

State of California
AIR RESOURCES BOARD

Resolution 04-38

November 18, 2004

Agenda Item No.: 04-10-3

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (the Board or ARB) to adopt standards, rules and regulations and to do such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, Health and Safety Code section 43013(a) authorizes the Board to adopt and implement motor vehicle fuel specifications for the control of air contaminants and sources of air pollution which the Board has found necessary, cost-effective, and technologically feasible to carry out the purposes of Division 26 of the Health and Safety Code;

WHEREAS, Health and Safety Code section 43013(b) authorizes the Board to adopt standards and regulations for off-road and nonvehicular engine categories including locomotives and marine vessels;

WHEREAS, section 43018(a) of the Health and Safety Code directs the Board to endeavor to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of the state ambient air quality standards at the earliest practicable date;

WHEREAS, section 39666 of the Health and Safety Code authorizes the Board to adopt airborne toxic control measures (ATCM) to reduce emissions of toxic air contaminants (TAC) from nonvehicular sources;

WHEREAS, ARB administers motor vehicle diesel fuel regulations which are designed to reduce emissions from motor vehicle diesel engines and include the following elements:

A sulfur content limit of 500 parts per million by weight (ppmw), which is reduced to 15 ppmw over a 90-day phase-in period starting June 1, 2006;

An aromatic hydrocarbon content limit of 10 percent by volume with a limit of 20 percent for specified volumes produced by small refiners, allowing offsetting of higher aromatic hydrocarbon content batches with lower aromatic hydrocarbon content batches to meet the 10 percent limit;

An alternative mechanism for complying with the aromatic hydrocarbon requirement under which a producer or importer may sell a certified alternative formulation that has an aromatic hydrocarbon content greater than the basic limits;

Starting January 1, 2005, a minimum fuel lubricity standard for vehicular diesel fuel of a maximum wear scar diameter (WSD) of 520 microns based on the High Frequency Reciprocating Rig (HFRR) method; this standard does not apply at any time that California vehicular fuel must meet an identical standard under regulations administered by the Division of Measurement Standards which incorporate the standards of the American Society for Testing and Materials (ASTM), and the identical ASTM standard will be applicable starting January 1, 2005;

WHEREAS, diesel fuel meeting ARB's standards for motor vehicle diesel fuel is often referred to as "CARB diesel";

WHEREAS, most motor vehicle diesel fuel now being marketed in California is subject to the alternative diesel formulation provisions to comply with the aromatic hydrocarbon standard of the California diesel fuel regulations;

WHEREAS, ARB in August 1998 identified diesel particulate matter (diesel PM) as a TAC, and in September 2000 approved California's Risk Reduction Plan (RRP) to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles;

WHEREAS, the RRP recommends control measures for diesel-fueled off-road engines and stationary engines that include retrofitting of older engines with exhaust treatment technologies as well as stringent diesel PM emission standards for new engines that would require exhaust treatment technologies, and these exhaust treatment systems could not be effective without low sulfur diesel fuel;

WHEREAS, following a July 24, 2003 hearing, the ARB adopted a new ATCM requiring that, starting December 12, 2004, California nonvehicular diesel fuel must meet the same ARB standards as California vehicular diesel fuel, with the exception of diesel fuel used in locomotives and marine vessels;

WHEREAS, at the July 24, 2003 hearing, the Board directed staff to return to the Board with a status report on the feasibility of extending the CARB diesel fuel standards to locomotives and marine vessels;

WHEREAS, on October 24, 2003, staff presented a status report to the Board with a finding that it may be feasible and cost-effective to extend the CARB diesel fuel standards to locomotives and marine vessels; the Board directed staff to return with recommendations for extending CARB diesel fuel standards to locomotives and marine vessels;

WHEREAS, on June 29, 2004, the U.S. Environmental Protection Agency (U.S. EPA) published a final rule imposing a 500 ppmw maximum sulfur standard for diesel fuel used in nonroad, locomotive, and marine engines, starting on June 1, 2007; the federal sulfur standard falls to 15 ppmw starting on June 1, 2010, for diesel fuel used in most nonroad engines, and starting on June 1, 2012, for diesel fuel used in locomotives and marine vessels;

WHEREAS, following a series of workshops, the staff has proposed the adoption of new regulations and regulatory amendments that are set forth in Attachment A hereto and include the following elements:

A new fuels regulation requiring that diesel fuel sold, supplied, or offered for sale for use in commercial or recreational harborcraft within the South Coast Air Quality Management District (SCAQMD) must be CARB diesel beginning January 1, 2006, and a requirement that diesel fuel sold, supplied, or offered for sale for use in intrastate diesel-electric locomotive and harborcraft operators throughout the state must be CARB diesel beginning January 1, 2007;

