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PROPOSED CONTROL MEASURE FOR AUXILIARY DIESEL ENGINES AND DIESEL-ELECTRIC ENGINES OPERATED ON OCEANGOING VESSELS WITHIN CALIFORNIA WATERS AND 24 NAUTICAL MILES OF THE CALIFORNIA BASELINE

Adopt new Sections 2299.1, Title 13, and 93118, Title 17, California Code of Regulations (CCR) as follows:

(a) Purpose

The purpose of this control measure is to reduce emissions of diesel particulate matter (PM), nitrogen oxides, and sulfur oxides from the use of auxiliary diesel engines and diesel-electric engines operated on oceangoing vessels located within all California inland waters; all California estuarine waters; or within 24 nautical miles of the California baseline, including but not limited to, the Territorial Sea, the Contiguous Zone, and any California port, roadstead or terminal facility.

(b) Applicability

- (1) Except as provided in subsection (c), this regulation applies to any person who owns or operates an oceangoing vessel, including foreign-flagged vessels, located within the following bodies of water or parts thereof: all California inland waters; all California estuarine waters; or within 24 nautical miles of the California baseline, including but not limited to, the Territorial Sea, the Contiguous Zone, and any California port, roadstead, or terminal facility.
- (2) Nothing in this section shall be construed to amend, repeal, modify, or change in any way any applicable U.S. Coast Guard requirements. Any person who owns or operates any vessel subject to this section shall be responsible for ensuring compliance with both U.S. Coast Guard regulations and the requirements of this section, including but not limited to, obtaining any necessary approvals, exemptions, or orders from the U.S. Coast Guard.

(c) Exemptions

- (1) The requirements of this regulation do not apply to any person who owns or operates an oceangoing vessel while in innocent passage, as defined in subsection (d), through the Territorial Sea or the Contiguous Zone.
- (2) The requirements of this regulation do not apply to slow-speed two-stroke diesel engines as defined in subsection (d).
- (3) The requirements of this regulation do not apply to auxiliary engines onboard oceangoing military vessels

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(d) Definitions

For purposes of this section, the following definitions apply:

- (1) "ASTM" means ASTM International
- (2) "Auxiliary engine" means an engine on an oceangoing vessel designed primarily to provide power for uses other than propulsion, except that all diesel-electric engines shall be considered "auxiliary diesel engines" for purposes of this regulation.
- (3) "Baseline" means the mean lower low water line along the California coast, as shown on official U.S. nautical charts published by the National Oceanic and Atmospheric Administration (NOAA).
- (4) "Contiguous Zone" means the maritime zone adjacent to the territorial sea and extending to 24 nautical miles from the baseline of California, determined in accordance with international law as specified in Presidential Proclamation No. 7219 of August 2, 1999, 64 F.R. 48701 (September 8, 1999).
- (5) "Diesel Engine" means an internal combustion, compression-ignition (CI) engine with operating characteristics significantly similar to the theoretical diesel combustion cycle. The regulation of power by controlling fuel supply in lieu of a throttle is indicative of a compression ignition engine.
- (6) "Diesel Particulate Matter" means the particles found in the exhaust of diesel engines, which may agglomerate and adsorb other species to form structures of complex physical and chemical properties.
- (7) "Diesel-electric engine" means a diesel engine connected to a generator that is used as a source of electricity for propulsion or other uses.
- (8) "Emission Control Strategy" means any device, system, or strategy employed with a diesel engine that is intended to reduce emissions, including, but not limited to, utilization of shore-side electrical power, diesel oxidation catalysts, selective catalytic reduction systems, fuel additives, diesel particulate filters, alternative diesel fuels, water emulsified fuels, lower sulfur fuels, and any combination of the above.
- (9) "Estuarine Waters" means an arm of the sea or ocean that extends inland to meet the mouth of a river.
- (10) "Executive Officer" means the executive officer of the Air Resources Board, or his or her designated representative.
- (11) "Hydrocarbon (HC)" means the sum of all hydrocarbon air pollutants.

