



Society of Aviation and Flight Educators (SAFE)

NPRM Review and Recommendations

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 1, 91, 120, and 135

[Docket No. FAA–2010–0982; Notice No. 10 – 13]

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Air Ambulance and Commercial Helicopter Operations, Part 91 Helicopter Operations, and Part 135 Aircraft Operations; Safety Initiatives and Miscellaneous Amendments

January 10, 2011

Introduction

The Society of Aviation and Flight Educators (SAFE) is an aviation organization of more than 500 of the industry's top aviation educators, including many Master Instructors and recipients of local and national General Aviation Awards in the flight instructor, FAA Safety Team, aviation maintenance, and avionics categories. SAFE is also chairing the GA Pilot Training Reform Symposium in Atlanta, GA on May 4-5, 2011. SAFE through its members in the helicopter community is pleased to provide the following NPRM response.

NPRM Discussion Point(s):

NPRM (Page 61 – 62) Helicopter air ambulance pilots must hold a helicopter instrument rating.

SAFE's response is predicated on a few generalities of the industry. 1) The current flow of student certification, 2) would/do all helicopter pilot(s) need an instrument rating, and 3) is the current instrument rating curriculum adequate for inadvertent IMC encounters?

The question posed; "do all helicopter pilots need to hold an instrument rating?" SAFE believes that the answer to that question is "NO". There are missions flown by helicopter pilots that have no means to benefit from an instrument rating. In addition, many aircraft operated by commercial helicopter operators do not have the required equipment installed to enter IMC.

The normal flow of student certification includes the instrument rating. Through normal attrition, the industry is seeing an increase in the number of pilots holding an instrument rating.



Is the training to obtain an instrument rating adequate to ensure a successful outcome to an inadvertent IMC event? Instrument training programs are often developed around the testing elements, procedures, and standards that will be used to evaluate the instrument rating applicant. When evaluating the adequacy of the instrument training program, it is important to recognize that current training programs embrace comprehensive planning procedures, utilization of known and forecast weather, and predetermined routing for the successful outcome of each flight.

However, accident data with the helicopter industry reflects that encounters with Instrument Meteorological Conditions (IMC) are often not planned. The inadvertent encounter with IMC conditions are far less forgiving due to the lack of any preparation for the event. Is the instrument training received for instrument certification adequate for IIMC encounters? As stated earlier SAFE believes the answer is NO.

Further rationale; the instrument training toward certification focuses on known circumstances. An IIMC encounter presents the pilot with certain challenges that may include unusual attitude recovery, unknown terrain and obstruction height, and increasing severity of weather once engaged. These are all unknowns that are often dealt with as the event unfolds. A benefit to an instrument rated pilot that encounters IIMC will be the hours spent flying under-the-hood. From a survival perspective, it is the ability to maintain aircraft control in these situations that will enable a pilot and crew to survive.

It is interesting to read the FAA study and final report dated November 2010. The FAA utilized IIMC encounters as a means of developing new data collection techniques for future studies. A key point taken from this study was that 52% of pilots that had encountered IIMC weather, the pilots stated they had a **“lack of appreciation / understanding of the weather”** they encountered. In another study conducted by the National EMS Pilots Association (NEMSPA) of more than 444 active Air Medical pilots, 81% felt they were **very confident or confident** when asked **“If you were to encounter inadvertent IMC conditions while flying today, how confident are you in your ability to successfully perform a complete instrument approach procedure in IMC conditions?”**

The level of confidence felt by the large number of respondents in this study is a cause for concern. The pilots surveyed in the FAA study **lacked appreciation and/or understanding** of the weather they had encountered. Couple this to a NEMSPA survey that finds that most pilots have never entered IMC weather and it would appear that a cultural shift is in order. The confidence that pilots exhibit is primarily based upon training received for an instrument rating, often conducted in VMC weather conditions. ***How could a pilot have such a high level of confidence in their abilities given circumstances they have never encountered?*** Definitely food for thought.

