would prefer to more fully understand the pathway and hope that it includes clear provisions for quick action by staff when the time arrives.

C. Interim Program Reviews:

As noted above, WSPA recognizes that staff, under Par. 2293.6(6) plans a program review of biodiesel in-use requirements by 12/31/2019 to determine their efficacy

and, in doing so, staff will consider the effects of offsetting factors that impact NOx emissions. We support staff's proposal to do so, but feel that the schedule of interim program reviews and staff reports to the Board on the ADF program needs to be aligned with that proposed for the LCFS program as the two are related.

The LCFS ISOR document proposes an interim review by 1/1/2019 which is not in line with the ADF program review. Furthermore, as indicated in our WSPA LCFS comments, we feel that the single targeted program review for the LCFS is insufficient and would come too late to materially impact our 2020 LCFS compliance burden. To this end, we are recommending that annual program reviews and staff reports to the Board be incorporated in both regulations.

3. <u>Appropriateness of "Set-points" or Triggers for Mitigation</u>

WSPA has worked closely with ARB over the past two years in reviewing the available emissions data from engine test programs on ARB biodiesel blends. We examined programs where both ARB diesel was used as the base fuel, and programs where diesel fuel "approaching ARB properties" was used in an effort to get around the obvious difficulties of insufficient data in certain blend ranges (e.g. B0-B5). Several different engine test programs involving different engines and test protocols further complicated staff's difficult task. We appreciate the difficulty staff had in arriving at the appropriate pollutant control levels when faced with data mostly concentrated around B0, B5 and B20 and little in between. We offered to assist in providing technical oversight in the design and execution of the most recent technical program at UC-Riverside. WSPA members shared proprietary engine emissions data in an effort to ensure that ARB's decisions were based on the best available data.

WSPA recognized early on that the potential success of staff's proposal to implement a novel regulatory approach in the ADF where NOx (and/or other air pollutant impacts) resulting from use of biodiesel blends in California would require mitigation upon meeting a pollutant control trigger level was largely dependent on staff's ability to appropriately determine those set points based on the available data. We also recognized the in-use requirements for biodiesel blends would have to be flexible enough to not impede fuel blenders' ability to rely on this important renewable blendstock to meet the Carbon Intensity reduction goals of the LCFS program.

We believe staff has taken the time to understand our technical input and recognize the final proposal includes the aspects of in-use NOx mitigation impact on NTDEs, market penetration of renewable diesel, and the difference in NOx-forming tendency between Low and High Saturation biodiesel.

A quick review of WSPA feedback provided in 2013 when staff first introduced this novel regulatory approach indicates that the fundamental principles we put forward as being essential for the ADF regulation's success have been largely fulfilled:

- The proposal has been kept relatively simple:
    - The proposed biodiesel blend control levels are on a per-gallon basis.
    - The proposed biodiesel blend control levels apply state-wide
    - Staff proposes dual trigger controls based on seasonality and biodiesel saturation level.
- The proposal includes biodiesel blend mitigation trigger levels that will remain unchanged throughout the duration of the program.
- The proposal comprehends the offsetting in-use mitigation effects of such as NTDE introduction (i.e., fleet turnover) and renewable diesel market penetration.
- There is appropriate balance between the reporting and record-keeping requirements for both biodiesel producers and biodiesel blenders and distributors. We remain hopeful that as the regulation moves into the implementation phase, we can work with staff to recognize potential synergies in these areas with the existing recordkeeping and reporting requirements associated with the LCFS.
- Staff has made it clear that program duration is finite and tied to market penetration of advanced-emission controlled heavy duty diesel engines such as those featured in 2010 and newer trucks.

WSPA's primary difference of opinion with staff's analysis in support of setting the biodiesel mitigation threshold levels included in the proposed rulemaking, involves the degree of certainty presented by staff in the existence of a statistically significant NOx increase (of approximately 1%) for Low Saturation biodiesel at the B5 level. We find staff's conclusions to be more reflective of the selection of studies chosen for inclusion in the analysis, and their choice of statistical methodology, rather than a true reflection of a definitive trend established by a strong underlying database. Despite the additional "data points" generated by the most recent UC-Riverside study, the available data at the B5 level remains rather limited.

