

Executive Summary
The FAA's position that unstoppable blinding smoke in the cockpit
is not an "unsafe condition" violates its Congressional mandate

Unstoppable, blinding, smoke in the cockpit
is a serious, long-standing un-addressed safety and security deficiency

Link to the complete paper available at
<http://www.smokeinthecockpit.com/references/Blinding-Smoke.pdf>

The Department of Transportation (DOT) and the U.S. air carriers are required by statute to provide the highest possible safety standards. The FAA is required to establish minimum safety standards for the airlines. None of these three organizations charged with the public's safety have followed the statutes. In addition, the Department of Homeland Security is required to keep the airlines secure. Both the DOT and DHS have failed to ensure that pilots can see at all times, particularly under the condition of unstoppable, blinding smoke in the cockpit. Smoke-in-the-cockpit-related accidents have occurred at least 2,000 percent more frequently than FAA safety regulations permit. The FAA has never certified an aircraft to operate in conditions of dense, continuous smoke in the cockpit. Moreover, present systems and procedures cannot cope with sources of dense unstoppable smoke.

For over six decades, airline fatalities have resulted when unstoppable blinding smoke has prevented pilots from seeing their vital instruments and/or out the window. As a result, just over the last 40 years, over 20 fatal accidents have occurred in which continuous smoke in the cockpit was a cause or a factor in the fatalities. As recently as September 2007, the National Transportation Safety Board (NTSB) wrote: "[t]he Board considers any kind of fire and/or smoke in the cockpit to be a serious issue that could affect other aircraft systems, lead to a loss of visibility, provide a distraction, or incapacitate the crew and possibly lead to an accident."¹

The FAA has a regulation that requires airline manufacturers to demonstrate that they can remove smoke so pilots can see. The regulation reads: "If accumulation of hazardous quantities of smoke in the cockpit area is reasonably probable, smoke evacuation must be readily accomplished, starting with full pressurization and without depressurizing beyond safe limits."²

Even though there is nothing in the regulation that excludes "continuous" smoke, the FAA has never interpreted the regulation to include "continuous" smoke. In a letter of explanation, former FAA Administrator Thomas Richards wrote that the purpose of the smoke in the cockpit evacuation regulation was to "be a means or procedure to evacuate smoke that may be present in the cockpit, thereby providing an adequate view of the instruments and the outside world." But then Richards qualified his comment to exclude continuous smoke. "The rule, [14 CFR §25.831(d)] as issued in 1957 and as applied ever since, does not address continuous smoke in the cockpit."³

More people have died from terrorists' bomb attacks on airplanes than died in the 9/11 Twin Towers attack. Some of the bombed aircraft were flyable after the explosion, only to crash because the pilots could not see through the smoke. Even after 900 hijackings, reinforced cockpit doors were not mandated by statute until after the 9/11 attacks. Although Congress has demanded the highest possible safety standards from the airlines and commanded the

¹ U.S. National Transportation Safety Board, "Safety Recommendation," A-07-49-A-07-50 (Sept. 4, 2007) available at http://www.nts.gov/Recs/letters/2007/A07_49_50.pdf

² 14 CFR §25.831(d)

³ Richards correspondence, January 14, 1993.

Department of Transportation to ensure it, Congress has failed to perform the necessary oversight to ensure that pilots can see to fly and land their aircraft. This failure applies to accidental or intentional acts that result in the presence of blinding, dense, continuous smoke in the cockpit.

The FAA has a regulation that requires manufacturers of airline aircraft to demonstrate that their aircraft can deal with excessive smoke in the cockpit: “If accumulation of hazardous quantities of smoke in the cockpit area is reasonably probable, smoke evacuation must be readily accomplished, starting with full pressurization and without depressurizing beyond safe limits.”⁴

The FAA claims that this smoke-in-the-cockpit regulation does not apply to continuous or unstoppable smoke. During 1993-94, Sen. Daniel Inouye (D-Hawaii) introduced legislation (S. 1491) to force the FAA to interpret its current regulation to require aircraft manufacturers demonstrate during certification that they could deal with *unstoppable blinding* smoke entering and accumulating in the cockpit. Unfortunately, the conference committee rejected his sage advice. Since then more than 300 lives have been lost and more than 300 million dollars worth of military and civilian aircraft have been destroyed in North America alone—all involving smoke in the cockpit that could not be stopped.

The National Transportation Safety Board (NTSB) has asked the Federal Aviation Administration to solve the unsafe condition of continuous, unstoppable smoke in the cockpit for over 40 years. All that the FAA has done was to require pilots to land at the nearest airport without requiring or providing the means to see to do so.

