UPDATED INFORMATIVE DIGEST

REGULATIONS FOR FUEL SULFUR AND OTHER OPERATIONAL REQUIREMENTS FOR OCEAN-GOING VESSELS WITHIN CALIFORNIA WATERS AND 24 NAUTICAL MILES OF THE CALIFORNIA BASELINE

Sections Affected

Adoption of new section 2299.2, title 13, California Code of Regulations (CCR) and new section 93118.2, title 17, CCR (collectively "regulations"). The following documents are incorporated in the regulations by reference: (1) International Standard ISO 8217, "Specifications of Marine Fuels Requirements for Marine Residual Fuels," (as revised in 2005); (2) International Standard ISO 8754, "Determination of Sulfur Content -- Energy-dispersive X-ray Fluorescence Method," (as adopted in 2003); (3) ASTM Designation E 29-93a, "Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications" (published May 1993); and (4) the following National Oceanic and Atmospheric Administration (NOAA) Nautical Charts, as authored by the NOAA Office of Coast Survey: (A) Chart 18600, Trinidad Head to Cape Blanco (January 2002), (B) Chart 18620, Point Arena to Trinidad Head (June 2002), (C) Chart 18640, San Francisco to Point Arena (August 2005), (D) Chart 18680, Point Sur to San Francisco (June 2005), (E) Chart 18700, Point Conception to Point Sur (July 2003), (F) Chart 18720, Point Dume to Purisima Point (August 2008), and (G) Chart 18740, San Diego to Santa Rosa Island (April 2005).

Background

Emissions from ocean-going vessels are significant sources of air pollution and have an adverse impact on public health and air quality. Ocean-going vessels are responsible for approximately 20 percent of the statewide goods-movement related diesel PM emissions and about 12 percent of the statewide NOx emissions.[1] Ocean-going vessels also contribute significantly to community health risks. Recent ARB studies at the Ports of Los Angeles and Long Beach and in the West Oakland community found that of the port-related emissions, ships are responsible for over half of the increased population-weighted cancer risks in nearby communities. Since 2004, the ARB has adopted several regulations to address emissions from marine vessels, which include cleaner fuels and emission standards for commercial harbor craft, lower-sulfur fuels in ocean-going ship auxiliary diesel engines, and further restrictions for using auxiliary diesel engines on commercial vessels while docked at a California port.[2] However, significant opportunities exist to further reduce emissions from ocean-going vessels.

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[1] 2005 ARB Goods Movement Emissions Inventory

[2] ARB's fuel standards for harbor craft are codified at title 13, CCR, section 2299. ARB's operational requirements for ships berthed at dock are now codified at title 13, CCR, section 2299.3 and title 17, CCR, section 93118.3. ARB's fuel standards and other requirements for diesel auxiliary and diesel-electric engines on ocean-going vessels are codified at title 13, CCR, section 2299.1 and title 17, CCR, section 93118, which were later declared to be emission standards, as drafted, and preempted without federal authorization under Clean Air Act section 209(e). *Pacific Merchant Shipping Ass'n v. James*

Control of Criteria Air Pollutants

Health and Safety Code (H&S) sections 43013 and 43018 direct ARB to adopt standards and regulations that the Board has found to be necessary, cost-effective, and technologically feasible for various mobile source categories, including off-road diesel engines and equipment such as marine vessels, through the setting of emission control requirements. Specifically, H&S section 43013(b) directs ARB to adopt such standards and regulations for marine vessels to the extent permitted by federal law.

Control of Toxic Air Contaminants

The California Toxic Air Contaminant Identification and Control Program (Air Toxics Program), established under California law by Assembly Bill 1807 (Stats. 1983, ch. 1047) and set forth in H&S sections 39650 through 39675, requires ARB to identify and control air toxics in California. The identification phase of the Air Toxics Program requires ARB, with participation of other state agencies such as the Office of Environmental Health Hazard Assessment, to evaluate the health impacts of, and exposure to substances, and to identify those substances that pose the greatest health threat as toxic air contaminants (TACs). ARB's evaluation is made available to the public and is formally reviewed by the Scientific Review Panel (SRP) established under H&S section 39670. Following ARB's evaluation and the SRP's review, the Board may formally identify a TAC at a public hearing. Following identification, H&S sections 39658, 39665, and 39666 require ARB, with participation of the air pollution control and air quality management districts (districts), and in consultation with affected sources and interested parties, to prepare a report on the need and appropriate degree of regulation for that substance (a "needs assessment") and to adopt airborne toxic control measures (ATCMs).

