DISPOSITION OF PUBLIC COMMENTS

Policy Statement PS-ANM-25-19, *Flightcrew Procedures and Training for Addressing Fire Hazards in the Flight Deck*

Prepared by Robert Hettman, ANM-112

No.	Comment	Requested Change	Disposition
	Commenter: Air Line Pilots Association, International (ALPA)		
1.	Paragraph 2.1 refers to 25.795(b)(1) which only applies to aircraft with a passenger seating capacity of more than 60 persons or a maximum certificated takeoff gross weight of over 100,000 lbs. and requires a means to prevent entry of smoke, fumes and noxious gases from entering the flight deck as a result of an explosive or incendiary device. However, the main paragraph is referring to Flightcrew Procedures and that such procedures should address a fire originating in the flight deck. If a fire is originating in the flight deck then smoke is originating there also. It appears that 25.795(b)(1) is applicable only to smoke, fume, or noxious gas sources originating from outside the flight deck due to an explosive or incendiary device. The main title of 25.795 is "Security considerations." Also, what is the measure of "limit entry of smoke, fumes, and noxious gases"? How is compliance determined? If AC 25-9 is the guidance material then limiting entry of smoke can be achieved by terminating the source and evacuating the smoke in 90 seconds. But even AC 25-9 encourages the applicant to address continuously generated smoke or fumes.	In accordance with § 25.795(b)(1), a means must be provided to limit entry of smoke, fumes, and noxious gases into the flight deck, regardless of the location of the source of the smoke, fumes, or noxious gases. It is to be assumed that the smoke, fumes, and noxious gases are generated continuously if the source is within an area inaccessible to the flight crew.	We partially agree. We agree that § 25.795 requires a means to limit entry of smoke into the flight deck. However, we disagree with the proposed change. As discussed in AC 25.795-3, § 25.795(b)(1) is intended to protect the flight deck from excessive penetration of smoke, fumes, and noxious gases generated by an explosive or incendiary device located elsewhere on the airplane. This policy is not intended to address this situation covered by § 25.795. For clarity, we revised paragraph 2.1 and other sections of the policy to remove all references to § 25.795.

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	Commenter: Air Line Pilots Association, International (ALPA)		
2.	Paragraph 2.3 mentions "unlikely" event of smoke/fire or fumes. However, the word "unlikely" is not defined either in AC 25.1309-1A or in the FAA System Safety Handbook.	Use the appropriate term based on observed data of occurrences; i.e., probable, improbable, extremely improbable from AC 25.1309-1A, or probable, remote, extremely remote, or extremely improbable from FAA System Safety Handbook and/or include the qualitative value associated with the term the FAA intends to be used.	We partially agree. Instead of incorporating the requested change, we deleted the term "unlikely" throughout the policy. We proposed using that term with the dictionary definition in mind, not the failure terminology associated with compliance with § 25.1309. This policy is intended to provide guidance using the assumption that a flight deck fire is a foreseeable but unusual situation that may be expected to substantially reduce the risk of catastrophe such that emergency procedures are required in accordance with § 25.1585(a)(3).
3.	Agree with paragraph 2.7 however, paragraph 1.6 seems in conflict with 2.7. The opposite of paragraph 2.7 seems to imply that if procedures don't require the flightcrew to leave their seats to combat a fire then the oxygen mask don't have to be on while retrieving emergency equipment (i.e., fire extinguisher)—but it does if you have to leave your seat?	For only the case of inflight fire-fighting amend paragraph 1.6 to read: "For emergency equipment to be considered conveniently located and readily accessible, the flightcrew should have clear and unobstructed access to it, but not necessarily while seated or while wearing equipment intended for use while seated. <u>Except in the case of flight deck fire-fighting equipment which is to be accessible while properly wearing an oxygen mask.</u> In addition, the installation should either preclude stowage of additional items that might impede access, or be clearly labeled to prevent stowage of such items."	We partially agree. We agree that paragraphs 2.7 and 1.6 conflicted, so we provided clarification. However, we disagree with the proposed change. Since there are no specific 14 CFR part 25 regulations requiring access to a fire extinguisher or other firefighting equipment while seated or wearing an oxygen mask, FAA policy cannot require such criteria. We clarified paragraph 2.7 in this respect. However, if emergency procedures are written such that the flightcrew is expected to exit their seats to fight a fire, then the FAA expects the approved airplane type design to support the procedures by ensuring that either protective breathing equipment (PBE) is available to the flightcrew, or the airplane provides sufficient airflow so PBE would not be necessary for at