Recommendation:



All pilots that operate Air Medical operations should hold an instrument rating that is appropriate to the category/class aircraft they operate. Based upon established regulatory requirements, most aircraft that operate in this environment are equipped with minimum equipment providing basic IFR capability in the event of an IMC encounter. Having a proficient IFR pilot that is capable of utilizing such equipment would enhance safety of the crew and the public they serve.

The FAA should mandate IFR currency if an instrument rating is required for the type of mission(s) being flown. The key to this recommendation is a “proficient pilot”. The FAA mentions they WILL NOT require pilots that would hold an instrument rating per this NPRM to maintain IFR currency. For the last five (5) Air Medical helicopter accidents attributed to IIMC encounters, each pilot held an instrument rating. Establishing a minimum requirement for instrument currency would mandate that operators provide aircraft and/or simulation training resulting in a more proficient pilot staff. Not long ago the buzzwords in the industry and accepted by most FAA personnel was that we should “Train to Proficiency”; SAFE believes that approach is still true today.

NPRM (Page 72 – 75) - Require helicopter pilots to demonstrate competency in recovery from inadvertent instrument meteorological conditions

Under this proposal, “pilots would be required to demonstrate the ability to recover from inadvertent IMC during their annual competency checks. It is our understanding that FAA believes that pilots who learn basic instrument skills while obtaining an instrument rating, supplemented by preparation for an annual competency check, will be adequately prepared to recover from an inadvertent IMC encounter.” SAFE understands the practicality of incorporating inadvertent IMC recovery demonstration as part of competency check, however it should be noted that this requirement is currently in place for 135 operators (reference Order 8400.1/8900.1). In the aforementioned NEMSPA survey, many pilots reported receiving as little as 0.2 to 0.3 hours of instrument training to meet the requirement. SAFE believes this is inadequate.

Recommendation:

The FAA should mandate demonstration of competency in recovery from inadvertent instrument meteorological conditions. Preparation for an annual competency check should be strengthened by stricter and better defined **recent experience** requirements. As revealed in the aforementioned survey, there is a correlation between recent instrument experience, qualified by flight or simulator hours, and ability, or at least perceived ability to survive an IIMC encounter.

The FAA should mandate training specifically designed for an encounter with inadvertent instrument meteorological conditions. SAFE recommends that helicopter EMS pilots obtain a



minimum of 5.0 hours of simulated or actual instrument time, either in an aircraft or flight simulator, every 6 calendar months at a minimum. In addition, the curriculum surrounding this training **MUST** be on the recognition of IIMC weather, procedures if IIMC is encountered, and specific recovery techniques for an IIMC event.

NPRM Discussion Point(s) Not Flight Training Specific:

NPRM (Page 21 -24) All flights with medical personnel and patients must be done under Part 135

SAFE generally agrees with the FAA's proposal, except for flights conducted under IFR, where the operator should not be constrained by Part 135 restrictions, except with a patient on board (note: reference Part 91 vs. 135 regulations). We are concerned the proposed rule, as formulated, would have a broader impact on IFR training operations in air medical transport community. Many operations utilize the Part 91 leg of the flight to train a second pilot on instrument approach procedures; that **would not** be possible if that leg of the flight is required to be operated under Part 135.

Under the proposed Part 135.603, which would require pilots in an air medical operation to hold a helicopter instrument flight rating; the proposed requirement clearly recognizes the benefit of IFR operation. The application of this proposal in its current form would minimize the ability to train for IFR operations on non-patient legs. While we continue to support the safety intent of this rule, we are concerned that the **unintended consequence** could limit IFR operations.

Recommendation:

The FAA should move the definition and applicability of the term medical personnel into FAR 135 Subpart L. Example of recommended rule change:

Subpart L – Helicopter Air Ambulance Equipment, Operation, and Training Requirements

§135.601 Applicability and definitions.



(3) Medical personnel means persons ~~with medical training, including but not limited to a flight physician, a flight nurse, or a flight paramedic,~~ who are carried aboard a helicopter during helicopter air ambulance operations in order to provide onboard medical care.

