

# PUBLIC HEARING TO CONSIDER PROPOSED AMENDMENTS TO THE CALIFORNIA DIESEL FUEL REGULATIONS

## Staff's Suggested Modifications to the Original Proposal

PRESENTED AT THE JULY 24, 2003 HEARING  
OF THE AIR RESOURCES BOARD

The text of the originally proposed amendments is shown in underline to indicate additions and ~~strike-out~~ to indicate deletions, compared to the preexisting regulatory language. The proposed modifications to the original proposal are shown in double underline to indicate additions and ~~double strike-out~~ to indicate deletions.

### 1. **Phase-in of 2006 sulfur standard at low-throughput bulk purchaser-consumer facilities and retail outlets.**

In section 2281(a), add the following subsection (a)(4) (and reletter (a)(4) and (a)(5) accordingly):

(4) Phase-in of 2006 standard at low-throughput facilities. The 15 parts per million sulfur standard in section (a)(2) shall not apply to transactions directly involving the fueling of motor vehicles at a retail outlet or bulk purchaser-consumer facility, where the person selling, offering, or supplying the diesel fuel demonstrates as an affirmative defense that the exceedance of the pertinent standard was caused by diesel fuel delivered to the retail outlet or bulk purchaser-consumer facility prior to July 15, 2006, or delivered to the retail outlet or bulk purchaser-consumer facility directly from a bulk plant prior to September 1, 2006.

This language is patterned after section 2261(a)(2), which addressed the phase-in of the California Phase 2 reformulated gasoline cap standards at low through-put facilities. The new provision would protect facilities such as farm storage tanks that receive deliveries of diesel fuel so infrequently that no delivery after the upstream phase-in dates has reduced the sulfur content of the facility's diesel fuel.

### 2. **Definition of diesel fuel**

In sections 2281(b)(1) [sulfur content] and 2282(b)(3) [aromatic hydrocarbon content], title 13, CCR, change the definition of diesel fuel as follows:

"Diesel fuel" means any fuel that is commonly or commercially known, sold or represented as diesel fuel No. 1-D or No. 2-D, pursuant to the specifications in ASTM Standard Specification for Diesel Fuel Oils D975-81, which is incorporated herein by reference, including any mixture of primarily liquid hydrocarbons =

organic compounds consisting exclusively of the elements carbon and hydrogen  
— that is sold or represented as suitable for use in an internal combustion,  
compression-ignition engine.

Make the same clarification in section 2284(b)(4) [lubricity], title 13, CCR. Under the modification, a product that is more than 50 percent biodiesel (e.g. B-51) would not fall within the definition of diesel fuel and thus not be subject to the diesel fuel standards.

### 3. Downstream blending under the sulfur regulation

Delete proposed section 2282(f), title 13, CCR as follows:

~~(f) Downstream blending of vehicular diesel fuel with other distillates.~~

~~(1) Basic prohibition. No person may combine vehicular diesel fuel that has been supplied from a production or import facility with any other distillate not previously represented as vehicular diesel fuel, unless the person can affirmatively demonstrate that either:~~

~~(A) The other distillate meets the standard in subsection (a)(1) or (a)(2) as applicable; or~~

~~(B) The combined blend meets the standard in subsection (a)(1) or (a)(2) as applicable, and the person combining the other distillate with the vehicular diesel fuel has a prior written authorization from the producer or importer of the vehicular diesel fuel that the two products may be combined; or~~

~~(C) The combined blend will not be marketed as vehicular diesel fuel.~~

~~(2) Exception. Notwithstanding subsection (f)(1), the executive officer may enter into a written protocol with any person to identify conditions under which the person may lawfully blend transmix into vehicular diesel fuel which has been supplied from its production or import facility. The executive officer may only enter into such a protocol if he or she reasonably determines that alternatives to the blending are not practical and the blending will not significantly affect the properties of the diesel fuel into which the transmix is added. Any such protocol shall include the person's agreement to be bound by the terms of the protocol.~~

This language was patterned after section 2266.5(h) in the California reformulated gasoline (CaRFG) regulations. Since the CaRFG regulations impose more stringent standards at the refinery or import facility than the “cap” limits that apply throughout the distribution system, it is insufficient to just assure that product added to gasoline downstream of the refinery or import facility meets the cap limits. The downstream blending provisions in the gasoline regulation are necessary to assure that product added to gasoline downstream meets the more stringent refinery/ import facility limits at

the point it is added. On further consideration, ARB staff has concluded that since diesel fuel will have to meet the same sulfur standards throughout the distribution system, special downstream provisions need not be included in the sulfur regulation. The 15 parts per million weight sulfur standard that will apply following any blending operations is sufficient to assure adequate enforceability.

