

March 11, 1999

Public Docket A-97-50
U.S. Environmental Protection Agency
Room M-1500, Waterside Mall
401 M Street, SW
Washington, DC 20460

To Whom It May Concern:

The State and Territorial Air Pollution Program Administrators (STAPPA) and the Association of Local Air Pollution Control Officials (ALAPCO) are pleased to provide comments on the U.S. Environmental Protection Agency's (EPA's) proposed rulemaking for the control of emissions of air pollution from new compression-ignition marine engines at or above 37 kilowatts (kW), as proposed in the *Federal Register* on December 11, 1998 (63 FR 68508).

Air Quality Need

The control of emissions from heavy-duty engines used in marine applications is important to state and local air quality regulators because of the contributions of these engines to elevated levels of ozone and fine particulate matter (PM_{2.5}) in many areas of the country. Given the limited authority individual states have to regulate heavy-duty engines, a federal regulatory initiative is necessary to assist states and localities in their efforts to achieve and sustain compliance with the health-based National Ambient Air Quality Standards (NAAQS). The recent promulgation of new NAAQS for ozone and PM_{2.5} further reinforces the need for reductions in precursor emissions, as does the fact that diesel particulate has been classified by EPA as a probable human carcinogen. In addition, diesel engines release such toxic compounds as benzene, formaldehyde, acrolein and acetaldehyde at levels above those that pose public health concerns.

As EPA acknowledges in the proposed rulemaking, on a national basis, marine diesel engines currently account for approximately one million tons of NO_x per year, representing more than 8 percent of mobile source NO_x and close to 5 percent of total NO_x emissions; these NO_x emissions also lead to an estimated 40,000 tons of PM in the form of secondary nitrate particles. Marine diesel engines are also responsible for about 42,000 tons of directly emitted PM per year, which represents over 4 percent of directly emitted PM from mobile sources and 1 percent of total directly emitted PM. Moreover, in that emissions from marine diesel engines tend to occur in port, coastal and river areas, emission concentrations in such areas can be substantially higher than the national averages. Accordingly, STAPPA and ALAPCO strongly concur with EPA's conclusion that "[w]hen combined with other mobile source emission control programs,...this action will help provide long-term improvements in air quality in many port cities and other coastal areas."

In addition, we note that several years ago, pursuant to requirements of Section 213(a) of the Clean Air Act, EPA published a study on nonroad engine and vehicle emissions and, subsequently, made an affirmative finding that emissions from nonroad sources contribute significantly to ozone or carbon monoxide levels in more than one nonattainment area. Since that time, the agency has pursued regulatory programs from various categories of nonroad engines. This proposed rulemaking for heavy-duty marine diesel engines appropriately continues to build upon EPA's efforts to establish a comprehensive nonroad emission control program, as clearly contemplated by the Clean Air Act. Further, we commend the agency for pursuing emission standards for heavy-duty domestic marine diesels that are commensurate with the needs of affected areas across the nation, rather than relying on less aggressive MARPOL standards established by the International Maritime Organization (IMO).

Finally, STAPPA and ALAPCO believe that at a cost of \$130 per ton of NO_x removed in the short-term and \$230 per ton of NO_x removed in the long term, as projected by EPA, this proposed rulemaking represents an extremely cost effective approach to controlling a heretofore unregulated source of emissions.

Notwithstanding STAPPA and ALAPCO's general support for this proposed rulemaking, we believe that several aspects of the proposal could be strengthened. Accordingly, we offer the following comments and recommendations.

Category I Engine Standards

STAPPA and ALAPCO support a Tier II standard for Category I marine diesel engines. We believe, however, that the proposed standard is readily achievable through a modest degree of fuel injection timing retard and does not require the transfer of emission control technology from highway and land-based nonroad engines to marine engines. Therefore, we urge EPA to adopt the more stringent standards outlined in the Advanced Notice of Proposed Rulemaking issued by the agency in May 1998.

The associations support the Tier III NO_x standard for Category I engines proposed by EPA. Since phase-in of the Tier III standards does not begin until 2008, engine manufacturers and emission control equipment manufacturers would have ample time to develop effective and durable NO_x controls for marine engines and/or to adapt to marine engines technologies currently used on highway engines.

STAPPA and ALAPCO further endorse EPA's proposal to create a Tier III 5-g/kWh NO_x standard for engines over 560 kW. Such a standard would help to reduce emissions from these engines, which are responsible for significant levels of NO_x.

With respect to PM, the associations believe that EPA should promulgate a Tier III PM standard for Category I marine engines. Our improved understanding of the substantial adverse health impacts associated with exposure to PM_{2.5}, the recent promulgation of a PM_{2.5} NAAQS and the extended timeframe over which marine diesel engine standards are to be implemented all argue in favor of EPA action to establish a Tier III PM standard

for the engines affected by this rulemaking. Under the current proposal, PM emissions from Category I engines will be reduced by just 18 percent by 2020. STAPPA and ALAPCO believe that greater PM reductions should be required and that such greater reductions can be achieved cost effectively. While we acknowledge the challenges associated with attempting to simultaneously reduce NOx and PM through engine modifications alone, we believe that development of and improvements in aftertreatment technologies will enable engine manufacturers to further reduce PM emissions without adversely affecting NOx. It is incumbent upon EPA to fully consider and reflect in the rulemaking opportunities associated with these technical advances. Therefore, STAPPA and ALAPCO recommend that EPA formally commit to conduct a thorough assessment of aftertreatment technologies as part of the 2003 technical review and to promulgate an appropriate Tier III PM standard for marine diesel engines.