In 1998, the Board identified diesel PM as a TAC with no Board-specified threshold exposure level. A needs assessment for diesel PM was conducted between 1998 and 2000, which resulted in ARB staff developing and the Board approving a Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (Diesel RRP) in 2000. The Diesel RRP presented information that identified the available options for reducing diesel PM and recommended control measures to achieve further reductions. The scope of the Diesel RRP was broad, addressing all categories of engines, both mobile and stationary, and included control measures for off-road diesel engines, such as those covered by the regulation. The ultimate goal of the Diesel RRP is to reduce California's diesel PM emissions and associated cancer risks 85 percent from 2000 baseline levels by 2020. The regulations would reduce diesel PM emissions and the local health impacts from main engines, auxiliary diesel and diesel-electric engines, and auxiliary boilers aboard ocean-going ships while operating in Regulated California Waters and would assist the Board with meeting the 2020 Diesel RRP goal.

Goldstene (9th Cir. 2008), 517 F.3d 1108. The regulatory action applies a non-preempted operational fuel requirements to these auxiliary and diesel-electric engines.

Attainment of Ambient Air Quality Standards

The federal Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (U.S. EPA) to establish National Ambient Air Quality Standards (national standards) for pollutants considered harmful to public health, including fine particulate matter (PM2.5) and ozone. Set to protect public health, the national standards are adopted based on a review of health studies by experts and a public process. Ambient PM2.5 is associated with premature mortality, aggravation of respiratory and cardiovascular disease, asthma exacerbation, chronic and acute bronchitis and reductions in lung function. Ozone is a powerful oxidant. Exposure to ozone can result in reduced lung function, increased respiratory symptoms, increased airway hyper-reactivity, and increased airway inflammation. Exposure to ozone is also associated with premature death, hospitalization for cardiopulmonary causes, and emergency room visits for asthma.

Areas in the State that exceed the national standards are required by federal law to develop State Implementation Plans (SIPs) describing how they will attain the standards by certain deadlines. Diesel PM and PM emission reductions are needed because they contribute to ambient concentrations of PM2.5; NOx emission reductions are needed because NOx leads to formation in the atmosphere of both ozone and PM2.5; and SOx emission reductions are needed because SOx leads to the formation in the atmosphere of PM2.5. At this time, the South Coast Air Basin is required to attain the PM2.5 standard by 2015. U.S. EPA further requires that all necessary emission reductions be achieved one calendar year sooner – by 2014 – in recognition of the annual average form of the standard.

The ARB has adopted revisions to the South Coast ozone and PM2.5 SIPs and has submitted the SIPs to the U.S. EPA. Air quality modeling indicates that significant reductions in diesel PM, PM, NOx and SOx are needed to meet the PM2.5 standards. The strategy to achieve attainment of the PM2.5 standards in the South Coast Air Basin includes a 68 percent reduction in SOx emissions, a 55 percent reduction in NOx emissions, and a 15 percent reduction in direct PM2.5 emissions from 2006 baseline levels. The diesel PM, PM, NOx, and SOx, emission reductions from the regulations will play an essential role in assisting the South Coast Air Basin with meeting its 2014 PM2.5 deadline as well as its future ozone deadlines.

As part of the submittal, ARB has also requested from U.S. EPA a reclassification of the South Coast Air Basin to “extreme” nonattainment for ozone, which will give the Basin until 2023 to attain the federal ozone standard. Air quality modeling indicated that by 2023, NOx emissions will need to be reduced by almost 90 percent – to 12 percent of the 2006 levels – to meet the current national 8-hour ozone standard.

The federal CAA permits states to adopt more protective air quality standards if needed, and California has set standards for particulate matter and ozone that are more protective of public health than respective federal standards. The Bay Area, South Coast, and San Diego areas are nonattainment for the State standards for ozone and PM2.5. Health and Safety Code section 40911 requires the local air districts to submit

plans to the Board for attaining the State ambient air quality standards, and H&S section 40924 requires triennial updates of those plans. The NOx, SOx, and PM2.5 emission reductions from the regulations will assist the districts in achieving attainment of the State ambient air quality standards.