**4. Applicability of new candidate fuel requirements to certain previously certified formulations**

Add new section 2282(g)(2)(A)5. as follows:

(2) The candidate fuel.

(A)1. The applicant shall supply the candidate fuel to be used in the comparative testing pursuant to subsection (g)(4).

2. The candidate fuel shall meet the specifications for No. ~~4-D~~ or 2-D diesel fuel set forth in ASTM D975-81, which is incorporated herein by reference, and shall also meet the requirements in subsections (g)(2)(A)3. and 4.

3.a. Except as otherwise provided in subsection (g)(2)(A)3.b., the candidate fuel shall meet the following specifications, which are identical to the comparable specifications for the reference fuel identified in subsection (g)(3):

<u>Property</u>	<u>ASTM Test Method</u>	<u>Candidate Fuel Specifications</u>
<u>Gravity, API</u>	<u>D287-82</u>	<u>33 - 39</u>
<u>Viscosity at 40°, cSt</u>	<u>D4450-83</u>	<u>2.0 - 4.1</u>
<u>Flash point, °F, (min.)</u>	<u>D93-80</u>	<u>130</u>
<u>Distillation, 1F</u>	<u>D86-96</u>	
<u>IBP</u>		<u>340 - 420</u>
<u>10% REC.</u>		<u>400 - 490</u>
<u>50% REC.</u>		<u>470 - 560</u>
<u>90% REC.</u>		<u>550 - 610</u>
<u>EP</u>		<u>580 - 660</u>

b. The candidate fuel's value for one or more of the properties listed in the subsection (g)(2)(A)3.a. table may be outside the specification in the table if the applicant is specifying the property and candidate fuel's value pursuant to subsection (g)(2)(C).

4. a. Except for a property to which subsection (g)(2)(A)3.b applies, the gravity, viscosity, flash point and distillation values of the candidate fuel

may not differ from the corresponding values of the reference fuel used in the engine emissions testing by more than one-half of the permitted range for the property. For example, if the API gravity of the reference fuel is 33, then the API gravity of the candidate fuel may not exceed 36.

- b. The candidate fuel's value for one or more of the properties listed in the subsection (g)(2)(A)3.a. table may differ from the corresponding value of the reference fuel used in the engine emissions testing by more than one-half of the permitted range for the property if the applicant is specifying the property and candidate fuel's value pursuant to subsection (g)(2)(C).

5. Applicability of additional candidate fuel requirements to previously certified diesel fuel formulations. Once the amendments adopting subsection (g)(2)(A)2. become operative, the executive officer shall evaluate all previously certified formulations and identify any formulations for which the candidate fuel exceeded any of the specification ranges in subsection (g)(2)(A)2.a. In the case of any such formulations, the executive officer shall then identify any formulations for which the certified alternative formulation's aromatic hydrocarbon specification is more than 3.5 times the aromatic hydrocarbon content of the reference fuel, its sulfur, nitrogen and polycyclic aromatic hydrocarbon specifications are greater than the sulfur, nitrogen, and polycyclic aromatic hydrocarbon contents of the reference fuel, and its cetane number is less than that of the reference fuel. The certification of any formulation that meets all of the criteria listed above shall no longer be effective as of 90 days after the operative date of the amendments adopting this subsection (g)(2)(A)4.

