State of California
AIR RESOURCES BOARD

Resolution 08-35

July 24, 2008

Agenda Item No: 08-7-4

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (ARB or Board) 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(b) authorizes the Board to adopt standards and regulations for off-road and nonvehicular engine categories, including marine vessels such as ocean-going vessels to the extent permitted by federal law;

WHEREAS, section 43018(a) and (d)(3) of the Health and Safety Code direct the Board to endeavor to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources, including marine vessels, in order to accomplish the attainment of the state ambient air quality standards at the earliest practicable date;

WHEREAS, under section 39650 of the Health and Safety Code, the Legislature finds and declares that it is the public policy of the state that emissions of toxic air contaminants should be controlled to levels which prevent harm to public health;

WHEREAS, on August 27, 1998, the Board identified particulate matter from diesel-fueled engines (diesel exhaust PM) as a toxic air contaminant pursuant to article 3 (commencing with section 39660), chapter 3.5, part 2, division 26 of the Health and Safety Code;

WHEREAS, ARB staff, in consultation with the Office of Environmental Health Hazard Assessment, has concluded that the particulate matter emissions from diesel engines, operated on ocean-going vessels using marine distillate fuels and heavy fuel oils, constitute diesel exhaust PM;

WHEREAS, in identifying diesel exhaust PM as a toxic air contaminant, the Board determined that there is not sufficient scientific evidence to support identification of a threshold level for diesel exhaust PM below which no significant adverse health effects are anticipated; this is codified in title 17, California Code of Regulations, section 93000;

WHEREAS, pursuant to section 39669.5(a) of the Health and Safety Code, the Office of Environmental Health Hazard Assessment listed diesel exhaust PM as possibly causing infants and children to be especially susceptible to illness;

WHEREAS, pursuant to section 39665 of the Health and Safety Code, ARB staff prepared a comprehensive risk reduction plan to significantly reduce diesel exhaust PM emissions from diesel-fueled engines and vehicles, including marine vessels, which the Board approved on September 28, 2000;

WHEREAS, the "Staff Report: Initial Statement of Reasons for Proposed Rulemaking – Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline," released on June 6, 2008 (Staff Report), along with the report "Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles," adopted by the Board on September 28, 2000, constitute the reports required under Health and Safety Code section 39665;

WHEREAS, sections 39658, 39665, and 39666 of the Health and Safety Code authorize the Board to establish airborne toxic control measures (ATCM) for substances identified as toxic air contaminants in accordance with specified criteria;

WHEREAS, for toxic air contaminants that the Board has not specified a threshold exposure level, section 39666 of the Health and Safety Code requires the development of ATCMs designed to reduce emissions of toxic air contaminants from nonvehicular sources to the lowest level achievable through the application of best available control technology (BACT) or a more effective control method, considering factors specified in section 39665, unless the Board determines, based on an assessment of risk, that an alternative level of emissions reduction is adequate or necessary to prevent an endangerment of public health;

WHEREAS, pursuant to section 38500 et seq. of the Health and Safety Code, the California Global Warming Solutions Act of 2006 (AB 32) requires ARB to adopt regulations and other requirements that would reduce by 2020 statewide greenhouse gas emissions to the equivalent of 1990 levels;

WHEREAS, in January 2005, the Goods Movement Cabinet Workgroup, created by Governor Schwarzenegger and led by the California Environmental Protection Agency and the Business, Transportation and Housing Agency, established a policy for goods movement and ports to improve and expand California's goods movement industry and infrastructure while improving air quality and protecting public health;

WHEREAS, the Goods Movement Cabinet Workgroup, in collaboration with the logistics industry, local and regional governments, neighboring communities, business, labor, environmental groups, and other interested stakeholders created a two-phase Goods Movement Action Plan in January 2007, which outlines a comprehensive strategy to address the economic and environmental issues associated with moving goods via the State's highways, railways, and ports;

WHEREAS, in April 2006, the Board adopted the Goods Movement Emission Reduction Plan, which sets forth a framework for actions to reduce emissions from goods movement-related sources, including those from ocean-going vessels;

WHEREAS, ocean-going vessels are nonvehicular sources that release substantial amounts of diesel exhaust PM (from diesel engines); PM (from boilers); gaseous criteria pollutants such as nitrogen dioxide and sulfur dioxide (from both diesel engines and boilers); and precursors of criteria pollutants such as oxides of nitrogen (NOx) and oxides of sulfur (SOx) (from both diesel engines and boilers) (collectively referred to as "emissions");