A definition of "intrastate diesel-electric locomotive" as a diesel-electric locomotive that annually operates at least 90 percent of the time within the borders of the California, based on hours of operation, miles traveled, or fuel consumption; line-haul freight locomotives that both meet U.S. EPA's "Tier II" locomotive emission standards and primarily move freight into and out of the SCAQMD are not included in this definition;

A definition of harborcraft as a marine vessel meeting all of the following characteristics that distinguish them from large oceangoing ships: (1) less than 400 feet in length; (2) less than 10,000 gross tons; (3) propelled by engines with a cylinder displacement less than 30 liters per cylinder; and (4) neither a foreign-flagged vessel, nor documented as a foreign trade vessel by the U.S. Coast Guard;

A mechanism under which an operator of intrastate diesel-electric locomotives may seek Executive Officer approval of an Alternative Emission Control Plan containing a substitute fuel and/or emission control strategy that achieves equivalent or greater reductions than those achieved solely through the use of CARB diesel; any such plan would have to contain adequate enforcement provisions and adequate protections for individuals living in areas that have existing local air pollution or localized air toxic impacts;

A new ATCM containing requirements essentially identical to those in the new fuels regulation;

WHEREAS, the California Environmental Quality Act (CEQA) and Board regulations require that an action not be adopted as proposed where it will have significant adverse

environmental impacts if feasible alternatives or mitigation measures are available which would substantially reduce or avoid such impacts;

WHEREAS, the Board has considered the impact of the proposed amendments on the economy of the State;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of chapter 3.5 (commencing with section 11340), part 1, division 3, title 2 of the Government Code;

WHEREAS, the Board finds that:

Emissions reductions are needed from nonvehicular diesel engines to meet commitments in the State Implementation Plans (SIP) for ozone and PM₁₀ and to make further progress towards attainment of both the State and federal ambient air quality standards;

Diesel exhaust contains toxic air contaminants and potentially toxic air contaminants which also include substances that are carcinogenic to humans or are possible human carcinogens; additional diesel PM reductions are needed to reduce overall public exposure to air toxics and associated cancer risks;

The average potential cancer risk associated with diesel PM emissions was estimated at over 500 potential cases per million in 2000 with diesel PM cancer risk accounting for approximately 70 percent of the statewide average potential cancer risk from all ambient air toxics;

The use of CARB diesel fuel with a sulfur content of 15 ppmw or less in diesel-powered harborcraft and intrastate locomotives will provide significant reductions in emissions from these sources – a 6 percent reduction for NO_x, 14 percent for PM, and greater than 95 percent for sulfur dioxide (SO₂);

Reducing the maximum allowable sulfur content of diesel fuel used by harborcraft and intrastate locomotives to 15 ppmw makes much more significant emissions reductions possible by enabling high-efficiency catalytic after-treatment of diesel engine exhaust; with these after-treatment technologies, emissions of diesel PM and NO_x can be reduced by 90 percent and significant reductions in NMHC and CO can also be achieved;

The elements of the proposed amendments authorizing an Alternative Emission Control Plan for operators of intrastate diesel-electric locomotives are designed to provide the operators with the flexibility to consider any potentially less costly combination of fuels, equipment, or operational changes at one or more of their facilities in the State, while maintaining the enforceability of the applicable requirements;

WHEREAS, pursuant to the requirements of the CEQA and the Board's regulations, the Board further finds that:

Extending applicability of the low sulfur CARB diesel fuel regulation to harborcraft and intrastate locomotives could have a very small net effect on global warming as the production of low sulfur diesel is expected to increase emissions of CO₂; however, the greenhouse effect from diesel fuel production is expected to be substantially offset by the effect of a reduction in CO₂ emissions from the use of low sulfur fuel in diesel engines;

The regulatory action approved herein should not have any significant adverse impacts on water quality; a direct benefit of the lowering of the sulfur content limit is a reduction of emitted sulfur oxides and particulate sulfate and consequently a reduction of atmospheric deposition of sulfuric acid and sulfates in water bodies;

With a reduction of NO_x and diesel PM emissions resulting from the proposal as identified above, there should be a decrease in atmospheric deposition of nitrogen and airborne diesel particles as well as the associated heavy metals, PAHs, dioxins, and other toxic compounds typically found in diesel exhaust;

The additional hydrotreating necessary to reduce the sulfur content of diesel fuel for intrastate locomotives and harborcraft to below 15 ppmw would not significantly change the chemical composition or the physical properties of the low sulfur diesel fuel compared to current diesel fuel; therefore, any release of low sulfur diesel fuel to the environment should have no additional impact on surface water, groundwater, or soil compared to the current diesel fuel;

Additional refinery modifications should not be necessary to produce the additional 70 million gallons of CARB diesel needed annually to fully supply harborcraft and intrastate locomotives to comply with the regulatory amendments;