Nevertheless, while WSPA remains unconvinced that the perceived NOx increase at the B5 level is real, WSPA also recognizes that staff is not proposing additional NOx mitigation controls for B5 blends (beyond the offsetting impacts of NTDE and renewable diesel market penetration). WSPA agrees with staff that the NOx increase is statistically significant in the B10-B20 range and supports the overall proposed mitigation threshold structure pivoting on biodiesel degree of saturation and seasonal seasonality.

4. **Workability of Mitigation Options**

A. GTL:

There is no indication that GTL is still a mitigation option. WSPA requests that GTL be clearly identified as a mitigation option.

B. Evaluation of DTBP:

WSPA is concerned that adequate Multi-Media Evaluation (MME) has not been performed with regard to the use of di-tertiary butyl peroxide (DTBP) at the concentrations currently required for mitigation in the proposed Alternative Diesel Fuel (ADF) regulations.

A review of the "STAFF REPORT - Multimedia Evaluation of Biodiesel" dated November 2013, only includes an evaluation of combustion air emissions impact (i.e. NOx reduction) due to the use of the DTBP additive. The report does not include an evaluation of the following impacts associated with use of DTBP as a biodiesel blend additive:

- Release Scenarios
- Biodiesel Production, Storage, Distribution, and Use
- Biodiesel Toxicity
- Transport and Fate
- Waste generation and waste management

Because ARB is setting the blend level of DTBP as part of the proposed regulation, and given the recommended blend levels of DTBP in the proposed ADF rule are at least an order of magnitude greater than typical CARB diesel additives, we feel ARB should fully evaluate the potential impacts of the proposed formulation, including but not limited to:

- Toxicity of ADF approved blends
- Soil, surface water, and ground water
- Diesel storage equipment
- Additive storage and blending equipment
- Equipment used in the transport and dispensing of diesel fuel
- Motor vehicles using diesel fuel (including a review with Original Equipment Manufacturers).
- Air emissions impacts related to non-combustion diesel fuel activities (e.g. transport and storage)

In addition, a review of MSDS for DTBP from two manufacturers[1, 2] indicate there are specific issues regarding DTBP that are not discussed in ARB's MME. We feel the MME should include an evaluation of the DTBP specific issues listed below prior to approving the use of DTBP at the recommended concentrations:

- DTBP decomposes at approximately 80^{o}C; recommended maximum storage temperature 40^{o}C[1, 2]
- Flash point of 6^{o}C, highly flammable at room temperature[1, 2];
- Precautions are needed to guard against electrostatic discharge [1, 2]
- Control of vapor space, such as nitrogen blanketing, may be required or recommended [2]

[1]United Initiators MSDS for DTBP from: http://www.united-initiators.com/products/details/di-tert-butyl-peroxide/

[2] Azko Nobel TRIGONOX B MSDS from: https://www.akzonobel.com/polymer/msds/

- Segregation of DTBP from accelerators, stabilizers, acids, bases, and heavy metals is highly recommended [1, 2]
- Use only stainless steel 316, polypropylene, polyethylene, or glass lined equipment for storage[2]
- Must avoid contact with rust, iron and copper[2]

We note the Tier I, Tier II, and Tier III MME reports all concluded that the impact of priority or widely used additives would need further evaluation (see excerpted references in Appendix 1 attached).

C. Certification of Alternative Diesel Fuel Formulations

WSPA supports staff's proposal to allow the certification of alternative diesel fuels resulting in emissions equivalence with diesel under Subarticle 3, Appendix 1, Par (a)(2), however we have the following questions and comments:

- As outlined elsewhere in our comments, two years is not a realistic timetable for planning, undertaking and completing such testing. Staff should comprehend that such testing is typically an iterative process; it is likely that initial testing of any candidate will fail and will need to be fine-tuned based on the results of the failed initial attempt before the next engine test is initiated. This can oftentimes be repeated several times before a successful outcome is obtained.