NPRM (Page 24 – 33) Certificate holders with over 10 helicopters need to establish operation control center with operations control specialists. The FAA recommends four (4) functions that an operation control center will perform. They are: 1) maintain two way communications with pilot, 2) provide pilot with weather information, 3) monitor flight progress, and 4) participate in pre-flight risk analysis.

An operator's operations control specialists training and testing program will be directly applicable to helicopter air ambulance operations. Each approved program will have an option of reducing program requirements for those with general aviation or weather knowledge. Operation control specialists ensure that the pilot has completed pre-flight risk analysis worksheet, confirm and verify the entries, and work with the pilot to mitigate identified risk and provide pre-flight weather assessment, fuel planning, weather minima, and communicating with the pilot during flight.

The current proposal of ten helicopters being the threshold for this proposed program has been supported throughout the Air Medical industry. No additional FAA certification should be required for personnel that complete the operator's training program.

NPRM (Page 33 – 42) a) Increase VFR weather minima from those in Part 135 - more stringent minimum altitudes and visibility requirements. b) Allow IFR operations at airport or heliport without weather reporting, if able to obtain weather reports from an approved weather reporting facility within 15NM of destination. As proposed, non-mountainous local flying would be 800 foot ceiling and 2 statute miles visibility for day and 1000 foot ceiling and 3 statute miles visibility for night. For night operations, if have NVIS (NVS, interior and exterior lighting, windshield and windows, general crew station design) or HTAWS, could apply lower weather minima (non-mountainous local flying is 800 foot ceiling and 3 statute miles visibility). It is anticipated all certificate holders will eventually operate under reduced night operation minima.

The OpSpec A021 Survey conducted by NEMSPA of nearly 600 HEMS pilots revealed that approximately 45% of those pilots believed the increased weather minimums "improved the safety" of their program. Nearly 75% believed that reducing those minimums lower than currently given in A021 would "compromise safety of flight."

We strongly recommend the FAA include area forecast (FA) weather information as an alternative to the approved weather reporting facility located within 15 Nautical Miles of the destination landing area. The FAA's stated intent is to encourage the use of IFR as a safety



enhancement, commenting that " the FAA determined it was 'safer and in the public interest to conduct operations under IFR rather than VFR particularly in low and marginal weather conditions' because IFR operation is an effective method of countering CFIT accidents." This intent was the driving force behind similar changes to Operations Specification A021. In those changes, the area forecasts were specifically included to foster increased use of the IFR system, and many operators developed an IFR system that utilizes these forecasts.

In contrast, this proposal in many cases would require an operator to add an approved automated weather station at a location within 15 Nautical Miles or operate VFR, significantly undermining the ability of operators to add IFR operations as a safety improvement.

With regard to HTAWS implementation, it should be noted that this currently used technology has been implemented for hi altitude airplane operations. There at this time is no evidence that the technology will enhance safety for most helicopter operations.

Recommendation:

The FAA should not mandate HTAWS in lieu of other proven technologies such as NVIS (NVG).

The NPRM does not address the benefits of other technologies available to industry such as NVIS. Although the FAA proposes a rule that includes NVIS for weather reduction minima, no recommendation for NVIS utilization is given.

On June 8, 2010, the FAA published a document titled **Fact Sheet – Helicopter Emergency Medical Service Safety**. In this document, the FAA states “While the FAA is pursuing new rules that support National Transportation Safety Board (NTSB) recommendations, the agency has aggressively promoted significant short-term safety initiatives that do not require rulemaking.” The Fact Sheet goes on to identify four areas of “immediate focus” that FAA personnel will consider.

One of the FAA’s “immediate focus” areas identified within the Fact Sheet was to “promote technology such as **night vision goggles (NVGs)**, terrain awareness and warning systems (TAWS) and radar altimeters.” This NPRM is a direct reflection of the Fact Sheet we have outlined in this response. However, the FAA eliminated any reference to Night Vision Goggles in the NPRM.

As a safety enhancement tool, night vision solutions such as NVGs provide the operator visual cues on terrain, weather, and traffic to improve situational awareness. The Helicopter Air Medical industry has for years embraced this technology as an additional safety tool. When



utilized by a well trained crew, NVGs provide vital information in real time to the flight crew while they are looking outside the aircraft.

