

DRAFT PROPOSAL FOR DISCUSSION ONLY AT NOVEMBER 10, 2004 PUBLIC WORKSHOP

PROPOSED MEASURE FOR AUXILIARY DIESEL ENGINES OPERATED ON OCEANGOING SHIPS IN CALIFORNIA COASTAL WATERS

(a) Purpose

The purpose of this control measure is to reduce emissions of diesel particulate matter (PM), nitrogen oxides (NO_x), and other air pollutants resulting from the use of auxiliary diesel engines operated on oceangoing ships located within California Coastal Waters, California inland waters, California estuarine waters, or at a California port or terminal facility.

(b) Applicability

Except as provided in section (c), this regulation applies to any person who owns or operates an oceangoing vessel, including foreign-flagged vessels, in California Coastal Waters, at a California port or terminal facility, in California inland waters, or in California estuarine waters.

(c) Exemptions

- (1) The requirements of this regulation do not apply to any person who owns or operates an oceangoing vessel that is involved in innocent passage in California Coastal Waters. For the purposes of this section, "innocent passage" is passage through California Coastal Waters: (1) without stopping at a California port or terminal facility; (2) without discharging or accepting passengers, cargo, or fuel to or from a California port or terminal facility by any means, including another marine vessel; or (3) with a stop at a port or terminal facility due solely to a documented fire, medical emergency, inclement weather conditions, or for other reasons not involving trade or commerce in any way.
- (2) *[Other exemptions may be identified through the public regulatory development process]*

(d) Definitions

For purposes of this section, the following definitions apply:

- (1) "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.

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- (2) "California Coastal Waters" means that area between the California Coastline and a line starting at the California-Oregon border at the Pacific Ocean

thence to 42.0°N 125.5°W
thence to 41.0°N 125.5°W
thence to 40.0°N 125.5°W
thence to 39.0°N 125.0°W
thence to 38.0°N 124.5°W
thence to 37.0°N 123.5°W
thence to 36.0°N 122.5°W
thence to 35.0°N 121.5°W
thence to 34.0°N 120.5°W
thence to 33.0°N 119.5°W
thence to 32.5°N 118.5°W

and ending at the California-Mexico border at the Pacific Ocean.

- (3) "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.
- (4) "Diesel-electric engine" means a diesel engine connected to a generator that is used as a source of electricity for propulsion or other uses.
- (5) "Diesel Particulate Matter (PM)" means the particles found in the exhaust of diesel engines.
- (6) "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 used in combination with particulate filters, alternative diesel fuels, water emulsified fuels, lower sulfur fuels, and any combination of the above.
- (7) "Estuarine Waters" means an arm of the sea or ocean that extends inland to meet the mouth of a river.
- (8) "Executive Officer" means the executive officer of the Air Resources Board, or his or her designated representative.
- (9) "Frequent Visitor" means an oceangoing vessel that stops at California ports or terminal facilities five or more times in a single calendar year.
- (10) "Hydrocarbon (HC)" means the sum of all hydrocarbon air pollutants.

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- (11) "Inland Waterways" means any navigable river or waterway within the State of California.
- (12) "Marine Gas Oil" means any fuel that meets the specifications for DMX or DMA grades as defined in Table I of ISO 8217.
- (13) "Oceangoing Vessel" means a commercial or military vessel meeting one or more 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;
 - (B) a vessel greater than 400 feet in length overall (LOA) as defined in 50 CFR § 679.2, as adopted June 19, 1996;
 - (C) a vessel greater than 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.
- (14) "Nitrogen Oxides (NOx)" 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.
- (15) "Non-Methane Hydrocarbons (NMHC)" means the sum of all hydrocarbon air pollutants except methane.
- (16) "Owner or Operator" means any person subject to the requirements of this regulation, including but not limited to:
- (A) an individual, trust, firm, joint stock company, business concern, partnership, limited liability company, association, 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.

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(e) Requirements

(1) Cleaner Fuels

Except as provided in sections (c) and (f), no person shall own or operate an auxiliary diesel engine on any oceangoing vessel operating at a California port or terminal facility; anywhere within California Coastal Waters; any California estuarine waters; or any California inland waterways within California unless the engine operates on the fuels specified below:

- (A) Beginning January 1, 2006, marine gas oil with a sulfur content of no more than 0.2 percent by weight;
- (B) Beginning January 1, 2008, marine gas oil with a sulfur content of no more than 0.1 percent by weight.

(2) Additional Requirements for Frequent Visitors

Beginning January 1, 2008, owners or operators of any oceangoing vessel that visits California ports or terminal facilities five or more times in any calendar year, shall be considered a "frequent visitor," and must submit and implement a "Vessel Emission Reduction Plan" (VERP) subject to the requirements of section (g), that will reduce both NO_x and PM emissions from the ship's auxiliary engines by an additional 50 percent by weight from beyond the levels resulting from compliance with section (e) (1) above while operating in any of the locations and areas specified in section (b), "Applicability."

[Note: We will continue evaluate the feasibility of the emission reduction targets under section (e)(2), taking into consideration the results of the ARB's cold-ironing feasibility study, and additional information provided by the affected industry .]

