

STAPPA / ALAPCO

STATE AND TERRITORIAL
AIR POLLUTION PROGRAM
ADMINISTRATORS

ASSOCIATION OF
LOCAL AIR POLLUTION
CONTROL OFFICIALS

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EXECUTIVE DIRECTOR

U.S. Environmental Protection Agency
Docket Center (EPA/DC)
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EPA West
Room B102
1301 Constitution Avenue, NW
Washington, DC 20004

To Whom It May Concern:

On behalf of the State and Territorial Air Pollution Program Administrators (STAPPA) and the Association of Local Air Pollution Control Officials (ALAPCO), we are pleased to provide the following comments on the U.S. Environmental Protection Agency's (EPA's) proposed rule to amend the existing U.S. regulations for emissions of oxides of nitrogen (NO_x) from and test procedure requirements for new commercial aircraft to mirror those of the United Nation's International Civil Aviation Organization (ICAO), as published in the *Federal Register* on September 30, 2003 (68 FR 56226).

Introduction

STAPPA and ALAPCO have long been concerned with the significant and ever-growing level of aviation-related emissions – and, moreover, the associated adverse health consequences – that occur in numerous areas of the country. While we remain confident that states and localities will be able to implement measures to effectively reduce emissions from ground access vehicles and ground support equipment at airports, we depend upon EPA for its leadership in regulating emissions from aircraft. Particularly as the nation prepares to implement the health-based 8-hour ozone and PM_{2.5} National Ambient Air Quality Standards (NAAQS), it is essential that we not squander important opportunities for garnering much-needed emission reductions. For this reason, STAPPA and ALAPCO are extremely disappointed in EPA's recently proposed NO_x emission standards and test procedures for new commercial aircraft. The proposed standards will do nothing to reduce aircraft emissions because nearly all currently certified or in-production engine models already meet or perform better than the ICAO standards and manufacturers already adhere to the ICAO test procedures. In these comments, STAPPA and ALAPCO will highlight the importance of controlling NO_x from aircraft and offer recommendations for EPA to pursue in regulating these emissions.

The Need for NO_x Reductions from Aircraft

NO_x is a major contributor to multiple environmental problems including ozone, fine particles, acid rain, regional haze and the nitrification of water bodies. Significant additional reductions in emissions of this pollutant are needed to adequately address these problems and to balance the projected growth in activity in sectors that are responsible for most NO_x emissions. In the U.S, NO_x emissions from all sources actually increased slightly (2 percent) between 1989 and 1998. To address this problem, the U.S. will implement stringent new standards for some of the most significant sources of NO_x. With the introduction of the Tier 2 federal motor vehicle standards, NO_x emissions from the typical light-duty vehicle will be 99 percent lower than those from the uncontrolled 1960s car. In addition, recently adopted standards, to take effect in 2007, will require a 90-percent reduction in NO_x from current levels of emissions from heavy-duty trucks and buses. Further, proposed standards for heavy-duty nonroad engines will reduce new engine NO_x by 90 percent from current levels starting in 2011. Moreover, NO_x emissions from power plants in the eastern U.S. are now controlled at approximately 70 percent, and will likely be controlled even more stringently (and year-round) as a result of anticipated multi-pollutant legislative proposals in the near future. Finally, as a result of the federal transportation conformity process, ground transportation programs in major urban areas will face significant pressure to reduce NO_x emissions.

By contrast, NO_x emissions from aircraft are projected to increase at a rapid rate well into the future. Using recent growth projections from the Federal Aviation Administration (FAA), aircraft emissions are projected to approximately double by 2030, despite the impacts of the events of September 11, 2001. Currently, NO_x emissions from major airports already are greater than emissions from large stationary sources such as refineries and electrical generating facilities. For most states and localities with major airports and seaports, aircraft and international marine vessels are the only two source sectors where emissions are projected to increase in the future. As described above, other major stationary and mobile sources are expected to meet much more stringent standards than what might be achieved by even the deepest cuts being contemplated in ICAO's next round of standards – CAEP (Committee on Aviation Environmental Protection)/6 – to say nothing of the standards that EPA is proposing in this rulemaking. Given the long life/slow turnover of the aircraft fleet, the most stringent feasible standards are needed now to help offset future growth.

Adoption of the CAEP/4 NO_x Standard

In assessing the stringency of the CAEP/4 standards proposed by EPA in this proposal, we note that the combined effect of these standards with previously adopted standards will be a reduction in NO_x emissions of only about 40 to 50 percent from new engine models relative to uncontrolled levels. By comparison, all other emission sources are being controlled to well over 50 percent and some as high as 95 percent.