ARB conducted a supplemental environmental analysis to determine the air quality impacts and other environmental effects of the regulation in the event a large number of shippers quit using shipping lanes in the Santa Barbara Channel and used routes farther southwest to avoid the fuel use requirements. ARB found that wide-spread use of such an "avoidance strategy" would result in small increases in NOx and HC emissions from ships, slightly higher ozone levels in some areas of Southern California, and increases in carbon dioxide emissions. But ARB does not believe many shippers will use an avoidance strategy, and has concluded that even if such a strategy is used by all shippers, the regulations will result in significant reductions in onshore PM2.5 levels and a reduction in ozone in some areas, and these benefits clearly override the slight disbenefits if implementation of the regulation results in extensive use of an avoidance strategy.

Control of Emissions from Goods Movement-related Activities

In April 2006, the Board approved the Emission Reduction Plan for the Ports and Goods Movement in California (GMERP). The GMERP identifies strategies for reducing emissions created from the movement of goods through California ports and into other regions of the State. The GMERP is part of the broader Goods Movement Action Plan (GMAP) being jointly carried out by the California Environmental Protection Agency and the Business, Transportation, and Housing Agency. Phase I of the GMAP was released in September 2005 and highlighted the air pollution impacts of goods movement and the urgent need to mitigate localized health risk in affected communities. The final GMAP was released in January 2007 and includes a framework that identifies the key contributors to goods movement-related emissions.

The GMERP identifies numerous strategies for reducing emissions from all significant emission sources involved in goods movement, including ocean-going vessels, commercial harbor craft, cargo handling equipment, locomotives, and trucks. The GMERP identifies several strategies for reducing emissions from ships, including the use of low sulfur fuels in ocean-going vessels. The regulations represent a significant step toward satisfying the GMERP goals by establishing fuel sulfur content limits for auxiliary diesel and diesel-electric engines, main engines, and auxiliary boilers beginning in 2009, with even lower sulfur content limits being required in 2012.

Authority

The ARB used its authority under California law to adopt the regulations. Health and Safety Code sections 43013(b) and 43018 provide broad authority for ARB to adopt emission standards and other regulations to reduce emissions from new and in-use vehicular, nonvehicular and other mobile sources. Under H&S sections 43013(b) and

43018, ARB is directly authorized to adopt emission standards and other regulations for marine vessels, as expeditiously as possible and to the extent permitted by federal law, to meet State ambient air quality standards. The ARB is further mandated by California law under H&S section 39666 to adopt ATCMs for new and in-use nonvehicular sources, including marine vessels such as ocean-going vessels, for identified TACs such as diesel PM.

Emission Reductions and Public Health Benefits Projected

These regulations will significantly reduce emissions of diesel PM, PM, NOx, and SOx from ocean-going vessel auxiliary diesel and diesel electric engines, main engines, and auxiliary boilers. These diesel PM emission reductions are needed to reduce cancer risk, premature mortality, and other adverse impacts from exposure to this TAC. The regulations will help achieve the 2020 goal set forth in the 2000 Diesel RRP of reducing diesel PM by 85 percent from 2000 baseline levels and the 2015 and 2020 goals of the GMERP.

Reductions in diesel PM, PM, NOx (which forms "secondary" nitrate PM in the atmosphere), and SOx (which forms "secondary" sulfate PM in the atmosphere) will also contribute to regional PM reductions that will assist in California's progress toward achieving State and federal air quality standards. Reductions in NOx, an ingredient in the formation of ozone pollution, will help reduce regional ozone levels. In 2010, the regulations are expected to reduce diesel PM and PM emissions by about 13 tons per day (TPD), NOx emissions by about 10 TPD, and SOx emissions by about 110 TPD throughout California. Most of these reductions will be realized near ports, where environmental justice concerns are especially prevalent, and in coastal urban areas. Many of these coastal areas are non-attainment for the State and federal ambient air quality standards for PM10, PM2.5, and ozone.

Description of the Regulatory Action

The regulations are designed to reduce the general public's exposure to diesel PM, other toxic contaminants, and criteria air pollutants from ocean-going vessels that operate within Regulated California Waters.

Applicability

The regulations apply to any person who owns, operates, charters, rents, or leases any ocean-going vessel that operates in any of the Regulated California Waters, regardless of the country in which the vessel is flagged or registered. The Regulated California Waters include all California internal waters, all California estuarine waters, all California ports, roadsteads, and terminal facilities, and all waters within 24 nautical miles of the California baseline except for specified areas along the Southern California coastline (a more detailed description is provided in the regulations).