- In our experience, the cost of such a program can easily run in the $2-3 million range per successful formula certification, reflecting pre-certification scoping quality testing as well as a number of engine test repeats as outlined above.

- We are puzzled by staff's decision (Appendix 1, Par (a)(2)(A)) to not allow applicants the flexibility of using any ARB certified alternative diesel formulation as the reference fuel for the certification of a higher biodiesel content formulation. ARB's own testing in assessing the NOx impact of biodiesel blends at UC-Riverside was conducted using a reference fuel that was representative of typical in-use CARB diesel. Insisting that the 10% aromatics (Table A9) content test fuel be employed for this purpose ignores the fact that there is no such fuel currently on the market and that all existing alternative formulations have already been tested (and passed) against such a reference fuel. It stands to reason that, if a B20 alternative formulation candidate yields equivalent NOx emissions against an in-use alternate CARB diesel formula, and if that same alternate CARB diesel formula yielded equivalent NOx emissions to the reference 10% aromatics fuel, then the B20 formulation should be deemed to result in no NOx increase over the reference fuel.

- Staff describes the required biodiesel additive certification fuel under Appendix 1, Par (a)(2)(D) as a "virgin soybean oil" material. This is inconsistent with staff's effort throughout the remainder of the ISOR to consistently distinguish among biodiesel alternatives by saturation level and not feedstock source. We recommend that it be changed in this section accordingly. In the same Paragraph we note Table A.8 which reports the targeted range of properties of the biodiesel candidate fuel, the unadditized cetane number of which is listed as 47-50. We have several comments on this requirement:

    - For formulas involving higher levels of Low Saturation biodiesel, there should be no minimum cetane number specified, as a lower cetane number would only reflect a more difficult to mitigate biodiesel. If an applicant has access to such a material and can successfully mitigate its NOx impact, why shouldn't they be allowed to perform the necessary testing to do so? The applicant should always have the ability to self-specify a narrower cetane number range in their particular application.
    - For formulas involving higher levels of Low Saturation biodiesel, the maximum cetane number should be lower than the 56 cetane number cut-off between Low Saturation and High Saturation biodiesel - less an allowance to reflect ASTM test reproducibility at that CN level. This is necessary to ensure that no High Saturation biodiesel can be used in the certification testing. The corresponding certification should stipulate that it is applicable to biodiesel quality reflecting the material that was tested.
    - For formulas involving higher levels of High Saturation biodiesel, the maximum cetane number should be no lower than the 56 cetane number cut-off between Low Saturation and High Saturation biodiesel plus an allowance to reflect ASTM test reproducibility at that CN level. This is necessary to ensure that the lowest quality High Saturation biodiesel would yield no NOx increase and thus the corresponding certification would be applicable to all High Saturation biodiesel. The applicant should always have the ability to self-specify a narrower cetane number range in their particular application, i.e., a higher minimum High Saturation biodiesel cetane number.

- We find the language in Appendix 1 (a)(2)(G)(2) unduly vague and extremely difficult (if not impossible) to comply with. We recommend it be struck from the proposed ADF regulation language. If ARB continues to include such language in the ADF rules we would urge staff to address our concerns (outlined below), such that testing requirements must be clearly defined and implementable. Furthermore, in defining the technical specifics of these requirements, we request that ARB involve impacted stakeholders in the selection of appropriate tests and procedures.

Our concerns (previously submitted to ARB in December 2014) regarding the lack of specificity in the rule language related to toxicity testing, include:

- The methods to be used for cellular testing are not defined. A variety of test designs is available for each of the cellular-level effects tests, but few of them are standardized and the results may not be comparable among the various tests for a given effect:
  - The rule should clearly define tests, toxicity endpoints, and methods related to cellular testing.
  - The rule should specify the number of samples, treatments, and replicates to be evaluated.
  - The specified tests, protocols, and sample sizes should account for natural variability in cellular level response and sample composition.
  - Impacted stakeholders should have adequate time to provide input into and comment on any such proposal.
- The rule should specify the means of generating and collecting the particulate exhaust sample(s).
- The rule should include a defined procedure for conducting exposures to the PM in a consistent, representative manner.
- The rule should specify that both PM exposure procedures and cellular testing must be conducted by qualified laboratories with rigorous QA/QC procedures.