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			least the time it takes the flightcrew to access the necessary equipment.
4.	Don't agree with paragraph 2.8 as written because it supports the idea of removing the oxygen mask, when being used as protective breathing equipment, in order to retrieve emergency equipment. This does not seem to be a wise practice during a smoke, fume, noxious gas event. As written it is unclear how this provides adequate guidance to address the stated condition.	Amend paragraph 2.8 as follows: "If the stationary oxygen mask and oxygen hose are not long enough to allow the flightcrew to ~~reach~~ retrieve the emergency equipment with the mask properly ~~donned~~ worn, the procedures should account for removing the mask. Except that this does not apply in the presence of smoke, fumes, and noxious gases. In that case, flightcrew retrieval of emergency equipment used for fire-fighting is to be possible without unsealing the oxygen mask from the crew member's face."	We partially agree. We disagree with incorporating the requested change. Instead, in response to other comments, we deleted paragraph 2.8, and clarified sections 2.6 and 2.7. If emergency procedures are written with the expectation that the flightcrew will exit their seats to combat a fire, such as during operations conducted with minimum flightcrew only, then it should be shown that there would be sufficient time and flight deck air flow to do so safely after removing the stationary oxygen mask. Alternatively, emergency equipment should be within the flightcrew's reach while wearing their stationary oxygen mask.
5.	Agree with paragraph 3.1.1. However, paragraphs 1.6 and 2.8 are in conflict with it when considering smoke, fire, fume events.		We agree. We clarified paragraph 3.1.1 and deleted paragraphs 1.6 and 2.8 based on other comments.
6.	Conclusion. See comment #2 regarding the definition of "unlikely."		We agree and removed the term "unlikely."

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Policy Statement PS-ANM-25-19, *Flightcrew Procedures and Training for Addressing Fire Hazards in the Flight Deck*

Prepared by Robert Hettman, ANM-112

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	Commenter: Boeing Commercial Airplanes		
1.	The following statement is included in the opening paragraph of the "Policy" section: "This policy provides guidance for installation of equipment and for developing procedures and training for the flightcrews of transport category airplanes in the unlikely event of a fire in the flight deck…." Further, the following is included in the "Purpose" section of FAA Advisory Circular (AC) 25.795-3, *Flightdeck Protection (Smoke and Fumes)*: "This advisory circular (AC) describes an acceptable means of showing compliance with the requirements of Title 14, Code of Federal Regulations (14 CFR), part 25, § 25.795(b)(1), "Flight deck protection." This section requires that an airplane be designed to limit the entry of smoke, fumes, and noxious gases into the flight deck in the event of detonation of an explosive or incendiary device on the airplane. The means of compliance described in this document provides guidance to supplement the engineering and operational judgment that must form the basis of any compliance findings relative to penetration into the flight	Page 4, paragraph 2.1 (Flightcrew Procedures). The proposed text states: "In accordance with § 25.795(b)(1), a means must be provided to limit entry of smoke, fumes, and noxious gases into the flight deck." Paragraph 2.1 should be removed from the proposed flightcrew procedures.	We agree and deleted that paragraph and other references to § 25.795 from the policy.

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	deck of smoke, fumes, and noxious gases generated by explosions or fires elsewhere on the airplane." Since the proposed policy is addressing "a fire in the flight deck" and the intent of 14 CFR 25.795(b)(1) is to provide for protection for an explosion or fire "<u>outside</u> of the flight deck," § 25.795(b)(1) is not applicable to a fire that may occur <u>in</u> the flight deck.		
2.	Page 4, paragraph 2.5 (Flightcrew Procedures). The proposed text states: "Procedures may include a step for the flightcrew to extinguish the fire if the source is obvious and can be extinguished quickly. For example, a source is not considered obvious if hidden behind a sidewall panel." Having a pilot get out of the seat to fight a fire may pose a greater risk than a delay in getting other assistance. (See our other related comments on this issue.)	We recommend the text be revised to read as follows: "Procedures may include a step for ~~the flightcrew~~ <u>supernumeraries or cabin crewmembers</u> to extinguish the fire if the source is obvious and can be extinguished quickly. For example, a source is not considered obvious if hidden behind a sidewall panel."	We partially agree. We disagree because section 2, in general, describes flightcrew procedures, so it would be inappropriate to include specific procedures that would be applicable to other available personnel, such as cabin attendants or supernumeraries. However, we agree that having a pilot get out of their seat to fight a fire may pose a greater risk than a delay caused by getting other assistance. We clarified paragraph 2.6 in response to other comments to indicate that the flightcrew may need to request assistance from other available personnel, such as cabin crew or supernumeraries. However, assistance might not always be available, such as freighter operations conducted with minimum flightcrew. We revised paragraph 2.7 to clarify this potential scenario.