WHEREAS, the Staff Report discusses the studies and air quality modeling results that demonstrate that the emissions from ocean-going vessels are transported onshore to coastal communities, where they have adverse effects on human health and welfare and the environment;

WHEREAS, ARB staff has determined that the current International Maritime Organization (IMO) and U.S. Environmental Protection Agency (U.S. EPA) standards do not sufficiently reduce emissions of diesel exhaust PM, PM, and other criteria pollutants and precursors from in-use ocean-going vessels, both U.S. and foreign-flagged, that visit California ports;

WHEREAS, the Staff Report discusses how IMO is currently considering international fuel requirements that would significantly reduce marine fuel sulfur content as part of its MARPOL Annex VI, which as proposed has the potential to bring those standards in line with ARB's proposed regulation by the year 2015 if an Emission Control Area is created off the California coastline;

WHEREAS, in accordance with the above authority, ARB staff has proposed adoption of a regulation and an essentially identical ATCM for ocean-going vessel main (propulsion) diesel engines, auxiliary diesel engines (which includes diesel-electric engines), and auxiliary boilers (collectively referred to as the "regulation"), set forth in Appendix A of the Staff Report and Attachment A hereto; this proposed regulation was developed through the sharing of information and discussions of concepts and draft versions that were made available to the public for review and comment at six public meetings held between March 2007 and May 2008;

WHEREAS, the Staff Report identifies and explains the need and appropriate degree of regulation for diesel exhaust PM, PM, and other air pollutants from ocean-going vessels operating within Regulated California Waters;

WHEREAS, the Staff Report identifies Regulated California Waters, which is a subset of the California Coastal Waters (title 17, CCR, section 70500(b)(1)), as a region of water including all California internal waters, estuarine waters, ports, and coastal waters generally within 24 nautical miles of California's coast; the Board has previously determined, through extensive studies of meteorological, wind, and atmospheric

conditions, that emissions of air pollutants within the California Coastal Waters are likely to be transported to coastal communities and have adverse impacts on human health and welfare and the environment;

WHEREAS, the Staff Report discusses, to the extent data could reasonably be made available, the factors specified in Health and Safety Code sections 39665(b), 43013, and 43018, including, but not limited to, the estimates of emissions; exposure; potential cancer risk associated with the operation of ocean-going vessel engines in Regulated California Waters; feasible control options; potential environmental impacts; and the necessity, cost-effectiveness and technological feasibility of the proposed regulation;

WHEREAS, the Staff Report further discusses risk evaluations ARB staff performed of exposure to diesel exhaust PM emissions from ocean-going vessels operating within Regulated California Waters, using U.S. EPA-approved and ARB-recommended air dispersion models, and these evaluations indicate potential cancer risks for off-site receptor locations near California's major ports up to levels exceeding 200 chances in a million due to ocean-going vessel activity;

WHEREAS, in addition to discussing the potential cancer risks due to exposure to diesel exhaust PM emissions, the Staff Report discusses non-cancer risk evaluations; ARB staff performed analysis of statewide exposure to diesel exhaust PM emissions and to nitrate and sulfate PM emissions in Southern California from ocean-going vessels operating within Regulated California Waters; these evaluations show that exposure to these directly emitted diesel PM emissions and to secondarily formed nitrate and sulfate PM can be associated with over 1,100 premature deaths per year statewide in addition to numerous other non-cancer health effects;

WHEREAS, in addition to discussing the effects of exposure to diesel exhaust PM, the Staff Report further determines that the emissions from ocean-going vessels operating within Regulated California Waters contribute to levels of ozone and particulate matter in areas of California that currently exceed federal and state ambient air quality standards;

WHEREAS, in accordance with Health and Safety Code section 39665(c), the Staff Report and relevant comments received during public consultation with the air pollution control and air quality management districts (districts), affected sources, and the public were made available for public review and comment 45 days prior to the public hearing to consider the proposed regulation;

WHEREAS, the proposed regulation, with the modifications described in Attachment B hereto, would result in significant and immediate emission reductions of diesel exhaust PM, PM, NOx, and SOx after the specified compliance deadlines by limiting the fuel sulfur content and imposing other operational requirements for diesel engines and auxiliary boilers operating on ocean-going vessels within Regulated California Waters;

WHEREAS, the Board has considered the impact of the proposed regulation on the economy of the State and the potential for adverse economic impacts on California business enterprises and individuals;