In the absence of any defined methodology on toxicity testing, each applicant required to perform testing can choose a different test design(s), which will result in an accumulation of data for multiple formulations, amongst which comparison can't readily be made. We emphasize that key to ensuring appropriate comparisons is the number of samples, treatments, and replicates to be evaluated. These parameters must be considered and specified in the ADF regulation requirements.

5. Recordkeeping and Reporting

WSPA appreciates and supports ARB's apparent effort to keep the reporting and recordkeeping requirements for biodiesel under the ADF relatively simple and focused primarily on biodiesel producers/importers that are likely to have more responsibilities, particularly regarding the potential NOx mitigation of their product. The burden on blenders, distributors, and retailers should be minimized as much as possible for both the recordkeeping and reporting obligations, focusing primarily on being able to identify/reconcile the volumes and type of B99/B100 bought and the disposition of those volumes in various biodiesel blends. Associated records (invoices, PTD's, etc.) with the appropriate information on the volume/type of NOx control employed, should round out the program tracking segment of the regulation and provide adequate assurance that the control levels

listed in Table A.1 and the in-use requirements listed Appendix 1 are performing satisfactorily.

Although the intent in this area is as described above (and consistent with information presented throughout the ADF workshops leading to the proposed regulation), the actual regulatory language is not adequately defined. We are concerned that the requirements (as described) are vague such that they could potentially be read to include unnecessarily burdensome provisions on our industry.

Below we offer some areas where additional clarity would be helpful regarding the requirements in the recordkeeping and reporting segment of the regulation (Paragraphs 2293.6 and 2293.8):

- We would like clarification of whether the biodiesel reporting requirements outlined in Par. 2293.8 (b) apply to fuel blenders. Par. 2293.6(a)(1) states: *"Starting January 1, 2016, any person who produces, imports, blends, sells or offers for sale or supply any biodiesel, shall be subject to the reporting requirement of Stage 3A, pursuant to Par. 2293.8(b)."*

  The biodiesel definition outlined in Par. 2293.2 applies to B99/B100 only. There is a separate definition for biodiesel blends in this Paragraph and staff has not explicitly included "biodiesel blends" in the above text, implying that it only applies to producers/importers. However, Par. 2293.8(b)(2) (A) appears contradictory in that it seems to comprehend ADF blenders:

  "Each report shall include… the volume of ADF and ADF blend offered, supplied or sold during each month."

- Similarly, we would like clarification as to whether the pollutant control level requirements outlined in Par. 2293.6(a)(2) apply to fuel blenders. Par. 2293.6(a)(1) states:

  "Starting January 1, 2018, any person who produces, imports, blends, sells or offers for sale or supply any biodiesel, shall be subject to pollutant control levels under Subsection (a)(2) of this Section."

  Once again, the biodiesel definition outlined in Par. 2293.2 applies to B99/B100 only. There is a separate definition for biodiesel blends in this Paragraph and staff has not explicitly included "biodiesel blends," potentially implying that the requirement only applies to producers/importers. However, Par. 2293.6(a)(2) appears contradictory in that it seems to comprehend blenders:

  "Biodiesel blends above the pollutant control level for NOx emissions are required to employ one of the in-use requirements for biodiesel listed in Appendix 1."

The logical interpretation would be that biodiesel blenders would be affected by this provision only if they are engaging in mitigation activities themselves. It would be helpful to have staff confirm that this is their intention.

- If staff intended for the above requirements to apply to producers of biodiesel blends, our industry would have to report test "results of a specified number of representative samples" and the "volume/quantity of the applicable in-use requirements" indicated in Par. 2293.8(b)(2)(B), (C) and (D).

  It is understandable that biodiesel producers/importers would have the responsibility for performing the necessary testing at an appropriate frequency to ensure that their product is appropriately classified in the product transfer notification statements they provide the oil industry (e.g., Low Saturation versus High Saturation, NOx mitigated versus Non-Mitigated). It is also understandable that biodiesel/producers would have to report on the nature of mitigation employed and any associated/pertinent in-use requirement data.