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	Commenter: Boeing Commercial Airplanes		
3.	Page 4, paragraph 2.6 (Flightcrew Procedures). The proposed text states: "If the source of fire is confirmed to be in the flight deck but is not obvious, or cannot be extinguished quickly enough such that PBE is necessary, procedures should emphasize that the flightcrew request immediate assistance from available cabin crew so that the flightcrew can continue to operate the airplane and prepare for emergency landing as necessary." Our suggested change takes into account how the policy would be implemented for freighters, which may have supernumeraries, but no cabin crew.	We recommend the text be revised to read as follows: "If the source of fire is confirmed to be in the flight deck but is not obvious, or cannot be extinguished quickly enough such that PBE is necessary, procedures should emphasize that the flightcrew request immediate assistance from available cabin crew <u>or supernumeries</u> so that the flightcrew can continue to operate the airplane and prepare for emergency landing as necessary."	We agree and revised that paragraph to state "…assistance from <u>other</u> available <u>personnel, such as</u> cabin crew <u>or supernumeraries</u>…."

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4.	Page 4, paragraph 2.7 (Flightcrew Procedures). The proposed text states: "If procedures advise the flightcrew to exit their seats to combat a fire, then it should be shown that either there would be sufficient time and air flow to do so without the use of PBE, or emergency equipment should be within the flightcrew's reach while wearing an oxygen mask." Rationale for deletion of the paragraph: We do not plan to advise crews to exit their seats to combat a fire. We maintain that the flightcrew should remain on oxygen and are not qualified to determine if smoke/fumes/airflow intensity permits removing the oxygen mask. Rationale for rewording of the paragraph: 1. It is not feasible for the flightcrew to know whether or not the amount of airflow into the flight deck will allow them sufficient time to reach the PBE or emergency equipment and, thus, such a requirement should not be included in this procedure. 2. The airflow requirement is a design requirement that is already addressed	Boeing recommends deleting paragraph 2.7. If the FAA does not agree to delete the paragraph, then Boeing recommends that the paragraph be revised to read as follows: If procedures advise the flightcrew to exit their seats to combat a fire, then ~~it should be shown that either there would be sufficient time and air flow to do so without the use of PBE, or emergency equipment should be within the flightcrew's reach while wearing an oxygen mask~~ the flightcrew should make an assessment that the PBE is sufficiently close that it could be retrieved and donned (without wearing the flightcrew oxygen mask) in a quick manner to support fighting the fire.	We partially agree. We disagree with deleting or incorporating the requested change. However, we agree that paragraph 2.7 needs to be clarified. In response to other comments, we revised it to state: "If emergency procedures are written with the expectation that the flightcrew will exit their seats to combat a fire, such as during operations conducted with minimum flightcrew only, then it should be shown that there would be sufficient time and flight deck air flow to do so safely after removing the stationary oxygen mask.…Alternatively, emergency equipment should be within the flightcrew's reach while wearing their stationary oxygen mask." It was not our intent to require that emergency equipment in the flight deck be accessible while wearing an oxygen mask in all configurations. However, there are AFM procedures that, if directly followed, would require the flightcrew to first don oxygen in the event of smoke/fire/fumes in the flight deck, and then extinguish a fire if the source is obvious and can be extinguished quickly. To follow these steps with some configurations, the flightcrew would need to remove their mask to access the fire

