

VisionSafe Corporation

31 March 2008

Mr. Nicholas A. Sabatini
Associate Administrator for Aviation Safety
U.S. Department of Transportation
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591

Via email: monica.nemecek@faa.gov

Re: Our meeting March 6, 2008 concerning unsafe conditions relating to dense smoke in the cockpit that cannot be stopped; and your willingness to consider issuing ADs when I provide you with adequate information

Dear Nick,

Thank you for meeting with me this past March 6th regarding the unsafe condition of continuous blinding smoke in the cockpit. As a result of our meeting, you said that when I send you the supporting documentation necessary to issue one or more Airworthiness Directives (AD) you would consider it. I have reviewed the material I sent to you in November and more recently in January. I conclude, as do others who have reviewed them, that there is more than ample information contained in these documents to draw the conclusion that unsafe conditions exists. The facts presented to you are clear, unambiguous, and show serious "unsafe conditions" which the FAA is by law required to promptly address. If you disagree, please tell me what information you need.

If there is a single regulation that should compel you to act to provide—at a minimum—that pilots are able to see at all times, it is the one that states that “the equipment, systems, and installations . . . must be designed to ensure that they perform their intended functions under any foreseeable operating condition.”¹ Not only is smoke in the cockpit “foreseeable,” it is “frequent to reasonably probable.”² And since it is reasonably probable, there are times when “equipment, systems, and installations” will not be able to “perform their intended functions.” From my perspective, you need no other evidence to issue an AD. However, I previously provided additional material that you said you would read to consider whether or not to issue an AD.

You did qualify your comment by adding that sometimes OMB kicks things back because it believes that you are attempting to circumvent the rule making process. However, from my independent investigation, I learned that there are ways to notify OMB that you really want something. In that case, it will support you. Should the OMB have anything to do with this and object or overrule, it would be tantamount to saying that when there is an in-flight fire the OMB doesn't care that the pilots won't be able to see to make an emergency landing. This is not a

¹ 14 CFR §25.1309 (a)

² See, Paul Halfpenny's "Probability Analysis," previously sent and referred to in this letter as attachment (2).

rulemaking issue. It is a matter of enforcing the rules that clearly require that pilots be able to see at all times, as explained in the documentation I have already provided for you.

The FAA Administrator has the statutory duty to "exercise and perform his powers and duties under this Act in such manner as will best *tend to reduce or eliminate the possibility of, or recurrence of, accidents in air transportation. . . .*" (Emphasis Added.) The Supreme Court has reaffirmed this requirement: "The FAA has a statutory duty to promote safety in air transportation. . . ." You seem to be of a like mind because you said this past October, "whatever we do—with advanced technology, with new equipment, with different procedures—we must take a systems approach and ask, 'Will this make the system safer?'"³

Providing pilots with the information that "land as soon as possible" if they sense smoke, may not be enough of a solution if they are not able to see due to the smoke. This would be an even greater threat on trans-oceanic flights. You should, at a minimum, notify pilots of this fact. Moreover, as the Act requires the FAA to establish *minimum* standards, it would appear most appropriate to explicitly clarify that, at a minimum, pilots *must* be able to see at *all* times, especially when they need to "land as soon as possible."

Relative to your rhetorical question: "Will this make the system safer?" Is there any question in your mind that having as a minimum safety standard that pilots must be able to see at all times, including during their attempt to land as soon as possible, would make air travel safer? Would this minimum safety standard, as required by law, "*tend to reduce or eliminate the possibility of, or recurrence of, accidents in air transportation?*" Of course it would.

The FAA regulations state that when there are unsafe conditions, you issue Airworthiness Directives. From congressional testimony, I understand that the FAA defines an "unsafe condition" as "any condition that would jeopardize the continued safe flight and landing of the aircraft."⁴ According to the *Oxford English Dictionary*, "jeopardize," means "a state of uncertainty

³ U.S. Department of Transportation. Federal Aviation Administration. "FAA Perspectives on Safety Research," Nicholas A. Sabatini, St. Louis, MO, Speech. (Oct. 10, 2007): 3, available at http://www.faa.gov/news/speeches/news_story.cfm?newsId=9692.

⁴ Testimony of Thomas McSweeney, FAA Director of Certification, before the United States Senate Committee on Commerce, Science & Transportation, Aviation Subcommittee, Nov. 8, 1993.

The JAA also has a definition of an unsafe condition.

An unsafe condition exists if there is factual evidence (from service experience, analysis or tests) that :

- (a) An event may occur that would result in fatalities, usually with the loss of the aircraft, or reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be :
 - (i) A large reduction in safety margins or functional capabilities, or
 - (ii) Physical distress or excessive workload such that the flight crew cannot be relied upon to perform their tasks accurately or completely, or
 - (iii) Serious or fatal injury to one or more occupants. . . .

