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SAMUEL D. CHILCOTE, JR.
President

May 31, 1985

Committee on Airline Cabin Air Quality
National Academy of Sciences
2101 Constitution Avenue, N.W.
Washington, D.C. 20418

Re: Study on Aircraft Cabin Air Quality

Dear Sirs:

The Tobacco Institute submits these comments on the aircraft cabin air quality study (the "NAS study"), currently being conducted by the Committee on Airline Cabin Air Quality, National Academy of Sciences ("Committee"). The Institute, which represents major manufacturers of cigarettes, welcomes scientific inquiry into the host of issues relating to cabin air quality. Although tobacco smoke is one of many matters that the Committee may address, it is not specifically mentioned in either the study's authorizing legislation or the Senate Committee Report, or in your Notice.

As a political and social issue, smoking aboard aircraft has been the subject of repeated rulemaking proceedings over the past 12 years before the Civil Aeronautics Board ("CAB"), the agency formerly responsible for aircraft smoking regulations. These issues finally were resolved last summer following lengthy hearings and review of extensive comments from a multitude of

interested persons.*/ The proceedings culminated in the CAB's determination that "smoking remains a socially acceptable practice," and the issuance of final rules to accommodate smoking and nonsmoking passengers. In fact, an opinion poll conducted in April 1985 for The Tobacco Institute by Tarrance & Associates reveals that an overwhelming majority (82 percent) of the public is satisfied with these rules and believes they should not be changed.**/

Appropriately, the Committee's designated role is to undertake scientific inquiry, rather than to revisit this regulatory debate.

I.

The Uniqueness of the Aircraft Cabin Environment

The Committee's authorizing legislation directs the Committee to recognize the unique nature of the aircraft cabin

*/ These proceedings involved appearances by at least two government agencies, fourteen airlines or airline organizations, six labor unions, eleven consumer groups, four tobacco groups, and others, individual letter comments to the Board from more than 20,000 individuals, and three days of oral argument in which 42 people, including ten members of Congress, expressed their views. See 49 Fed. Reg. 25408 (1984).

**/ A copy of the Tarrance poll is attached.

environment: "In conducting the study, special and objective considerations shall be given to the uniqueness of the environment onboard civil commercial aircraft."*/ Accordingly, any Committee consideration of tobacco smoke particulates can appropriately be addressed only in the context of this unique environment. As the CAB recognized only last year in refusing further to regulate aircraft smoking "on the specific basis of the health aspects of passive smoking" in non-aviation environments, "no commenter has shown that the findings of [passive smoking] studies are applicable to the situation aboard aircraft."**/

*/ Pub. L. No. 98-466, § 1, 98 Stat. 1825 (1984).

**/ As the CAB concluded last year in specifically refusing further to regulate on the grounds of claimed health effects of "passive smoking," the evidence regarding claimed health effects of environmental tobacco smoke "is still being disputed." 49 Fed. Reg. 25410 (1984). As the CAB explicitly also recognized, studies of "passive" smoking effects in nonaviation environments are inapplicable to the aircraft cabin environment:

"The cited studies involved smoking in the home or office, places where people spend a significant portion of their life. This differs from the situation aboard aircraft where most people spend a relatively short time. Aircraft also differ from homes and offices in that nonsmokers are separated from the smokers in the former, but usually are not in the latter."

49 Fed. Reg. 25410 (1984).

The modern aircraft cabin is in fact designed to provide a uniquely ventilated environment, effective in dealing with tobacco smoke. Indeed, FAA experts have repeatedly testified that aircraft cabin ventilation systems are "fully adequate."^{*} Within the last two years, the FAA specifically found "no need to require changes in aircraft ventilation systems" to deal with tobacco smoke "from a health perspective."^{**}

Aircraft cabin air flow rates compare favorably with recommended standards of non-aviation environments and provide passengers ventilation three to five times that recommended by the American Society of Heating, Refrigerating and Air-Conditioning Engineers.^{***} By recent regulation, moreover, smoking is permitted only when ventilation systems are "fully functioning" to provide ventilation meeting design specifications.^{****} Aircraft manufacturers have further demonstrated that industry practices and standards not only "surpass non-aviation standards" in certain

^{*} Cabin Air Quality: Hearing on S.197 Before the Subcomm. on Aviation of the Senate Comm. on Commerce, Science, and Transportation, 98th Cong., 1st Sess. 9 (1983) (statement of Craig Beard, Director, Office of Airworthiness, Federal Aviation Administration) [hereinafter "FAA Statement"].