The last paragraph of the hearing notice expressly stated that the ARB may adopt a revision to this effect as a modification to the original proposal. Staff believes that where one of the candidate fuel specifications for a certified formulation fell outside one of the new property ranges being proposed, *and* where both the formulation's cetane number is lower than that of the reference fuel and the formulation candidate fuel's aromatic hydrocarbon content is at least 3.5 three times that of the reference fuel, there is the potential for the candidate fuel's successful performance to be attributable to the unusual property which is not being covered by the specifications for the alternative formulation. Under these circumstances, it is appropriate to require a re-test during an appropriate window period following the effective date of the amendments.

The Executive Officer is currently involved with discussions with affected refiners on ways the issues concerning affected certified formulations can be resolved without the need for this modification, and expects these discussions to be successful. Accordingly, staff recommends that Resolution 03-17 include a direction that if the Executive Officer satisfactorily resolves with affected refiners the issues regarding preexisting certified formulations that were to be addressed in the addition of subsection 2282(g)(2)(A)5.,

she shall delete the addition of that subsection from the text distributed for supplemental public comment, and in the Final Regulation Order for this rulemaking.

**5. Sunsetting 2004 Lubricity Standard if the identical ASTM is applicable to California diesel fuel under Division of Measurement Standards regulations**

Modify section 2284(a)(1) as follows:

**§ 2284. Lubricity of Diesel Fuel**

*(a) Regulatory Standard.*

*(1) Standard starting in 2004.*

*(A) Basic standard.* Starting in August 2004 in accordance with the phase-in schedule in section (a)(2), no person shall sell, offer for sale, supply, or offer for supply any vehicular diesel fuel unless at the time of the transaction the diesel fuel meets a minimum lubricity level of a maximum wear scar diameter (WSD) of 520 microns based on American Society of Testing and Materials (ASTM) test method D6079-02 (High Frequency Reciprocating Rig (HFRR), which is incorporated herein by reference.

*(B) Sunset.* The standard in section 2284(a)(1)(A) does not apply at any time that California diesel fuel must meet a minimum lubricity level of a maximum wear scar diameter (WSD) of 520 microns based on American Society of Testing and Materials (ASTM) test method D6079-02 (High Frequency Reciprocating Rig (HFRR) pursuant section 4143, title 4, California Code of Regulations.

The referenced section 4143, title 4, CCR, is a regulation administered by the Division of Measurement Standards in the California Department of Food and Agriculture. It provides:

**§4143. Specifications – Diesel Fuel.**

Diesel fuel shall meet the specifications set forth by the American Society for Testing and Material (ASTM) in the latest version of Standard Specification for Diesel Fuel Oils D-975 contained in the ASTM publication entitled: Annual Book of ASTM Standards, Section 5, Volume 05:01, except the sulfur content shall not exceed the maximum specified by any California state law.

**6. Drop the proposed amendments to heavy-duty engine test procedures regarding California certification diesel test fuel.**

The originally proposed amendments would have allowed 2007 and subsequent model-year heavy-duty engines to be certification tested using a diesel certification test fuel having not only an ultra-low sulfur content as is the case with the federal diesel certification test fuel, but also having a low aromatics content of 8-12 percent by volume reflecting California's low aromatics standard for commercial diesel fuel. This would have been accomplished by amendments to section 1956.8(b), title 13, California Code of Regulations, and the incorporated "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines." This element of the proposal was in error, and was inconsistent with the previous ARB requirements for diesel certification test fuel for heavy-duty diesel engines. No amendments to the regulation and incorporated test procedure are necessary, since the preexisting California test procedure already specifies an ultra-low sulfur content of 7-15 parts per million for diesel fuel used in certification testing of 2007 and subsequent model-year heavy-duty diesel engines.

With the exception of 1996-1997 urban bus engines, the ARB has never allowed heavy-duty diesel engines to be certification tested with the low-aromatics certification test fuel that is allowed for light-duty diesel vehicles and for medium-duty diesel engines through the 2005 model year. This is because the California heavy-duty engine certification standards have typically been identical to the corresponding federal standards. Since manufacturers are required to produce federal engines that meet the federal standards using a certification test fuel having an aromatics content of at least 27 vol.% unless Type 1-D diesel fuel will be the predominant in-use fuel (40 CFR § 1313-2007(b)(2)), it is inappropriate to allow California engines to certify to an identical California standard using a cleaner certification fuel.