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	during the certification process for different reasons: (a) Smoke removal per §25.831(d), as stated in step 2.2 of the proposed policy statement; and (b) Fire extinguishing concentration using guidance in FAA AC 20-42C (*Hand Fire Extinguishers for use in Aircraft*) or AC 20-42D, depending on the certification basis of the airplane. 3. We are concerned that the proposed policy, as written, is driving a new design requirement for emergency equipment to be located within reach of the seated pilot if the airline would not be able to show there is sufficient time and air flow to retrieve the fire extinguisher without the use of PBE. As stated in FAA Order IR 8100.16 (*Aircraft Certification Service Policy Statement, Policy Memorandum, and Deviation Memorandum Systems*), paragraph 2-2.a.: "Policy statements must not create or change the regulatory requirement." Current regulations contained within 14 CFR part 25 require emergency equipment to be installed in the flight		extinguisher. For this scenario, since the AFM suggests that the pilot or co-pilot leave his/her seat to fight a fire, then it is the type design holder's responsibility to ensure that such operating procedures can be accomplished safely in accordance with § 25.1585(a)(3). As this policy suggests for this scenario, it should be demonstrated that either the fire extinguisher is within reach while wearing the stationary oxygen mask, or that there is sufficient airflow such that the fire extinguisher can be safely accessed by the flightcrew without using PBE.

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	Commenter: Boeing Commercial Airplanes		
	deck, but do not include a requirement for emergency equipment to be installed within the flightcrew's reach. We request that FAA reconsider this portion of the proposed policy. If this is indeed a new requirement, then the FAA should consider using the normal rulemaking process to implement it. (Our comments also apply similarly to proposed paragraph 2.8.)		

DISPOSITION OF PUBLIC COMMENTS

Policy Statement PS-ANM-25-19, *Flightcrew Procedures and Training for Addressing Fire Hazards in the Flight Deck*

Prepared by Robert Hettman, ANM-112

No.	Comment	Requested Change	Disposition
	Commenter: General Aviation Manufacturers Association (GAMA)		
1.	In General, GAMA is supportive of the policy statement however, is concerned with the broader applicability and implication that all aircraft operate with cabin crew. As you know, CFR §91.533 Flight attendant requirements, does not require flight attendants for airplanes having 19 or fewer seats. This is of particular concern in the Policy Statements paragraphs 2.6 and 3.1.2 that implies cabin crew will be available on all aircraft.	Therefore, GAMA respectfully requests that the FAA add an applicability section clarifying that this guidance is not intended for aircraft operating without cabin crew. Further, section 2.6 should be re-written to include the clarification "For aircraft with required cabin crew—If the source of fire…". Similarly, section 3.1.2 should include the same clarifying statement.	We partially agree. We recognize that not all transport category airplanes are operated with cabin crew. We clarified sections 2.6 and 2.7 of this policy and referred to operations with cabin crew, supernumeraries, or minimum flightcrew. However, this policy is intended to apply to transport airplanes that include cabin crew or supernumeraries, as well as transport airplanes that do not include cabin crew or supernumeraries.

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No.	Comment	Requested Change	Disposition
	Commenter: Independent Pilots Association (IPA)		
1.	Within the narrow scope of "installation of equipment and developing procedures and training for flightcrews of transport category of airplanes in the unlikely event of a fire in the flight deck," it appears that the proposed Policy Statement is written exclusively from a passenger operations point of view. IPA feels the issues raised apply equally to non-passenger operations. For example, paragraph 2.6 references requesting assistance from cabin crew to fight the fire, allowing the flightcrew to "continue to operate the airplane and prepare for emergency landing as necessary." Cabin crew is also referenced in paragraph 3.1.2.	We recommend that more robust guidance be given towards dealing with the cockpit fire emergency solely by cockpit crewmembers. Whether the operation is non-passenger operation, or passenger operation, there are several reasons help may not be available to the cockpit crew. For example, in today's world we cannot discount security concerns that could breach the cockpit door.	We agree. We clarified sections 2.6 and 2.7 of the policy to differentiate between operations with additional crewmembers and operations with only the minimum flightcrew.
2.	Over a period of many years, as airline operations have been able to take advantage of improved technologies, we have gotten used to doing more with less. When this bumps up against the edges of events that are perceived as rarely happening, we make due the best as possible. When cockpit crews were comprised of three crewmembers, it was accepted that one of the crewmembers, most often the Flight Engineer (F/E), would be tasked with fighting a fire. With the elimination of the F/E position, checklists assume that the two flying pilots would complete any emergency checklist,	Although current [14 CFR] interpretation does not require that emergency equipment be accessible from the pilot seat, we strongly recommend that this Policy Statement clearly address what is an acceptable installation. Since this discussion is limited to a flight deck fire, it is reasonable that crewmembers will be dealing with a smoke filled environment. It is common sense that someone in a smoke filled environment who is wearing an emergency oxygen mask, should not have to remove his or her oxygen mask to fight a fire.	We agree and clarified sections 2.6 and 2.7 of this policy. If emergency procedures are written with the expectation that the flightcrew will exit their seats to combat a fire, such as during operations conducted with minimum flightcrew only, then it should be shown that there would be sufficient time and flight deck air flow to do so safely after removing the stationary oxygen mask. Alternatively, emergency equipment should be within the flightcrew's reach while wearing their stationary oxygen mask.