The small incremental additional processing for harborcraft and intrastate locomotive diesel fuel at refineries could have slight adverse environmental impacts due to a small increase in refinery emissions of NO_x, PM, CO, and SO₂; CEQA and the permit requirements of air pollution control districts are expected to substantially mitigate such impacts;

There are no feasible mitigation measures or alternatives available to the Board which would further substantially reduce the above potential adverse impacts of the proposed regulations while at the same time providing the substantial overall public health benefit from the emissions reductions noted herein;

WHEREAS, the Board further finds that:

The regulatory action approved herein is not expected to have any impact on the ability of California to produce and supply adequate quantities of diesel fuel to the California market;

The production of low sulfur CARB diesel fuel for harborcraft and intrastate locomotives could increase costs for refiners to about 3 cents per gallon; these increased costs are not expected to be significant adverse economic impacts;

ARB staff estimates that the cumulative impact of the regulations approved herein could be expected to increase fuel costs to diesel end users in California by up to about \$3 million per year in 2007; this is not expected to have a significant impact on the overall California economy;

WHEREAS, the Board further finds that:

The regulatory action approved herein will not affect the creation or elimination of jobs within the State of California, the creation of new businesses or elimination of existing businesses within the State of California, or the expansion of businesses currently doing business within the State of California; a detailed assessment of the economic impacts of the approved regulatory action can be found in the Staff Report: Initial Statement of Reasons;

When the approved regulatory action is fully implemented statewide in 2007, the cost-effectiveness range is expected to be between \$1.10 and \$1.60 per pound of NOx plus PM reduced; this level of cost-effectiveness is within the range of other criteria pollutant control measures approved by the Board; and

There is no alternative considered by the Board that would be more effective in carrying out the purpose for which the proposed amendments are proposed or would be as effective and less burdensome to affected private persons.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the adoption of or amendments to sections 2281, 2282, 2284, and 2299 of title 13, and section 93116 of title 17, California Code of Regulations, as set forth in Attachment A hereto (without the placeholders in sections 2299(b)(5)(C) and 93119(b)(5)(C)), with the modifications set forth in Attachment B hereto.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to incorporate the modifications described in Attachment B into the amendments contained in Attachment A, with such other conforming modifications as may be appropriate, and then (subject to the following paragraph) to adopt the modified amendments, after making the modified regulatory language available for supplemental public comment for

a period of at least 15 days as required by Government Code section 11346.8, provided that the Executive Officer shall consider all written comments regarding the modifications as may be submitted during this period, shall make modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if she determines that this is warranted.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to submit the ultimately adopted new regulations and amendments to the U.S. EPA as a revision to the California SIP.

BE IT FURTHER RESOLVED, that the Board directs staff to prepare a report on the emission inventory of harborcraft and intrastate locomotives for each air basin within California; to include in the report, where appropriate, those emissions associated with airborne transport from one air basin to another air basin; and to forward this information to the Board.

BE IT FURTHER RESOLVED, that the Board directs staff to return by January 2005 with a status report on current and future state and federal emission control strategies for both locomotives and marine vessels, including an update on comprehensive emission control strategies at ports, harbors, and railyards.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to work with U.S. EPA in exploring the feasibility of moving toward a single set of diesel fuel standards for on-road, nonroad, and stationary sources that fully preserve the emissions benefits of the existing California program and its competitive position, and to report back to the Board on these efforts as appropriate.

I hereby certify that the above is a true and correct copy of Resolution 04-38, as adopted by the Air Resources Board.

Lori Andreoni, Clerk of the Board

Resolution 04-38

November 18, 2004

Identification of Attachments to the Resolution

Attachment A: The Proposed Regulation Order attached as Appendix A to the Staff Report: Initial Statement of Reasons, release date October 1, 2004.

Attachment B: Staff's Suggested Modifications to the Original Proposal, as made available at the November 18, 2004 hearing.

PUBLIC HEARING TO CONSIDER REGULATORY AMENDMENTS EXTENDING THE CALIFORNIA STANDARDS FOR MOTOR VEHICLE DIESEL FUEL TO DIESEL FUEL USED IN HARBORCRAFT AND INTRASTATE LOCOMOTIVES

Staff's Suggested Modifications to the Original Proposal

PRESENTED AT THE NOVEMBER 18, 2004 HEARING
OF THE AIR RESOURCES BOARD

The proposed modifications to the original proposal are shown in double underline to indicate additions and ~~double strike out~~ to indicate deletions.

Insert the following as a new section 2299(a)(3) of title 13, California Code of Regulations, and new section 93116(a)(3) of title 17, California Code of Regulations:

(a)(3) Exemption for military specification fuel used in military vessels. The requirements of this section do not apply to military specification fuel that is sold, offered for sale, or supplied for use in marine vessels owned or operated by the armed forces of the United States.