Note 4 : There may be cases where events can be considered as an unsafe condition if they occur too frequently (significantly beyond the applicable safety objectives) and could eventually lead to consequences listed in (a) in specific operating environments. Although having less severe immediate consequences than those listed in (a), the referenced events may reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be, for example, a significant reduction in safety margins or functional capabilities, a significant increase in crew workload, or in conditions impairing crew efficiency, or discomfort to occupants, possibly including injuries. (ACJ 39.5 "Definition of an Unsafe Condition." RST 02/2, doc 17d) www.aia-aerospace.org/issues/subject/jaa_req_0302/jar39/rst02-2doc17a.doc, visited Sept. 11, 2007.

as to the outcome.” If any condition would appear to make uncertain the safe outcome of the flight, it is smoke in the cockpit and its potentially blinding effects.

What perplexes me is that I have to bring this to your attention when you and other senior FAA managers fly on FAA aircraft that are equipped with technology that will permit you to see under conditions of continuous blinding smoke in the cockpit. Yet at the same time, you fail to mandate such fundamental minimum safety standards for the aviation industry. Perplexed though I am, I have outlined below the material that I have sent you over the last four months:

- (1) Independent expert analysis and reports which conclude that using all available and FAA prescribed means and procedures to evacuate smoke that can't be stopped, even from a “small fire,” render pilots unable to see to safely control and land their planes;
- (2) A Probability Analysis, by an independent expert, in accordance with FAA prescribed guidelines, which concludes: “... that smoke in the cockpit, from whatever cause, is Reasonably Probable. The probability of subsequent loss of an aircraft due to the smoke is inferred to be in the range of Frequent to Reasonably Probable. Smoke in the cockpit is a serious matter—and it could lead to loss of the aircraft.”;
- (3) A video of a smoke evacuation test confirming the analysis in (1) above;
- (4) Draft of a petition to the FAA to eliminate the unsafe conditions of loss of pilot vision and to inform pilots that present FAA approved training and emergency instructions relating to smoke that can't be stopped are seriously misleading. Pilots are misled to believe they will be able to see to “land as soon as possible.” According to independent experts and cockpit voice recorders, they won't be able to see to safely control and land their planes;
- (5) Draft of our response to comments requested by the FAA which among other things notes: (a) There are numerous critical safety regulations with which pilots cannot comply in the presence of *continuous* blinding smoke in the cockpit; (b) The NTSB has for many years asked the FAA to address the unsafe conditions associated with dense smoke that can't be stopped; (c) The Air Line Pilots Association (ALPA) and other pilot unions are in agreement. The document also points out that pilots are not warned that they are most likely faced with a catastrophic event when the smoke can't be stopped; and (d) According to an ALPA study, there is an unscheduled or emergency landing because of smoke on average once every day in North America;
- (6) Supportive documentation to (4) above that pilots are virtually completely unaware of the near certain loss of vision during serious fire/smoke emergencies and that responsible parties are on record as doing nothing to dispel this mistaken belief. Furthermore, in addition to previous accident information about blinded pilots, more information is provided on cockpit voice recordings and from accident investigators that numerous planes with smoke and fire onboard were flyable but resulted in fatal accidents because pilots could not see to control the planes;
- (7) Royal Aeronautical Society publication which shows that “opening the window” does not help (p. 13). In fact in recent safety meetings experts *strongly recommend not opening the cockpit windows*; and
- (8) List of *some* smoke related accidents. Again, more information is provided on cockpit voice recordings and from accident investigators that numerous planes with smoke

and fire onboard were flyable but resulted in fatal accidents because pilots could not see to control the planes.

Items (1), (2), (3), (7) and (8) are on one of the DVD's I left with you in our meeting. Item (3) is too large to email (16MB). Items (4) and (5) were attached in an email to Monica and are again attached herewith along with items (1), (2), (3), (7) and (8) and our original letter requesting a meeting with you, dated 08 November 2007. Item (6) is new material.

I trust that you will take prompt appropriate action and issue the ADs that are supported by this letter and the collateral material I have previously sent.

Dense smoke in cockpits should be manageable emergencies, not preludes to fatal disasters merely because pilots can't see, when equipment to enable pilots to see during such emergencies is not only available, but it is fully FAA tested, certified, and approved. Most of the Fortune 500 companies have it on their corporate aircraft. It is also installed on all NetJets planes (400-500 aircraft), JetBlue Airlines (voluntarily), and FEDEX feeder aircraft. It is also on a number of U.S. military VIP planes and the Secretary of Homeland Security's aircraft.

It is unacceptable that pilots are not aware that current procedures and systems will not permit them to see to land when there is dense unstoppable smoke. To mandate that pilots have to pass eye exams every six months only for the FAA to ignore the requirement for them to see to safely control and land their planes during emergencies with blinding, continuous, dense smoke makes no sense.

I would appreciate your prompt reply as it has already been more than four months since I first provided information to you, for the purpose of finding an amicable resolution of these serious safety matters in our March 6 meeting.

Regards
VISIONSAFE CORPORATION



Bertil Werjefelt
President