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- (12) "Inland Waterways" means any navigable river or waterway within the State of California.
- (13) "IMO" means the International Maritime Organization.
- (14) "Innocent Passage" means the continuous and expeditious navigation through Territorial Sea or the Contiguous Zone for the purpose of traversing such bodies of water without entering internal California waters or calling at a roadstead or port facility. "Innocent passage" does not include passage of an oceangoing vessel if that vessel engages in any of the prejudicial activities specified in UNCLOS 1982, Article 19, subpart 2. For the purposes of this definition, "continuous and expeditious navigation" includes stopping and anchoring only to the extent such stopping and anchoring are documented as required by the U.S. Coast Guard; rendered necessary by force majeure or distress; or made for the purpose of rendering assistance to persons, ships, or aircraft in danger or distress. Notwithstanding any Coast Guard mandated stops or stops due to force majeure or the rendering of assistance, a vessel is not in innocent passage if the vessel was otherwise scheduled or intended to enter internal California waters or call at a roadstead or port facility.
- (15) "ISO" means the International Organization for Standardization.
- (16) "Marine Diesel Oil" means any fuel that meets all the specifications for DMB grades as defined in Table I of International Standard ISO 8217, as revised in 1996.
- (17) "Marine Gas Oil" means any fuel that meets all the specifications for DMX or DMA grades as defined in Table I of International Standard ISO 8217, as revised in 1996.
- (18) "Military Vessel" means any ship, boat, watercraft, or other contrivance used for any purpose on water, and owned or operated by the armed services.
- (19) "Nitrogen Oxides (NO_x)" means compounds of nitric oxide (NO), nitrogen dioxide (NO₂), and other oxides of nitrogen, which are typically created during combustion processes and are major contributors to smog formation and acid deposition.
- (20) "Non-Methane Hydrocarbons (NMHC)" means the sum of all hydrocarbon air pollutants except methane.
- (21) "Oceangoing Vessel" means a commercial or military vessel meeting any one of the following criteria:
 - (A) a vessel with a "registry" (foreign trade) endorsement on its United States Coast Guard certificate of documentation, or a vessel that is registered under the flag of a country other than the United States;

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- (B) a vessel greater than or equal to 400 feet in length overall (LOA) as defined in 50 CFR § 679.2, as adopted June 19, 1996;
 - (C) a vessel greater than or equal to 10,000 gross tons (GT ITC) per the convention measurement (international system) as defined in 46 CFR 69.51-.61, as adopted September 12, 1989; or
 - (D) a vessel propelled by a marine compression ignition engine with a per-cylinder displacement of greater than or equal to 30 liters.
- (22) "Particulate Matter" means any airborne finely divided material, except uncombined water, which exists as a liquid or solid at standard conditions (e.g., dust, smoke, mist, fumes or smog).
- (23) "Person" means any entity, including but not limited to:
- (A) an individual, trust, firm, joint stock company, business concern, partnership, limited liability company, association, consortium, or corporation including but not limited to, a government corporation; and
 - (B) any city, county, district, commission, the state or any department, agency, or political subdivision thereof, any interstate body, and the federal government or any department or agency thereof to the extent permitted by law.
- (24) "Roadstead" means any facility, located anywhere within the bodies of water specified in subsection (b), that is used for the loading, unloading, and anchoring of ships.
- (25) "Slow Speed Engine" means an engine with a rated speed of 150 revolutions per minute or less.
- (26) "Sulfur Oxides" means compounds of sulfur dioxide (SO₂), and other oxides of sulfur, which are typically created during combustion of sulfur containing fuels.
- (27) "Territorial Sea" means means the maritime zone extending to 12 nautical miles from the California baseline, determined in accordance with international law as specified in Presidential Proclamation No. 5928 of December 27, 1988, 54 F.R. 777 (January 9, 1989).
- (28) "Two-stroke Engine" means means an internal combustion engine which operates on a two stroke cycle where the cycle of operation completes in one revolution of the crankshaft.
- (29) "Vessel" means any tugboat, tanker, freighter, passenger ship, barge, or other boat, ship, or watercraft, except those used primarily for recreation and any of the following:
- (A) A seaplane on the water;

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- (B) A watercraft specifically designed to operate on a permanently fixed course, the movement of which is restricted to a fixed track or arm to which the watercraft is attached or by which the watercraft is controlled.