^{**} Id. at 10.

^{***} The FAA's review of the ventilating characteristics of seven current transport aircraft in 1981 revealed that "the ventilation varies from 15.2 to 25.7 cfm/person in the passenger cabin or 3 to 5 times that recommended by ASHRAE." U.S. Department of Transportation, Federal Aviation Administration, In the Matter of the Petition of Xenex Corporation, Denial of Petition, March 3, 1981.

^{****} 14 C.F.R. § 252.3(a) (1984).

areas, but also that those practices and standards "are continuously improved."*/

II.

The Evidence Does Not Demonstrate An Adverse Health Effect on Passengers from Smoking Aboard Aircraft.

Available scientific data fail to demonstrate that smoking aboard aircraft causes an adverse health effect in nonsmoking passengers. The only study to deal specifically with the situation aboard aircraft -- conducted by the Federal Aviation Administration (FAA) and the National Institute for Occupational Safety and Health (NIOSH) in 1971 -- concluded that the "low levels of contaminants measured do not represent a health hazard to the non-smoking passengers on aircraft."**/

Significantly, these findings were based on studies of smoking aboard aircraft conducted before the CAB issued rules in 1973 requiring segregation of smokers and nonsmokers in separate sections of the cabin.***/ Moreover, these studies were undertaken

*/ Airliner Cabin Safety and Health Standards: Hearing on S.1770 Before the Subcomm. on Aviation of the Senate Comm. on Commerce, Science, and Transportation, 97th Cong., 2nd Sess. 52 (1982) (statement of John Reese, Director of Airworthiness Programs, Aerospace Industries Association).

**/ See 38 Fed. Reg. 12207, 19048 (1973).

***/ 38 Fed. Reg. 12207-12211 (1973) (codified at 14 C.F.R. § 252.1-.5).

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prior to the recently-issued CAB regulations prohibiting pipe and cigar smoking or smoking while an aircraft is on the ground or when the ventilation system is not "fully functioning" up to design specifications.*/

On the other hand, no reputable medical evidence has been found to contradict the FAA's 1971 conclusion that exposure to environmental tobacco smoke in the unique aircraft cabin environment presents no adverse health effects for nonsmoking passengers. Dr. Robert L. Wick, medical director for American Airlines, former professor of preventive medicine at Ohio State University and chairman of the Division of Environmental Medicine, aptly summarized the state of the medical evidence in 1982 Congressional testimony:

There is nothing in the literature today which would suggest that there is a significant hazard to a healthy individual from casual exposure to smoke in an airplane, albeit it is unpleasant.**/

To the contrary, the FAA reaffirmed its 1971 conclusion just 18 months ago, in Congressional testimony on the adequacy of modern aircraft ventilation:

*/ 49 Fed. Reg. 25408-25420 (1984) (codified at 14 C.F.R. § 252.3, 252.4).

**/ Airliner Cabin Safety and Health Standards: Hearing on S.1770 Before the Subcomm. on Aviation of the Senate Comm. on Commerce, Science, and Transportation, 97th Cong., 2nd Sess. 113 (1982) (statement of Dr. Robert L. Wick, American Airlines).

It is the FAA's view that casual exposure to 'second hand' cigarette smoke in a reasonably ventilated environment is not expected to have any relation to cardiovascular or pulmonary disease causation. . . . Therefore, from a health perspective, we have seen no need to require changes in aircraft ventilation systems.*/

In so reaffirming the 1971 study in 1983, the FAA had available virtually all of the studies claimed to suggest health effects of smoking on nonsmokers in non-aviation environments.