The regulations include language explicitly stating and clarifying that the proposal does not change or supersede any existing United States Coast Guard (USCG) regulations, and vessel owners and operators are responsible for ensuring that they meet all applicable USCG regulations, as well as the regulations.

Exemptions

The regulations include several exemptions. First, the regulations do not apply to vessel voyages that are comprised of continuous and expeditious navigation through any Regulated California Waters for the purpose of traversing such bodies of water without entering California internal or estuarine waters or calling at a port, roadstead, or terminal facility. An exemption is included for steamships whose primary propulsion and electrical power are provided by steam boilers. The regulations do not apply to vessels owned or operated by any branch of local, state, or federal government, or by a foreign government, when the vessels are operated on government non-commercial service. The regulations exclude all emergency generators, and they also exclude auxiliary engines, main engines, and auxiliary boilers while such engines are using alternative fuel in Regulated California Waters. The regulations do not apply if the vessel master reasonably and actually determines that compliance with the requirements would endanger the safety of the vessel, its crew, its cargo, or its passengers because of severe weather conditions, equipment failure, fuel contamination, or other extraordinary reasons beyond the master's reasonable control. Finally, the regulatory requirements do not apply to vessels that have been granted a temporary experimental exemption by the Executive Officer for the duration of the approved exemption.

In-Use Operational Requirements

The regulations require vessel operators to ensure that their auxiliary diesel engines and diesel-electric engines operating in Regulated California Waters operate with either marine gas oil (MGO), with a maximum of 1.5 percent sulfur by weight, or marine diesel oil (MDO), with a maximum of 0.5 percent sulfur by weight, beginning upon the effective date of the regulations as approved by the Office of Administrative Law. The regulations require vessel operators to ensure that their main engines and auxiliary boilers operating in Regulated California Waters operate with either marine gas oil (MGO), with a maximum of 1.5 percent sulfur by weight, or marine diesel oil (MDO), with a maximum of 0.5 percent sulfur by weight, beginning July 1, 2009. Beginning on January 1, 2012, vessel operators would need to ensure that their auxiliary diesel and diesel-electric engines, main engines and auxiliary boilers operating in Regulated California Waters operate with either MGO or MDO, each limited to a maximum of 0.1 percent sulfur by weight. As noted below, vessel operators would be allowed under specified circumstances to pay a noncompliance mitigation fee for a limited duration in lieu of meeting the in-use operational requirements above.

Recordkeeping

Any person subject to the regulations will be required to maintain specified records in English for a minimum of three years. These requirements minimize any impacts on vessel crews by relying on existing recordkeeping procedures to the extent possible. Additionally, the regulations require records be retained and maintained documenting fuel switch over procedures.

Reporting, Monitoring, and Right of Entry

The information required to be recorded, as specified in the regulations, would have to be supplied in writing to the Executive Officer, but only upon request. Some of the recordkeeping required by the regulations may already be recorded to comply with other regulations or standardized practices. In these cases, the information may be provided to ARB in a format consistent with these regulations or practices, as long as the required information is provided. Ship owners or operators must also supply additional information as requested that may be necessary to determine compliance with the proposed regulations. To monitor compliance with the requirements of the regulations, vessel owners or operators must provide access to the records necessary to establish compliance with the requirements of the proposal, as well as access to fuel tanks or pipes for the purpose of collecting fuel samples for testing and analysis.

Other Provisions

The regulations allow a vessel owner or operator, under restricted and specified circumstances, to pay a fee in lieu of complying with the in-use operational requirements. A vessel owner or operator using this mechanism would have to notify the Executive Officer of the vessel's noncompliance condition prior to the vessel entering Regulated California Waters. Also, the situations under which the fee provision could be used are limited to a finite set of specific circumstances, all of which must be documented (i.e., a "needs" demonstration). Further, the fee increases substantially with each subsequent port visit, which serves as an effective deterrent to continued use of the fee and an incentive to meet the in-use operational requirements as quickly as possible.

To use this option, the ship owner or operator would need to submit the required notification and mitigation fee, along with evidence demonstrating that the person meets the required conditions for participation in the program. The mitigation fees collected under this program may be deposited in the port's Noncompliance Fee Settlement and Air Quality Mitigation Fund to be used at the ports that are visited; emission reductions from marine and port related sources would be funded with these mitigation fees to benefit nearby affected communities. The fees would be disbursed pursuant to contracts entered into between the participating ports and ARB. If no such port fund exists, the fees would be deposited into the California Air Pollution Control Fund.