HTAWS is proven in the high-altitude IFR environment, but minimal data exists for its use in the low-altitude helicopter community. The aforementioned FAA Fact Sheet states “the FAA concluded that there are a number of issues unique to VFR helicopter operations that must be resolved before the FAA considers mandating the use of TAWS in this area.” On December 17, 2008, the FAA issued Technical Standards Order (TSO) C-194 to standardize the manufacture of HTAWS within the industry. Although the manufacturing of HTAWS is standardized, the benefits to the low-altitude helicopter environment have not yet been determined.

With regard to NVGs, the FAA has stated their position on the issue in this statement: “While the FAA encourages use of NVGs where appropriate, they are not a one-size-fits-all magic bullet. Flying at night is not inherently dangerous if rules and procedures are followed. In fact, many operators who do not use NVGs have never had an accident at night.” After review SAFE suggests that HTAWS is also not a one-size-fits-all magic bullet. Many operators who do not use HTAWS have never had an accident. Why then limit proposed rulemaking to HTAWS exclusively?

As an industry, we would all agree that flying at night when properly prepared for is safe. However, night flying does present its own challenges that are mitigated using safety tools such as HTAWS and NVGs. The FAA has embraced these two technologies through current Operating Specification (OpSpec) A021 Weather Minimums. Contained within OpSpec A021, the FAA has determined that the ability to utilize NVGs and/or TAWS is reason to support reduced weather minimums for night VFR Part 135 operations for visibility, ceiling, and mountainous areas of operation.

Recommendation:

As the result of the above analysis SAFE recommends that the FAA reconsider HTAWS as described in its current form within the NPRM. In addition, we would request the FAA consider additional night vision options such as NVGs as being of equal value to HTAWS. It is imperative that FAA regulations are not limiting and are flexible enough to support new technologies that will emerge to further enhance night safety. By mandating any single technology such as



HTAWS, the financial burden of the operator to meet this proposed regulatory mandate may limit the ability to embrace new and improved technologies of tomorrow.

The FAA should not reduce weather minima when using VMC aides such as HTAWS or NVIS.

Offering lowered weather minima by implementing HTAWS or NVIS reduces the effective safety benefits of the technology itself. By maintaining current weather minima and then implementing HTAWS and/or NVIS, you provide a heightened ability to deal with un-forecast weather and execute landing or recovery plans through earlier recognition.

The FAA should allow for the use of Area Forecast (FA) in lieu of an approved automated weather station at a location within 15 Nautical Miles or having to operate VFR. There is no discernable reason for this proposed requirement and it is fundamentally inconsistent with the FAA's stated support of IFR as a safety enhancement.

NPRM (Page 42 - 47) Pilot will be required to conduct a pre-flight risk assessment before the first leg of each operation. The FAA proposes this pre-flight risk assessment should be conducted with consideration for each leg, including but not limited to, (1) flight considerations; (2) human factors; (3) weather along intended route; (4) whether another operation has refused flight request (weather vs. helicopter issue) ; (5) strategies for mitigating identified risk.

SAFE concurs with the FAA's proposal to require a preflight risk assessment, and especially with the requirement to obtain concurrence from someone outside of the flight team during marginal weather conditions.

NPRM (Page 47 - 50) Medical personnel on board must receive pre-flight safety briefing in addition to passenger briefing under Part 135 once per medical shift. An alternative would be an FAA approved training of medical personnel every 2 years (4 hours ground training and 4 hours in and around helicopter). The required topics would be: physiological aspects of flight, patient loading and unloading, safety in and around the aircraft, and emergency procedures.

In a case where one medical personnel on board has not received training, the pilot must provide a supplemental briefing. The certificate holder must document all crewmember training it provides and maintain that record for 26 months.

SAFE supports the FAA's proposal but would rather see the training conducted every 12 months. We recommend annual training of 3 hours ground and 1 hour training on operational requirements, considerations, and hazards in and around helicopters.