WHEREAS, the California Environmental Quality Act (CEQA), section 21080.5 of the Public Resources Code, and Board regulations at title 17, CCR, section 60006 require that no project that may have significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available to reduce or eliminate such impacts;

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

1. The California Coastal Waters, of which the Regulated California Waters is a subset, feature meteorological, wind, and atmospheric conditions peculiar to the local waters of California, and such conditions make it likely that emissions of diesel exhaust PM, PM, NOx, and SOx occurring within these waters are transported to coastal communities and adversely affect human health and welfare and the environment in such communities, thereby calling for special precautions to reduce these emissions;

2. The emissions from diesel engines and auxiliary boilers used on ocean-going vessels also contribute to regional air quality problems and to potential risk of cancer and noncancer health effects for residents living in communities near California's major ports and shipping lanes;

3. While regulatory authority exists to control diesel exhaust PM, PM, NOx, SOx and other air pollutants to the outer boundaries of the California Coastal Waters, based on existing information, it is appropriate to limit the applicability of the proposed regulation to the Regulated California Waters. This will result in a reasonable balance of achieving the greatest amount of emission reductions and the highest degree of protection of human health and the environment while minimizing the costs of the proposed regulation;

4. Upon implementation, the regulation approved herein would immediately and dramatically reduce emissions of diesel exhaust PM, PM, NOx, and SOx from ocean-going vessels operating within Regulated California Waters;

5. The regulation approved herein is consistent with and meets all requirements of the low sulfur fuel provisions for ocean-going vessels specified in the Goods Movement Emission Reduction Plan; and

6. The regulation approved herein will be consistent with ARB's environmental justice policy by reducing the health risks from diesel exhaust PM in all communities near major California ports and shipping lanes, including those with low-income and minority populations regardless of location;

WHEREAS, the Board further finds, based on its independent judgment and analysis of the entire record before it, including the Staff Report, written comments and public testimony it has received, that:

1. In accordance with Health and Safety Code section 39666(c), the regulation approved herein has been designed, in consideration of the factors specified in Health and Safety Code section 39665(b), to reduce emissions to the lowest level achievable through the application of BACT;

2. In accordance with Health and Safety Code section 43013(b), the fuel-use requirements and other operational requirements of the regulation approved herein are necessary, cost-effective, and technologically feasible;

3. Without the regulation approved herein, baseline emissions of diesel PM, PM, NOx, and SOx from ocean-going vessels within 24 nautical miles of the California coastline are expected to be 16 tons per day (TPD), 1 TPD, 182 TPD, and 134 TPD, respectively, in 2010, and 22 TPD, 2 TPD, 256 TPD, and 187 TPD, respectively, in 2020;

4. The regulation approved herein would reduce emissions of diesel PM and PM collectively, NOx, and SOx by about 13 TPD, 10 TPD, and 109 TPD, respectively in 2010, and by about 20 TPD, 15 TPD, and 178 TPD, respectively in 2020;

5. The reduction of NOx and SOx emissions resulting from the regulation approved herein would also reduce the formation of secondarily-formed PM in the atmosphere;

6. The reduction in ambient PM levels due to reductions in directly emitted diesel PM and PM resulting from the regulation approved herein will likely prevent an estimated 1,650 premature deaths between 2009 and 2015, with a total valuation of approximately $15 billion pursuant to U.S. EPA methodology. In addition, the reduction in ambient sulfate PM levels due to reductions in SOx emissions resulting from the regulation approved herein will likely prevent an estimated 1,920 premature deaths between 2009 and 2015, with a total valuation of approximately $18 billion pursuant to U.S. EPA methodology;

7. The added costs of the regulation approved herein have been analyzed as required by California law, and the analysis of these impacts, as set forth in the Staff Report, indicates that a typical company operating ocean-going vessels will incur added annual fuel costs ranging from about $272,000 (with implementation mid-year in 2009), to $692,000 in 2014; most companies will not need to modify their vessels to comply with the regulation approved herein, but for the small minority of vessels that

require essential modifications to comply, an exemption from the fuel sulfur requirements is provided;

8. The staff's economic impacts analysis shows that affected businesses will be able to absorb the costs of the proposed regulation with no significant statewide adverse impacts on their profitability, based on the projected change in return on owner's equity (ROE), which ranged from a decrease of 0.24 percent to a 3.86 percent decrease in ROE, depending on the industry segment affected;

9. The staff estimates the cost-effectiveness of the regulation approved herein at about $32 per pound of PM (both diesel exhaust PM and non-diesel PM) reduced, which is within the range of other measures recently adopted by the Board;