All or part of the fuel use requirements would be waived for vessels requiring essential modifications in order to use the specified fuel, provided certain criteria and documentation requirements are met and approved by the Executive Officer. Vessel operators would be required to use the low sulfur fuel to the maximum extent feasible without the need for essential modifications (e.g., closer to shore, in a subset of the ships engines, etc.).

Test Methods and Other Incorporated Documents

The regulations incorporate International Standard ISO 8217, as revised in 2005 by the International Organization for Standardization (ISO). This standard includes the properties necessary for a fuel to qualify as DMX or DMA grade fuel (marine gas oil), or DMB grade fuel (marine diesel oil), and specifies the test methods for determining compliance with each of these properties. The regulations also incorporate the test method (ISO 8754, as adopted in 2003) to be used for determining the sulfur level of these fuels, as well as the rounding method of ASTM Designation E 29-93a, Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications (published May 1993).

Violations

The regulations specify that any violation of the requirements or other provisions would subject the person who committed the violation to the penalties, injunctive relief, and other remedies available under Health and Safety Code section 42400 et seq., other applicable sections of the Health and Safety Code, and other applicable provisions of California law for each violation. The regulations further specify that each failure to meet a requirement, criteria, or provision of the regulations would constitute a single, separate violation for each hour that a person operates an ocean-going vessel within Regulated California Waters until the provision, criteria, or requirement has been met.

Sunset Provision

The fuel use requirements in the regulations will cease to apply if the U.S. EPA adopts and enforces International Maritime Organization or other requirements that will achieve emission reductions within the Regulated California Waters that are equivalent to the regulations. This provision recognizes that, while California is authorized to require the use of low sulfur fuel on and regulate the emissions from ocean-going vessels, it would be preferable to regulate such emissions on a national or international basis. U.S. EPA and Canada have recently applied to the IMO for creation of an emissions control area around North America where low-sulfur fuels would be required after several years; if this application is approved and implemented as proposed, the regulations' fuel use requirements might cease to apply in 2015.

Review of Baseline and Test Methods

This provision directs the Executive Officer to periodically review the California baseline determinations and conduct a public hearing to consider appropriate updates to the baseline. The definition for "Regulated California Waters" is based partly on the definition of "baseline," which generally follows the California coastline but is subject to change due to erosion and accretion. The baseline is published on official charts authored by NOAA, and as NOAA modifies the charts, the Executive Officer can determine at that time whether revisions to the regulations are necessary.

Similar to the baseline review, this provision also directs the Executive Officer to periodically review the test methods cited in the proposal and hold a public hearing to consider changes as needed.

In approving the regulations, the Board delegated to the Executive Officer responsibility for any needed future amendments to the regulations to update the baseline or to revise test methods.

Severability

These regulations both state that if any part of the regulations is held to be invalid, the remainder of the regulations shall continue to be effective.

Comparable Federal Regulations

There are no current federal regulations that are comparable to the regulations. The U.S. EPA adopted regulations – title 40, Code of Federal Regulations (CFR), parts 89 and 94 – that govern the emissions from "Category 2" (between 5 and 30 liters per cylinder displacement) and "Category 3" (at or above 30 liters per cylinder displacement) compression-ignition engines used on ocean-going vessels. While the U.S. EPA regulations apply to ocean-going vessels, they differ significantly from the regulations in several ways. First, the federal regulations apply only to new engines to be installed on vessels, and only to engines installed on U.S.-flagged vessels. By contrast, the regulations apply to in-use auxiliary diesel and diesel-electric engines, main diesel engines and auxiliary boilers on all ocean-going vessels that visit California ports, including both U.S. and foreign-flagged vessels. Further, the U.S. EPA regulation in 40 C.F.R., part 94, does not apply to the diesel PM or PM emissions from the regulated Category 3 engines, whereas the regulations place a major emphasis on the control of toxic diesel PM emissions, as well as NOx and SOx, on all auxiliary diesel engines, diesel electric engines, main diesel engines, including Category 3 engines, and auxiliary boilers. Because of these differences, the federal regulations are not comparable to the regulations. See also the discussion above under "Sunset Provision" regarding the pending application to the International Maritime Organization for creation of a North American emissions control area.