In addition, the FAA's medical expert, Deputy Federal Air Surgeon Dr. Jon L. Jordan, testified before Congress in 1983 that the 1971 FAA/NIOSH study "revealed that there were minimal contaminants in the [aircraft cabin] air, especially in reference to cigarette smoking, and none of those posed a health hazard problem to either the passengers or crew."**/

Recent research continues to support this conclusion. Only last year, for example, researchers from the San Francisco General Hospital Medical Center reported the results of a study conducted to measure the exposure of nonsmoking flight attendants to carbon monoxide and nicotine during a flight from Tokyo to San

*/ FAA statement, supra, at 10.

**/ Cabin Air Quality: Hearing on S.197 Before the Subcomm. on Aviation of the Senate Comm. on Commerce, Science, and Transportation, 98th Cong., 1st Sess. 12 (1983) (statement of Dr. Jon L. Jordan, Dep. Federal Air Surgeon).

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Francisco. The researchers found that blood carbon monoxide levels actually decreased during the flight. Moreover, the researchers concluded that the "concentrations [of nicotine] achieved are unlikely to have physiologic effects."*/

CONCLUSION

The Tobacco Institute welcomes scientific inquiry by the Committee into the many issues relating to air quality in the unique aircraft cabin environment. To the extent the study touches upon the issue of tobacco smoke particulates in the aircraft environment, The Institute urges careful attention to the fact that there exists no reported medical evidence that these particulates in cabin air endanger the health of passengers or crew. To the contrary, the only significant evidence is that aircraft cabin smoking poses no such health concern.

Respectfully submitted,


Samuel D. Chilcote, Jr.

attachment

*/ Foliart, et al., Passive Absorption of Nicotine in Airline Flight Attendants, 308(18) N. Eng. J. Med. 1105 (1983).

SMOKING ABOARD AIRCRAFT

- PUBLIC OPINION
- CURRENT REGULATIONS
- SAFETY
- NATIONAL ACADEMY OF SCIENCES
- SURGEON GENERAL
- FURTHER STUDY REQUIRED

NOTE: THERE IS NO SUBSTANTIATED EMPIRICAL EVIDENCE TO SUPPORT A SMOKING BAN ABOARD AIRCRAFT. THEREFORE, LOGIC WOULD PRESCRIBE THAT THE STATUS QUO SHOULD PREVAIL.

SMOKING ABOARD AIRCRAFT

PUBLIC OPINION

Summary:

Registered voters believe the current policy of separating smokers and non-smokers is reasonable. Smoking complaints to the Department of Transportation (DoT) are consistently low both in absolute terms and relative to all other consumer complaints.

Background:

The Airline Pilots Association (ALPA) recently conducted a poll of registered voters to obtain their opinions of the airline industry in the deregulation era. Respondents overwhelmingly agreed the most negative aspects of flying today are flight delays, crowded conditions, and poor service in general.

On the issue of smoking aboard aircraft, by a margin of 87% to 12%, the respondents agreed that the "current practice of separating smoking and non-smoking passengers is a reasonable policy that respects the rights of each."

Consumer complaints about smoking and air travel consistently rank 9th out of 12 DoT complaint categories. In June 1987, total complaints increased 49% over May 1987. Smoking complaints were 2.2% of the total versus 2.1% in May. The June 1987 ranking and total complaints were as follows:

1) Flight Problems	2,175	7) Oversales	289
2) Baggage	1,098	8) Fares	186
3) Refund	501	9) Smoking	162
4) Other	446	10) Advertising	80
5) Customer Service	440	11) Tours	56
6) Ticketing/Boarding	305	12) Credit	21

Total Complaints: 5,759

Conclusion:

Given the current displeasure of air travelers with airline service, a smoking prohibition would certainly add to consumer complaints and exacerbate an already difficult situation.

SMOKING ABOARD AIRCRAFT

CURRENT REGULATIONS

Summary:

The Federal Aviation Administration's (FAA) regulation of smoking aboard aircraft currently accommodates non-smokers, provides for the segregation of smokers and prohibits smoking in small commercial aircraft. These regulations guarantee every passenger a "no-smoking" seat -- even if a smoking section must be reduced or eliminated to satisfy that guarantee.