10. No alternatives considered or that have otherwise been identified and brought to the attention of ARB would be more effective at carrying out the purpose for which the regulation is proposed, or be as effective, and less burdensome, to the affected businesses than the regulation approved herein;

11. The reporting requirements applicable to businesses in the regulation approved herein are necessary for the health, safety, and welfare of the people of the State;

12. The benefits of the regulation approved herein to public health and welfare and the environment substantially outweigh the costs of compliance, implementation, and enforcement; and

13. The regulation approved herein poses a minimal risk of innocent noncompliance; does not affect ocean-going vessel operations outside Regulated California Waters within which California is properly asserting regulatory jurisdiction; does not require adjustment of systemic aspects of the regulated vessels; and does not impose a substantial burden on vessel operations within the regulated waters;

WHEREAS, the Board further finds, in accordance with Health and Safety Code section 39650(e), that while absolute and undisputed scientific evidence may not be available to determine the exact risk from diesel exhaust PM from ocean-going vessels operating within Regulated California Waters, it is necessary to take action to protect public health and that the maximum feasible emission reductions permitted by law should be obtained;

WHEREAS, pursuant to the requirements of CEQA and the Board's regulations, ARB staff has prepared an environmental analysis of the proposed regulation;

WHEREAS, based on staff's environmental analysis and the best currently available evidence, the Board finds that:

1. No significant adverse environmental impacts should occur from the proposed regulation, with the exception that there may be a small increase in emissions of

carbon dioxide (CO_2), a greenhouse gas (GHG), at refineries producing marine distillate fuel needed for ocean-going vessels subject to the regulation;

2. Due to the higher energy content of the low-sulfur distillate fuels required by the regulation, there should be a local reduction in fuel consumption and associated CO_2 emissions reduction in Regulated California Waters;

3. Overall, there should be approximately a one to two percent increase in the net fuel-cycle CO_2 emissions (which includes the emissions from feedstock extraction, processing at refineries, fuel distribution, and fuel consumption), or an increase of up to 50,000 metric tons of CO_2 per year due to the regulation. ARB staff believes this may be an overestimation, as it does not account for any improvements in energy efficiency and refining advancements that refiners can make to minimize CO_2 increases;

4. The CO_2 emissions increase of up to 50,000 metric tons per year described above is extremely small compared to global CO_2 emissions on the order of billions of metric tons of CO_2 per year, but they nevertheless could constitute a significant adverse environmental impact;
5. The proposed regulation is necessary in order to protect public health by reducing diesel PM and other emissions from ocean-going vessels operating in Regulated California Waters;

6. The considerations identified above override any adverse environmental impacts that may occur from an increase in CO_2 from ocean-going vessels operating in Regulated California Waters; and

7. There are no feasible mitigation measures or alternatives that would reduce the potential adverse impacts of the proposed amendments, while at the same time ensuring that the positive environmental impacts (i.e., reductions in diesel PM, PM, NOx, SOx, and other pollutants and concomitant reductions in adverse health effects) would be achieved.

WHEREAS, the U.S. Department of the Navy (Navy) has raised concerns that the proposed regulation, in combination with possible future actions that may require vessel speed reduction in the Santa Barbara Channel, could cause ships to avoid the Santa Barbara Channel and instead take a longer route through the Navy's Point Mugu Sea Range (Sea Range);

WHEREAS, the Navy believes that naval operations would be disrupted if more ships traverse the Sea Range and, because of the longer route and because the proposed ARB regulation would not require ships to use cleaner burning fuel while traversing the Sea Range, increased ship emissions may occur that would result that in adverse air quality impacts;

WHEREAS, to fully address the Navy's concerns it is appropriate to conduct a supplemental environmental analysis to better evaluate the possibility that more vessels may avoid the Santa Barbara Channel and take the longer route through the Sea Range and, if so, whether this would result in significant adverse environmental impacts;

NOW, THEREFORE, BE IT RESOLVED that, subject to further environmental analysis, the Board is initiating steps toward the adoption of new section 2299.2 of chapter 5.1 of division 3, title 13, CCR, and new section 93118.2 of subchapter 7.5, chapter 1, division 3, title 17, CCR, as set forth in Attachment A hereto, with the modifications shown in Attachment B hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to modify the regulatory language to provide that if new international vessel fuel standards are adopted by the International Maritime Organization and implemented along the California coast, the requirements of the regulation may be suspended without further action by the Board if the Executive Officer determines the international standards will provide reductions in air pollutants from ocean-going vessels that are equivalent to those provided by the regulation.