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	Commenter: Independent Pilots Association (IPA)		
	communicate with ATC, fly the airplane and fight the fire. In practice, most operators have learned that the best course of action is for both pilots to focus on getting the aircraft on the ground as quickly as possible. With this in mind, it is imperative that any emergency equipment be easily accessible so that one of the two flying pilots can quickly address a cockpit fire and return to his/her duties flying the aircraft. Modern transport category aircraft are complex enough that two pilots are required, and trained, for two pilot operations; even when not dealing with a smoke filled cockpit.		

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No.	Comment	Requested Change	Disposition
	Commenter: Private Citizen 1		
1.	I am writing in support of the proposed changes to the Code of Federal Regulations 25.1301(a)(1), 25.1439(a), and 25.1585(a)(3), for transport category airplanes. I believe that as an Airline Pilot, I do not receive the necessary training to fight fires inside the cockpit. I feel that requiring the proper training would help me should a catastrophic fire break out on my flight deck by giving me the knowledge and confidence needed to mitigate the fire threat. I am also in support of the requirement to have the Extinguishers moved to a position on the flight deck where I can readily access them in case of fire without having to remove my oxygen mask. Removing my mask could render me incapacitated in a smoke situation and would take me out of the task of a) flying the plane and b) putting out the fire. This is a needed safety improvement and I applaud the FAA for taking action on this gap in Fire safety onboard our airliners.		We appreciate the commenter's interest in aviation safety, but must emphasize that this policy does not constitute a change in airworthiness standards or a requirement, as suggested by the commenter. This policy provides additional guidance that can be used to comply with existing type design regulations. We clarified sections 2.6 and 2.7 of this policy. If emergency procedures are written with the expectation that the flightcrew will exit their seats to combat a fire, such as during operations conducted with minimum flightcrew only, then it should be shown that there would either be sufficient time and air flow to do so without the use of PBE, or emergency equipment should be within the flightcrew's reach while wearing their stationary oxygen supply.

No.	Comment	Requested Change	Disposition
	Commenter: Private Citizen 2		
1.	After several incidents of cockpit windshield fires on Boeing 757 aircraft where a crewmember could not access the cockpit fire bottle without removing their mask, a definition of "readily accessable" was requested from the FAA. Attached is [its] 12 Nov 2008 response. I believe the last paragraph speaks for itself.	The FAA infers that the commenter proposed to incorporate the last paragraph from the § 121.309 legal interpretation dated 12 Nov 2008. For reference, the last paragraph is copied below for reference. On March 18, 1981, the FAA's Assistant Chief Counsel, AGC-200, issued an interpretation of the terms "accessible" and "readily" relying upon dictionary definitions. This interpretation restates its previous determination that since the preamble to § 121.309 did not specify definitions of "accessible" and "readily." The FAA chooses to use the common meanings for these terms. The Merriam-Webster dictionary lists definitions of "accessible" to mean "capable of being reached" and "being within reach." "Readily" is defined as "in a ready manner" and "without hesitating." If the fire extinguisher in the crew compartment is not accessible (within reach) during an emergency situation in which the crew must don oxygen masks, the extinguisher's location does not meet the requirement of § 121.309(c)(4). The additional modifier "readily" in	We disagree. The legal interpretation dated November 12, 2008 was clarified in a subsequent interpretation dated March 30, 2011. As noted in the subsequent interpretation, "as long as the hand fire extinguisher is located on the flight deck and clearly marked with unobstructed access for retrieval by the flight crewmembers, it would meet the requirements of § 121.309 and the guidance given by AC 20-42D."