(e) Requirements

(1) Cleaner Fuels

Except as provided in subsections (c), (f), and (g), no person who owns or operates an oceangoing vessel in any of the bodies of water specified in subsection (b) shall operate any auxiliary diesel engine on any fuel that does not meet the requirements specified below while the vessel is operating within those bodies of water:

(A) Beginning July 1, 2006:

- a. marine gas oil, as defined in subsection (d); or
- b. marine diesel oil, as defined in section (d), with a sulfur content of no more than 0.5 percent by weight;

(B) Beginning January 1, 2010: marine gas oil with a sulfur content of no more than 0.1 percent by weight.

(2) Recordkeeping, Reporting, and Monitoring Requirements

(A) Recordkeeping

Beginning July 1, 2006, any person who owns or operates an oceangoing vessel within any of the bodies of water specified in subsection (b) shall retain and maintain records in English that contain the following information for at least three years following the date when the records were made:

1. The date, time, and position (longitude and latitude) of the vessel for each entry into and departure from the Contiguous Zone, excluding any voyages comprised solely of innocent passage as defined in subsection (d);
2. The date, time, and position of the vessel at the initiation and completion of any fuel switching procedures used to comply with subsection (e)(1) prior to entry into any of the bodies of water specified in subsection (b);
3. The date, time, and position of the vessel at the initiation and completion of any fuel switching procedures within any of the bodies of water specified in subsection (b);
4. Completion of fuel switching procedures is the moment at which a given engine (or engines) has completely transitioned from operation on one fuel to another fuel;
5. The type of each fuel used (e.g. marine gas oil) in each auxiliary engine operated in any of the bodies of water specified in subsection (b); and

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6. Records of the types and amounts of all fuels purchased for use on the vessel, and the actual percent by weight sulfur content of such fuels as reported by the fuel supplier or a fuel testing firm.

(B) Reporting and Monitoring

1. Any person who owns or operates an oceangoing vessel within any of the bodies of water specified in subsection (b) shall provide in writing the information specified in section (e)(2)(A) to the Executive Officer upon request. To the extent that the information in section (e)(2)(A) is collected to comply with other regulatory requirements or standard practices, the information may be provided in a format consistent with these requirements or practices.
2. Any person who owns or operates an oceangoing vessel within any of the bodies of water specified in subsection (b) shall provide to the Executive Officer upon request any additional information the Executive Officer determines to be necessary to determine compliance with this rule, including, but not limited to: (i) the make, model, rated power, and serial numbers of all auxiliary engines subject to subsection (e) (1); (ii) the capacity and locations of all fuel tanks on the vessel; and (iii) piping diagrams, and specifications for mixing tanks or other fuel handling equipment applicable to auxiliary engines.
3. Any person who owns or operates any oceangoing vessels within any of the bodies of water specified in subsection (b) shall provide access to the vessel to employees or officers of the ARB for the purpose of determining compliance with this regulation, including access to and review of records required under subsection (e)(2)(A), and for the purposes of collecting fuel samples for testing and analysis.

(f) Special Provisions for Vessels Requiring Modifications

- (1) Any person who owns or operates any oceangoing vessel subject to this control measure that requires modifications to comply with the requirements of subsection (e)(1)(A), may apply for an extension of the compliance date by up to one year. The exact length of the extension may be less than one year, depending on the extent of the necessary modifications.
- (2) Written applications must be submitted to the Executive Officer no later than May 1, 2006.
- (3) The applications must provide clear and convincing evidence demonstrating that: (A) the planned modifications are necessary to enable the vessel to use fuel that complies with the requirements of subsection (e)(1)(A), and (B) the requested extension is necessary to make the planned modifications in subparagraph (A) of this paragraph.

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- (4) Applications must include, at a minimum, the following information:
- (A) The company name, address, and contact information for the person who owns or operates the vessel;
 - (B) The vessel name, country flag, and IMO identification number;
 - (C) A detailed description of the modifications necessary to comply with subsection (e)(1)(A) of the regulation;
 - (D) documentation providing estimates of the cost and time to perform the necessary modifications to the vessel;
 - (E) the length of the extension requested; and
 - (F) information necessary to estimate the excess emissions that would occur during the extension, including but not limited to the expected auxiliary engine loads, California port visits, and travel time within any of the bodies of water specified in subsection (b) during the extension.
- (5) Within 30 days of receipt of an application, or within a different period upon mutual agreement with the applicant, ARB shall notify the applicant whether the application is complete and ready for a determination on its merits by ARB. If ARB finds the application to be incomplete, ARB shall notify the applicant of the incompleteness determination and specify the information required for the application to be deemed complete.
- (6) Once an application is deemed complete, ARB shall notify the applicant in writing whether their applications is approved or denied within 60 days of the day the application was deemed complete, or within a different period upon mutual agreement with the applicant.