Background:

FAA Regulation Part 252.1 states:

"This part establishes rules for the smoking of tobacco aboard aircraft. It applies to all operations of direct air carriers, except on demand services of air taxi operators. Nothing in this regulation shall be deemed to require carriers to permit the smoking of tobacco aboard aircraft."

Part 252.2 states:

"(a) Except as provided in paragraph (b) of this section, air carriers, when operating aircraft designed to have a passenger capacity of 30 seats or more, shall provide at a minimum:

- (1) A no-smoking area for each class of service and for charter service.
- (2) A sufficient number of seats in the no-smoking sections of the aircraft for all persons who wish to be seated there, and
- (3) Expansion of no-smoking sections to meet passenger demand.
- (4) Special provisions to ensure that if a no-smoking section is placed between smoking sections, the nonsmoking passengers are not unreasonably burdened.

"(b) On flights for which passengers may make confirmed reservations and on which seats are assigned before boarding, an air carrier need not provide a seat in a no-smoking section to a passenger who has not met the carrier's requirements as to time and method of obtaining a seat on the flight, or who does not have a confirmed reservation. If a seat is available in the established no-smoking section, however, a carrier shall seat there any enplaning passenger who so requests, regardless of boarding time or reservation status."

Part 252.5 states:

"Small aircraft - Carriers shall adopt and enforce rules prohibiting the smoking of tobacco on aircraft designed to have a passenger capacity of less than 30 seats."

Part 252.6 states:

"Enforcement - Each air carrier shall take such action as is necessary to ensure that smoking by passengers or crew is not permitted in no-smoking sections and to enforce its rules with respect to the banning of smoking or the separation of passengers in smoking and no-smoking areas."

Conclusion:

Current regulations are adequate. Federal aviation agencies have considered rules for smoking aboard aircraft for decades in nearly a dozen rule-makings. After exhaustive reviews, all proposals to ban smoking have been rejected.

SMOKING ABOARD AIRCRAFT

SAFETY

Summary:

Smoking, in the smoking sections of aircraft, does not create a fire hazard. Data from the last seventeen years do not implicate cigarettes with carrier fires. However, clandestine smoking in lavatories, if a ban were imposed, could heighten this risk and would cause enforcement nightmares.

Background:

- Carrier fire data research was conducted by Philip S. Schaenman, President and Founder of TriData Corporation of Arlington, Virginia. TriData is an independent firm which specializes in fire protection analysis. Schaenman studied 65 carrier fires reported by the National Transportation Safety Board that occurred between 1970 and 1984. Schaenman reported that "none have been positively determined to have been smoking related."
- After an exhaustive review of smoking aboard aircraft, in 1984 the Civil Aeronautics Board (CAB) rejected a smoking ban. The CAB explicitly determined that banning smoking "might increase, rather than decrease, the incidents of smoking and risk of fire in the aircraft lavatories where it poses the greatest danger to the lives of passengers."
- Similar safety concerns were raised during the CAB proceedings by the Department of Transportation, the Air Transport Association, Airline Pilots Association, and others.
- During a Senate Commerce Subcommittee on Aviation hearing on cabin air quality in September 1986, the Aviation Safety and Health Association testified that "...we would prefer smokers to smoke in the cabin rather than in the lavatories where a smoldering cigarette could create a larger and potentially more dangerous situation."
- In July 1987, the Air Transport Association in objecting to a current prohibition being considered stated, "It is feared that passengers may attempt to smoke in the lavatories, creating a risk of fire. Even with the addition of smoke detectors, smokers may try to disconnect the detectors in order to smoke."

Conclusion:

By increasing the possibility of surreptitious smoking, a smoking ban could exacerbate the already numerous safety concerns being touted in the media today.

SMOKING ABOARD AIRCRAFT

NATIONAL ACADEMY OF SCIENCES (NAS)

Summary:

Because tobacco smoke is visible, and causes irritation to some airline passengers, it receives virtually total blame for poor airline cabin air quality. Very little scientific research has been conducted on the effect of environmental tobacco smoke (ETS) within aircraft cabins.