BE IT FURTHER RESOLVED that, pursuant to the requirements of CEQA and Board regulations, the Board directs the Executive Officer to conduct a supplemental environmental analysis to evaluate the possibility that more vessels may avoid the Santa Barbara Channel and take a longer route through the Sea Range and, if so, whether this may result in adverse environmental impacts;

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to make available for public comment, for a period of at least 15 days, the supplemental environmental analysis and the modified regulatory language set forth in Attachment B hereto, with such additional conforming modifications as may be appropriate.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to consider all relevant comments submitted during the comment period, incorporate into the amendments any additional modifications he determines to be appropriate, and bring any proposed changes to the Board for further consideration if the Executive Officer determines that this is warranted.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to consider all relevant comments received on the supplemental environmental analysis; make appropriate findings pursuant to CEQA; adopt a Statement of Overriding Considerations, if appropriate; and return to the Board for further direction if the Executive Officer determines that this is warranted based on the results of the supplemental environmental analysis and the comments received.

BE IT FURTHER RESOLVED that the Executive Officer shall then take appropriate final action to adopt the proposed regulation, as modified, after preparing a written response to all comments received that have raised significant environmental issues, and assuring that all feasible mitigation measures or feasible alternatives available that would substantially reduce any significant adverse environmental impacts have been incorporated into the final action.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with the United States Navy, the California Ocean Protection Council, and other stakeholders over the next six months to address their concerns regarding the impacts of commercial shipping, environmental initiatives and coastal management activities on the operation of the Point Mugu Sea Range

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to periodically review the test methods ("test methods") and the California baseline ("baseline") as shown in nautical charts published by the National Oceanic and Atmospheric Administration ("NOAA charts") to determine if modifications to the test methods or definition of baseline incorporated by reference in the regulation adopted herein are warranted.

BE IT FURTHER RESOLVED that, pursuant to sections 39515, 39516, 39600, and 39601 of the Health and Safety Code, if modifications to the test methods or definition of baseline are warranted, the Board expressly delegates to the Executive Officer the authority to: (a) adopt regulatory amendments to the test methods, set forth in section 2299.2(i), title 13, CCR and section 93118.2(i), title 17, CCR, and to the definition of baseline, set forth in section 2299.2(d), title 13, CCR, and section 93118(d), title 17, CCR; (b) conduct public hearings; and (c) take other appropriate actions to make such amendments.

BE IT FURTHER RESOLVED that the Board hereby urges the local air districts to support a single statewide regulation for fuels used on ocean-going vessels.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to enforce the approved regulation on a statewide basis, precluding the need for enforcement by individual districts and ensuring uniform implementation of the regulation.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to conduct outreach efforts as soon as possible with the affected industry to ensure that vessel owners and operators, including operators of foreign-flagged vessels, are aware of the requirements of the regulation before they travel to California ports.

BE IT FURTHER RESOLVED that the Board directs the staff to monitor the implementation of the regulation and to propose amendments to the regulation for the Board's consideration when warranted to resolve any implementation issues that may arise.

BE IT FURTHER RESOLVED that the Board hereby determines, in accordance with section 209(e)(2) of the federal Clean Air Act (CAA), that to the extent the regulation approved herein affects nonroad engines as defined in CAA section 216(10) and (11), the low sulfur fuel requirements and other operational controls related to the control of emissions adopted as part of the regulation are, in the aggregate, at least as protective of public health and welfare as applicable federal standards, that California needs the adopted requirements to meet compelling and extraordinary conditions, and that the adopted requirements and accompanying provisions are consistent with the provisions of section 209.

BE IT FURTHER RESOLVED that the Board has determined that authorization is not required under section 209(e) of the federal Clean Air Act to enforce the regulation's low sulfur fuel-use requirements and other operational requirements, but if the Executive Officer determines that such authorization is necessary, the Board directs the Executive Officer to file a request for authorization from U.S. EPA pursuant to the determination set forth above and pursuant to section 209(e)(2) of the federal Clean Air Act.

I hereby certify that the above is a true and correct copy of Resolution 08-35, as adopted by the Air Resources Board.

Monica Vejar

Monica Vejar, Clerk of the Board

Resolution 08-35

July 24, 2008

Identification of Attachment to the Resolution

Attachment A:	The Proposed Regulation and Airborne Toxic Control Measure for Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline (released June 2008).
Attachment B:	Staff's Suggested Modifications to the Original Proposal, presented at the July 24, 2008 Board hearing.