We also note that the word “standards” used to describe the emission levels set by ICAO is a misnomer. First, emission standards set by air regulatory agencies for all other sources of air pollutant emissions always define a “technology-forcing” performance level that is beyond what sources are currently achieving, unlike what is being required by

CAEP/4. Emission standards are designed to “point the way” to where emissions levels should be and what technology will likely be able to achieve. By contrast, ICAO standards (and the aircraft engine standards put forth in this proposal) are not “technology forcing,” since by the date the standards are adopted, most engines in production will already meet the standards by significant margins. In fact, 85 percent of engines already met the CAEP/4 standards when they were adopted by ICAO in 1999. A primary consideration in standard-setting by ICAO is the number of in-production and already-certified engines that would not meet the proposed standard. ICAO, therefore, always sets “technology-following” standards for aircraft engines. This approach is not only inconsistent with that used for regulating other source sectors, it is also insufficient and unacceptable with respect to the clean air goals of our nation and the challenges states and localities face in achieving and sustaining compliance with health-based National Ambient Air Quality Standards.

Today nearly all (94 percent) currently certified engines meet or perform better than the CAEP/4 NO_x standard. Only two engine families with four currently certified engines do not meet the CAEP/4 NO_x standard, and these engines would not be required to meet the CAEP/4 standard. It is most disappointing that EPA’s proposed rulemaking will have, as the agency notes in this proposal, “minimal... air quality benefits.”

Because ICAO adopted these international standards in 1999, engine manufacturers have been designing engines to meet them for four years. EPA’s adoption of the ICAO CAEP/4 standard at this late date will have no impact on the design of engines and, therefore, no practical impact on expected aircraft emissions. STAPPA and ALAPCO are disappointed that EPA waited as long as it did to align U.S. aircraft standards with those of the international community. Had the agency acted sooner, the U.S. could have availed itself of the opportunity to enact, by January 2004, meaningful standards that achieve critically needed emission reductions. However, given the inexplicable delay, EPA is now accurate to assert, as it does in this untimely proposal, that “at this time, there is not sufficient lead time to require more stringent emission standards... by January 2004.” Nonetheless, our associations firmly believe that EPA has an obligation to immediately follow this rulemaking with further, more aggressive regulatory action, taking into consideration the deliberations of CAEP/6 in 2004, to control emissions from aircraft in a way that is commensurate with emission control strategies for other source sectors.

Applying the CAEP/4 Standard to Already-Certified, Newly Manufactured Engines

In this proposal EPA discusses the potential application of the CAEP/4 standard to already-certified, newly manufactured engines. CAEP/4 responded to the concern about the potential impact of new standards on the asset values of existing fleet aircraft by limiting applicability of the new standards only to newly certified engines. Consequently, high-emitting engines can continue to be manufactured and brought into service, further contributing to the long-term increase in aircraft emissions that is projected to occur absent a more aggressive approach to regulating this source.

During EPA’s November 13, 2003 public hearing on this proposed rule, at which STAPPA and ALAPCO provided oral testimony, agency officials asked what production date our associations would recommend for already-certified engines. We believe that, at a

minimum, EPA should identify a production cut-off date for already-certified engines to prevent manufacturers from offering these engines for sale unless the engines were redesigned and recertified to meet the standard. Such a cutoff would be in keeping with the stated goal of the rulemaking (“assuring that [progress made in reducing aircraft engine emissions] is not reversed in the future”). STAPPA and ALAPCO therefore recommend the application of the CAEP/4 standard to already-certified, newly-manufactured engines at the soonest possible date, and would accept one year after the effective date of the final rule.

Future Standards for Aircraft Emissions

EPA’s plan to quickly promulgate any standard adopted by ICAO at CAEP/6 is a step in the right direction, but even stronger, forward-looking, “technology-forcing” standards are also absolutely necessary. If ICAO follows past practices of choosing a standard that impacts only a small portion of existing engines, CAEP/6 will likely be only 10 percent more stringent than the CAEP/4 standard that is the subject of this proposed rulemaking. However, since approximately 72 percent of current engines already achieve emissions that would meet the likely 10-percent reduction, the minimal emission reductions that would occur from a 10-percent increase in stringency would be insufficient to offset the excess emissions associated with the expected growth of traffic in this industry.

In its proposal, EPA acknowledges that many engines already out-perform the CAEP/4 standards the agency is proposing to codify in the U.S.: “89 out of 124 (72%) of the in-production engines have greater than 10 percent margin to the proposed (or CAEP/4) NO_x standards, 56 (45%) of the engines have more than 20 percent margin, [and] 18 (15%) of the engines have greater than 30 percent margin.” STAPPA and ALAPCO note that in designing emission standards for the U.S., EPA is not limited by the ICAO standards and, in fact, has the authority to establish more stringent standards. Accordingly, STAPPA and ALAPCO believe firmly that it is incumbent upon EPA to establish aircraft emission standards that reflect the emission reductions that technologies will deliver at the future implementation date.