In the mid-1990s, the NTSB asked the FAA to investigate the use of emergency vision technology as a possible solution to pilot smoke blindness. The FAA did not investigate it; instead it told the NTSB that it would not require emergency vision technology for the public’s safety. However, the FAA went on to install such technology on the Secretary of Transportation’s aircraft and several FAA airplanes used to fly senior FAA staff. Emergency vision technology is also installed on the Secretary of Homeland Security’s and senior military VIP aircraft. In so doing, the DOT, DHS, DOD, and FAA have created a two-tier safety standard: a lower standard of safety for the public and a higher one for senior government officials.

When the FAA discovers an “unsafe condition,” the statutes and its own regulations require that it fix the problem. Its regulations require that it issue an “airworthiness directive.”⁵ However, no airworthiness directive for unstoppable blinding smoke has been issued because the FAA does not interpret unstoppable blinding smoke in the cockpit as an “unsafe condition.” The FAA can interpret an “unsafe condition” however it likes, because contrary to the Europeans, the FAA has no definition for an “unsafe condition.”

Another FAA regulation states that “[t]he equipment, systems, and installations . . . must be designed to ensure that they perform their intended functions under any *foreseeable* operating condition.” Smoke *is* foreseeable. Numerous fatal accidents attest to this fact as does the fact that the FAA installed emergency vision technology on its own aircraft.

The FAA is required to but has failed to enforce many of its own safety regulations. For example, one of them states: “The occurrence of any failure condition which would prevent the

⁴ 14 CFR §25.831(d)

⁵ “FAA’s airworthiness directives are legally enforceable rules that apply to the following products: aircraft, aircraft engines, propellers, and appliances.” 14 CFR §39.3

continued safe flight and landing of the airplane must be *extremely improbable*.⁶ (Emphasis added)

The FAA translates “extremely improbable” to mean not one occurrence in one billion flight hours. Since there have not been that many flight hours worldwide on FAA certified aircraft over the last half century,⁷ and since there have been more than 20 fatal accidents in which smoke was a cause or a factor, the FAA is far overdue to correct this serious smoke in the cockpit safety deficiency and clear violation of the DOT/FAA’s Congressional mandate.

The Transportation Security Administration has admitted that it cannot detect smoke bombs. Having aircraft that are flyable after a terrorist-caused smoke-bomb attack or explosion, only to crash because the pilot cannot see through the smoke, is unacceptable. Nor is it tolerable for military cargo or troop transport aircraft to fly without technology to permit pilots to see when faced with smoke-filled cockpits. That is why it is perplexing that even though Congress appropriated money for emergency vision equipment for the military’s KC-135 aircraft, the U.S. Air Force refuses to spend it. Even more confounding is the Air Force’s failure to spend the money when its own independent study recommended it procure the safety solution to continuous unstoppable smoke in the cockpit.

The recent safe landing on the Hudson River—after the failure of both engines—was the result of pilot skill, proper training, adequate procedures, and equipment. However, no amount of pilot skill would have lead to a successful landing from an emergency with unstoppable blinding smoke in the cockpit where pilots can’t see to control and land their planes. Only a few civilian and military aircraft are equipped to handle such emergencies. Accidents where pilots can’t see to fly from blinding smoke not only kill passengers and crew, they often pose fatal results for residents on the ground. Many fatal accidents attest to this unacceptable unsafe condition. (See <http://www.smokeinthecockpit.com/references/List-of-Some-Smoke-Related-Accidents.pdf>) Blinding unstoppable smoke in the cockpit can be converted into manageable emergencies and safe landings. It only takes the will of Congress to impose statutory and regulatory oversight.

The Congress must pass legislation (suggested draft legislation available at <http://www.smokeinthecockpit.com/references/FAA-House-Reauthorization-Bill.pdf>) requiring the Department of Transportation, Department of Homeland Security, Department of Defense, and the FAA to promptly enforce, as a minimum safety requirement for certification of aircraft and carriers, that pilots must be able to see at all times, including, but not limited conditions of blinding unstoppable smoke in the cockpit in order to—

- 1) see their flight path and relevant surrounding traffic;
- 2) see their vital instruments;
- 3) see written emergency instructions and navigational information;
- 4) maintain normal cockpit and cabin crew communications; and
- 5) have suitable respiratory protection for the duration of the descent to the closest adequate airport

End of Summary

⁶ 4 CFR § 25.1309 Equipment, systems, and installations.

⁷ Boeing Corporation, “Statistical Summary of Commercial Jet Airplane Accidents: Worldwide Operations 1959-2007,” (2008), available at: <http://www.smokeinthecockpit.com/references/statsum.pdf>