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	Commenter: Private Citizen 2		
		paragraph (b)(2), makes this requirement for accessibility even more immediate. If the crew must hesistate to retrieve the fire extinguisher by either removing an oxygen mask or by leaving the crewmember's seated position, the emergency equipment is not "readily accessible." The flightcrew compartment on the aircraft must contain at least one fire extinguisher. That fire extinguisher must be reachable by at least one flightcrew member from that crewmember's seated position at all times, to include those instances when flightcrew members have donned oxygen masks.	

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Policy Statement PS-ANM-25-19, *Flightcrew Procedures and Training for Addressing Fire Hazards in the Flight Deck*

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No.	Comment	Requested Change	Disposition
	Commenter: Structural DER		
1.	Page 5, "Implementation" paragraph lists type certificate, amended type certificate, supplemental type certificate, and amended supplemental type certification programs. There are other means of approving installation data.	Add Major Alteration and Field Approvals in addition to TC, amended TC, STC, and amended STC.	We partially agree. We agree there are additional methods of approving installation data, such as major alterations or field approvals. However, we disagree with including those types of changes in the implementation paragraph. The implementation paragraph for this policy is intended to capture new significant product level changes that would involve type certification activity.
2.	Page 7, Table A-1. Definition of Key Terms, "Should" has the stated effect that an alternative MOC has to be approved by issue paper. Some of the topics don't seem serious enough to require an Issue Paper.	Think about changing "should" to "recommend" in page 3 section 1.5; some cockpits are so small that there wouldn't be much room for locator placards. In fact, other than the crew, there's no room left other than for emergency equipment.	We partially agree. Our use of the word "should" is explained in the policy statement. The use of the word "should" does not imply an issue paper "has to be used." Instead of making the requested change, we clarified this paragraph to note that additional markings may not be necessary if the fire extinguisher is installed in clear view.

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No.	Comment	Requested Change	Disposition
	Commenter: Textron Aviation		
1.	The incident referenced in the "Background" section of the proposal addresses an event that occurred on a large transport category airplane operating under 14 CFR Part 121. Also, the proposed policy lists specific operating requirements for 14 CFR part 121. The "Policy" section of the proposal does not address the fact that not all airplanes under 14 CFR part 25 operate under part 121. It assumes all part 25 are the same. With regards to Airworthiness Directives and FAA MMEL Policy Letters, there are numerous examples of requirements for large transport category airplanes inappropriately being applied to smaller transport category airplanes.	This proposal, and any following rulemaking, must clearly identify that the proposed policy is intended for those large transport category airplanes designed and intended to be operated under 14 CFR part 121 operating rules and those 14 CFR part 25 airplanes designed or intended to be operated under 14 CFR part 91, 91K, or 135 are not required to show compliance to this proposal.	We partially agree. We made several changes to clarify this policy in response to other comments. However, the policy offers guidance to support general compliance with several part 25 airworthiness standards for which direct compliance is independent from how the airplane is being operated.

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	Commenter: VisionSafe Corporation		
1.	Should include mention of a Cockpit Smoke Vision System (CSVS) such as the VisionSafe Corporation Emergency Vision Assurance System (EVAS®).	Add to second paragraph under "Relevant Past Practice" on Page 2.	We disagree and did not change the policy as requested. This policy addresses equipment that is required to support compliance with existing airworthiness standards. Including guidance for the installation of optional equipment such as EVAS is beyond the scope of this policy.
2.	If the airplane is equipped with a Cockpit Smoke Vision System (CSVS) such as the VisionSafe Corporation Emergency Vision Assurance System (EVAS®), mention should be made to begin this initial deployment steps in accordance the CSVS AFMS.	Recommend adding after item 2.3 or 2.4.	We disagree and did not change the policy as requested. This policy addresses equipment that is required to support compliance with existing airworthiness standards. Including guidance for the installation of optional equipment such as EVAS is beyond the scope of this policy.
3.	In the event smoke removal procedures are not successful and smoke accumulation on the flight deck persists, the CSVS system, if installed, should be deployed and the flight crew take immediate steps to land the airplane at the nearest airport.	Recommend adding after item 2.9.	We disagree and did not change the policy as requested. This policy addresses equipment that is required to support compliance with existing airworthiness standards. Including guidance for the installation of optional equipment such as EVAS is beyond the scope of this policy.