Note: We are considering an option under which a vessel owner/operator would be provided with an option to pay a mitigation fee for a vessel in lieu of the requirements of this control measure in certain limited circumstances. The mitigation fees would be used to reduce emissions from port related operations. Some draft conceptual language is provided below:

Mitigation Fee Option

- 1) *Vessel owner/operators visiting California ports may elect to pay a mitigation fee per the schedule below for a vessel in lieu of meeting the requirements of this control measure under one of the following circumstances:*
- A) *Vessel operator was unexpectedly redirected to a California port and the vessel does not have a sufficient quantity of fuel complying with subsection (e)(1);*
 - B) *Due to reasons beyond the ship operators control, the vessel was not able to acquire a sufficient quantity of fuel to comply with subsection (e)(1) at the last bunkering port prior to a California port call;*

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- C) *Due to reasons beyond the ship operators control, fuel necessary to comply with subsection (e)(1) was found to be contaminated or out of compliance after leaving the last bunkering port prior to a California port call;*
- D) *Vessel requires retrofits to use fuel complying with subsection (e)(1) and will make no more than one visit to a California port per calendar year; or*
- E) *Note: We are continuing to investigate the need to include a provision that would identify situations where a fuel transition would not be recommended due to safety considerations not already addressed in section (b)(2) of this proposed control measure*

2) Mitigation Fee Schedule

Port Visits*	Mitigation Fee
1	To Be Determined (TBD)
2	TBD x 2
3	TBD x 3
4	Not available

* California port visits per vessel at each port since July 1, 2006 (i.e. a given vessel may pay a mitigation fee in lieu of compliance up to three times at each California port visited since the effective date of the fuel requirements in the proposed control measure.)

(g) Alternative Compliance Plan (ACP)

(1) Requirements

- (A) Owners or operators of an oceangoing ship may elect to be subject to the requirements of this subsection (g) in lieu of the requirements of subsection (e)(1), "Cleaner Fuels." Under this subsection (g), alternative emission control strategies can be implemented in lieu of subsection (e)(1) as long as they achieve equivalent or greater reductions in both NOx and PM emissions from auxiliary engines over the applicable calendar year, relative to the emission reductions that would have occurred under subsection (e)(1).
- (B) An owner or operator must submit an application which demonstrates that the alternative emission control strategies under the proposed ACP will meet the requirements of subsection (g)(1)(A).
- (C) Alternative emission control strategies may include, but are not limited to:
 - 1. utilization of shore-side electrical power in lieu of onboard generators,
 - 2. auxiliary engine modifications,
 - 3. exhaust treatment control,
 - 4. use of alternative fuels or fuel additives, and
 - 5. operational controls.

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- (D) The application demonstrating compliance under the ACP must contain, at a minimum, the following information:
1. the company name, address, and contact information
 2. the vessel name, country flag, and IMO identification number
 3. The engine/s subject to the ACP, make, model and serial numbers
 4. documentation, calculations, emissions test data, or other information that establishes both the NO_x and PM emission reductions from auxiliary engines will be equivalent to or greater than the emission reductions achieved with compliance with subsection (e)(1).
 5. information on California port visits expected, and potential oversea routes to and from these ports
 6. methods for verifying continuing compliance with the proposed ACP, including recordkeeping and testing procedures, as necessary.
- (E) Emission reduction calculations demonstrating equivalence with the requirements of subsection (e)(1) shall only include NO_x and PM emissions from auxiliary engines within any of the locations specified in subsection (b).
- (F) For the purposes of demonstrating equivalent emission reductions with the requirement of subsection (e)(1), vessels that utilize shore-side power in lieu of their auxiliary diesel engines while at dockside shall be considered to meet the emission reduction requirements of the ACP during: (1) all travel from a previous port to the California port terminal where shore-side power is utilized; (2) time spent secured at the California port terminal where shore-side power is utilized; and (3) travel from the port where shore-side power is utilized until the vessel is secured at the next port terminal. For the purposes of this subsection (g)(1)(G), “utilizing shore-side power” means connecting to electricity supplied by a utility company and shutting down all auxiliary engines subject to this control measure no later than one hour after the vessel is secured at the port terminal, and continuously thereafter until no more than one hour prior to when the vessel leaves the terminal. [Note: For cases where two California ports are visited in succession and a vessel does not utilize shore-side power at the second port visited, the vessel shall not be considered to meet the emission reduction requirements of the ACP upon mooring at the second port, and subsequent travel from this port. For cases where two California ports are visited in succession and a vessel does not utilize shore-side power at the first port visited, the vessel shall not be considered to meet the requirements of the ACP during travel to this first port or during the time the vessel is moored at the first port. Travel from the first to second port where shore-side power is utilized, shall meet the emission reduction requirements of the ACP.]
- (G) An owner or operator complying under an approved ACP shall maintain operating records in a manner and form consistent with determining compliance with the ACP as determined and specified by the Executive Officer in the approved ACP. Required records may include, but are not limited to, information on fuel usage, routes, port calls, maintenance procedures, and emissions test results. Such records and reports shall be retained for a period of not less than