  It is not intuitively clear, however, why blenders would be required to perform such testing, i.e., why can't blenders rely on the notification statements from producers/importers on what the precise characteristics of the biodiesel are and consequently how they need to manage their biodiesel blending operations? Once again, we believe staff should clarify that these requirements would only apply to a blender, if that blender were to be engaged in mitigating the B100/B99 they receive to producing biodiesel blends requiring mitigation per Par. 2293.6(a)(2). Biodiesel blenders not producing blends requiring mitigation and simply adhering to the volumetric maxima of Par. 2293.6(a)(2), or purchasing pre-mitigated biodiesel, should be excluded from the reporting requirements of Par. 2293.8(b)(2)(B), Par. 2293.8(b)(2)(C) and 2293.8(b)(2)(D). For those blenders, a monthly volumetric reconciliation of purchased volumes of B99/B100 against the disposition of those volumes in the various biodiesel blends produced should suffice.

- Staff should clarify the requirement in Par. 2293.8(c)(4)(C) to include a statement on invoices indicating NOx control for each biodiesel blend transaction applies only if mitigation is employed consistent with the provisions of Appendix 1, either by the blender themselves or by the blender's biodiesel provider (pre-mitigated).

6. Appendices

Appendix A: Proposed Regulation

- On page 27 of Appendix A, it states the proposed regulation requires more information for a Stage 3B (no mitigation required) submission than on p. 22. What is the purpose of providing results of a specified number of representative samples for an ADF that has no emissions impact?

Appendix D: Draft Environmental Analysis

- In the ADF background, it states that ADFs are not hydrocarbons. This is not accurate unless ARB is going to say that all renewable diesel sources are not ADFs and also should be exempt from the ADF regulation completely.

- On page 25, ARB staff mentions the use of a biodiesel cetane index whereas in fact none exists. There should be language stating that this is in development for potential future use in the regulation or deleted from the text.

Appendix E: Summary of DOF Comments to the Combined LCFS/ADF SRIA and ARB Responses

- On page 18, ARB is attributing PM, HC and CO emission reduction benefits from increased biodiesel to the LCFS. The section does not show how staff will apportion the emissions, but WSPA would like to reinforce the fact the ULSD/DPF combo is responsible for a vast majority of the reduction to be seen between now and 2020, all of which has been in force prior to the LCFS program.

Appendix G: Supplemental Statistical Analysis

- In the summary, it mentions there is no statistical difference between B5 soy and B10 Animal. However, it does NOT mention that there is a statistical difference between B5 soy and B5 Animal as well as B10 soy versus B10 Animal. The staff's report needs to give Animal biodiesel equal treatment in the write up.

7. **Additional Technical Comments**

- On page 25 of the ISOR, in the SWRCB regulation section, ARB mentions that B5 has undergone UL certification. It is important to include the fact that fuels above B6 have not undergone independent certification and there is no current activity to obtain certification. As such, B6-B20 blends of biodiesel are generally stored above ground. ARB's ISOR also makes no mention of the UST status of renewable diesel as expressed by the joint SWRCB/ARB statement saying that Renewable diesel should be treated the same as CARB Diesel.
  http://industries.ul.com/wp-content/uploads/sites/2/2015/01/B5_Biodiesel.pdf
  http://www.arb.ca.gov/fuels/lcfs/20130731arbwaterboardjointstatementrd.pdf

- In the ISOR on page 41, in the NOx Emissions Data Analysis section, ARB mentions that B5-soy is 1% higher NOx than CARB Diesel and is highly statistically significant; B10-soy is 2% higher; B5-animal is not statistically different; and B10 animal is not statistically different from CARB Diesel. However, in Appendix G it was stated that B5-soy and B10 Animal

were statistically no different. There is evidently a conflict between the ISOR and Appendix G that needs correcting.