As noted in EPA’s proposal, except for aircraft engines, all current mobile source programs under the Clean Air Act involving new emission standards apply to newly manufactured engines or vehicles based on the certification model year. We question why EPA has not pursued the same approach in its current proposal.

Ongoing progress in technology development offers reasonable expectation that significant reductions in aircraft emissions are achievable in the relatively near term. A current NASA research and development effort is focusing on achieving 70-percent reduction (from CAEP/2 standards) in aircraft emissions within the next 10 years. The goal is to achieve this reduction without adversely affecting noise or fuel economy. The NASA “stretch” goal would seem a reasonable starting point for a true technology-based regulation for aircraft systems. Given the promising technological developments occurring with aircraft aerodynamic design and stronger, lighter materials, there is tremendous promise for more fuel-efficient and lower-emitting aircraft in the future. EPA should

consider ways to regulate emissions from the aircraft rather than the engine in order to encourage the on-going development and application of new airframe technology.

STAPPA and ALAPCO, therefore, urge that EPA take prompt action to develop future aircraft standards based upon a forward-looking approach that will capitalize on such technological advancement. We also urge the agency to calculate not only the costs, but also the benefits, over the full useful life of engines when assessing such future standards. To this end, we note that the cost information used at CAEP/6 is not calculated in such a manner.

As noted in our testimony provided at the public hearing on this rule, STAPPA and ALAPCO also recommend that the agency pursue a certification process that accounts for engine and airframe combinations. While we acknowledge that there are significant technical challenges in designing and implementing a combined engine/airframe certification standard, such an approach would provide a mechanism to account for the tremendous potential environmental benefits associated with redesigned airframes. For example, the use of light-weight materials, redesigned wing configurations and other emerging airframe technologies has the advantage of simultaneously reducing emissions of all pollutants and increasing fuel economy. Given the engine manufacturers' contention that trade-offs are inevitable with engine emission standards, this alternative approach may provide the type of flexibility needed to achieve significant emission benefits and fuel economy improvements in a cost-effective manner.

Finally, STAPPA and ALAPCO also urge EPA to take steps to reduce aircraft emissions beyond NO_x. Emissions of fine particulate matter and sulfur dioxide from aircraft engines require better understanding than is currently available. EPA must be a leader in research in this area and set appropriate standards when sufficient data is available. Further, because it is the responsibility of EPA to ensure that appropriate measures are taken to protect human health from environmental harm, the agency must also play a stronger role in establishing the U.S. position on environmental matters within ICAO.

Conclusion

In conclusion, state and local air quality officials have consistently articulated to EPA, FAA and the Department of Transportation that the federal government needs to find a way to reduce aircraft emissions in a manner that will ensure that these emissions begin to decline compared to current levels. EPA's proposed rule falls far short of putting us on a path to that goal and, in fact, will guarantee that aircraft-related emissions of NO_x will continue to increase significantly for the foreseeable future. This leaves state and local air agencies in the unenviable position of having to extract further emission reductions from other source sectors in order to offset increased emissions from the aviation sector.

The history of Clean Air Act implementation is a testament to the fact that technological innovation follows, rather than precedes, the adoption of stringent emission control requirements. This has been the case for emission control technologies for both stationary and mobile sources. Further, history has shown that the costs of these control technologies almost always have been far lower than suggested by initial estimates. In

order to achieve the emission reductions from aircraft engines necessary to eventually reverse the trend of increasing NO_x emissions from this source, EPA must establish standards that promote and accelerate technological innovation.

Consequently, STAPPA and ALAPCO believe that the era of EPA adopting aircraft emissions standards that are inadequate for the U.S. must end. The aviation industry should be subject to the same relative level of control as other major industries. Although we would have preferred that EPA had taken action sooner to codify the CAEP/4 standards in the U.S., which would have provided an opportunity for the agency to pursue more stringent, forward-looking standards for promulgation at this time, under the circumstances, we are instead recommending that EPA immediately follow this rulemaking with one to establish aircraft standards that truly meet the air quality needs of the U.S., using the same technology-forcing approach that the agency has used so successfully for other mobile sources, as described in our comments above.

We thank you for this opportunity to provide STAPPA and ALAPCO's perspectives on this proposed rulemaking and, on behalf of our associations, we look forward to working closely with EPA to address emissions from aircraft in a way that will ensure appropriate, meaningful and timely reductions.

Sincerely,



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