NPRM (Page 52 – 61) All ambulance helicopters should be equipped with HTAWS/LARS. We combined two separate NPRM proposals in this recommendation. The first is HTAWS and its



use within the Air Medical community. While HTAWS may eventually be shown to be beneficial to HEMS operations there is no evidence that this technology will have similar safety benefits to low level VFR helicopter operations as it does to airplanes operating in a high altitude, IFR environment.

The other is LARS and its use within the Air Medical community. The FAA proposes that all ambulance helicopters should be equipped with LARS (not CVR and FDR or QAR), regardless of passenger seating capacity or number of pilots required; unless, certificate holder could demonstrate that CVR or FDR could be used to comply with any requirements. LARS will capture data according to a broadly defined set of parameters including information pertaining to aircraft's state, condition, system performance, and technical specifics such as heading, altitude, and attitude.

Proposed installation would be in the rear of the tail boom. The FAA believes that air ambulance operators will create training programs that will use the captured data to analyze and mitigate risk. If implemented, certificate holders will be required to establish a method of retrieving, analyzing and evaluating the data that is collected by LARS.

We believe this to be a positive initiative. However, implementing a program of this type SHOULD consider the size of an aircraft and other relevant issues that may in fact drive significant cost issues back to the operator. We are supportive of FOQA programs.

NPRM (Page 62 – 64) All flight time in helicopter air ambulance operations considered flight time that counts towards a pilot's daily flight time limitations. This is not a departure from the current rule in place. SAFE is in support of this proposal.

NPRM (Page 64 - 65) IFR Alternate Airport Weather Minima. Here is a description of the proposed rule: For Part 97 standard instrument approach procedures or special instrument approach procedures, ceiling at the alternate airport needs to be 200 feet above the minimum for the approach and visibility at least 1 statute mile at ETA, but never less than minimum visibility for approach to be flown. Without Part 97 standard instrument approach or no special instrument approach procedure, the alternate airport would need ceiling and minima of VFR.

SAFE supports this rule as it does not depart from the current rule.

NPRM (Page 65 – 68) All helicopters under Part 135 will be required to be equipped with radio altimeters. Safe believes that this requirement would place an **undue burden** on all commercial helicopter operators without providing data to support the safety benefits of such a requirement. Many helicopter operations simply do not need this equipment to be safe. Aircraft operating in Air Medical industry may benefit from such technology as they are often conducting operations in new and unfamiliar areas of service. In addition, these aircraft are



often conducting off-site landings at night and such technology may provide enhanced safety through a heightened level of situational awareness.

However, as stated initial many aircraft eligible for Part 135 operations may not have the ability or need to be equipped with a Radio Altimeter.

NPRM (Page 68 - 72) Amend and prescribe that graduated emergency equipment requirements for rotorcraft based on distance the rotorcraft is operating from shoreline. The FAA is proposing to require helicopters operated over water beyond auto rotational distance from the shoreline to have electronically deployable or externally mounted life rafts. The only overwater flights conducted by many operators involve crossing bays and narrow bodies of inland water. The raft and equipment requirement is excessive for this type of operation and the added weight will have an impact on utilization of certain make and model aircraft. Clarification is needed here to assess the financial and operational impact of having these rafts. Consideration must be given to the weight, size; location and engineering the installation of externally mounted rafts.

The FAA, in the preamble to this NPRM, states that this proposal is consistent with recommendations made in the Part 135 Aviation Rulemaking Committee (ARC). Yet, contrary to the FAA's proposal, the ARC recommended the addition of a definition of overwater operations that would provide for an enhanced level of safety for those operations intentionally flying longer distances overwater, but not flying so far as to be considered extended over-water operations. The ARC made the following argument for this change:

"Neither extended overwater nor overwater requirements sufficiently address current offshore activity in U.S. Petroleum Exploration and Production, EMS, Air Tour, or Search and Rescue operations. Industry groups such as the Helicopter Safety Advisory Conference (HSAC) and Air Tour associations have attempted to address this issue.