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4.	According to FAA InFO (Information for Operators) number 10019, the Federal Aviation Administration (FAA), Office of Accident Investigation and Prevention (AVP-100) continues to receive over 900 reports a year on smoke or fumes in the cabin and or cockpit. AVP-100 receives these reports on a daily basis. In fact, it is not unusual to receive more than one report during a 24-hour period. For instance, on one day in April of 2010, five reports of smoke in the cockpit came in from one Title 14 of the Code of Federal Regulations (14 CFR) part 121 air carrier. All these incidents prompted the flightcrew to declare emergencies and divert to the nearest airport. In our experience operators are not aware that different test procedures are used in smoke control certification and that their aircraft may not be certified using the Continuous Smoke Test, and may have only certified using the Smoke Off Test. Operators and crews should be required to demonstrate knowledge regarding the test used under AC25.9A related to flight deck smoke control to certify the aircraft they operate – specifically which level of certification standard; Item 12.e.(2) - smoke off) or Item 12.e.(3) - continuous smoke.	Add to Background.	We partially agree. We agree that operators and crews should demonstrate knowledge regarding the test used under AC 25-9A related to flight deck smoke control to certify the airplanes they operate—specifically which level of certification standard; either paragraph 12e(2) where the smoke is turned off, or the optional test in paragraph 12e(3) where the smoke is continuously generated. Pilot and crew training should accurately reflect the airplane design. However, this policy provides guidance to aid design approval holders in complying with type design regulations under part 25. Specific operator training requirements are outside the scope of this policy. Therefore, we did not change the policy as requested.

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	Thus during certification demonstrating any ability to clear continuous cockpit smoke was optional. The minimum Smoke Off Test defines the point when smoke is shut off using a reference to a lack of pilot vision – "cockpit instruments are obscured (dial/panel indicator numbers or letters become indiscernible)". Based on this, advisory materials should recommend and encourage training that applies conditions expected as defined in AC25.9A Para 7 assuming the condition will be a continuous obscuring smoke event. This training will accurately represent what flight crews might face in aircraft certified using the Smoke Off Test when faced with a fire that cannot be extinguished. Such training will provide valuable exposure to reflect recent and real world events in aircraft. Operators of high risk aircraft carrying cargo, or operating in extended ETOPS environments should be advised to further consider mitigation noted above to reduce risk and/or retrofit aircraft to meet 25.9A 12.e.(3) continuous smoke standards.		

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	Commenter: VisionSafe Corporation		
5.	Crew members can easily be incapacitated when they cannot see due to smoke, or breathe due to continuous thick smoke. The International Federation of Airline Pilots ("IFALPA") states that a crew member who cannot see should be considered incapacitated. Indeed pilots who forget their eye glasses are not permitted to fly. Aircraft operators have an implied (if not regulatory) obligation to provide safety equipment, within reason, to prevent crew incapacitation due to loss of vision or lack of breathing oxygen. Operators of aircraft which have not been tested to FAA 25.9A 12.e.(3) continuous smoke standards for cockpit smoke protection are much more likely to experience complete crew incapacitation when facing continuous smoke. Such operators should, at the very minimum, be aware of this, train for it, and take reasonable measures to protect against incapacitation.	Add to Background.	We partially agree. We have added reference to AC 25-9A and the optional continuous smoke test. However, training requirements are outside the scope of this policy.

No.	Comment	Requested Change	Disposition
	Commenter: VisionSafe Corporation		
6.	This policy material should include certification information making operators and crews aware that FAA recommended certification standards are optional and thus all aircraft do not meet the same standards for smoke control. It is not unreasonable to think that operators assume that all aircraft would meet the highest recommended or optional testing standard. A standard of training must be applied so operators can train crews to manage situations that FAA part 25 advisory materials have identified as probable and have recommended (voluntary) certification practices to mitigate. Different certification tests (voluntary and minimum) produce aircraft with vastly different smoke control characteristics. Operators should be advised and encouraged to: (1) Demonstrate awareness of the test standard applied to their aircraft (2) For aircraft certifications with the minimum standard to develop training, provisions, and procedures to demonstrate operational abilities based on the inability to extinguish the smoke source (3) retrofit aircraft to the voluntary test standard.	Add to Section 3.	We partially agree. We have added reference to AC 25-9A and the optional continuous smoke test. However, training requirements are outside the scope of this policy.