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three (3) years and shall be submitted to the Executive Officer in the manner specified in the approved ACP and upon request by the Executive Officer.

- (H) No ACP to reduce NOx and PM emissions shall result in an increase in hydrocarbons other air contaminants that may result in adverse health impacts relative to the baseline emissions prior to the implementation on this control measure.
- (I) Emission reductions included in an ACP must not be required by any local, state, federal or international rule, regulation, or statute.
- (J) Compliance under an ACP shall be valid only after the applicant has been notified in writing by ARB that their application has been approved. Prior to approval, applicants must comply with the provisions of subsection (e).

(2) Application Process

- (A) Applications for compliance under an ACP shall be submitted to the Executive Officer for evaluation.
- (B) The ARB shall notify the applicant in writing whether their application is approved or denied within 90 days of submittal.
- (C) Additional information may be provided by the applicant after submittal of the original application. However, the ARB shall have 90 days after submittal of the additional information to notify the applicant of approval or denial of the ACP.
- (D) The owner or operator of a vessel subject to the ACP, shall notify the ARB in writing within 30 days if they learn of any information which would alter the emissions estimates submitted in their application. If the ARB believes that an ACP has been granted to an owner or operator of a vessel that no longer meets the criteria for an ACP, the ARB may modify or revoke an ACP as necessary to assure that the vessel will meet the emission reduction criteria.

(h) Test Methods

The following test methods, or alternative test method demonstrated to be equally accurate as approved by the Executive Officer, shall be used to determine compliance with this rule:

- (A) Test methods used to determine whether fuels meets the requirements of marine gas oil (DMA or DMX) or marine diesel oil (DMB) as specified in section (e)(1) of this rule shall be the methods specified in International Standard ISO 8217, as adopted in 1996, or the applicable equivalent ASTM standards.
- (B) The sulfur content of fuels shall be determined per ISO 8754, as adopted in 1992, or the applicable equivalent ASTM standards.

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(i) Sunset and Technology Review Provision

- (A) If the Executive Officer determines that the International Maritime Organization or the United States Environmental Protection Agency have adopted regulations that will achieve equivalent or greater emission reductions from oceangoing vessels in California compared to the emission reductions resulting from this regulation, then the Executive Officer shall hold a public hearing to consider terminating the requirements of this rule.
- (B) On or before July 1, 2008, the Executive Officer shall evaluate the feasibility of the 0.1 percent sulfur limit specified in subsection (e)(1)(B). The evaluation shall consider, but not be limited to: (1) the availability of 0.1 percent sulfur marine gas oil at bunkering ports worldwide; (2) the ability of petroleum refiners and marine fuel suppliers to deliver 0.1 percent sulfur fuel by the January 1, 2010 implementation date; (3) fuel lubricity and compatibility with heavy fuel oil occurring during fuel transitions; and (4) the additional cost of 0.1 percent sulfur fuel compared to marine gas oil with no sulfur limit.
- (C) If, pursuant to paragraph (B) of this subsection, the Executive Officer determines that modifications to subsection (e)(1)(B) are necessary, the Executive Officer shall propose changes to the Board prior to January 1, 2009.

(j) Severability

Each part of this section shall be deemed severable, and in the event that any part of this section is held to be invalid, the remainder of this section shall continue in full force and effect.