- Chapter 7, Air Quality and Environmental Justice in the ISOR – p. 50: WSPA notes in the discussion of emission reductions, that the introduction of biodiesel only provides PM, HC and air toxic benefits for legacy, pre-2007 vehicles. For 2007 and later vehicles, these benefits would have been realized with or without biodiesel in the market. The benefit should not be lumped into the biodiesel benefit side.

- On page 52, it states biodiesel provides short-term PM, HC and air toxics benefits due to legacy vehicles. Long-term benefit would already be realized by the fleet turnover to NTDEs that was in motion prior to the biodiesel regulation, so ARB needs to revise its claims.

- On page 9 of the ADF15 Notice, under benefits, it states "*Premature deaths caused by ultra-fine particles are expected to decrease by 90 per cent in 2020 due to biodiesel and renewable diesel replacing petroleum diesel*." This statement should not be included as a benefit because the vehicle fleet turnover would reduce ultra-fine particles with or without biodiesel or renewable diesel. The contribution benefit lies solely with the ULSD/DPF combo and should not be attributed to biodiesel or renewable diesel.

8. <u>Previous 2013 ADF Postponed Hearing - WSPA Comments that are still relevant</u>

- **<u>2293.2 Definitions</u>**

Changes to definitions should be made as follows:

<u>Biodiesel Blend</u>

A biodiesel blend may consist of biodiesel blended with petroleum based diesel, renewable diesel, GTL, and/or other Fischer-Tropsch fuels. Therefore, the term "petroleum based" within the definition of "Biodiesel Blend" should be replaced with the broader term "CARB diesel" as follows:

"Biodiesel Blend" means biodiesel blended with ~~petroleum-based~~ ***<u>CARB</u>*** *diesel fuel."*

We assume CARB diesel includes GTL, renewable diesel, etc.

<u>"Diesel Substitute"</u>

"Diesel Substitute" is a circular term as defined in the proposed regulation, because renewable diesel is both CARB diesel and under this definition a "Diesel Substitute". We believe the term "Low Emission Diesel" or something similar conveys ARB's intent better than the term "Diesel Substitute". "Diesel

Substitute" should be replaced with this updated term throughout the proposed regulation and have the following definition:

*"~~Diesel Substitute~~ **~~Low Emission Diesel~~**" means ~~any liquid fuel that is intended for use with CARB diesel or CARB diesel blends in a compression ignition engine~~ **~~a type of CARB diesel fuel that can reduce emissions of one or more criteria or toxic air contaminants relative to reference CARB diesel~~**. "~~Diesel substitute~~ **~~Low Emission Diesel~~**" includes, but is not limited to, renewable diesel; gas-to-liquid fuels; Fischer-Tropsch fuels; CARB diesel blended with additives specifically formulated to reduce emissions of one or more criteria or toxic air contaminants relative to reference CARB diesel; and CARB diesel specifically formulated to reduce emissions of one or more criteria or toxic air contaminants relative to reference CARB diesel."*

"Hydrocarbon"

The definition of "Hydrocarbon" is as follows:

"Hydrocarbon means any chemical mixture that is composed solely of hydrogen and carbon."

This definition ignores the fact that hydrocarbon mixtures, although of an elemental composition consisting primarily of carbon and hydrogen, also contain sulfur, oxygen or nitrogen from residual impurities and contaminants (excluding added oxygenated materials). To avoid potential confusion, we recommend ARB instead adopt the definition used in ASTM D975 for "hydrocarbon oil" as the definition for "hydrocarbon" in the ADF regulation as follows:

*Hydrocarbon means ~~any chemical mixture that is composed solely of hydrogen and carbon~~. **~~a homogeneous mixture or solution with elemental composition primarily of carbon and hydrogen and also containing sulfur, oxygen and/or nitrogen from residual impurities and contaminants and excluding added oxygenated materials.~~***

- **Section 2293.3 Exemptions**

Paragraph 2293.3 (b) exempting CARB diesel from the ADF regulation states CARB diesel blends are comprised solely of CARB diesel and one or more diesel additives that comprise "in the aggregate" no more than 1.0 percent by volume of the CARB diesel blend. EPA limits additives in diesel fuel to 1 percent individually per 40 CFR80.521(b)(1) . We believe ARB should do the same for consistency. Therefore, section 2293.3 (b) should be modified as follows:

*"CARB diesel blends comprised solely of CARB diesel and one or more diesel additives **individually** comprising ~~in the aggregate~~ no more than 1.0 percent by volume of the CARB diesel blend. This provision does not apply to additives used pursuant to the in-use requirements specified in Appendix 1;"*

40CFR80.521 is accessible via the Electronic Code of Federal Regulations at:

http://www.ecfr.gov/cgi-bin/text-idx?SID=ca97c6c0579783920cb5aab1e3ae3def&node=40:17.0.1.1.9.9.63.11&rgn=div8

- **Section 2293.4 General Requirements Applicable to All ADFs**

  ARB made no changes addressing previous WSPA comments that Part (b) of this paragraph indicates an ADF must meet all of DMS' regulatory requirements/standards. We can foresee a possible problem whereby the two agencies (ARB and DMS) adopt current ASTM versions at different times – thereby making it difficult if not impossible to comply with both versions for a period of time.

- **Section 2293.5 (d) Commercial Sales Not Subject to In-Use Requirements**

  If ARB has determined that there are no potential adverse emission impacts for an ADF (the fuel is a Stage 3B ADF) and no mitigation measures and/or sales restrictions are required for that ADF, why then does a "fuel provider" (term not defined) need to submit quarterly reports to the ARB Executive Officer? This reporting seems unnecessary and redundant as ARB implies the production/import volume information will already be captured within LCFS quarterly submittals. Please explain the purpose of this requirement.

Appendix 1:
Supplemental Western States Petroleum Association Comments on
ARB's Alternative Diesel Fuel Regulation

Excerpts from the Tier I, II & III Biodiesel MME Reports on
The *Need for Additive Impact Assessment* Prior to Widespread Use

Final Tier III Report[3]

The Executive Summary of the final Tier III MME report for biodiesel states the following related to additives (*emphasis* added).:

From the EXECUTIVE SUMMARY, section Issues of Ongoing Concern:

Additives

- As with air emissions, it should be recognized that, due to the large number of fuel formulations along with the resources and cost required to evaluate each formulation, it is not feasible to assess all combinations of engine types and fuel formulations. This is especially the case with additives, since the number of additive and feedstock combinations could be very large. So it will be important in future assessments to target a smaller set of archetypal and informative combinations of engines and fuel formulations. The *Air Emissions* studies evaluated two additives both for NO_x reduction. Neat biodiesel fuels were also additized with a stability additive to help provide sufficient stability against oxidation throughout the program (Durbin et al, 2011). *Effects of other additives such as biocides and cold flow enhancers may be necessary if these are planned for use. Additional additives for NO_x reduction may also need to be tested prior to widespread use* i.e. urea.

- California low-aromatics and -sulfur diesel-fuel formulations require the addition of cetane enhancers to achieve required emissions reductions. These additives are anticipated to be used in biodiesel blends as well. Further reducing the aromatics also can reduce lubricity and most California diesel includes a lubricity additive. Further, when diesel is distributed by pipeline, the pipeline operator may inject corrosion inhibiting and/or drag reducing additives. A typical additive package may contain: a detergent/dispersant, one or more stabilizing additives, a cetane number improver, a low temperature operability additive (flow improver or pour point reducer), and a biocide. Each refiner or marketer is likely to use a different package of additives and a different treat rate. The specific chemical composition of the additives used by various biodiesel manufactures is typically not specified and the environmental impact of these additives is not well described. *The impact from releases of associated additives and production chemicals not yet characterized could be of concern unless state guidelines restrict additives to those already in use and/or already characterized.*

[3] http://www.arb.ca.gov/fuels/multimedia/meetings/Biodiesel_FinalReport_May2013_101113.pdf

- However, in the case of B20, it is reasonable to assume that most of the additives used in biodiesel are currently used in CARB ULSD and would continue to be used with no substantive difference in environmental impact due to additives. If this is the case, then new studies on multimedia transport and impact from additives would not be needed *except where impacts in conventional ULSD use are either unknown or unacceptable*.