Under current rules, a helicopter could theoretically operate 200 miles offshore and not be required to carry a life raft as long as it remained within 50 miles of a helideck, other offshore landing structure, or ship. Conversely, if that same helicopter operates 51 miles from a structure it is required to carry the full complement of equipment required for extended overwater operations. In most helicopters, this is an impractical position. Externally deployable life rafts have been developed for many helicopter types, but these systems generally do not have the capacity to contain the equipment required by Part 135.167. The rule needs to support these systems which unquestionably enhance safety."

SAFE recommends that the FAA implement the changes recommended by the ARC.

NPRM (Page 75) Revise to prescribe visibility minima for helicopters operating under Part 91 in Class G airspace. Under the proposed NPRM, Class G airspace would now require a 1/2



statute mile visibility during the day, and 1 statute mile of visibility at night, for helicopters operating under VFR at 1,200 feet or less above the surface. This is a significant change from the “see and avoid” rule currently in affect.

Providing a minimum standard of flight visibility for helicopter operations less than 1200 feet AGL in Class G airspace may improve safety. The ability for a pilot to have no minimum visibility requirement has always allowed a push-the-envelope scenario that may lead to an IIMC encounter. The fact that the rule will be based upon flight visibility and not reported ground visibility is consistent with safety of flight recommendations. In addition, the number of flights conducted in weather conditions less than proposed is minimal. If this rule is adopted and if the operation can be conducted safely, the FAA should provide a method of approval (waiver) for helicopter operations to be conducted in conditions less than the minimums prescribed.

It is important to note that the Office of Chief Counsel has an opinion letter dated January 8, 2008 on the issue of helicopter low altitude flight operations as they relate to FAR 91.155 weather minimums. The FAA’s opinion states *“In order to maximize the flexibility of helicopter operations, it is necessary to rely heavily on sound pilot judgment. For example, hazards such as debris, obstructions, vehicles, or personnel must be recognized by the pilot, and action should be taken as necessary to avoid such hazards. Taxi, hover taxi, and air taxi operations are considered to be ground movements. Helicopters conducting such operations are expected to adhere to the same conditions, requirements, and practices as apply to other ground taxiing and ATC procedures in the AIM.”*

Essentially helicopter flight operations that may be hovering or hover taxiing would be considered in ground operations thus the weather minimums of FAR 91.155 may not apply. **SAFE recommends that the hover taxiing definition be better defined so as to restrict obvious unsafe operation and flights currently being conducted under this regulation.**

[FAA Legal Interpretation Letter](#)

NPRM (Page 75 – 78) Revise requirements for load manifest to apply to all aircraft operated under Part 135 and to permit electronic transmission of manifest copies. The purpose of this proposal is having a copy of the load manifest available if the aircraft in question is involved in an accident where the original load manifest is destroyed. The NPRM further states that certificate holders should incorporate procedures in their operation manuals for disposition of a duplicate copy.

Although the intent of this recommendation intended to enhance flight documentation, the diversity among Part 135 operations may preclude such a rule from being practically sound. Operators that maintain a high operational tempo such as firefighting and utility missions for example would be significantly hindered by the rule as proposed. In many cases, the ability to



electronically transmit any data is impossible due to the remote nature of their type of operations.

It is not uncommon for an operator to initiate Part 135 legs in remote, offsite conditions. As often is the case, the specifics of the flight may significantly change from that given upon departure to the operational area. The professional pilot will document all necessary planning as required by current FAR's, but the ability to leave a copy onsite or transmit such data may be impossible. This is a reality for helicopter operations and must be considered for all operations.

Air Medical flights may in fact find themselves in a similar situation. Often when conducting offsite, scene related flights, the patient information or even the patient themselves may not be the same as when departing for the scene. An extrication of a patient may delay that patients departure so that a lesser injured patient would fly out first. This would be easily calculated at the scene, but leaving a copy of the manifest at the scene is not practical, nor is the expectation that all Air Medical helicopters will always have the ability to electronically transfer the data.

SAFE recommends that the FAA consider the foregoing discussion in their final determination of any rule that would alter current load manifest requirements. A policy that provides discretion to the operator and pilot based on the type of operations conducted, number of passenger, and the ability of the crew to facilitate such a rule should be considered.

Respectfully Submitted,

The Society of Aviation and Flight Educators