Background:

NAS admits it "found no published peer-reviewed data on ETS concentrations in [airline] cabins." Pg. 6

NAS admits "...measurements [of ETS constituents] have not been conducted under experimental situations or have not been conducted systematically for a variety of aircraft [emphasis added]." Pg. 137

NAS states "Members of the Committee have used portable instruments to measure ETS concentrations on commercial flights. These measurements were not accompanied by detailed documentation of ventilation or numbers of people smoking." Pg. 137

"Both odor and irritation [during continuous short term exposure to ETS] are perceived to be more intense at lower humidities (30% to 65%). The Committee could find no information on studies done at relative humidities below 10%, which are typical of aircraft [emphasis added]." Pg. 144

"Health effects data from other environments do not permit us to present reliable quantitative risk estimates related to the health impact of present concentrations of ETS on exposed non-smokers in an aircraft environment [emphasis added]." Page 150-151

Conclusion:

The NAS recommendation to ban smoking on aircraft is unjustified -- it is not supported by any conclusive scientific research.

SMOKING ABOARD AIRCRAFT
SURGEON GENERAL'S REPORT
ENVIRONMENTAL TOBACCO SMOKE (ETS)

Summary:

The Surgeon General's report on ETS did not include scientific research on exposure aboard aircraft. However, the Surgeon General's conclusion that ETS is harmful to non-smokers is directly contradicted by his own report and research.

Background:

The Surgeon General's report of December 16, 1986 states:

"Risk associated with involuntary smoking exposure is uncertain." (p. 101)

"There are no studies of acute respiratory illness experience in adults exposed to environmental cigarette smoke." (p. 60)

On bronchoconstriction -- "the magnitude of these changes is quite small, even at moderate to high exposure levels, and is unlikely that this change in airflow, per se, results in symptoms." (p. 63)

"Pulmonary function was not influenced by (ETS) exposure." (p. 65)

"Validated questionnaires are needed for the assessment of recent and remote exposure to environmental smoke in the home, workplace, and other environments." (p. 14)

"The small magnitude of effect implies that a previously healthy individual would not develop chronic lung disease solely on the basis of involuntary tobacco smoke exposure in adult life." (p. 62)

Conclusion:

Definitive determinations by the scientific community must be rendered prior to any absolute smoking prohibitions being adopted -- including a ban on smoking aboard aircraft.

SMOKING ABOARD AIRCRAFT

FURTHER SCIENTIFIC STUDY REQUIRED

Summary:

The Department of Transportation (DoT) and the Air Transport Association (ATA) agree definitive determinations should be made on exposure to environmental tobacco smoke (ETS) aboard aircraft before a decision is reached to ban smoking on commercial flights.

Background:

- In February 1987, DoT rejected the National Academy of Sciences (NAS) recommendation to ban smoking aboard aircraft and called for further study. In rejecting the NAS recommendation, DoT stated:

"While DoT recognizes that exposure to environmental tobacco smoke (ETS) could be viewed as a problem by some crew and passengers, we believe that further study is needed before the Department can propose a definitive response to this recommendation."

- DoT expects to open bids in October 1987 for a contractor to study passenger exposure to ETS and microbial aerosols. The study is expected to commence in March 1988 and be completed in July 1989.
- The Air Transport Association, during its September 1986 testimony before the Senate Aviation Subcommittee, took no stand on the medical basis of the NAS recommendation to ban smoking aboard aircraft. However, ATA stated:

"NAS's report time and time again decries the paucity of solid data upon which to found conclusions and recommendations. The ultimate determination of whether or not air impurities inside of airplanes, shops, buses, auditoriums and other public places - as well as our homes - are deleterious to our health must await definitive determination by the medical and scientific communities."

Conclusion:

To date, no empirical medical evidence shows that tobacco smoke particulates endanger air travelers. Definitive in-flight tests measuring nicotine levels in non-smoking and smoking sections must be conducted prior to considerations of smoking bans aboard aircraft.