Toxicity

- Assessing the aquatic toxicity of biodiesel is a priority in California for a variety of reasons. First, … *Third, the possibility of additives may also create differences in the toxicity of biodiesel used in California rather than the biodiesel used in previous studies*. ….

Transport and Fate

- While the results of the existing biodegradation experiments appear favorable for B100 and biodiesel blends with diesel, further evaluation is needed using the most up to date reference fuel for the state of California, CARB ULSD #2. *In addition, due to various additive components not included in this multimedia assessment that may be necessary to improve fuel combustion properties, additional study of biodegradation is also needed to evaluate the impacts from the additives*. Additives to prevent microbial growth in the fuel during storage and use may lead to significantly reduced biodegradation. Reducing biodegradation may lead to increased transport and mobility in the environment, especially in the subsurface where cleanup is especially difficult. Since biodiesel is a mild solvent, the solvency could potentially remobilize pre-existing chemical compounds in the area affected by a release.

Tier II MME Report[4]

The Tier II report stated there are knowledge gaps related to use additives and recommended additional testing:

From EXECUTIVE SUMMARY,

Remaining Tier II Uncertainties

- *Additional testing addressing the potential toxicity of additives including chemical analysis of exposure medium is needed*.
- *Of the three groups of additives only blends with antioxidants, and biocidal additives (biodegradation experiments only) were studied*. Cold flow additives were not studied in any of the performed experiments. The impact of cold flow additives on aquatic toxicity and biodegradation needs to be studied….

Tier I Report[5]

[4] http://www.arb.ca.gov/fuels/multimedia/meetings/Biodiesel_FinalTierII_Jan2012_110413.pdf
[5] http://www.arb.ca.gov/fuels/multimedia/meetings/Biodiesel_FinalTierIReport_Sep2009_110413.pdf

The conclusion of the Tier I MME report, it was stated that evaluation of additive impacts needs to be evaluated as part of the Tier II evaluations:

From EXECUTIVE SUMMARY,

Key Information Gaps and the Tier-II Sampling Plan

1. **Additives impacts.** To provide a stable useful, and reliable fuel, additive chemicals will need to be introduced into almost all biodiesel blends. These additives will be required to control oxidation, corrosion, foaming, cold temperature flow properties, biodegradation, water separation, and NOx formation. The specific chemicals and amounts used have not been well defined for the emerging industry in California. A careful evaluation the possible chemicals would be beneficial to California and may lead to a "recommended list" or "acceptable list" that would minimize the uncertainty of future impacts as industry standards are developed.

   The impact of various additives that may be used with *biodiesel blends needs to be considered for releases to the air, water, and soils. Additives may affect fuel quality or storage stability in unintended ways. Because the properties of additives can potentially alter the characteristics of biodiesel, increasing its environmental and health risks, there is a need for additional tests on biodiesel with specific concentrations of additives*. In particular it is necessary to assess the impact of
   - cold flow property controllers on surface water- biodiesel interaction and on subsurface multiphase transport of biodiesel (see number 2 below).
   - biocides and anti-oxidants on biodegradation (see number 3 below).
   - *all priority additives on human and ecosystem toxicity*

2. **Subsurface fate and transport properties.** The impacts of leaks and spills of biodiesel fuel product during transport, storage, and distribution have not been addressed. This is an important issue for California. Because the chemical composition of biodiesel differs significantly from that of petroleum diesel, it is expected that infiltration, redistribution, and lens formation on water tables will differ for the two fuels, leading potentially to significant differences in relative impacts to groundwater quality. Properties governing these processes are density, viscosity, and interfacial tensions. *Component (including additive) solubility into the water phase ultimately governs water quality and so inter-phase solubilization of individual components also needs to be identified. To address these issues requires experiments with conventional soil column tests that will be used to establish relative transport behaviors among different fuel compositions* and for site-specific analyses. But the relevance of these results for state-wide assessments should be considered along with the value of full-scale comparative field tests with releases into the groundwater, or into the vadose zone just above the groundwater table.