(f) Alternative Compliance Plan (ACP)

[The purpose of this provision is to provide owners and operators of oceangoing ships with a alternative method to comply with section (e)(1), "Cleaner Fuels"]

(1) Requirements

- (A) Owners or operators of oceangoing ships may comply with the requirements of section (e)(1), "Cleaner Fuels," through alternative emission control strategies that achieve equivalent or greater reductions of both NO_x and PM emissions over the applicable calendar year.
- (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 section (f)(1)(A).

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(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. engine modifications,
3. exhaust treatment control,
4. use of alternative fuels such as emulsified diesel fuels, and
5. operational controls.

(D) The application demonstrating compliance under the ACP must contain, at a minimum, the following information:

1. completed ACP application form (*to be developed*) listing basic information about the owner/operator of the vessel, vessel type, and engine/s subject to the ACP.
2. documentation, calculations, emissions test data, or other information that establishes both the NO_x and PM emission reductions will be equivalent to or greater than the emission reductions achieved with compliance with section (e)(1).
3. 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 section (e)(1) shall only include NO_x and PM emissions within any of the locations specified in subsection (b).

(F) 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. 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 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.

(G) An ACP to reduce NO_x emissions shall not result in significant increases in other air contaminants (including, but not limited to hydrocarbons, sulfur oxides, and carbon monoxide) relative to the emissions that would have occurred by complying with section (e)(2).

(H) Emission reductions included in an ACP must not be required by any local, state, federal or international rule, regulation, or statute.

(I) Compliance under an ACP shall be valid only after the applicant has been notified in writing by ARB that their application has been approved.

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(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.
- (E) 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.

(g) Vessel Emission Reduction Plans (VERPs) for Frequent Visitors

(1) Requirements

- a) Owners or operators of oceangoing ships subject to section (e)(2), "Additional Requirements for Frequent Visitors," shall submit a VERP that will achieve an additional 50% reduction in both NO_x and PM emissions beyond the emissions levels resulting from compliance with section (e)(1).
- b) VERPs may include emission reductions from all emissions sources on the subject vessel, including main propulsion engines, and boilers.
- c) Emission reduction plans may also include multiple vessels in their VERP such that the aggregate emission reductions are equivalent or greater than the emission reductions that would be achieved on a per vessel basis.
- d) Emission reduction strategies may include, but are not limited to:
 - i. utilization of shore-side electrical power in lieu of auxiliary engines;
 - ii. engine modifications;
 - iii. exhaust treatment control;
 - iv. use of alternative fuels such as emulsified diesel fuels, and
 - v. operational controls such as speed reductions.
- e) The application demonstrating compliance under the VERP must contain, at a minimum, the following information:

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- i. a completed VERP application form (to be determined) listing basic information about the owner/operator of the vessel, vessel type, and engine/s subject to the VERP.
 - ii. documentation, calculations, emissions test data, or other information that establishes that the reductions in both NOx and PM emissions will be equivalent to or greater than 50 percent by weight.
 - iii. methods for verifying continuing compliance with the proposed VERP, including recordkeeping and testing procedures, as necessary.
- f) Emission reduction shall only include NOx and PM emissions within CCW.
- g) An owner or operator complying under an approved VERP shall maintain operating records in a manner and form consistent with determining compliance with the VERP. 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 two (2) years and shall be submitted to the Executive Officer upon request.
- h) A VERP shall not result in significant increases in other air contaminants (including, but not limited to hydrocarbons, sulfur oxides, and carbon monoxide).
- i) Emission reductions included in a VERP must not be required by any local, state, federal or international rule, regulation, or statute.
- j) Compliance under a VERP shall be valid only after the applicant has been notified in writing by ARB that their application has been approved.

(2) Application Process

- a) Proposed VERPs shall be submitted by June 1 of the calendar year following the year in which a vessel qualifies as a “frequent visitor” (five or more visits to California ports or terminal facilities in a single calendar year). Implementation of the VERP shall begin on January 1 of the calendar year after submission of the ERP as shown in Table 1 below.

Table 1 VERP Implementation		
Year vessel makes 5 or more CA visits	Date when VERP must be submitted ₁	Date when VERP must be implemented ₂
2005-2007	N/A	N/A
2008	June 1, 2009	January 1, 2010 +
2009	June 1, 2010	January 1, 2011 +
2010	June 1, 2011	January 1, 2012 +
Same pattern as above		

¹ Must be submitted by June 1 of the appropriate year.

² VERP to remain active for specified and all subsequent years regardless of the number of California ports visits unless VERP revised.

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- b) The ARB shall notify the applicant in writing whether their VERP is approved or denied within 90 days of submittal.
- c) Additional information may be provided by the applicant after submittal of the original VERP. However, the ARB shall have 90 days after submittal of the additional information to notify the applicant of approval or denial of the Plan.
- d) The owner or operator of a vessel subject to the VERP, 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, or any changes/modifications to the emission sources that would alter the VERP emission estimates.
- e) If the ARB believes that a VERP 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

To be determined. (See ISO specified test methods for marine distillate fuels).

(i) Sunset Provision

If the Executive Officer determines that the International Maritime Administration or the United States Environmental Protection Agency have adopted regulations that will achieve equivalent or greater emission reductions in California compared to the emission reductions resulting from this regulation, then the Executive Officer will hold a public hearing to consider terminating the requirements of this rule.

(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.