State Of California
AIR RESOURCES BOARD

Executive Order G-714-007

Certified Diesel Fuel Formulation

ARCO Products Company

WHEREAS, pursuant to sections 39600, 39601, 43013, 43018, and 43101 of the Health and Safety Code, the Air Resources Board has adopted section 2282, Title 13, California Code of Regulations ("section 2282"), which limits the aromatic hydrocarbon content of diesel fuel sold or intended for sale as a motor vehicle fuel in California, starting October 1, 1993;

WHEREAS, section 2282 establishes a basic statewide aromatic hydrocarbon limit for vehicular diesel fuel of 10 percent by volume, with a less stringent 20 percent standard for small refiners and a temporary 20 percent standard for independent refiners;

WHEREAS, sections 2282(a)(1)(C) and 2282(g) allow diesel fuel producers and importers to comply with the regulation with a set of diesel fuel specifications of their choosing if they can demonstrate that the alternative specifications result in emission benefits equivalent to the emission benefits resulting from the 10 percent aromatic hydrocarbon standard (or, in the case of small refiners, the 20 percent aromatic hydrocarbon standard);

WHEREAS, section 2256(g) identifies a test procedure for comparative testing of a prototype ("candidate") fuel and a reference fuel representative of a diesel fuel with 10 percent aromatic hydrocarbons (or 20 percent by volume for small refiners), involving back-to-back tests using a specified heavy-duty diesel engine; identifies the statistical methodology to be used in comparing the emission of oxides of nitrogen, particulate matter, and the soluble organic fraction of the particulate matter resulting from the two fuels; and establishes a process for certifying diesel fuel formulations that satisfy the regulatory criteria;

WHEREAS, section 2282(g)(1) requires that an applicant for certification submit to the Executive Officer for approval a proposed test protocol which includes detailed information on the entity proposed to conduct the tests, the test procedures, analytical test data on the candidate and reference fuels, the quality control and quality assurance procedures, and identification of any statistical outlier tests to be used;

WHEREAS, section 2282(g)(1) also requires that an applicant submit a certification application which includes the approved test protocol, all of the test data, a copy of the complete test log prepared in accordance with

subsection (g)(4)(C)(ii), and a demonstration that the candidate fuel meets the requirements for certification set forth in section 2282(g)(5);

WHEREAS, section 2282(g)(6) directs the Executive Officer to issue an Executive Order certifying a diesel fuel formulation if he finds that the candidate fuel has been properly tested in accordance with the requirements of section 2282(g), and that the candidate fuel meets the performance criteria specified in section 2282(g)(5);

WHEREAS, section 2282(g)(6) also provides that the Executive Order must specify that the certified diesel fuel formulation has the following specifications: (1) a sulfur content, total aromatic hydrocarbon content, polycyclic aromatic hydrocarbon content, and nitrogen content not exceeding that of the candidate fuel; (2) a cetane number not less than that of the candidate fuel; and (3) presence of all additives that were contained in the candidate fuel in a concentration not less than in the candidate fuel, except for an additive demonstrated by the applicant to have the sole effect of increasing cetane number;

WHEREAS, section 2282(g)(6) also provides that the Executive Order shall assign an identification name to the specific certified diesel fuel formulation;

WHEREAS, ARCO Products Company ("ARCO") submitted a proposed test protocol, dated February 11, 1993, for testing an alternative diesel fuel formulation, and this test protocol has been approved by the Air Resources Board;

WHEREAS, ARCO has submitted an application, dated July 6, 1993 (the "Application") for certification of a diesel fuel formulation identified as Candidate #5;

WHEREAS, the specifications for Candidate #5 are listed in Attachment A of the Application;

WHEREAS, Attachment A of the Application identifies the sulfur content, total aromatic hydrocarbon content, polycyclic aromatic hydrocarbon content, and nitrogen content which the certified diesel fuel may have;

WHEREAS, Attachment A of the Application identifies the minimum cetane number the diesel fuel may have and identifies the presence of all additives that must be included in the certified diesel fuel;

WHEREAS, ARCO has requested that the candidate fuel identified as Candidate #5 in Attachment A of the Application be identified as "ARCO Diesel D-25" in the certification;

WHEREAS, I find that the Application meets all of the requirements of section 2282(g)(1), that the candidate alternative diesel fuel formulation Candidate #5 has been tested in accordance with the requirements of section 2282(g)(4), and that ARCO has satisfactorily demonstrated that the candidate

alternative diesel fuel formulation meets the performance criteria identified in section 2282(g)(5);

WHEREAS, I find that (1) the sulfur content, total aromatic hydrocarbon content, polycyclic aromatic hydrocarbon content, and nitrogen content set forth in Attachment 1 hereto do not exceed that of ARCO's Candidate #5 diesel fuel as identified in Attachment A of the Application; (2) the cetane number set forth in Attachment 1 is not less than that of ARCO's Candidate #5 diesel fuel as identified in Attachment A of the Application; and (3) Attachment 1 hereto identifies all additives that were contained in ARCO's Candidate #5 diesel fuel as identified in Attachment A of the Application, in a concentration not less than in the candidate fuel, except for any additives demonstrated by ARCO to have the sole effect of increasing cetane number;

NOW, THEREFORE, IT IS ORDERED that ARCO's Candidate #5 diesel fuel is hereby certified as a certified diesel fuel formulation under section 2282(g), and shall be identified as ARCO Diesel D-25.

BE IT FURTHER ORDERED that the certified diesel fuel formulation shall have a maximum sulfur content, total aromatic hydrocarbon content, polycyclic aromatic hydrocarbon content and nitrogen content, and minimum cetane number and additives concentration, as specified in Attachment 1 hereto.

Executed at Sacramento, California this 19th day of July, 1993.

James D. Boyd
Executive Officer

Attachment 1

Specifications for Certified Diesel Fuel Formulation

ARCO Products Company.

Fuel Identification: ARCO Diesel D-25

Fuel Property	Fuel Specification	Test Method
Aromatic Hydrocarbons (not to exceed)	21.7 percent by volume	ASTM D1319-84
Sulfur (not to exceed)	33 ppm by weight	ASTM D2622-82
Polycyclic Aromatic Hydrocarbons (not to exceed)	4.6 percent by weight	ASTM D2425-83
Nitrogen Content (not to exceed)	20 ppm by weight	ASTM D4629-86
Cetane Number (not less than)	55.2	ASTM D613-84

Additives:

The candidate fuel was tested without the addition of any additives other than additives having the sole effect of enhancing cetane. Therefore, no minimum additive concentration is required.