The associations also suggest that EPA include in the rulemaking remanufacture requirements for Category I engines to ensure that these engines maintain the low-emission characteristics to which they were certified. A remanufacture requirement already applies to onroad diesels and, in that it is expected that many of the same manufacturers that provide diesel rebuild kits for onroad applications will seek to provide kits for marine and land-based nonroad applications, a similar requirement appears feasible for some Category I engines, particularly those in the 130 to 225 kW power range.

Category II Engine Standards

STAPPA and ALAPCO also support EPA's proposed emission limits for Category 2 marine diesel engines. These engines, which are typically used in ferries, tugs and other harbor vessels, have a significant impact on air quality given their modes of operation and the fact that they operate in urban environments. Moreover, although the standards proposed by EPA will reduce NOx emissions from these engines, we believe that aftertreatment technologies exist to also reduce PM emissions and to potentially achieve even greater reductions in NOx emissions, as well. Therefore, we encourage EPA to include Tier III PM standards in the final rule and to consider more stringent NOx standards as part of the technology review.

The associations also support the inclusion of numerical emission limits for remanufactured Category II engines. In that these engines operate for 25 years or more, remanufacture requirements are critical to achieving emission reductions in the near term.

Smoke Opacity Standards

In response to EPA's request for comments regarding the lack of proposed smoke requirements for marine diesels, the associations encourage EPA to adopt smoke opacity certification tests and smoke opacity standards for Category 1 and 2 engines. These engines emit considerable smoke, which is a source of nuisance complaints received by many air quality agencies. While there is currently no established procedure for testing smoke opacity in-use for marine engines, new technologies, such as remote sensing, hold

promise for future in-use smoke opacity testing. Therefore, EPA should establish smoke tests and smoke standards for the certification of new Category I and II marine engines.

Category III Engine Standards

STAPPA and ALAPCO concur with EPA's proposal to adopt the IMO NO_x curve for large (Category 3) engines in the near term. However, because Category 3 engines are responsible for the majority of emissions from marine engines in some areas, and because the proposed standards will achieve a reduction of only 8 percent from this category of engines by 2030, we believe far more stringent standards are necessary over the long term. Technologies, such as selective catalytic reduction (SCR), have been demonstrated to reduce NO_x emissions from slow-speed marine engines by 90 percent. Accordingly, we believe more significant reductions than those proposed can and should be required from Category 3 engines. States and localities rely on EPA to effectively regulate new Category 3 engines and, therefore, strongly urge the agency to work with international organizations, such as the IMO, to establish more stringent NO_x standards and to introduce PM, hydrocarbon and CO emission standards for Category 3 engines.

Fuel Sulfur Limits

Reducing fuel sulfur levels represents one of the most effective means of reducing PM and toxic pollution from marine diesels. The use of low-sulfur fuel will also enable advanced technologies, such as catalysts and SCR, which will reduce NO_x. Accordingly, STAPPA and ALAPCO strongly urge EPA to set stringent fuel sulfur limits for marine diesel fuel for all categories of engines affected by this rulemaking to enable the use of NO_x-reducing technologies; such standards will also result in reductions in emissions of PM and air toxics.

NTE Requirements

STAPPA and ALAPCO endorse EPA's proposal to establish a not-to-exceed (NTE) standard for marine engines. We believe such a limit will form the basis for a credible in-use enforcement program at the state and local levels.

Voluntary Program for Low-Emission Engines

Finally, we support EPA's proposal to create a voluntary low-emission engine certification program. This type of program will provide an incentive for the development of both improved engine designs and aftertreatment technologies. The "Blue Skies Series" engine program concept will provide states and localities with options for requiring lower emission levels for engines entering ports and using port facilities, thus facilitating reduced marine vessel emissions. To avoid double counting, however, we recommend that the program allow for *either* the generation of Averaging, Banking and Trading (ABT) credits through the manufacture and sale of engines meeting the Blue Skies Series standards *or* the generation of mobile emission reduction credits by end users, such as states. While generating ABT credits will provide some incentive for

engine manufacturers to produce clean engines, we believe that allowing states and other end users to "own" the credits from the purchase of clean vehicles and equipment will provide a strong market push for those engines. This expanded market will, in turn, drive manufacturers to produce greater numbers of Blue Skies Series engines and help lower the cost of these units through economies of scale. In order for this alternative to work, however, the engine manufacturers would have to agree to forego the ABT credits associated with the production of these low-emission engines. Instead, these engine families would be excluded from the manufacturers' fleet average compliance calculations. Under this recommendation, individual manufacturers could select the approach they prefer. Alternatively, manufacturers could be allowed to designate certain engine families as candidates for end user credits and certain engine families as candidates for ABT credit generation.

In conclusion, we thank you for the opportunity to comment on this important proposal. On behalf of STAPPA and ALAPCO, we look forward to working with EPA as the agency further develops a final program for controlling emissions from new compression-ignition marine engines at or above 37 kilowatts.

Sincerely,

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